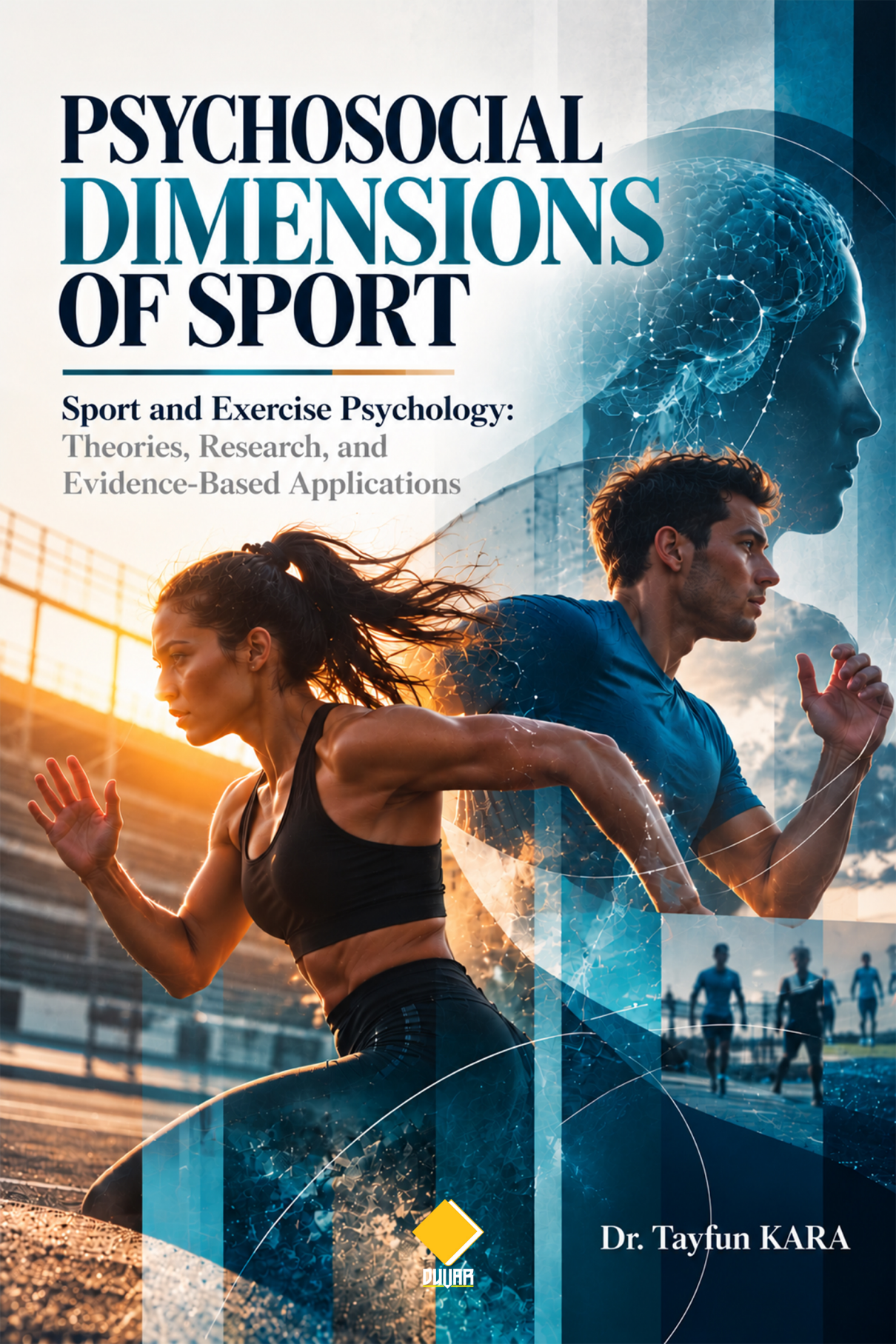
PSYCHOSOCIAL DIMENSIONS OF SPORT

Sport and Exercise Psychology: Theories, Research, and Evidence-Based Applications



Dr. Tayfun KARA

DUVAR

Psychosocial Dimensions Of Sport

Sport and Exercise Psychology: Theories, Research, and Evidence-Based Applications

Dr. Tayfun KARA*

* Faculty of Sport Sciences, Kahramanmaraş Sütçü İmam University
Kahramanmaraş, Türkiye
ORCID: https://orcid.org/0000-0001-9987-2930, Email: tayfunkara@ksu.edu.tr



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Dr. Tayfun KARA

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www.duvaryayinlari.com
duvarkitabevi@gmail.com

PREFACE

Sport is far more than a physical activity designed to develop human performance. It is a multidimensional human experience that shapes individuals' thoughts, emotions, behaviours, social relationships, and connections with the world around them. From developing self-awareness and coping with adversity to sustaining motivation and working collaboratively toward shared goals, sport plays a significant role in human development. Understanding sport, therefore, requires an approach that extends beyond physical performance and considers the complex interplay of psychological processes, individual experiences, and social environments.

Sport and Exercise Psychology: Theories, Research, and Evidence-Based Applications has been prepared to provide an integrated examination of the fundamental theoretical perspectives, contemporary research findings, and practical applications of sport and exercise psychology. Rather than viewing sport exclusively through the lenses of achievement, performance, and competition, this book approaches it as a multidimensional phenomenon closely connected to psychological development, social interaction, mental well-being, and quality of life.

Psychological processes such as motivation, goal setting, self-efficacy, confidence, attention, decision-making, stress management, and anxiety regulation are important not only for athletic performance but also for sustained participation in sport and personal development. At the same time, leadership, coaching approaches, team cohesion, group dynamics, psychological resilience, emotion regulation, and social support demonstrate that sporting experiences extend beyond the individual and are shaped by interpersonal and social relationships. Other areas, including exercise adherence, physical activity participation, mental health, injury recovery, body image, and ethical behaviour in sport, further illustrate the broad influence of sport and exercise on human life.

A central premise of this book is that human behaviour cannot be adequately understood by reducing it to a single variable or isolated psychological mechanism. Explaining athletic performance, understanding participation in physical activity, or examining social relationships in sporting environments requires consideration of the interactions among individual characteristics, psychological processes, environmental conditions, and broader social influences. Accordingly, this book seeks to establish meaningful connections between theoretical perspectives and empirical findings while presenting scientific knowledge in a form that can inform both scholarly inquiry and professional practice.

Throughout the book, particular emphasis is placed on critically evaluating scientific knowledge, establishing coherent relationships between theoretical explanations and

research evidence, and grounding practical implications in relevant empirical findings. Sport and exercise psychology is a continuously evolving field in which theoretical perspectives, research methodologies, and applied approaches develop in response to emerging evidence. New findings may challenge established assumptions and encourage the reconsideration of existing practices. For this reason, the book aims not only to communicate current knowledge but also to encourage readers to evaluate evidence critically, compare alternative perspectives, and formulate new research questions.

This book is intended to serve as a useful academic resource for undergraduate and postgraduate students, academics, researchers, sport psychologists, coaches, physical education teachers, and other professionals working in sport and exercise-related fields. By bringing together diverse dimensions of sport and exercise psychology, the book seeks to support a more comprehensive understanding of the psychological and social processes underlying sporting experiences. It also aims to contribute to strengthening the relationship between research and practice by encouraging the thoughtful application of scientific knowledge in educational, athletic, recreational, and community settings.

I believe that the fundamental value of academic scholarship lies not only in generating new knowledge but also in its capacity to contribute to human development, scientific understanding, and social progress. Every scientific effort to better understand the individual and societal implications of sport can help inform the development of healthier, more inclusive, more informed, and more sustainable sporting environments. In this respect, the present book represents an effort to contribute to the growing body of knowledge on the psychosocial dimensions of sport and to promote a more integrated understanding of the relationship between physical activity, psychological processes, and social life.

Finally, I would like to express my sincere appreciation to everyone whose efforts contribute to the advancement of scientific thought and the production of knowledge in sport sciences. I hope that this book will stimulate new ideas, support future research, encourage critical reflection, and help translate scientific knowledge into meaningful practice. Above all, I hope it will remind readers that understanding sport ultimately means understanding people—their experiences, their relationships, their challenges, and their potential for growth.

Dr. Tayfun KARA

Faculty of Sport Sciences, Kahramanmaraş Sütçü İmam University,
Kahramanmaraş, Türkiye

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CHAPTER 1: Introduction to Sport and Exercise Psychology

1.1. Introduction

Sport and exercise are complex human activities shaped by the interaction of physical capacities, psychological processes, social relationships, and environmental conditions. Although sporting performance is frequently evaluated through measurable outcomes such as speed, strength, endurance, accuracy, and competitive results, these outcomes cannot be fully understood without considering the psychological and social circumstances in which performance occurs.

Athletes must interpret competitive situations, regulate emotional responses, maintain attention, make decisions under pressure, and respond to feedback from coaches and teammates. Individuals participating in recreational exercise encounter different but equally important challenges, including motivational fluctuations, competing responsibilities, perceived barriers, and the development of sustainable activity habits. These processes influence not only performance but also participation, enjoyment, persistence, and psychological well-being.

Sport and exercise psychology investigates the psychological factors associated with participation and performance, the influence of sporting environments on behaviour, and the potential applications of psychological knowledge to performance enhancement, physical activity promotion, and well-being. The discipline draws on several areas of psychology, including cognitive psychology, social psychology, developmental psychology, health psychology, and motivational science.

Contemporary approaches increasingly recognise that psychological experiences in sport cannot be explained solely by individual characteristics. Motivation, confidence, emotional regulation, and coping operate within social and organisational environments shaped by coaching practices, team norms, family relationships, institutional expectations, cultural values, and opportunities for participation. These relationships make a psychosocial perspective essential to a comprehensive understanding of sport and exercise.

The purpose of this chapter is to introduce the conceptual foundations of sport and exercise psychology, distinguish its major areas of inquiry, examine influential theoretical perspectives, and discuss the implications of psychological and social processes for sporting practice. Particular attention is given to the

relationship between individual psychological functioning and the wider environments in which sport and exercise take place.

1.2. Defining Sport and Exercise Psychology

Sport and exercise psychology is concerned with psychological processes associated with sport participation, athletic performance, exercise behaviour, and related physical activity experiences. Its scope includes motivation, cognition, emotion, attention, self-regulation, interpersonal relationships, and the psychological consequences of participation.

Within competitive sport, research often examines performance-related variables such as competitive anxiety, self-confidence, concentration, imagery, goal setting, coping, and psychological skills training. Within exercise psychology, research frequently investigates physical activity initiation, exercise adherence, motivational regulation, perceived barriers, and relationships between physical activity and psychological health.

Although these areas overlap, they are not identical. Competitive sport may involve selection procedures, rankings, external evaluation, performance pressure, and expectations concerning results. Recreational exercise may instead emphasise enjoyment, health, social interaction, stress management, or personal development. Nevertheless, recreational activity can also involve performance goals, competition, and social comparison.

The distinction between sport and exercise is therefore analytical rather than absolute. Individuals may move between competitive, recreational, and health-oriented forms of physical activity across different stages of life. The psychological processes involved depend partly on the purpose of participation, the characteristics of the individual, and the social and organisational context.

A further distinction is required between physical activity, exercise, and physical fitness. Caspersen et al. (1985) defined physical activity as bodily movement produced by skeletal muscles that results in energy expenditure. Exercise constitutes a subset of physical activity that is planned, structured, and repetitive, with the objective of improving or maintaining physical fitness. Physical fitness, in turn, refers to a set of attributes associated with the capacity to perform physical activity.

Sport may incorporate exercise and physical activity while also involving specialised skills, rules, organised competition, social identities, and institutional structures. These characteristics can influence the motivational, emotional, and interpersonal experiences associated with participation.

The World Health Organization's (WHO, 2020) guidelines provide a public health framework for understanding physical activity and sedentary behaviour across the lifespan. However, recommendations about the amount and type of physical activity should be distinguished from psychological explanations of why individuals participate, how they experience exercise, and what enables them to maintain participation.

Sport and exercise psychology therefore addresses several interconnected questions:

1. Why do individuals initiate, maintain, or discontinue sport and exercise participation?
2. Which psychological processes influence performance under different conditions?
3. How do cognitive and emotional processes affect decision-making and behaviour?
4. How do coaches, teammates, families, and organisations shape psychological experiences?
5. Which individual and environmental factors support sustained physical activity?
6. Under what conditions can sport and exercise contribute to psychological well-being?
7. How can psychological interventions be evaluated and applied responsibly?

These questions demonstrate the breadth of the discipline and its relevance to both competitive performance and public health.

1.3. The Development and Scope of the Discipline

The development of sport and exercise psychology reflects broader changes in psychological science and the scientific study of human movement. Early research addressed questions concerning performance, social influences, and the psychological characteristics associated with sporting success. The field subsequently expanded to include motivation, personality, cognition, emotional regulation, group processes, health behaviour, and psychological intervention.

Its development cannot be attributed to a single theoretical tradition. Instead, sport and exercise psychology has incorporated concepts and methods from

experimental psychology, social psychology, cognitive science, developmental psychology, and health behaviour research.

One important development has been the recognition that psychological processes must be examined in relation to the situations in which they occur. An athlete may perform differently during training and competition because the psychological meaning of these environments differs. Competitive evaluation, perceived consequences of failure, audience presence, and expectations from significant others may influence attention, emotional responses, and perceived control.

Another important development has been the expansion of research beyond elite competitive sport. Recreational exercise, physical education, youth sport, community participation, older adults, and populations facing barriers to physical activity have become important areas of investigation. This broader perspective has increased attention to exercise adherence, social support, psychological well-being, and environmental accessibility.

Motivational research has been particularly influential. Self-determination theory, for example, provides a framework for examining how the social environment and the satisfaction or frustration of basic psychological needs relate to motivational regulation. Research applying this framework has examined autonomy, competence, relatedness, exercise participation, and the quality of motivation in physical activity settings (Teixeira et al., 2012).

More recent research has critically examined the application of self-determination theory to physical activity promotion. Ntoumanis and Moller (2025) reported that interventions informed by the theory can support changes in physical activity-related behaviour, although observed effects vary and are influenced by motivational and contextual processes. Their review also highlights conceptual debates and opportunities for future research.

These developments illustrate a broader shift from relatively narrow questions about performance toward an integrated understanding of psychological, behavioural, interpersonal, and environmental processes.

1.4. Understanding the Psychosocial Dimensions of Sport

The term *psychosocial* describes the relationship between psychological processes and social conditions. In sport, these dimensions are closely interconnected because psychological experiences are often shaped by interpersonal relationships, group membership, organisational practices, and cultural expectations.

An athlete's confidence, for example, may be influenced by previous performance, perceived competence, coaching feedback, team climate, and expectations concerning future results. Motivation may reflect personal goals while also being shaped by family support, social comparison, access to opportunities, and the meaning attached to sporting participation.

A psychosocial perspective therefore examines how individual and social factors interact rather than assuming that behaviour can be explained exclusively by personal characteristics.

1.4.1. Individual psychological factors

Individual psychological factors include motivation, self-efficacy, attention, emotional regulation, goal orientation, coping, and perceived competence. These factors may influence participation, skill acquisition, performance, and responses to challenging circumstances.

However, psychological characteristics should not be treated as fixed attributes that determine outcomes independently of context. Confidence may fluctuate across situations, motivation may change over time, and coping strategies may be effective under some conditions but less effective under others.

Bandura's (1997) account of self-efficacy provides an important theoretical foundation for understanding beliefs about personal capability. Self-efficacy concerns an individual's belief in their ability to organise and execute the actions required to achieve particular outcomes. It is not identical to objective ability or general self-esteem.

Within sport, self-efficacy may influence the tasks athletes choose, the effort they invest, and their persistence when facing difficulties. Nevertheless, efficacy beliefs should be examined in relation to specific tasks and circumstances rather than interpreted as universal indicators of competence.

1.4.2. Interpersonal factors

Sport frequently involves close interpersonal relationships. Coaches provide instruction, feedback, evaluation, and support. Teammates may contribute to belonging, collective confidence, cooperation, and competition. Family members may influence access to opportunities, expectations, and interpretations of success or failure.

These relationships can support psychological development, but they can also become sources of pressure or conflict. Their consequences depend on the quality

of interactions, the consistency of communication, and how individuals interpret the behaviour of others.

For example, demanding coaching is not necessarily equivalent to harmful coaching. Its psychological consequences may depend on how expectations are communicated, whether treatment is perceived as fair, and whether performance demands are accompanied by constructive feedback and appropriate support.

1.4.3. Group and organisational factors

Team norms, leadership structures, selection procedures, organisational climates, and institutional priorities can shape athletes' experiences. An environment that encourages learning and constructive feedback may create different psychological conditions from one characterised by humiliation, exclusion, or fear of mistakes.

Organisational conditions may also influence access to psychological support, opportunities for recovery, athlete welfare, and the handling of injury or performance difficulties.

Psychosocial analysis must therefore extend beyond the individual athlete to include the wider environment in which sport occurs.

1.4.4. Cultural and structural factors

Sport participation is influenced by cultural values, gender expectations, socioeconomic circumstances, disability access, geographic location, and the availability of facilities and programmes.

Individuals may encounter different opportunities and barriers according to their social circumstances. Psychological explanations that ignore these conditions risk attributing participation difficulties exclusively to individual motivation when structural barriers may be equally or more important.

A psychosocial perspective must therefore recognise both personal agency and environmental constraints.

1.5. Major Theoretical Perspectives

Sport and exercise psychology does not depend on a single comprehensive theory. Researchers draw on different theoretical frameworks to investigate specific processes and relationships. The selection of a framework should be guided by the research question, population, context, and available evidence.

1.5.1. Self-determination theory

Self-determination theory is a broad framework for examining motivation, psychological needs, and the social conditions associated with different forms of behavioural regulation (Ryan & Deci, 2017).

The theory identifies three basic psychological needs: autonomy, competence, and relatedness. Autonomy concerns the experience of volition and psychological ownership of one's actions. Competence concerns the experience of effectiveness and mastery. Relatedness concerns feeling connected to and cared for by other people.

In sport and exercise, these needs provide a framework for examining how individuals experience coaching, instruction, exercise programmes, and interpersonal relationships. Environments that support meaningful choice, skill development, and social connection may facilitate more autonomous forms of motivation. Conversely, controlling interactions, repeated experiences of failure, or social exclusion may undermine motivational quality.

The available evidence does not imply that every autonomy-supportive intervention will produce identical outcomes. Effects may depend on the population, intervention design, duration, implementation quality, and outcomes measured. Manninen et al. (2022), in a systematic review and multivariate meta-analysis, found that self-determination theory-based instructional interventions affected several forms of motivational regulation in organised physical activity, while also identifying variation across studies.

The literature therefore supports examining both the theoretical mechanisms of motivation and the conditions under which interventions are likely to be effective.

1.5.2. Social cognitive theory

Social cognitive theory emphasises reciprocal relationships among personal factors, behaviour, and environmental influences. It also highlights observational learning, self-regulation, anticipated outcomes, and self-efficacy (Bandura, 1986, 1997).

Self-efficacy refers to beliefs about one's capability to organise and execute the actions required to achieve particular outcomes. It is distinct from general confidence, objective ability, and actual performance.

Within sport, self-efficacy may influence the tasks individuals choose, the effort they invest, their persistence in the face of difficulty, and their responses to

setbacks. However, its effects depend partly on the specificity and accuracy of efficacy beliefs and on the demands of the task.

An athlete may feel capable of performing a familiar skill during training but experience uncertainty when that skill must be executed under competitive pressure. This distinction illustrates the importance of evaluating self-efficacy in relation to specific tasks and contexts.

Social cognitive theory is particularly useful for investigating skill acquisition, modelling, performance expectations, and relationships between perceived capability and behaviour.

1.5.3. Achievement goal perspectives

Achievement goal perspectives examine how individuals define competence and interpret success or failure. In sport, competence may be evaluated through personal improvement, task mastery, comparison with others, or the demonstration of superior ability.

Nicholls (1989) examined achievement motivation in relation to how individuals understand ability and competence. Achievement goal approaches subsequently became influential in research concerning motivation, learning, and responses to competitive evaluation.

The distinction between mastery-oriented and performance-oriented goals has informed research into motivational climates and athletes' interpretations of success. However, goal orientations should not be reduced to a simple division between beneficial and harmful motivation. Their implications depend on perceived competence, the social environment, the nature of the task, and the individual's goals.

For example, an athlete may value winning while also prioritising technical development. These goals can coexist, although their relative importance may change across developmental stages and competitive circumstances.

Achievement goal perspectives are useful for investigating how athletes interpret evaluation, approach challenges, and respond to success and failure.

1.5.4. Stress and coping perspectives

Stress research examines relationships among environmental demands, personal appraisal, available resources, and psychological or behavioural responses.

Lazarus and Folkman (1984) emphasised the importance of cognitive appraisal in understanding psychological stress. A demanding situation does not

necessarily produce the same response in every individual. People may interpret a situation as a threat, a challenge, or a manageable demand depending on their experience, perceived control, preparation, and available support.

Coping refers to cognitive and behavioural efforts used to manage demands appraised as stressful. Strategies may include problem solving, attentional regulation, seeking social support, reframing a situation, or managing emotional responses.

The effectiveness of a strategy depends on the nature of the demand and the circumstances in which it is used. A strategy that helps an athlete manage an uncontrollable outcome may be less appropriate when direct problem solving is possible.

Research should therefore distinguish between the use of a coping strategy and its actual effectiveness. It should also consider whether coping responses are associated with short-term adaptation, long-term well-being, or both.

1.5.5. Ecological and socioecological perspectives

Ecological approaches emphasise that behaviour develops through interactions between individuals and their environments. Bronfenbrenner's (1979) ecological perspective provides a foundational account of human development within interconnected environmental systems.

In physical activity research, socioecological perspectives extend attention beyond individual motivation to include interpersonal relationships, organisations, communities, and public policy.

This approach is particularly valuable when investigating barriers to participation. A person may have a strong intention to exercise but face limited access to safe facilities, insufficient time, financial constraints, transport difficulties, or social exclusion.

Individual-level interventions may therefore be insufficient when environmental conditions continue to restrict participation. A more comprehensive strategy may require changes in programme design, facility access, organisational practice, and community support.

Socioecological perspectives complement psychological theories by clarifying that participation is not solely a matter of individual choice or motivation.

1.6. Psychological Performance and Psychological Well-Being

Psychological performance and psychological well-being are related but distinct outcomes.

Psychological performance concerns processes that support the execution of sport-related tasks. Examples include attention, decision-making, confidence, emotional regulation, and the use of psychological skills under pressure.

Psychological well-being encompasses broader aspects of psychological functioning, including emotional experiences, life satisfaction, social relationships, and the capacity to manage everyday demands.

These outcomes may reinforce each other, but their relationship should not be assumed to be uniformly positive. An athlete may achieve high competitive performance while experiencing substantial distress. Conversely, an individual may derive enjoyment, social connection, and health benefits from recreational exercise without pursuing elite performance.

This distinction has important implications for coaching and sport organisation. Performance objectives should not automatically take precedence over psychological welfare, and competitive success should not be treated as a sufficient indicator of a healthy sporting experience.

Research and practice should define their intended outcomes explicitly. If an intervention aims to improve concentration, its effectiveness should be evaluated using appropriate measures of concentration or task performance. If the objective is to support psychological well-being, relevant well-being outcomes must also be assessed.

This distinction is particularly important when considering the psychological consequences of excessive training demands, injury, exclusion, or performance pressure.

1.7. Exercise, Physical Activity, and Mental Health

The relationship between physical activity and mental health is an important area of contemporary research. Physical activity may be associated with psychological outcomes through several pathways, including social interaction, behavioural activation, improved physical functioning, perceived competence, and participation in meaningful routines.

Nevertheless, the relationship between physical activity and mental health is complex. Outcomes may vary according to the characteristics of the activity, its

intensity and duration, the individual's health status, the social environment, and the reasons for participation.

It is therefore inappropriate to claim that exercise invariably produces positive psychological outcomes or can replace appropriate clinical care. Physical activity can form part of a broader health-promoting approach, but individual circumstances and clinical needs must be considered.

The WHO (2020) guidelines provide evidence-based recommendations concerning physical activity and sedentary behaviour across different age groups and population categories. These recommendations offer a public health foundation for promoting physical activity, while psychological research contributes explanations of participation, motivation, and behavioural maintenance.

For exercise professionals, the practical challenge is not simply to encourage people to begin physical activity. It is also to understand how programmes can be designed to support meaningful participation, accommodate individual differences, and reduce avoidable barriers.

This requires attention to enjoyment, perceived competence, social support, accessibility, realistic expectations, and the sustainability of participation.

1.8. Coaches and Sport Organisations as Psychosocial Environments

Coaches and sport organisations play important roles in shaping athletes' psychological and social environments. Coaching involves more than the transmission of technical knowledge. It also includes communication, feedback, goal setting, interpersonal relationships, decision-making, and the management of group dynamics.

The effects of coaching behaviour depend partly on how athletes interpret the coach's actions. Clear expectations and constructive feedback may help athletes understand performance requirements and develop competence. By contrast, unpredictable communication, humiliation, unfair treatment, or excessive control may undermine trust and psychological safety.

These relationships should be studied empirically rather than evaluated through assumptions about coaching style alone. Coaches may need to balance multiple objectives, including competitive performance, skill development, athlete welfare, team cohesion, and long-term participation.

At the organisational level, policies concerning selection, workload, recovery, injury management, safeguarding, and access to support can influence athletes' experiences.

A psychosocial approach therefore treats athlete welfare as a shared responsibility rather than a matter determined exclusively by individual psychological skills.

1.9. Research Methods and the Evaluation of Evidence

The quality of conclusions in sport and exercise psychology depends on the quality of the evidence used to support them.

Different research designs answer different questions. Cross-sectional studies can identify associations between variables at a particular point in time, but they generally cannot establish temporal order or causal relationships. Longitudinal studies can examine change and temporal relationships, although unmeasured confounding may remain. Experimental studies can provide stronger evidence about intervention effects when they are appropriately designed and implemented.

Systematic reviews and meta-analyses can synthesise findings across multiple studies, but their conclusions depend on the quality, comparability, and completeness of the included evidence.

These distinctions are particularly important in psychosocial research because many constructs are measured using self-report questionnaires. Self-report measures can provide valuable information about subjective experiences, but their interpretation may be affected by recall, social desirability, response styles, and the suitability of the instrument for the population being studied.

Where appropriate, researchers should combine self-report measures with behavioural indicators, observational data, performance measures, or longitudinal assessments.

Researchers should also distinguish statistical significance from practical importance. A statistically detectable effect may be too small to produce a meaningful change in practice, while an uncertain estimate may still warrant further investigation when the potential consequences are substantial.

When conducting systematic reviews, transparent reporting is essential. The PRISMA 2020 statement provides guidance for reporting systematic reviews and helps authors communicate their methods, selection procedures, and findings clearly (Page et al., 2021). Its use does not, by itself, guarantee that a review is

methodologically sound; the underlying search, selection, appraisal, and synthesis procedures must also be appropriate.

A rigorous evidence-based approach requires researchers to state the limits of their findings, avoid overstating causal conclusions, and distinguish established evidence from theoretical interpretation.

1.10. Contemporary Challenges and Emerging Directions

Sport and exercise psychology continues to develop in response to changes in sporting practice, public health priorities, technology, and social expectations.

One important challenge concerns the integration of psychological performance and athlete welfare. Competitive systems may reward short-term outcomes while placing substantial demands on athletes' physical and psychological resources. Research is needed to clarify how training, recovery, coaching practices, and organisational policies can support both performance and sustainable participation.

A second challenge concerns inclusion and accessibility. Opportunities for participation are not distributed equally, and individuals may encounter barriers associated with disability, socioeconomic circumstances, gender expectations, geographical location, or cultural exclusion. Understanding these barriers requires research that connects psychological processes with social and structural conditions.

A third challenge concerns the interpretation of digital technologies. Wearable devices, digital coaching platforms, and online interventions may provide opportunities for monitoring activity and delivering support. However, their value depends on implementation quality, the validity of the information provided, data privacy, and suitability for the individuals using them.

A fourth challenge concerns the generalisability of scientific evidence. Findings from elite athletes cannot automatically be applied to recreational exercisers, children, older adults, or populations with different social and health circumstances. Similarly, results obtained in one cultural or organisational setting may not transfer directly to another.

Future research should therefore pay greater attention to context, population diversity, intervention implementation, and the practical significance of observed effects.

The continued development of sport and exercise psychology will depend not only on the accumulation of studies but also on the quality of theory testing, the

transparency of research methods, and the careful translation of evidence into practice.

1.11. Practical Implications

The theoretical perspectives discussed in this chapter have several implications for professionals working in sport and exercise settings.

First, psychological assessment should be aligned with clearly defined objectives. Practitioners should distinguish performance-related concerns from broader issues involving well-being, participation, or interpersonal relationships.

Second, interventions should be context-sensitive. Strategies developed for elite competitive athletes may require adaptation before they are applied to children, recreational exercisers, or community programmes.

Third, motivational support should be considered alongside environmental conditions. Encouraging individuals to exercise may have limited effects when access, time, safety, or financial constraints remain unaddressed.

Fourth, coaches and organisations should consider the psychological consequences of communication, evaluation, selection, and performance expectations.

Fifth, the effectiveness of psychological interventions should be evaluated rather than assumed. Practitioners should monitor relevant outcomes and adjust their approach when evidence indicates that an intervention is ineffective or unsuitable.

Finally, professional practice should recognise the limits of competence. Psychological education and performance support do not automatically qualify a practitioner to diagnose or treat mental health disorders. Where clinical assessment or treatment is required, referral to appropriately qualified professionals is necessary.

These principles support a responsible approach that integrates scientific evidence, professional judgement, and attention to individual circumstances.

1.12. Conclusion

Sport and exercise psychology provides a scientific framework for understanding the psychological and behavioural processes associated with physical activity, athletic performance, and participation. Its relevance extends beyond the individual athlete to include interpersonal relationships, group dynamics, coaching practices, organisational structures, and wider social conditions.

The psychosocial perspective is particularly valuable because it recognises that sporting experiences emerge through interactions between individuals and their environments. Motivation, confidence, emotional regulation, and coping cannot always be understood independently of social support, coaching behaviour, institutional expectations, and opportunities for participation.

The theoretical approaches discussed in this chapter offer complementary explanations of these processes. Self-determination theory helps explain motivational regulation and psychological needs; social cognitive theory highlights self-efficacy and reciprocal influences between individuals and environments; achievement goal perspectives examine interpretations of competence and success; stress and coping approaches address responses to demands; and ecological perspectives emphasise the broader conditions shaping participation.

No single framework explains every aspect of sport and exercise behaviour. Effective research and practice therefore require careful selection of theories, appropriate research methods, critical evaluation of evidence, and sensitivity to contextual differences.

Ultimately, the value of sport and exercise psychology lies in its capacity to improve understanding of human behaviour while supporting responsible, evidence-informed practice. By connecting psychological theory with social context and empirical evidence, the field can contribute to sporting environments that promote meaningful participation, effective performance, psychological welfare, and sustainable engagement in physical activity.

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CHAPTER 2: Psychological Foundations of Sport Participation and Performance

2.1. Introduction

Sport performance is a multidimensional phenomenon that emerges from the interaction of physical capacities, technical proficiency, tactical knowledge, psychological processes, and environmental conditions. Although strength, speed, endurance, flexibility, and technical execution are fundamental components of athletic performance, their effective application depends partly on how athletes perceive information, direct attention, interpret situations, regulate emotions, and make decisions.

Two athletes with comparable physical capacities may respond differently to the same competitive situation. One may identify relevant environmental cues, maintain task-focused attention, and select an appropriate response, whereas another may become distracted by perceived pressure or irrelevant information. Such differences illustrate why physical preparation alone cannot fully explain performance variability.

Psychological processes are equally relevant to sport participation outside elite competition. Individuals must interpret bodily sensations, evaluate their capabilities, anticipate outcomes, and make decisions about whether to begin or continue physical activity. Their experiences may be shaped by perceived competence, previous experiences, social expectations, enjoyment, and environmental constraints.

The psychological foundations of sport therefore extend beyond the development of isolated mental skills. They include the processes through which individuals acquire information, construct perceptions, learn movement patterns, regulate behaviour, and adapt to changing circumstances.

This chapter examines six interrelated foundations of sport participation and performance: perception and information processing; attention and concentration; memory and motor learning; decision-making and anticipation; emotion and cognition; and self-regulation under competitive demands. It also considers the methodological implications of studying these processes and discusses how psychological knowledge can inform responsible sport practice.

2.2. Perception and Information Processing in Sport

Perception is central to the interpretation of sporting environments. Athletes must identify relevant information from continuously changing visual, auditory,

proprioceptive, and other sensory inputs. The significance of these inputs depends on the task, the athlete's experience, and the demands of the situation.

In invasion games, for example, players must monitor opponents, teammates, available space, ball movement, and potential passing opportunities. In precision sports, performers may need to detect small changes in body position, implement movement adjustments, or interpret environmental conditions that affect execution.

Perception is not simply a passive recording of sensory information. The information athletes notice and use is influenced by their expectations, prior experience, task knowledge, and current goals.

2.2.1. Perception as an active process

The relationship between perception and action has been examined through several theoretical traditions. Information-processing approaches emphasise the selection, interpretation, and use of information during performance. Ecological approaches, by contrast, emphasise the relationship between environmental information, the opportunities for action available in a situation, and the capabilities of the performer.

These approaches address different aspects of the perceptual process and should not be treated as completely interchangeable.

From an information-processing perspective, athletes must identify relevant cues, interpret their significance, and select an appropriate response. This perspective is useful for investigating attention, working memory, response selection, and the cognitive demands associated with complex tasks.

Ecological approaches emphasise that useful information is available within the environment and that skilled performers become attuned to information that specifies opportunities for action. Gibson's (1979) ecological approach provides a foundational account of the relationship between perception and the environment.

In sport, the concept of affordances refers to opportunities for action relative to the capabilities of a particular performer. An opening between defenders, for example, may provide an opportunity for a pass or run for one player but not another because of differences in speed, position, skill, or timing.

Perception is therefore linked to the action possibilities available to the individual rather than being limited to the recognition of isolated environmental features.

2.2.2. Expertise and perceptual skill

Expert performers often demonstrate advantages in identifying and using task-relevant information. Such advantages may reflect accumulated experience, domain-specific knowledge, effective attentional strategies, and an ability to anticipate likely developments.

However, expertise should not be interpreted as a universal superiority in every perceptual or cognitive task. Advantages observed in a specific sporting context may not transfer automatically to unfamiliar activities.

Mann, Williams, Ward, and Janelle (2007) conducted a meta-analysis of perceptual-cognitive expertise in sport. Their work examined differences between more and less skilled performers across a range of perceptual and cognitive tasks, providing evidence that expertise is associated with advantages in several aspects of sport-related information processing.

The implications are important for training. Practice should expose athletes to information that is relevant to the demands of competition. Exercises that reproduce the timing, uncertainty, and contextual information of real performance may provide different learning opportunities from drills that isolate movement execution from its perceptual context.

Nevertheless, the effectiveness of a particular training design must be evaluated empirically. A drill should not be considered superior merely because it appears more realistic or cognitively demanding.

2.2.3. Perception, action, and environmental constraints

The relationship between perception and action is especially important in dynamic sporting environments. Athletes continuously adjust their movements in response to changes in the environment, while their actions also influence the information subsequently available to them.

For example, a defender's movement may change an attacker's available passing options. The attacker's response may then alter the defender's positioning. Performance emerges from this continuing interaction rather than from a sequence of completely independent decisions.

Ecological dynamics approaches investigate how individual capabilities, task demands, and environmental conditions constrain and shape behaviour. Davids, Araújo, and colleagues have contributed to the development of this perspective in sport and motor learning.

A practical implication is that training can be designed to preserve important relationships between perception and action. Modifying playing space, the number of players, task rules, or available time can alter the opportunities for action and encourage different movement solutions.

Such modifications should be linked to clearly specified learning objectives. Increasing task complexity without considering the learner's current capabilities may create unnecessary difficulty rather than productive learning.

2.3. Attention and Concentration

Attention refers to processes through which individuals select, maintain, and allocate cognitive resources to information or tasks. Concentration, in sport, commonly refers to maintaining attention on information relevant to the performance objective.

Athletes operate in environments containing competing sources of information. Some are directly relevant to performance, whereas others may be distracting or only indirectly useful. Effective performance often depends on allocating attention appropriately as task demands change.

For example, a basketball player may need to monitor a teammate's movement while maintaining awareness of defenders and the shot clock. A golfer may need to regulate attention before executing a precise movement. A distance runner may need to balance awareness of bodily sensations with information about pace, competitors, and the course.

2.3.1. Selective attention

Selective attention concerns the prioritisation of some information over other available inputs. It is important when athletes must identify task-relevant signals in environments containing substantial competing information.

The effectiveness of selective attention depends on the task. Information that is useful in one situation may become irrelevant in another. An athlete must therefore develop flexible attentional strategies rather than rely on a single attentional focus across all circumstances.

Attentional selection can be influenced by task goals, prior experience, expectations, emotional state, and environmental demands. The same stimulus may attract different levels of attention depending on its relevance to the athlete's immediate objective.

2.3.2. Sustained attention

Sustained attention involves maintaining task engagement over time. It may be particularly important in endurance events, long training sessions, repetitive tasks, and sports involving prolonged periods of limited overt action followed by sudden demands.

Fatigue, monotony, competing thoughts, and changes in task difficulty may influence sustained attention. However, the relationship between fatigue and attentional performance varies across tasks and individuals.

Practitioners should therefore avoid assuming that every attentional lapse reflects insufficient motivation. Sleep, workload, stress, physical fatigue, and the design of the task may also contribute.

2.3.3. Attentional control under pressure

Competitive pressure may alter the way athletes allocate attention. Some performers become distracted by worries about outcomes or the consequences of failure. Others direct excessive attention towards movement components that are normally executed with limited conscious monitoring.

These processes have been discussed in theories of anxiety and motor performance.

Eysenck, Derakshan, Santos, and Calvo (2007) developed attentional control theory to explain how anxiety can influence executive control. The theory proposes that anxiety may reduce the efficiency of goal-directed attentional control, particularly when task demands compete with threat-related information.

In sport, this perspective helps explain why an athlete may experience difficulty maintaining task-relevant attention when preoccupied with evaluation, potential failure, or anticipated consequences.

However, anxiety does not necessarily impair every aspect of performance in every situation. Its effects depend on task characteristics, available attentional resources, the individual's coping strategies, and the demands of the competitive environment.

Payne, Wilson, and Vine (2019) systematically reviewed the relationship between anxiety and attention in far-aiming skills. Their findings supported the relevance of attentional disruption to the anxiety–performance relationship while also identifying limitations in the evidence concerning the precise mechanisms involved.

The practical implication is that attentional training should be designed around the actual demands of the sport and supported by appropriate evidence.

2.3.4. Developing attentional skills

Attentional skills may be developed through structured practice that requires athletes to identify relevant cues, maintain task goals, and respond to changing conditions.

Possible strategies include:

- Practising sport-specific pre-performance routines.
- Identifying relevant environmental cues before executing a skill.
- Using clearly defined process goals.
- Simulating competition-related distractions during appropriate training tasks.
- Developing routines for refocusing after errors.
- Evaluating attentional demands during training and competition.

These strategies should not be applied mechanically. Their value depends on the nature of the sport, the athlete's experience, and the relationship between the training task and actual performance requirements.

2.4. Memory, Knowledge, and Motor Learning

Memory supports the acquisition and use of information in sport. Athletes rely on previous experiences, technical knowledge, tactical understanding, and learned movement patterns when responding to familiar or unfamiliar situations.

Memory is not a single process. Different forms of memory contribute to the retention and application of information, including working memory, long-term declarative memory, and procedural knowledge.

Working memory supports the temporary maintenance and manipulation of information. Declarative memory includes information that can be consciously described, such as rules or tactical principles. Procedural knowledge concerns the ability to perform learned actions and procedures, although the relationship between conscious knowledge and skilled movement is complex.

2.4.1. Working memory and cognitive demands

Working memory is relevant when athletes must maintain information while processing additional inputs. A player may need to remember a tactical

instruction while monitoring an opponent's movement. A gymnast may need to retain information about a correction while attempting a revised movement sequence.

Working-memory demands vary with task complexity, experience, and environmental uncertainty.

Experienced athletes may possess well-organised domain-specific knowledge that allows them to interpret familiar situations more efficiently. This does not mean that expert performance is free from cognitive limitations. Under unfamiliar conditions or excessive information demands, skilled performers may also experience difficulties.

Training can therefore benefit from presenting information in manageable units, linking instructions to meaningful task contexts, and allowing sufficient practice for important actions and tactical patterns to become familiar.

2.4.2. Motor learning

Motor learning concerns relatively lasting changes in the capability to perform motor skills that arise from practice or experience. It must be distinguished from temporary performance changes caused by warm-up, fatigue, motivation, or immediate feedback.

A learner may perform well during practice but fail to retain the skill over time. Conversely, a challenging practice session may produce less impressive immediate performance while supporting longer-term learning.

This distinction is important because practice performance is not a reliable substitute for direct evidence of learning.

Schmidt and Lee (2011) provide a comprehensive account of motor learning and performance, including information processing, practice conditions, feedback, retention, and transfer. Their work highlights the importance of distinguishing performance during acquisition from relatively persistent changes in skill capability.

2.4.3. Practice structure and learning

Practice can be organised in different ways depending on the skill, learner, and objective.

Blocked practice involves repeating the same task or variation over a series of attempts. Random practice involves practising different tasks or variations in an

interleaved sequence. Variable practice involves practising different versions or conditions of a skill.

These approaches may create different demands during acquisition and may influence retention or transfer differently.

The contextual interference literature suggests that practice arrangements that make acquisition more difficult can sometimes improve later retention or transfer. However, these effects are not universal and may depend on the complexity of the skill, the learner's developmental stage, the task structure, and the outcome measure.

Magill and Anderson (2017) discuss these principles in their treatment of motor learning and control. Practitioners should therefore select practice structures according to the skill and the learning objective rather than assuming that one arrangement is optimal for every athlete.

2.4.4. Feedback and learning

Feedback provides information about performance and may help learners identify discrepancies between intended and actual outcomes.

Intrinsic feedback arises from sensory information available during or after movement. Augmented feedback is additional information provided by an external source, such as a coach, video analysis, or a measurement device.

Feedback can concern the outcome of a movement or the characteristics of the movement process. For example, an athlete may be told that a shot missed the target or receive information about the movement pattern associated with the attempt.

Although feedback can support learning, excessive or poorly timed feedback may encourage dependence on external information or overload the learner. Its effectiveness depends on the learner's needs, the task, the timing of feedback, and the information provided.

Practitioners should consider whether feedback helps athletes develop the capacity to detect and correct errors independently.

2.4.5. Transfer of learning

Transfer refers to the extent to which learning in one context influences performance in another.

In sport, transfer may occur when athletes apply a learned skill in a new tactical situation, adapt to different environmental conditions, or use a movement pattern under competitive pressure.

Transfer is not guaranteed simply because two tasks appear similar. The information, timing, decision demands, and environmental constraints of the tasks may differ in important ways.

Training should therefore consider the relationship between practice conditions and the intended performance context. Where appropriate, athletes should be exposed to variations that develop adaptability while preserving the essential demands of the skill.

2.5. Decision-Making and Anticipation

Decision-making is a central component of many sporting activities. Athletes must select actions under conditions of uncertainty, time pressure, incomplete information, and changing environmental demands.

The quality of a decision depends not only on the eventual outcome but also on the information available at the time, the athlete's objectives, the alternatives considered, and the constraints of the situation.

A successful outcome does not necessarily demonstrate that a decision was optimal. Similarly, an unsuccessful outcome does not necessarily indicate poor decision-making. Sport involves uncertainty, and even well-reasoned decisions can produce unfavourable outcomes.

2.5.1. Recognition and anticipation

Anticipation refers to the ability to predict likely developments before all relevant information becomes available.

In sport, anticipation may allow athletes to initiate movement earlier, position themselves effectively, or prepare for a likely response. It can depend on experience, knowledge of opponents, recognition of movement patterns, and the interpretation of contextual cues.

Mann et al. (2007) examined perceptual-cognitive expertise across sporting tasks and identified evidence that skilled performers may demonstrate advantages in anticipating and interpreting sport-related information.

However, anticipation should not be confused with certainty. Opponents can deliberately vary their behaviour, misleading cues may occur, and unfamiliar situations may reduce the usefulness of previous experience.

Training should therefore develop the ability to recognise informative patterns while preserving flexibility when circumstances change.

2.5.2. Naturalistic decision-making

Some sporting decisions occur under severe time constraints, making exhaustive comparison of all possible alternatives unrealistic.

Naturalistic decision-making approaches investigate how people make decisions in complex, uncertain, and time-pressured environments. Klein (1998) examined how experienced decision-makers use recognition and situational understanding to identify plausible courses of action.

This perspective can be relevant to sports in which athletes must respond rapidly to dynamic situations. Experienced players may recognise familiar patterns and generate an appropriate response without consciously evaluating every possible alternative.

Nevertheless, the applicability of particular naturalistic decision-making models depends on the task and the evidence available. A model developed in one professional domain should not automatically be assumed to explain all sporting decisions.

2.5.3. Decision quality and tactical expertise

Tactical expertise involves more than selecting technically correct movements. It also requires understanding the changing relationships among teammates, opponents, space, time, and task objectives.

A player may possess excellent technical ability but struggle to identify when a particular skill should be used. Conversely, a player with strong tactical understanding may select effective actions even when the technical execution is imperfect.

Training should therefore integrate technical execution with relevant perceptual and decision-making demands.

Small-sided games, scenario-based exercises, video-supported analysis, and structured reflection may provide opportunities to develop tactical understanding. Their value depends on how closely they address the relevant demands and whether learning is evaluated systematically.

2.6. Emotion, Cognition, and Sport Performance

Emotions are an important part of sporting experience. Athletes may experience excitement, anxiety, anger, frustration, pride, disappointment, and relief in response to training and competition.

These emotions can influence attention, interpretation, motivation, physiological activation, and behavioural choices. However, their effects are not uniformly beneficial or harmful.

The consequences of an emotional state depend on its intensity, duration, perceived meaning, timing, and relationship to the task.

2.6.1. Cognitive appraisal

Cognitive appraisal concerns the evaluation of the significance of an event in relation to an individual's goals, expectations, and perceived resources.

Lazarus and Folkman (1984) developed a transactional account of stress in which psychological responses depend partly on the relationship between environmental demands and the individual's appraisal of those demands.

Within sport, an upcoming competition may be interpreted as an opportunity to demonstrate competence or as a threat to reputation and selection prospects. These interpretations may contribute to different emotional responses even when the external event is similar.

Appraisal is influenced by prior experience, perceived control, available resources, social support, and the consequences attached to performance.

This perspective suggests that psychological preparation should address not only the external demands of competition but also how athletes interpret and respond to those demands.

2.6.2. Anxiety and performance

Competitive anxiety is frequently studied in relation to performance, but the relationship is complex.

Anxiety may involve cognitive components, such as worry and negative expectations, and somatic components, such as perceived tension or physiological activation. These components may relate differently to performance across tasks and individuals.

An athlete may interpret increased activation as evidence of readiness or as a sign of impending failure. The interpretation may influence attentional focus, confidence, and subsequent behaviour.

Attentional control theory provides one explanation of how anxiety may interfere with the efficient allocation of attention (Eysenck et al., 2007). Nevertheless, anxiety-related performance changes cannot be attributed to a single mechanism in every situation.

The implications for practice include assessing the athlete's experience, identifying the specific demands of the task, and selecting strategies that address the relevant difficulty.

2.6.3. Emotion regulation

Emotion regulation refers to processes through which individuals influence the occurrence, intensity, duration, or expression of emotional responses.

Gross (1998) proposed a process model of emotion regulation that distinguishes strategies according to the stage at which they influence emotional responding. These strategies include selecting or modifying situations, directing attention, changing cognitive interpretations, and modifying emotional responses after they have developed.

In sport, emotion-regulation strategies may include reframing competitive demands, using attentional routines, seeking support, and developing responses to mistakes.

However, the effectiveness of a strategy depends on the context. Reappraisal may be useful when an athlete interprets a manageable challenge as catastrophic, whereas practical problem solving may be more appropriate when the source of difficulty can be changed directly.

The goal should not be to eliminate all unpleasant emotions. Anxiety, frustration, and disappointment may provide information about perceived demands or unmet goals. Effective regulation involves responding flexibly rather than assuming that every negative emotional experience must be suppressed.

2.7. Self-Regulation and Performance Under Pressure

Self-regulation concerns the processes through which individuals monitor and adjust their thoughts, emotions, and behaviour in pursuit of goals.

In sport, self-regulation may involve setting performance goals, monitoring progress, identifying errors, adjusting strategies, and maintaining engagement when immediate outcomes are unfavourable.

Self-regulatory processes are relevant to both training and competition. During training, athletes must evaluate feedback and adjust their practice. During competition, they may need to respond to unexpected developments without abandoning the overall task objective.

2.7.1. Goal-directed behaviour

Goals can provide direction and criteria for evaluating progress. However, their effectiveness depends on how they are defined and integrated into training.

Outcome goals concern the final result, such as winning a competition. Performance goals concern standards of performance that may be partly under the athlete's control. Process goals focus on actions or strategies required to execute a task.

These categories are useful for organising preparation, but they should not be treated as mutually exclusive. Athletes may use outcome goals to establish priorities, performance goals to evaluate progress, and process goals to guide immediate behaviour.

A practical implication is that athletes should identify which aspects of performance are controllable and establish appropriate criteria for monitoring them.

2.7.2. Monitoring and adjustment

Self-regulation requires information about the relationship between current performance and the intended goal.

Monitoring may involve subjective reflection, coach feedback, video analysis, performance statistics, or physiological measures. Each method provides different information and has limitations.

For example, a performance metric may reveal a change in output without explaining its cause. A subjective report may identify perceived difficulty but may not accurately reflect the technical characteristics of movement.

Combining complementary forms of information can improve interpretation, provided that data are relevant, valid, and used appropriately.

Self-regulation also requires the capacity to adjust strategies when circumstances change. Rigidly following a plan may be counterproductive when the task or environment no longer matches the assumptions underlying that plan.

2.7.3. Automaticity and conscious control

Practice can make some aspects of skilled performance more efficient and less dependent on deliberate step-by-step monitoring. However, the relationship between automaticity and conscious control is complex.

In familiar circumstances, excessive conscious monitoring of well-learned movement components may interfere with fluent execution. Under other conditions, deliberate attention may be necessary to correct errors or adapt to a new task.

The appropriate balance depends on the skill, the athlete's experience, and the circumstances of performance.

Practitioners should therefore avoid universal claims that conscious attention always helps or always harms performance. Training should identify when deliberate control is useful and when it may be preferable to rely on well-established movement patterns.

2.8. Integrating Psychological Processes in Sport Training

Perception, attention, memory, decision-making, emotion, and self-regulation are analytically distinct but functionally interconnected.

An athlete's decision may depend on which environmental information is perceived, how attention is allocated, what relevant knowledge is retrieved from memory, and how emotional responses influence interpretation.

These processes operate within the physical and social demands of the sporting environment.

Consider a football midfielder receiving the ball under pressure. The player must identify the positions of teammates and opponents, anticipate possible movement, select a passing option, execute the technical action, and respond to the outcome. The quality of performance depends on the coordination of perceptual, cognitive, emotional, and motor processes.

A training programme that develops only isolated technical execution may not adequately prepare the athlete for all of these demands. Conversely, highly complex exercises may be inappropriate for beginners who have not yet acquired the relevant movement and decision-making foundations.

Training should therefore be designed progressively. Early practice may emphasise fundamental movement patterns and basic cues. More advanced practice can introduce greater uncertainty, more complex decisions, and competitive constraints.

The objective is not to make every training activity maximally difficult. It is to provide appropriate challenges that support learning and transfer to the intended performance environment.

2.9. Implications for Coaching and Applied Practice

The psychological foundations discussed in this chapter have several implications for coaching and applied sport psychology.

First, coaches should identify the perceptual and decision-making demands of the sport rather than focusing exclusively on visible movement outcomes.

Second, attentional strategies should be matched to task requirements. A routine that benefits one athlete or sport may be less appropriate in another context.

Third, practice design should consider learning and retention rather than relying solely on immediate performance. Athletes should be given opportunities to demonstrate whether skills are retained and transferred to new situations.

Fourth, feedback should support understanding and self-correction. Excessive instruction may reduce opportunities for athletes to interpret information and develop independent problem-solving skills.

Fifth, emotional responses should be considered in context. An athlete experiencing anxiety may need support with attentional control, appraisal, preparation, or practical problem solving rather than a generic instruction to relax.

Sixth, psychological interventions should be evaluated using relevant outcomes. Claims that an intervention improves performance require evidence that performance has improved under appropriate measurement conditions.

Finally, applied practitioners should distinguish educational and performance-support activities from clinical assessment and treatment. When mental health concerns require clinical expertise, appropriate referral procedures should be followed.

These implications support an integrated approach in which psychological knowledge informs technical, tactical, physical, and interpersonal aspects of sport.

2.10. Methodological Considerations and Future Research

Research on the psychological foundations of sport faces several methodological challenges.

One challenge concerns ecological validity. A laboratory task may provide precise control over variables but fail to reproduce the complexity of competition. Field-based studies may capture more realistic demands but introduce additional sources of variation.

A second challenge concerns measurement. Constructs such as attention, anxiety, decision quality, and self-regulation cannot always be measured directly. Researchers may rely on self-report scales, behavioural indicators, physiological measures, or performance outcomes, each of which captures different aspects of the underlying process.

A third challenge concerns causal interpretation. Observed associations between psychological variables and performance do not necessarily establish that one variable causes the other. Performance experiences may influence confidence and anxiety, just as confidence and anxiety may influence subsequent performance.

Longitudinal designs, experimental studies, and carefully designed interventions can help clarify these relationships, although no single method resolves every methodological limitation.

A fourth challenge concerns individual and contextual differences. The same psychological strategy may have different effects depending on the sport, task, level of expertise, age, and social environment.

Future research should therefore combine rigorous measurement with attention to the conditions under which psychological processes occur. Studies should clearly define their constructs, explain the rationale for their measures, and avoid generalising findings beyond the populations and tasks investigated.

The integration of behavioural data, observational methods, validated psychological measures, and ecologically relevant tasks may provide a more comprehensive understanding of sport performance.

2.11. Conclusion

The psychological foundations of sport participation and performance encompass perception, attention, memory, motor learning, decision-making, emotion, and self-regulation. These processes contribute to how athletes interpret sporting environments, acquire skills, respond to competitive demands, and adapt their behaviour.

Perception helps athletes identify relevant information and opportunities for action. Attention supports the selection and maintenance of task-relevant information. Memory and motor learning contribute to skill acquisition and retention. Decision-making and anticipation help athletes respond to changing situations. Emotional processes influence appraisal and behaviour, while self-regulation supports goal-directed action and adjustment.

These processes should not be considered isolated mechanisms. Their effects emerge through interactions among individual characteristics, task demands, prior experience, and environmental conditions.

The theoretical and empirical literature also demonstrates the importance of distinguishing established findings from context-dependent conclusions. Psychological interventions should be selected according to their intended objectives, supported by appropriate evidence, and evaluated in relation to meaningful outcomes.

Ultimately, understanding the psychological foundations of sport requires an integrated approach that connects cognitive and emotional processes with motor behaviour, social context, and the demands of actual performance. Such an approach can support more effective coaching, better-designed training environments, and scientifically informed strategies for athlete development.

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CHAPTER 3: Motivation, Goal Orientation, and Self-Determination in Sport

3.1. Introduction

Motivation is a central construct in sport and exercise psychology because it helps explain why individuals initiate activities, select particular goals, invest effort, persist when facing difficulties, and sometimes withdraw from participation. Although physical capacities and technical skills contribute directly to athletic performance, their effective development and application depend partly on the reasons individuals participate and the quality of their motivational experiences.

Athletes may participate in sport because they enjoy the activity, value personal improvement, seek social connection, pursue competitive success, or respond to external expectations. These reasons are not necessarily mutually exclusive. An athlete may enjoy training while also seeking recognition, scholarships, selection, or professional advancement. Similarly, an individual may begin exercising for health-related reasons and gradually develop enjoyment, social connections, and a stronger sense of personal competence.

Understanding motivation therefore requires more than determining whether an individual is motivated. It requires examining the nature of motivation, the goals being pursued, the perceived meaning of participation, and the social conditions under which behaviour occurs.

Motivation is also dynamic. Athletes' reasons for participating may change with experience, developmental stage, competitive level, interpersonal relationships, injury, and changing life circumstances. A motivational approach that supports engagement in one context may be less effective in another.

This chapter examines motivation in sport through several complementary perspectives. It first introduces the principal dimensions of motivation and distinguishes intrinsic motivation, extrinsic motivation, and amotivation. It then discusses self-determination theory, achievement goal perspectives, goal-setting theory, perceived competence, motivational climate, and the relationship between motivation and sustained participation. Finally, it considers practical applications, methodological challenges, and directions for future research.

3.2. Understanding Motivation in Sport and Exercise

Motivation refers broadly to the processes that initiate, direct, and sustain behaviour. In sport, these processes influence the activities individuals choose,

the objectives they pursue, the effort they invest, and their responses to success, failure, and difficulty.

Motivation should not be understood solely as the intensity of an individual's desire to succeed. Two athletes may demonstrate similar levels of effort while participating for different reasons. One may train because the activity is personally meaningful, whereas another may train primarily to avoid criticism or disappointing significant others.

These differences can have implications for the quality of participation, emotional experience, persistence, and well-being.

Ryan and Deci (2000) distinguished between different forms of motivation and argued that understanding human behaviour requires attention to both the amount and the quality of motivation. Their work provides a foundational perspective for examining why individuals engage in activities and how social conditions influence motivational processes.

In sport and exercise, motivation can be examined through several related questions:

1. What initially encourages an individual to participate?
2. Why does the individual continue participating over time?
3. Which goals guide effort and decision-making?
4. How do social relationships influence motivational experiences?
5. What happens when individuals encounter setbacks or performance difficulties?
6. Under what conditions does motivation support enjoyment, persistence, and psychological well-being?
7. How can coaches and exercise professionals create environments that support meaningful engagement?

These questions demonstrate that motivation is not a single psychological characteristic. It is a multidimensional process influenced by individual goals, perceived competence, emotional experiences, social relationships, and environmental conditions.

3.3. Intrinsic Motivation, Extrinsic Motivation, and Amotivation

A useful starting point for understanding motivation is the distinction between intrinsic motivation, extrinsic motivation, and amotivation.

3.3.1. Intrinsic motivation

Intrinsic motivation refers to engaging in an activity because the activity itself is interesting, enjoyable, or satisfying.

An athlete may participate in a sport because they enjoy mastering technical skills, experiencing the challenge of competition, exploring movement possibilities, or improving personal performance. A recreational exerciser may continue attending classes because the activity is enjoyable and provides a meaningful experience.

Intrinsic motivation is important because it emphasises the inherent value of participation rather than a separate outcome.

However, intrinsic motivation should not be treated as the only desirable reason for participating in sport. Many important sporting activities involve goals that extend beyond immediate enjoyment, including health improvement, professional development, competitive achievement, and personal commitments.

An athlete may continue to value training even when particular sessions are difficult or temporarily unenjoyable.

3.3.2. Extrinsic motivation

Extrinsic motivation refers to engaging in an activity because of outcomes that are separate from the activity itself.

In sport, these outcomes may include rewards, recognition, selection, scholarships, financial compensation, social approval, improved health, or achievement of a personally valued objective.

Self-determination theory distinguishes different forms of extrinsic motivation according to the degree to which behaviour is experienced as controlled or personally endorsed.

External regulation occurs when behaviour is primarily influenced by external rewards or punishments. Introjected regulation involves internal pressures, such as guilt, shame, or the need to protect self-worth. Identified regulation occurs when an individual personally values the behaviour or its consequences. Integrated regulation involves a more comprehensive alignment between the behaviour and the individual's broader values and identity.

These distinctions are important because extrinsic motivation is not necessarily equivalent to poor-quality motivation. An athlete may engage in demanding

training because they recognise its importance for a long-term goal, even when the activity is not consistently enjoyable.

For example, a student may initially exercise because a healthcare professional has recommended it. Over time, the individual may come to value exercise as an important component of personal health. The behaviour remains connected to an outcome, but the reason for participating may become more personally endorsed.

3.3.3. Amotivation

Amotivation refers to a lack of intention or a diminished sense of meaningful connection between behaviour and expected outcomes.

An athlete may experience amotivation when they no longer understand why training matters, perceive little relationship between effort and improvement, feel unable to meet expectations, or question whether participation has value.

Amotivation should not automatically be interpreted as laziness or a stable personality characteristic. It may reflect contextual conditions such as repeated experiences of failure, lack of meaningful feedback, excessive pressure, limited opportunities for choice, social exclusion, or a mismatch between demands and perceived capability.

Identifying the source of amotivation is therefore important for designing appropriate interventions.

An athlete who doubts their technical ability may benefit from achievable learning goals and constructive feedback. An athlete who feels controlled by external demands may require greater involvement in decisions and clarification of personal values. An athlete facing financial, social, or structural barriers may need practical support rather than motivational instruction alone.

3.4. Self-Determination Theory

Self-determination theory is one of the most influential contemporary frameworks for understanding motivation, psychological needs, and well-being.

Ryan and Deci (2000) presented self-determination theory as an approach concerned with the social conditions that support or undermine intrinsic motivation, self-regulation, and psychological development. Deci and Ryan (2000) further discussed the relationship between psychological needs, motivational processes, and the quality of behavioural regulation.

The theory distinguishes between autonomous and controlled forms of motivation while also considering amotivation.

Autonomous motivation involves engaging in behaviour with a sense of willingness or personal endorsement. Controlled motivation involves behaviour experienced as pressured by external demands or internal contingencies. These categories describe different motivational processes rather than mutually exclusive types of people.

An athlete may experience autonomous motivation in one context and controlled motivation in another. The relative contribution of each form may also change over time.

3.4.1. Autonomy

Autonomy concerns the experience of volition and psychological ownership of one's actions. It does not mean that individuals must act independently of all external guidance.

In sport, autonomy can be supported when athletes understand the rationale for training, have appropriate opportunities to express preferences, and participate meaningfully in decisions that affect their development.

A coach may establish clear training requirements while also explaining their purpose and inviting athletes to discuss relevant concerns. Such an approach can preserve the structure required for effective training while supporting a sense of personal involvement.

Autonomy support should not be confused with the absence of standards or accountability. Sporting environments require rules, responsibilities, and performance expectations. The key issue is how these requirements are communicated and whether athletes experience them as meaningful and appropriately justified.

3.4.2. Competence

Competence concerns the experience of effectiveness and the ability to interact successfully with one's environment.

Athletes may experience competence when they develop technical skills, understand tactical demands, make progress toward meaningful goals, and receive informative feedback.

Repeated experiences of failure without constructive guidance may undermine perceived competence. However, protecting athletes from all difficulty is not an appropriate solution. Skill development requires challenges that encourage learning while remaining sufficiently achievable to support progress.

Coaches can support competence by providing clear instruction, identifying specific improvements, establishing realistic progression, and helping athletes interpret setbacks as information about learning rather than definitive evidence of inability.

3.4.3. Relatedness

Relatedness concerns the experience of social connection, acceptance, and meaningful relationships.

Sport often provides opportunities for belonging through team membership, shared goals, cooperation, and social interaction. Athletes may feel more connected when coaches demonstrate respect, teammates provide support, and group members recognise one another's contributions.

However, participation in a team does not guarantee positive social experiences. Exclusion, bullying, discriminatory treatment, excessive internal competition, and poor interpersonal communication can undermine relatedness.

The quality of social relationships is therefore more important than the mere presence of a group.

3.4.4. Psychological need support and need frustration

Self-determination theory distinguishes between conditions that support psychological needs and those that actively frustrate them.

A need-supportive environment may provide meaningful choice, constructive feedback, and interpersonal respect. A need-frustrating environment may involve coercion, humiliation, persistent rejection, or the deliberate undermining of an individual's sense of competence.

This distinction is important because the absence of support is not always equivalent to active frustration. An environment may provide limited opportunities for autonomy without explicitly coercing athletes, whereas another environment may actively punish independent judgement.

The consequences may differ and should be examined empirically.

3.4.5. Evidence concerning self-determination theory

Research applying self-determination theory to exercise and physical activity has examined motivational regulation, participation, and behavioural maintenance.

Teixeira et al. (2012) reviewed exercise and physical activity research informed by self-determination theory. Their review examined relationships among

motivational regulation, psychological needs, and exercise-related outcomes, contributing to the evidence base concerning motivational quality and sustained participation.

Manninen et al. (2022) conducted a systematic review and multivariate meta-analysis of self-determination theory-based instructional interventions in organised physical activity. Their findings indicated small, heterogeneous effects for several forms of motivational regulation. The effects varied according to intervention characteristics, study length, participant age, and study quality.

These findings support the relevance of motivational theory while cautioning against the assumption that a theoretically informed intervention will automatically produce substantial or uniform benefits.

Researchers and practitioners should therefore evaluate intervention content, implementation quality, population characteristics, and meaningful outcomes rather than relying on theoretical plausibility alone.

3.5. Achievement Goal Perspectives

Achievement goal perspectives examine how individuals define competence and interpret success or failure.

In sport, athletes may evaluate competence through personal improvement, task mastery, comparison with others, or the demonstration of superior ability. These interpretations can influence goal selection, effort, emotional responses, and reactions to evaluation.

Nicholls (1989) examined achievement motivation in relation to how individuals understand ability and competence. Achievement goal approaches subsequently became influential in sport psychology research on motivation and the social environments in which sporting performance is evaluated.

3.5.1. Task and ego orientations

In commonly used achievement goal frameworks, task orientation emphasises learning, effort, personal improvement, and mastery. Ego orientation emphasises demonstrating superior ability relative to others.

These orientations should not be treated as mutually exclusive personality categories. An athlete may value both personal improvement and competitive success.

Task orientation may be particularly relevant when athletes evaluate progress against their own previous performance. Ego orientation may be especially

salient in environments where success is defined through comparison, rankings, or selection outcomes.

The consequences of these orientations depend partly on perceived competence and the motivational climate.

For example, an athlete who strongly values outperforming others but doubts their ability may respond to difficult tasks by avoiding challenges. Another athlete with a similar competitive orientation but stronger perceived competence may approach the same task with confidence.

It is therefore inappropriate to assume that one goal orientation will produce identical outcomes for all athletes.

3.5.2. Achievement goals and performance

Achievement goal research has investigated relationships between goal orientations, motivational climates, enjoyment, persistence, and performance.

Lochbaum and Sisneros (2024) conducted a systematic review and meta-analysis examining situational and dispositional achievement goals in relation to sport performance. Their findings indicated small associations between several task-related motivational variables and performance, while the relationship between an ego-oriented motivational climate and performance was not statistically distinguishable from zero in their analysis.

These findings illustrate two important points.

First, motivational processes can be associated with sport performance, but the magnitude of these relationships may be modest.

Second, motivational variables should be distinguished carefully. An individual's goal orientation, their immediate goal during a competition, and their perception of the team's motivational climate are related but conceptually different constructs.

Researchers should avoid combining them into a single measure of motivation without theoretical justification.

3.5.3. Motivational climate

Motivational climate refers to the perceived social environment in which competence, effort, success, and failure are evaluated.

A mastery-oriented climate emphasises learning, personal improvement, effort, cooperation, and the development of competence. A performance-oriented

climate places greater emphasis on normative comparison, demonstrating superior ability, and outperforming others.

These climates are not determined solely by the formal objectives of a team. They are shaped by everyday coaching behaviours, feedback, selection practices, responses to mistakes, and the ways in which athletes' contributions are recognised.

A coach may value improvement in principle but unintentionally create a performance-oriented climate by rewarding only the most successful athletes and publicly criticising those who struggle.

Conversely, a team can pursue competitive success while still emphasising learning, preparation, cooperation, and constructive responses to errors.

The important distinction concerns how competence and success are defined and communicated within the environment.

3.6. Goal-Setting Theory and Sport Performance

Goal-setting theory examines how goals influence attention, effort, persistence, and the development of strategies.

Locke and Latham (2002) reviewed decades of research on goal setting and task motivation. Their work identified several conditions under which goals can support performance, while also discussing moderators and limitations.

In sport, goals may help athletes establish priorities, direct training effort, monitor progress, and evaluate the effectiveness of preparation.

However, goals are not automatically beneficial. Their effects depend on the characteristics of the task, the individual's capabilities, commitment, feedback, and the availability of appropriate strategies.

3.6.1. Outcome, performance, and process goals

Three commonly used categories are outcome goals, performance goals, and process goals.

Outcome goals concern the final result of a competition, such as winning a match, achieving a medal, or qualifying for a championship.

Performance goals concern a defined standard of performance, such as improving a personal best or achieving a specific level of technical accuracy.

Process goals concern actions and strategies used to execute a task, such as maintaining a particular movement pattern or following a pre-performance routine.

These categories can complement one another. An outcome goal may establish the overall competitive objective, a performance goal may define a measurable standard, and a process goal may guide immediate behaviour.

Nevertheless, outcome goals are often influenced by factors beyond an athlete's control, including opponents' performance, judging decisions, and unpredictable events. Process goals may therefore provide useful immediate criteria for regulating behaviour during competition.

3.6.2. Specificity and difficulty

Goal-setting theory generally suggests that specific and challenging goals can support performance under appropriate conditions.

However, a goal must be realistic in relation to the task and the individual's capabilities. Excessively difficult goals may reduce confidence or encourage ineffective strategies, particularly when the individual lacks the necessary skills or resources.

Goals should also be adjusted when circumstances change. Injury, illness, changes in competitive demands, or unexpected constraints may require a revised objective.

The purpose of goal setting is not to impose rigid targets regardless of context. It is to provide meaningful direction and a framework for evaluating progress.

3.6.3. Feedback and goal commitment

Goals are more useful when individuals receive relevant information about their progress.

Feedback can help athletes identify discrepancies between current performance and desired outcomes, adjust training, and evaluate whether their strategies are effective.

However, feedback should be interpreted carefully. A single poor performance does not necessarily indicate that a long-term goal is unrealistic. Equally, repeated lack of progress may indicate that the goal, strategy, or training conditions require reconsideration.

Goal commitment is also important. Athletes are more likely to invest effort when they understand the purpose of a goal, regard it as meaningful, and believe that the necessary actions are feasible.

Coaches can support commitment by involving athletes appropriately in goal development, explaining performance requirements, and ensuring that goals remain consistent with broader developmental priorities.

3.7. Motivation, Confidence, and Perceived Competence

Motivation is closely connected to beliefs about personal capability, but the relationship is not straightforward.

Athletes who believe they can improve may be more willing to attempt difficult tasks and persist after setbacks. Conversely, repeated experiences of failure may reduce confidence and alter motivational priorities.

Self-efficacy theory provides a framework for examining beliefs about the capability to perform particular actions (Bandura, 1997). Although self-efficacy and perceived competence are related, they should not be treated as identical constructs.

Self-efficacy generally refers to beliefs about the ability to perform specific actions under particular conditions. Perceived competence may refer more broadly to an individual's experience of effectiveness within a domain.

Both constructs can influence how athletes interpret difficulty, although their effects depend on the accuracy of the beliefs and the demands of the task.

3.7.1. Mastery experiences and feedback

Experiences of successful skill execution may contribute to stronger efficacy beliefs. However, the meaning of success depends on the circumstances under which it occurs.

An athlete may perform well because a task is relatively easy or because external conditions are unusually favourable. Such experiences may provide limited evidence about capability under more demanding conditions.

Constructive feedback can help athletes interpret performance more accurately by identifying the specific actions that contributed to success or difficulty.

3.7.2. Avoidance and perceived competence

When athletes doubt their capabilities, they may avoid challenging tasks or interpret setbacks as evidence that further effort is unlikely to be worthwhile.

This pattern is not inevitable. Some athletes respond to uncertainty by seeking feedback, increasing preparation, or adjusting their strategies.

The relationship between perceived competence and behaviour depends partly on the motivational climate, previous experiences, available support, and the perceived consequences of failure.

Coaches should therefore avoid treating low confidence as a fixed personal limitation. It may instead signal a need for clearer instruction, achievable progression, supportive feedback, or changes to the training environment.

3.8. Social Relationships and the Regulation of Motivation

Motivation develops within social environments. Coaches, teammates, family members, teachers, and sport organisations can influence the goals athletes pursue and the meaning they attach to participation.

Social support may help athletes manage demands, maintain engagement, and interpret setbacks constructively. However, support is not always experienced as supportive. Advice intended to encourage an athlete may be interpreted as criticism if it is delivered without sensitivity to the individual's circumstances.

The quality of communication is therefore important.

3.8.1. Coaching behaviour

Coaches influence motivation through instruction, feedback, selection, recognition, and the standards they establish.

Autonomy-supportive behaviour may include providing meaningful rationales, acknowledging athletes' perspectives, and offering appropriate opportunities for choice. Competence-supportive behaviour may include clear expectations, constructive feedback, and structured opportunities for skill development.

These behaviours can coexist with high performance standards.

By contrast, persistent humiliation, arbitrary punishment, and excessive control may undermine athletes' sense of ownership and interpersonal trust.

The implications should be assessed in context rather than inferred solely from a coach's stated intentions.

3.8.2. Peer relationships and team membership

Teammates may provide encouragement, technical assistance, emotional support, and a sense of belonging. Shared goals can contribute to cooperation and sustained engagement.

However, social comparison and competition for selection may also create tension. Athletes may experience pressure when team membership is conditional on performance or when errors lead to ridicule.

Sport organisations should therefore consider how team norms influence both motivation and psychological welfare.

3.8.3. Family influence

Family members may influence early sport participation by providing access, encouragement, transport, financial resources, and emotional support.

Family expectations can also create pressure when achievement becomes closely linked to approval or perceived personal worth.

The same behaviour may be interpreted differently by different athletes. Consequently, family involvement should be evaluated in relation to the athlete's developmental stage, preferences, and social circumstances.

3.9. Motivation and Sustained Exercise Participation

Motivation is particularly important in exercise settings because the benefits of physical activity often depend on sustained participation.

Individuals may begin exercising because of health concerns, appearance-related goals, social encouragement, or recommendations from healthcare professionals. Maintaining participation requires the integration of these motives with everyday routines, available resources, and changing life circumstances.

Teixeira et al. (2012) reviewed exercise and physical activity research informed by self-determination theory. Their work highlighted the relevance of motivational regulation and psychological needs to understanding exercise-related behaviour.

However, motivation alone does not explain all patterns of physical activity. Individuals may value exercise but face barriers such as limited time, unsafe environments, financial constraints, disability-related access difficulties, or competing responsibilities.

These barriers demonstrate the importance of distinguishing motivation from opportunity.

3.9.1. Enjoyment and personal value

Enjoyment may support repeated participation because individuals are more willing to return to activities they find satisfying.

Nevertheless, not every effective form of exercise is immediately enjoyable. Some individuals may continue participating because they value long-term health outcomes or personal commitments.

Exercise programmes should therefore avoid assuming that a single motivational approach will be suitable for everyone.

3.9.2. Habit and routine

Repeated participation can become integrated into everyday routines. Regular scheduling, convenient access, and stable environmental cues may help individuals maintain exercise behaviour.

Habit formation does not eliminate the role of motivation, but it may reduce the need to make a new decision on every occasion.

Programmes that aim to support sustained participation should therefore consider practical conditions, including scheduling, transport, facility accessibility, and compatibility with other responsibilities.

3.9.3. Relapse and renewed participation

Interruptions in exercise may occur because of illness, injury, work demands, family responsibilities, or changing priorities.

A temporary interruption should not automatically be interpreted as motivational failure.

Supportive approaches can help individuals identify barriers, revise goals, and resume activity at an appropriate level. Unrealistic expectations or punitive responses may instead discourage renewed participation.

The aim should be sustainable engagement rather than uninterrupted adherence regardless of circumstances.

3.10. Cultural and Contextual Considerations

Motivational processes operate within cultural and social contexts. The meaning of competitive success, personal improvement, family expectations, and collective responsibility may vary across sporting environments.

Research findings from one population should therefore not automatically be generalised to all athletes or exercise participants.

Socioeconomic circumstances may influence access to facilities, coaching, equipment, and organised sport. Gender expectations, disability access, cultural inclusion, and geographic location may also shape opportunities for participation.

These factors can affect motivation indirectly by influencing perceived competence, available choices, social support, and the practical feasibility of participation.

A comprehensive approach should therefore consider both psychological processes and the structural conditions in which they operate.

Cultural sensitivity does not mean assuming that all members of a particular group share the same motivational preferences. Individual differences remain important within every cultural and social context.

Researchers should examine these issues empirically and avoid treating cultural categories as fixed explanations of behaviour.

3.11. Practical Applications for Coaches and Exercise Professionals

The theories discussed in this chapter have several practical implications.

First, practitioners should distinguish the intensity of motivation from its quality. Strong effort may be driven by personal commitment, external pressure, or a combination of motives.

Second, coaches should support perceived competence through clear instruction, appropriate challenge, and constructive feedback.

Third, athletes should be involved meaningfully in goal setting when appropriate. Shared understanding can improve the relevance and perceived value of training objectives.

Fourth, motivational climates should be evaluated through everyday practices, not merely through organisational statements about values.

Fifth, exercise programmes should consider practical barriers alongside psychological factors. Encouragement is unlikely to overcome every limitation in access, time, safety, or resources.

Sixth, interventions should be evaluated against clearly defined outcomes. Changes in motivation, attendance, physical activity, performance, and psychological well-being represent different outcomes and should be measured accordingly.

Finally, practitioners should avoid using motivational theories to blame individuals for difficulties that arise partly from organisational or structural conditions.

These principles encourage a context-sensitive approach that combines psychological understanding with responsible programme design.

3.12. Methodological Considerations and Future Research

Motivation research faces several methodological challenges.

One challenge concerns the measurement of motivational constructs. Intrinsic motivation, identified regulation, external regulation, perceived competence, goal orientation, and motivational climate are related but conceptually distinct variables. Their measures should not be used interchangeably.

A second challenge concerns causal interpretation. Associations between autonomous motivation and physical activity do not necessarily demonstrate that autonomous motivation alone causes sustained participation. Individuals who remain physically active may also develop more positive motivational experiences through participation.

Longitudinal and experimental research can help clarify temporal relationships and intervention effects, although their conclusions depend on study design, measurement quality, and contextual conditions.

A third challenge concerns heterogeneity. Motivational interventions may differ in duration, delivery, participant characteristics, implementation quality, and outcome measurement.

Manninen et al. (2022) demonstrated that effects of self-determination theory-based instructional interventions varied across several conditions. Such findings reinforce the need to investigate moderators rather than relying exclusively on average effects.

A fourth challenge concerns the distinction between intention and behaviour. An individual may report strong motivation to exercise but remain inactive because of environmental constraints or competing responsibilities.

Future research should therefore combine motivational measures with behavioural outcomes and examine the conditions under which motivational changes translate into sustained participation.

Finally, researchers should report uncertainty and limitations transparently. Theoretical consistency alone is not sufficient evidence that a specific intervention will be effective in every sporting or exercise context.

3.13. Conclusion

Motivation is a multidimensional and context-sensitive process that influences sport participation, athletic development, exercise adherence, and responses to challenge.

Intrinsic motivation, extrinsic motivation, and amotivation describe different relationships between individuals and their activities. Self-determination theory provides a framework for understanding motivational quality and the role of autonomy, competence, and relatedness. Achievement goal perspectives examine how individuals define competence and interpret success. Goal-setting theory explains how goals may direct effort and support performance under appropriate conditions.

These approaches offer complementary explanations rather than interchangeable accounts of behaviour.

The empirical literature supports the relevance of motivational processes while demonstrating that their effects vary according to individual characteristics, social environments, intervention design, and practical circumstances. Motivation should therefore not be treated as a single variable that automatically determines participation or performance.

For coaches, exercise professionals, and sport organisations, the central task is to create conditions that support meaningful engagement, competence development, realistic goal pursuit, and sustainable participation. Such conditions require attention to both psychological processes and the environments in which sport and exercise occur.

A scientifically informed approach to motivation must combine theoretical understanding, empirical evaluation, and sensitivity to individual and contextual differences. This approach can support more effective sporting environments while avoiding simplistic assumptions about why people participate, persist, or withdraw.

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CHAPTER 4: Stress, Anxiety, and Emotion Regulation in Athletes

4.1. Introduction

Stress, anxiety, and emotional responses are integral components of competitive sport and exercise participation. Athletes regularly encounter situations involving uncertainty, evaluation, physical discomfort, interpersonal expectations, and the possibility of success or failure. These situations may include selection trials, championship competitions, injury rehabilitation, conflicts with coaches, changes in team roles, and the transition out of competitive sport. Although such experiences are frequently discussed in terms of their potential negative consequences, their psychological significance cannot be understood through a simple distinction between positive and negative emotions.

The same competitive situation may be interpreted as an opportunity by one athlete and as a threat by another. Similarly, physiological arousal may facilitate performance when it is interpreted as readiness but interfere with performance when it is associated with perceived loss of control. Consequently, stress and anxiety are not determined exclusively by the objective demands of a sporting situation. They also depend on how athletes evaluate those demands, the resources they believe they possess, and the strategies available to them for managing the situation.

The transactional perspective on stress developed by Lazarus and Folkman (1984) provides an important theoretical foundation for understanding these processes. From this perspective, stress emerges through the relationship between individuals and their environments, particularly when situational demands are perceived to challenge or exceed available resources. In sport, this approach directs attention toward athletes' interpretations of competitive demands, their perceived control, their coping resources, and the consequences of their responses.

Contemporary sport psychology also recognizes that athlete mental health cannot be reduced to the management of competition-related anxiety. The International Olympic Committee (IOC) consensus statement on mental health in elite athletes emphasizes the importance of considering individual, interpersonal, organizational, and broader environmental factors when understanding athletes' psychological functioning (Reardon et al., 2019, 2026). Athletes may experience ordinary and temporary competitive stress without having a mental health

disorder; conversely, persistent psychological symptoms should not automatically be interpreted as an inevitable consequence of elite performance.

This chapter examines stress, competitive anxiety, and emotion regulation from an integrated psychosocial perspective. It first establishes the conceptual foundations of stress and anxiety, then considers influential theoretical models, the relationship between emotional states and performance, coping strategies, and evidence-informed psychological interventions. The chapter concludes by outlining practical implications for athletes, coaches, sport psychologists, and sport organizations.

4.2. Understanding Stress in Sport

4.2.1. Defining psychological stress

Psychological stress is commonly understood as a process involving the relationship between an individual and circumstances that are perceived as demanding, threatening, or difficult to manage. Lazarus and Folkman (1984) argued that stress should not be conceptualized solely as an external stimulus or an internal physiological reaction. Instead, it emerges through the interaction between situational demands and the individual's appraisal of those demands.

This distinction is particularly important in competitive sport. Two athletes may face identical external conditions but experience substantially different levels of stress. A decisive penalty kick, for example, may be perceived as a manageable challenge by an experienced athlete who trusts their preparation. Another athlete may interpret the same situation as a threat to their reputation, team membership, or future selection prospects.

Several interacting factors may influence an athlete's stress appraisal:

- **Situational demands:** Competitive importance, uncertainty, time pressure, opponent strength, and public evaluation.
- **Personal resources:** Perceived competence, previous experience, physical readiness, and psychological skills.
- **Social expectations:** Coaches' demands, parental expectations, teammate relationships, and perceived public judgment.
- **Environmental conditions:** Travel, unfamiliar facilities, scheduling demands, financial insecurity, and organizational instability.
- **Interpretation of consequences:** The perceived importance of the outcome and the anticipated consequences of failure.

These factors demonstrate why stress cannot be adequately understood by measuring competition difficulty alone. The psychological meaning of the situation is equally important.

4.2.2. Challenge and threat appraisals

A useful distinction in stress research is the difference between challenge and threat appraisals. A challenge appraisal occurs when an individual perceives that available resources may be sufficient to meet situational demands and that engagement may produce meaningful gains. A threat appraisal occurs when perceived demands appear to exceed available resources or when potential losses are considered particularly significant.

In sport, challenge appraisals may be associated with opportunity, preparation, and confidence. Threat appraisals may involve concerns about failure, loss of status, criticism, or inadequate performance. However, challenge and threat should not be treated as fixed personality categories. The same athlete may experience a challenge appraisal during training and a threat appraisal immediately before an important competition.

Nor should challenge automatically be equated with positive emotion and threat with negative emotion. Athletes can experience fear while remaining committed to a task, and they can feel confident while underestimating genuine demands. The consequences of an appraisal depend partly on the situation, the athlete's resources, and the behavioral response that follows.

For applied practice, the objective is not to eliminate every perception of threat. Instead, practitioners can help athletes evaluate demands realistically, identify controllable elements, and develop responses that preserve effective engagement.

4.2.3. Sources of stress in competitive sport

Stressors in sport can be grouped into several overlapping categories.

Competitive stressors include uncertainty about outcomes, fear of failure, performance expectations, selection decisions, opponent quality, and pressure during decisive moments.

Organizational stressors arise from the structures and practices of sport institutions. Examples include unclear communication, role ambiguity, inadequate logistical support, unstable contracts, excessive administrative demands, and perceived unfairness in selection or evaluation.

Interpersonal stressors involve relationships with coaches, teammates, parents, medical staff, officials, and other significant individuals. Conflict, criticism,

social exclusion, and a lack of psychological safety may undermine athletes' capacity to manage competitive demands.

Physical and recovery-related stressors include fatigue, pain, injury, inadequate sleep, demanding training schedules, and insufficient recovery opportunities. These factors may influence emotional regulation and the interpretation of subsequent stressors.

Life-transition stressors include relocation, educational responsibilities, employment, financial pressures, family changes, and retirement from competitive sport.

These categories are analytically useful, but they rarely operate independently. For example, an injury may create physical discomfort, uncertainty about selection, financial concerns, and fears about athletic identity simultaneously. Effective stress management therefore requires attention to the combination of demands rather than an isolated symptom.

4.3. Theoretical Perspectives on Stress and Coping

4.3.1. The transactional model of stress

The transactional model developed by Lazarus and Folkman (1984) distinguishes between primary appraisal, secondary appraisal, and coping processes.

Primary appraisal concerns the perceived significance of an event. An athlete may evaluate a situation as irrelevant, relatively benign, or stressful. Stressful appraisals can involve perceived harm or loss, threat, or challenge.

Secondary appraisal concerns the resources and options available for responding. Athletes may consider whether they possess the necessary skills, time, support, information, and control to manage the situation.

Coping refers to cognitive and behavioral efforts to manage demands that are appraised as taxing or exceeding available resources. Coping may involve changing the situation, modifying its psychological meaning, regulating emotional responses, or seeking assistance.

The model emphasizes that appraisal and coping are dynamic. An athlete's interpretation may change after receiving feedback, experiencing an unexpected event, or discovering that a planned strategy is ineffective. This process is particularly relevant in sport, where competitive conditions can change rapidly.

For example, a runner who begins a race behind the expected pace may initially interpret the situation as a threat. After reviewing their pacing strategy and

recognizing that the leading group is moving too quickly, the runner may reassess the situation and adopt a more effective plan. The stressor has not disappeared, but its meaning and the available behavioral options have changed.

4.3.2. The relationship between stress and performance

Stress does not have a uniformly negative relationship with performance. Its effects depend on the nature of the task, the intensity and duration of the response, the athlete's interpretation, and the psychological and physiological demands of the sport.

Some competitive pressure may increase alertness and task engagement. However, excessive or prolonged stress may impair attention, decision-making, movement coordination, and recovery. High levels of worry can consume working-memory resources, while excessive muscular tension may interfere with the execution of fine motor skills.

The implications differ across sporting activities. An athlete performing a highly automated movement may be disrupted by excessive conscious monitoring of the movement itself. In contrast, a tactical athlete may need to remain cognitively flexible and continuously update decisions in response to changing information.

Stress should therefore be assessed in relation to the specific performance demands of the sport rather than through a universal assumption that lower arousal always produces better outcomes.

4.3.3. The biopsychosocial perspective

A biopsychosocial perspective recognizes that stress responses emerge through interacting biological, psychological, and social processes. Physiological activation, cognitive appraisal, emotional experience, behavioral tendencies, and environmental conditions influence one another.

For instance, inadequate sleep may increase fatigue and emotional reactivity. These changes may make a routine coaching comment appear more threatening than it would under well-rested conditions. The resulting worry may then interfere with sleep, creating a potentially self-reinforcing cycle.

The biopsychosocial perspective also prevents the overindividualization of athlete stress. If athletes repeatedly experience anxiety because of abusive coaching, unrealistic schedules, or persistent uncertainty about their roles, individual relaxation training alone is unlikely to address the underlying problem. Organizational changes may be necessary.

This approach is consistent with contemporary consensus recommendations that athlete mental health support should address both individual needs and the environments in which athletes train and compete (Reardon et al., 2026).

4.4. Understanding Anxiety in Sport

4.4.1. Anxiety as a multidimensional construct

Anxiety is an emotional state characterized by apprehension, worry, or uneasiness in response to perceived uncertainty or threat. In sport psychology, anxiety is frequently examined in relation to competition, evaluation, and perceived performance demands.

A distinction is commonly made between **state anxiety** and **trait anxiety**.

State anxiety refers to a temporary response that varies according to the situation. An athlete may experience elevated anxiety immediately before a championship final but feel relatively calm during routine training.

Trait anxiety refers to a relatively stable tendency to interpret certain situations as threatening and to respond with anxiety. It does not mean that an athlete is anxious in every situation, nor does it constitute a clinical diagnosis.

Another important distinction concerns the cognitive and somatic dimensions of competitive anxiety.

Cognitive anxiety includes worry, negative expectations, intrusive thoughts, and concerns about the consequences of failure.

Somatic anxiety refers to perceived physiological symptoms, such as increased heart rate, sweating, muscular tension, or gastrointestinal discomfort.

These dimensions can interact but do not necessarily change in parallel. An athlete may report substantial cognitive worry while experiencing relatively modest physical activation. Another may experience strong physiological arousal without persistent negative thoughts.

Martens et al. (1990) contributed substantially to the study of competitive anxiety by examining trait and state anxiety and developing influential measurement approaches in sport psychology. Their work helped establish competitive anxiety as a multidimensional research construct rather than a single, undifferentiated emotional response.

4.4.2. Competitive anxiety and performance

The relationship between competitive anxiety and performance is complex. Anxiety may be associated with impaired performance when worry disrupts attention, self-confidence declines, or physiological responses interfere with movement execution. Nevertheless, anxiety does not inevitably result in poor performance.

The interpretation of symptoms is particularly important. An athlete who experiences a rapid heartbeat may interpret it as evidence of panic or inadequate preparation. Another may interpret the same sensation as a sign of readiness. The physiological response may be similar, but its perceived meaning differs.

The attentional control theory proposed by Eysenck et al. (2007) offers a useful explanation of how anxiety can influence cognitive performance. The theory proposes that anxiety may reduce the efficiency of attentional control, particularly by weakening the ability to inhibit distracting information and shift attention appropriately. Under demanding conditions, anxious individuals may allocate more cognitive resources to task performance while nevertheless becoming less efficient.

Applied to sport, this perspective suggests that athletes may maintain acceptable performance despite experiencing anxiety, but at a greater cognitive cost. They may need to exert additional effort to sustain concentration, which can become problematic when a task requires rapid decisions, prolonged attention, or repeated high-pressure execution.

The consequences are likely to depend on the interaction between anxiety, expertise, task complexity, and environmental demands. A skilled athlete may compensate effectively during a familiar routine but struggle when anxiety coincides with unfamiliar conditions or rapid tactical changes.

4.4.3. Anxiety, self-confidence, and perceived control

Self-confidence concerns an athlete's belief in their capacity to perform successfully or manage relevant demands. Confidence does not eliminate anxiety, but it may influence how anxiety is interpreted and how effectively the athlete responds.

When athletes believe that they possess the necessary skills and strategies, competitive demands may appear more manageable. Conversely, doubts about preparation or competence may amplify the perceived consequences of failure.

Perceived control is also important. Athletes generally have more direct control over preparation, effort, routines, and decision-making than over the final result, an opponent's performance, or an official's decision.

Psychological preparation should therefore distinguish between controllable processes and uncontrollable outcomes. This distinction can help athletes direct attention toward actionable tasks rather than becoming preoccupied with uncertainty.

However, practitioners should avoid treating confidence as an obligation or implying that athletes who experience anxiety lack mental strength. Confidence fluctuates, and appropriate support should help athletes respond effectively even when confidence is temporarily reduced.

4.5. Theories of Anxiety and Arousal in Sport

4.5.1. The inverted-U hypothesis

The inverted-U hypothesis proposes that performance may improve as arousal increases from a low level to a moderate level, after which further increases may be associated with poorer performance. The model provides an accessible illustration of why insufficient engagement and excessive activation may both interfere with performance.

Nevertheless, the inverted-U relationship should not be treated as a universal law. Optimal arousal varies across athletes, tasks, and contexts. A highly explosive movement, a precision-based skill, and a complex tactical decision may impose different demands on attention and physiological regulation.

The hypothesis is therefore most useful as a starting point for discussing individual differences rather than as a definitive formula for prescribing an ideal level of arousal.

4.5.2. Multidimensional anxiety perspectives

Multidimensional perspectives distinguish cognitive anxiety from somatic anxiety and consider their potentially different relationships with performance.

Cognitive anxiety may interfere with performance when worry occupies attentional resources or increases self-doubt. Somatic anxiety may affect performance when physiological activation disrupts coordination, breathing, or the execution of technical skills.

However, neither dimension necessarily has a simple linear relationship with performance. The meaning of symptoms, task demands, and athletes' regulatory capacities must also be considered.

This distinction has practical value because different anxiety profiles may require different responses. An athlete whose main difficulty is persistent worry may benefit from cognitive restructuring, attentional routines, and realistic performance planning. An athlete whose main difficulty is excessive muscular tension may benefit from appropriate relaxation and breathing techniques.

4.5.3. Catastrophe perspectives

Catastrophe-based perspectives propose that the relationship between physiological arousal and performance may become nonlinear when cognitive anxiety is high. Rather than a gradual decline in performance, a sharp deterioration may occur under certain combinations of worry and arousal.

This perspective highlights the possibility that athletes may perform adequately until a threshold is reached, after which performance deteriorates substantially. Such a pattern is especially relevant when athletes face intense evaluative pressure and limited opportunities to recover during a performance.

Nevertheless, the model should not be used to predict an inevitable performance collapse. Its value lies in emphasizing that interacting psychological and physiological processes may produce complex responses that cannot be captured by a single optimal-arousal score.

4.6. Emotion and Emotion Regulation in Sport

4.6.1. Understanding emotions in athletic performance

Emotions influence how athletes interpret events, allocate attention, communicate with others, and select actions. Anger, fear, excitement, disappointment, pride, and relief may all occur during a competition. Their effects depend on the context and the way they are experienced and expressed.

Emotions are not simply obstacles to performance. Fear may alert an athlete to a genuine risk, disappointment may encourage reflection after failure, and excitement may support engagement. However, emotions may become problematic when their intensity, duration, or behavioral consequences interfere with task requirements or psychological well-being.

A key distinction is between experiencing an emotion and responding to it. An athlete may feel angry after a referee's decision without directing aggression

toward an opponent. Similarly, an athlete may experience fear before a difficult movement while still executing an appropriately prepared routine.

Psychological effectiveness therefore does not require the absence of emotion. It requires the capacity to recognize emotional responses and choose actions that are consistent with the athlete's goals, values, and safety requirements.

4.6.2. Defining emotion regulation

Emotion regulation refers to the processes through which individuals influence which emotions they experience, when those emotions occur, and how they are experienced or expressed (Gross, 1998).

Gross's process model identifies several points at which regulation may occur:

1. **Situation selection:** Choosing whether to enter or avoid a situation likely to elicit a particular emotional response.
2. **Situation modification:** Changing relevant features of a situation to influence its emotional impact.
3. **Attentional deployment:** Directing attention toward or away from particular aspects of an event.
4. **Cognitive change:** Reinterpreting the meaning of a situation.
5. **Response modulation:** Influencing the behavioral, experiential, or physiological expression of an emotion after it has developed.

These processes have direct applications in sport.

A basketball player may use situation modification by clarifying their role with a coach before a decisive game. A tennis player may use attentional deployment by returning attention to the ball and the next point after an unfavorable call. A gymnast may use cognitive reappraisal by interpreting pre-performance activation as preparation rather than evidence of impending failure.

Response modulation may involve breathing strategies or other techniques intended to influence physiological activation. However, regulation should not be reduced to suppressing visible emotion. An athlete who conceals distress without addressing its underlying causes may continue to experience significant psychological difficulty.

4.6.3. Cognitive reappraisal and expressive suppression

Two frequently discussed emotion-regulation strategies are cognitive reappraisal and expressive suppression.

Cognitive reappraisal involves changing the interpretation of an emotionally relevant situation. For example, an athlete may reinterpret a difficult opponent as an opportunity to test a specific tactical skill rather than as a threat to personal status.

Reappraisal does not require unrealistic positive thinking. An effective reinterpretation should remain consistent with available evidence and the actual demands of the situation. Simply telling an athlete that everything will be fine may be less useful than helping them identify what they can control and how they will respond to plausible difficulties.

Expressive suppression involves inhibiting the outward expression of an emotional response. Athletes may suppress visible frustration to maintain competitive composure or prevent conflict. In some situations, temporary suppression may serve a practical purpose. However, it should not be assumed to resolve the underlying emotion or to be beneficial across all contexts.

The effectiveness of a regulation strategy depends on the athlete, the emotion, the timing, and the social environment. A strategy that is useful during a brief competitive sequence may be inappropriate as a long-term response to persistent distress.

4.6.4. Emotional awareness and psychological flexibility

Emotional awareness involves recognizing and differentiating emotional experiences. Athletes who can identify whether they are experiencing fear, frustration, embarrassment, or disappointment may be better positioned to select an appropriate response.

Psychological flexibility involves responding to changing circumstances in ways that remain consistent with meaningful goals and values, rather than being controlled entirely by uncomfortable thoughts or emotions.

For example, an athlete may recognize the thought, "I cannot make another mistake," without treating it as an objective prediction. They can then redirect attention toward the next actionable task.

This approach does not require athletes to challenge or eliminate every negative thought. Instead, it emphasizes the distinction between having a thought and allowing that thought to determine behavior.

Such skills are relevant in both competitive sport and exercise participation, where individuals must often continue meaningful activity despite discomfort, uncertainty, or temporary frustration.

4.7. Coping Strategies and Psychological Adaptation

4.7.1. Problem-focused and emotion-focused coping

Lazarus and Folkman (1984) distinguished between problem-focused and emotion-focused coping.

Problem-focused coping aims to address the source of a demand. In sport, this may involve improving technical preparation, clarifying selection criteria, developing a competition plan, or resolving a practical conflict.

Emotion-focused coping aims to manage the emotional consequences of a stressful situation. Examples include relaxation, emotional expression, acceptance, cognitive reappraisal, and seeking emotional support.

These categories should not be interpreted as mutually exclusive. An athlete preparing for a major competition may improve their tactical plan while also using breathing techniques to manage anxiety.

Nor should problem-focused coping automatically be considered superior. Some situations are not fully controllable. An athlete cannot directly determine an opponent's actions or reverse an official's completed decision. In these circumstances, accepting the limits of control and regulating emotional responses may be more useful than repeatedly attempting to change the uncontrollable event.

Effective coping therefore requires a reasonable match between the strategy and the characteristics of the stressor.

4.7.2. Approach and avoidance strategies

Coping can also be examined through the distinction between approach-oriented and avoidance-oriented responses.

Approach-oriented strategies involve engaging with a stressor, gathering relevant information, addressing a problem, or processing an emotional response. Avoidance-oriented strategies involve efforts to disengage from the stressor or its associated thoughts and feelings.

Neither category should be judged without considering context. Temporarily withdrawing from a stressful interaction may be appropriate when an athlete needs time to regulate emotions before a constructive conversation. However, repeatedly avoiding necessary communication about injury, team conflict, or psychological distress may prolong the problem.

The same behavior can serve different functions in different circumstances. Taking a break may represent adaptive recovery, whereas persistent disengagement from training because of fear of failure may indicate a pattern requiring further assessment.

4.7.3. Social support as a coping resource

Social support is an important psychosocial resource for managing stress. It may include emotional reassurance, practical assistance, informational guidance, and feedback that helps athletes interpret difficult experiences.

Coaches can provide support by communicating expectations clearly, offering constructive feedback, and treating mistakes as opportunities for learning rather than occasions for humiliation. Teammates can contribute by creating a sense of belonging and normalizing the challenges associated with competitive performance. Family members may provide emotional stability outside the sport environment.

The perceived availability of support may be as important as its objective presence. An athlete may belong to a well-resourced team but avoid seeking assistance because they fear appearing weak or losing selection opportunities.

Sport organizations should therefore establish environments in which help-seeking is legitimate, confidentiality is respected, and athletes can raise concerns without fear of retaliation.

4.8. Stress, Anxiety, and Athletic Burnout

Athletic burnout is generally discussed in relation to sustained physical and psychological demands, inadequate recovery, and difficulties maintaining a meaningful and manageable relationship with sport. It should not be treated as synonymous with ordinary fatigue or a single episode of competitive anxiety.

Stress may contribute to burnout when demands remain high over time and athletes perceive insufficient control, support, or opportunity for recovery. However, burnout is multifactorial and cannot be explained by stress alone.

Potential warning signs include persistent exhaustion, reduced sense of accomplishment, and psychological distancing from sport. These experiences require careful interpretation because they may overlap with depression, overtraining, sleep disturbance, injury-related distress, and other health concerns.

A useful assessment therefore considers the duration, severity, context, and functional consequences of symptoms. A temporary decline in enthusiasm following a demanding competition does not, by itself, establish burnout.

Similarly, persistent exhaustion should not automatically be dismissed as a normal feature of high-performance sport.

Prevention requires more than teaching individual coping skills. Training loads, recovery opportunities, athlete autonomy, role clarity, coaching behavior, and the balance between sport and other life responsibilities may all require attention.

4.9. Psychological Interventions for Stress and Competitive Anxiety

Psychological interventions should be selected according to the athlete's needs, the nature of the difficulty, the demands of the sport, and the available evidence. No single technique is likely to be optimal for every athlete or situation.

4.9.1. Cognitive-behavioral approaches

Cognitive-behavioral approaches examine relationships among interpretations, emotions, physiological responses, and behavior. In sport, they may help athletes identify unhelpful predictions, evaluate evidence, develop realistic self-talk, and practice alternative responses to difficult situations.

For example, an athlete who repeatedly thinks, "If I make one mistake, the whole competition is lost," may learn to examine the accuracy and usefulness of this belief. A more task-focused alternative might be, "If I make a mistake, I will return to my routine and focus on the next action."

The purpose is not to replace every negative thought with a positive statement. Rather, it is to develop more accurate, flexible, and behaviorally useful interpretations.

When anxiety is persistent, severe, or associated with substantial impairment, a qualified mental health professional should assess the athlete and determine whether clinical intervention is appropriate. Performance-focused psychological skills training should not be used as a substitute for necessary clinical care.

4.9.2. Breathing and relaxation

Breathing and relaxation techniques can be incorporated into psychological preparation when they are appropriate to the athlete's task and individual response.

Slow, controlled breathing may help some athletes manage excessive physiological activation. Progressive muscle relaxation involves systematically tensing and relaxing muscle groups to increase awareness of muscular tension and facilitate relaxation.

These techniques should be practiced during training before being introduced into high-pressure competition. Athletes need to learn how a technique affects them, when it is useful, and whether it fits within the time constraints of their sport.

The objective is not necessarily to achieve complete relaxation. Some activities require readiness and rapid action. A more appropriate goal may be to reduce unnecessary tension while preserving the activation required for effective performance.

4.9.3. Imagery and pre-performance routines

Imagery involves the purposeful mental representation of actions, situations, or outcomes. Athletes may use imagery to rehearse technical execution, anticipate potential difficulties, and prepare responses to competitive pressure.

Pre-performance routines are structured sequences of thoughts and actions performed before a specific skill or competitive action. Depending on the sport, a routine may include breathing, attentional cues, imagery, or a consistent physical sequence.

Routines can help direct attention toward relevant task information and reduce unnecessary decision-making. However, they should remain sufficiently flexible to accommodate changing circumstances. A rigid routine that becomes a perceived requirement for success may itself become a source of anxiety.

4.9.4. Mindfulness- and acceptance-based approaches

Mindfulness-based approaches emphasize awareness of present-moment experience without automatically judging or attempting to eliminate it. Acceptance-based approaches encourage individuals to make room for uncomfortable internal experiences while continuing actions consistent with their goals and values.

In sport, an athlete may learn to notice pre-competition worry, acknowledge its presence, and return attention to the next relevant action. The goal is not to guarantee that anxiety disappears, but to reduce the extent to which it disrupts effective behavior.

These approaches may be useful when athletes struggle with persistent attempts to suppress thoughts or control every emotional response. Nevertheless, their effects should be evaluated in relation to specific outcomes, intervention quality, and individual circumstances. They should not be presented as universally superior to other evidence-informed methods.

4.9.5. Integrated psychological skills training

Psychological skills training may combine goal setting, self-talk, imagery, attentional control, relaxation, and structured routines. The components should be selected according to a clear formulation of the athlete's needs rather than delivered as an undifferentiated package.

An integrated program might include the following sequence:

1. Identify the athlete's principal stressors and anxiety-related difficulties.
2. Establish measurable performance and well-being goals.
3. Teach a limited number of relevant regulation strategies.
4. Practice the strategies in ordinary training.
5. Gradually introduce realistic pressure conditions.
6. Review the athlete's responses and refine the plan.
7. Monitor whether improvements transfer to competition and daily functioning.

Psychological skills should be trained over time, not introduced exclusively when an athlete is already experiencing severe distress immediately before a major event.

4.10. Athlete Mental Health: Beyond Performance Anxiety

4.10.1. Distinguishing competitive anxiety from mental health disorders

Competitive anxiety is a recognized feature of many sporting experiences. However, competition-related anxiety should be distinguished from anxiety disorders and other mental health conditions.

The distinction depends on several factors, including the nature and duration of symptoms, the circumstances in which they occur, their severity, and their effects on daily functioning. An athlete who experiences nervousness before an important competition may be responding to a demanding but ordinary situation. An athlete who experiences persistent, disproportionate anxiety across multiple settings may require a more comprehensive assessment.

Sport psychologists and coaches should avoid making clinical diagnoses outside their professional scope. Their responsibilities include recognizing concerns, responding appropriately, and facilitating access to qualified health professionals when necessary.

The IOC's 2019 consensus statement emphasized that mental health symptoms and disorders occur among elite athletes and that assessment and management should consider both individual and sport-specific factors (Reardon et al., 2019). Its 2026 update further emphasizes routine monitoring, individualized care, and the importance of training environments, organizational culture, and barriers to help-seeking (Reardon et al., 2026).

4.10.2. Stigma and help-seeking

Athletes may hesitate to seek psychological support because they fear being perceived as weak, losing their position, disappointing others, or compromising confidentiality. These concerns may be intensified in environments where performance is prioritized over health or where emotional difficulties are interpreted as personal failure.

Sport organizations can address these barriers by normalizing psychological care as part of comprehensive athlete support. Mental health education should explain that seeking assistance is compatible with commitment to sport and that psychological difficulties deserve appropriate attention.

Confidentiality procedures should be clearly explained, including any professional or legal limits. Athletes should understand who can access their information, under what circumstances it may be shared, and how clinical support relates to team decision-making.

4.10.3. Organizational responsibility

Athlete mental health cannot be protected solely through individual resilience training. Organizational practices may either reduce or intensify stress.

Relevant considerations include:

- Transparent selection and evaluation procedures.
- Clear communication of roles and expectations.
- Appropriate training loads and recovery opportunities.
- Protection from harassment, abuse, and retaliation.
- Respectful coach–athlete relationships.
- Accessible and confidential psychological support.
- Clear referral pathways for clinical concerns.
- Support during injury, deselection, and retirement.

- Policies that balance performance objectives with athlete welfare.

These responsibilities are especially important for young athletes, athletes facing financial or contractual insecurity, and those who depend heavily on a small number of decision-makers for their sporting opportunities.

An organizational approach also recognizes that an athlete may be reluctant to disclose distress if the source of that distress is embedded within the team or institution. Independent reporting and referral mechanisms may therefore be necessary.

4.11. Practical Applications for Athletes, Coaches, and Sport Psychologists

The theoretical perspectives discussed in this chapter can be translated into a structured approach to practice.

4.11.1. For athletes

Athletes can be encouraged to:

- Identify their most common competitive and noncompetitive stressors.
- Distinguish between controllable and uncontrollable aspects of a situation.
- Recognize their characteristic cognitive and physiological responses to anxiety.
- Develop realistic performance goals and task-focused routines.
- Practice relevant coping strategies before high-pressure events.
- Seek support when distress persists or begins to affect functioning.
- Monitor recovery, sleep, and the balance between sport and other responsibilities.

These practices are intended to strengthen self-awareness and adaptive responding rather than to establish an expectation of constant emotional control.

4.11.2. For coaches

Coaches influence athletes' experiences through communication, feedback, selection decisions, and the emotional climate of training.

Evidence-informed coaching practice should involve communicating expectations clearly, providing specific and constructive feedback, and responding to mistakes without unnecessary humiliation. Coaches can help athletes prepare for pressure by incorporating progressively challenging practice conditions while maintaining appropriate safeguards.

Coaches should also recognize the limits of their role. They can identify warning signs and facilitate referrals, but they should not attempt to manage serious mental health conditions without appropriate professional support.

4.11.3. For sport psychologists

Sport psychologists can contribute through assessment, psychological skills training, performance preparation, consultation with coaches, and collaboration with healthcare professionals.

An effective intervention begins with a clear understanding of the presenting problem. The practitioner should establish whether the principal difficulty involves situational performance anxiety, persistent stress, emotional regulation, interpersonal conflict, injury-related distress, or a possible mental health condition requiring clinical assessment.

Intervention outcomes should be evaluated using more than competition results. Relevant outcomes may include perceived control, coping confidence, emotional functioning, sleep, adherence to rehabilitation, quality of relationships, and overall well-being.

4.11.4. An applied stress-management framework

The following framework provides a practical sequence for managing stress in sport.

Stage	Main question	Example of an applied response
Identification	What is creating the stress?	Identify competition pressure, role uncertainty, injury concerns, or interpersonal conflict.
Appraisal	What does the situation mean to the athlete?	Explore perceived threat, challenge, uncertainty, and anticipated consequences.
Resource assessment	What resources are available?	Review preparation, skills, social support, time, and access to professional assistance.
Strategy selection	What response fits the situation?	Select problem-solving, reappraisal, attentional control, relaxation, or help-seeking as appropriate.
Practice	Can the strategy be used effectively?	Rehearse the response in training and progressively challenging situations.
Evaluation	Is the strategy helping?	Monitor psychological functioning, behavior, recovery, and relevant performance indicators.
Adjustment	What needs to change?	Refine the strategy or address organizational and clinical factors that remain unresolved.

The framework should be adapted to the athlete's age, experience, sport, cultural context, and individual circumstances. It is a practical organizing tool rather than a validated diagnostic instrument.

4.12. Methodological Considerations and Future Research

Research on stress, anxiety, and emotion regulation in sport faces several methodological challenges.

First, stress and anxiety are multidimensional constructs. Studies that rely on a single questionnaire or total score may overlook important differences between cognitive worry, physiological activation, perceived control, and emotional interpretation.

Second, the timing of measurement matters. Anxiety assessed several days before competition may differ substantially from anxiety experienced immediately before performance or during a decisive moment. Researchers should consider the temporal relationship between assessment, stressor exposure, and performance.

Third, cross-sectional associations cannot establish causal relationships. An association between anxiety and poor performance does not demonstrate that anxiety caused the performance outcome. Poor performance may increase anxiety, and both may be influenced by additional factors such as injury, fatigue, preparation, or competitive experience.

Fourth, individual and contextual differences require greater attention. Athletes vary in age, gender, disability status, competitive level, cultural background, sport type, and access to resources. Findings from one population should not automatically be generalized to all athletes.

Fifth, studies should distinguish performance outcomes from mental health outcomes. An intervention may reduce worry without producing an immediate improvement in competition results. Conversely, an athlete may maintain performance while experiencing deteriorating well-being. Both outcomes matter, but they represent different dimensions of effectiveness.

Future research would benefit from longitudinal designs, repeated real-time assessment, carefully designed intervention studies, and greater integration of physiological, behavioral, and self-report measures. Researchers should also examine organizational stressors, coach behavior, help-seeking barriers, and the psychological consequences of injury and retirement.

The 2026 IOC consensus statement highlights the need to monitor athlete mental health systematically and to consider environmental factors alongside individual symptoms (Reardon et al., 2026). This direction supports a broader research

agenda in which athlete well-being is examined as an outcome in its own right, rather than solely as a means of improving competitive performance.

4.13. Conclusion

Stress, anxiety, and emotional responses are fundamental aspects of athletic participation. Their consequences depend on the interaction between situational demands, individual appraisals, available coping resources, task requirements, and the social environment.

The transactional model of stress explains why the same event can produce different responses across athletes and situations. Anxiety research demonstrates that cognitive worry and physiological activation should be distinguished, while attentional control theory helps explain how anxiety may affect the efficiency of cognitive performance. Emotion-regulation models further show that athletes can influence their responses through situation selection, attentional deployment, cognitive reappraisal, and other strategies.

Nevertheless, psychological effectiveness should not be defined as the complete elimination of stress or anxiety. Athletes need realistic strategies for responding to demanding situations, recovering from setbacks, and maintaining meaningful engagement with sport. At the same time, persistent psychological difficulties must not be dismissed as an unavoidable price of competitive success.

An integrated approach therefore combines individual psychological skills with supportive relationships, responsible coaching, appropriate recovery, and organizational practices that protect athlete welfare. When necessary, this approach also includes timely assessment and access to qualified mental health care.

Ultimately, effective sport psychology must recognize both the performance demands athletes encounter and their broader psychological needs. Supporting athletes means helping them perform when appropriate while also protecting their capacity to participate, recover, develop, and live well beyond the immediate demands of competition.

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CHAPTER 5: Social Relationships, Social Support, and Team Dynamics in Sport

5.1. Introduction

Sport is frequently described in terms of individual ability, physical preparation, tactical knowledge, and competitive performance. Yet athletic participation rarely occurs in social isolation. Athletes train within interpersonal networks, depend on coaches and teammates, respond to family expectations, and operate within organizations that establish rules, opportunities, and standards of conduct. Even in individual sports, performance development is influenced by relationships with coaches, training partners, medical professionals, family members, and other significant individuals.

These relationships can provide emotional reassurance, practical assistance, performance-related information, motivation, and a sense of belonging. They can also become sources of conflict, pressure, exclusion, uncertainty, and psychological distress. Consequently, social relationships in sport should not be understood as uniformly beneficial or harmful. Their effects depend on their quality, the support they provide, the expectations they communicate, and the broader context in which they develop.

Social support, coach–athlete relationships, team cohesion, communication, and group identity represent related but distinct dimensions of the psychosocial environment. Social support concerns the resources individuals perceive or receive from others. The coach–athlete relationship concerns the reciprocal emotional, cognitive, and behavioral connection between a coach and an athlete. Team cohesion concerns the forces that encourage group members to remain united in pursuit of collective objectives or social connection. Social identity concerns the extent to which group membership becomes part of an individual's understanding of who they are.

These constructs are interconnected. For example, an athlete who feels respected by a coach may be more willing to communicate difficulties, seek feedback, and identify with the team. A team characterized by trust and constructive communication may be better positioned to manage setbacks and coordinate performance. Conversely, a team with strong collective identification may still experience exclusion, excessive conformity, or harmful interpersonal pressure if its norms are poorly managed.

Research has increasingly examined these relationships in connection with performance, motivation, psychological well-being, stress management, and

athlete mental health. A 2025 systematic review and meta-analysis by Luo et al. found that social support was associated with greater well-being and lower anxiety, depression, and stress among athletes, although the magnitude of these relationships varied across outcomes and sources of support. These findings support the importance of social resources while also highlighting the need to distinguish associations from causal effects (Luo et al., 2025).

This chapter examines the social foundations of sport participation through an integrated psychosocial perspective. It addresses the theoretical foundations of social support, the coach–athlete relationship, team cohesion, group identity, communication, psychological safety, interpersonal conflict, and practical strategies for developing healthier sporting environments.

5.2. The Social Nature of Sport Participation

5.2.1. Sport as an interpersonal and organizational environment

Sport provides a structured setting in which individuals interact around shared activities, goals, rules, and expectations. These interactions take place at several levels.

At the **interpersonal level**, athletes develop relationships with coaches, teammates, opponents, family members, and support professionals. These relationships may influence motivation, emotional experiences, confidence, and willingness to seek assistance.

At the **group level**, athletes encounter shared norms, informal status hierarchies, role expectations, patterns of communication, and collective identities. These processes can shape how individuals respond to mistakes, cooperate during training, and interpret success or failure.

At the **organizational level**, sport clubs, schools, universities, federations, and professional teams establish policies, resource distributions, selection systems, and institutional cultures. These arrangements can facilitate social support or create barriers to it.

At the **broader social level**, cultural expectations, gender norms, socioeconomic conditions, media representations, and public attitudes toward athletic success influence how sport is experienced.

These levels should not be treated as independent. An athlete's relationship with a coach may be shaped by organizational selection policies, while team communication may reflect broader cultural expectations concerning authority and hierarchy.

A comprehensive analysis therefore asks not only whether athletes have supportive relationships, but also whether the environments in which those relationships develop encourage trust, fairness, participation, and psychological well-being.

5.2.2. Individual and team sports: Different social structures, shared relational needs

A distinction is often made between individual and team sports. Team sports generally require extensive coordination, role interdependence, and communication among athletes during performance. Individual sports may place greater emphasis on personal execution, but athletes still depend on coaches, training partners, family members, and support teams.

The social demands of these environments differ, but the distinction should not be overstated. A team athlete may experience intense individual evaluation, while an individual athlete may depend heavily on collective training and shared preparation.

For example, a tennis player competes individually but may rely on a coach for technical feedback, a training partner for realistic practice, a physiotherapist for rehabilitation, and family members for emotional support. A football player operates within a collective tactical system but may experience selection uncertainty, individual performance pressure, or a lack of belonging within the squad.

The relevant question is therefore not whether sport is individual or collective, but how its social structure distributes responsibility, support, influence, and opportunities for participation.

5.2.3. Relationships as psychosocial resources

Relationships can provide resources that are difficult to obtain through individual psychological skills alone. A coach may help an athlete interpret a performance setback, a teammate may provide practical assistance during rehabilitation, and a family member may offer stability when sporting outcomes are uncertain.

However, the availability of a relationship does not guarantee that it will be experienced as supportive. An athlete may receive frequent feedback but perceive it as humiliating or controlling. Family members may express concern through excessive pressure. Teammates may offer advice that is poorly matched to the athlete's needs.

Relational support should therefore be evaluated in terms of both availability and perceived usefulness. The athlete's perspective matters because support that is intended to help may not correspond to what the individual actually needs.

5.3. Understanding Social Support in Sport

5.3.1. Defining social support

Social support refers to resources provided or perceived to be available through relationships with other people. In sport, these resources may help athletes manage competitive demands, maintain motivation, respond to injury, navigate transitions, and preserve psychological well-being.

Rees and Hardy (2000), in their qualitative investigation of high-level sports performers, identified four dimensions of support: emotional, esteem, informational, and tangible support. Their work highlighted that athletes may require different types of assistance and that support can relate directly to sport or to other areas of life.

The distinction between perceived and received support is important.

Perceived social support concerns an athlete's belief that suitable assistance would be available when needed.

Received social support concerns assistance that has actually been provided within a particular period or situation.

These forms of support are related but not identical. An athlete may receive practical assistance without feeling understood or supported. Another may feel secure because help is available even when no immediate assistance is required.

Social support also differs from general social contact. Frequent interaction does not necessarily produce a sense of trust, belonging, or assistance. The quality and function of relationships are more informative than the number of people with whom an athlete interacts.

5.3.2. Emotional support

Emotional support involves expressions of care, empathy, reassurance, acceptance, and concern. It may be especially important when athletes experience disappointment, injury, deselection, uncertainty, or personal difficulties outside sport.

An athlete who has been excluded from a starting lineup may need an opportunity to discuss disappointment without being immediately instructed to improve

performance. A teammate who listens without ridicule may help the athlete feel understood and less isolated.

Emotional support does not require agreeing with every interpretation an athlete expresses. It involves acknowledging the athlete's experience while maintaining appropriate professional boundaries and encouraging constructive responses.

Supporters should also recognize that emotional support does not replace specialized clinical care when serious mental health concerns arise.

5.3.3. Esteem support

Esteem support reinforces an individual's sense of competence, worth, and capacity to manage challenges. It may involve recognizing effort, acknowledging progress, communicating confidence in an athlete's preparation, or helping the athlete interpret a setback without reducing their identity to a single result.

Effective esteem support should be credible and specific. General praise that is disconnected from performance or effort may have limited value. Constructive feedback can communicate confidence while still identifying areas requiring improvement.

For example, rather than stating that an athlete is guaranteed to win, a coach might acknowledge that the athlete has consistently executed the relevant technical skills during preparation and can focus on applying them in competition.

Esteem support is particularly relevant when an athlete's self-evaluation becomes excessively dependent on selection, rankings, or public recognition.

5.3.4. Informational support

Informational support provides knowledge, advice, feedback, or guidance intended to help an individual understand a situation or make a decision.

In sport, it may include technical instruction, tactical analysis, rehabilitation information, guidance concerning training organization, or explanations of selection criteria.

The usefulness of informational support depends on its accuracy, timing, credibility, and relevance. Excessive advice from multiple sources may create confusion, particularly when recommendations conflict.

Coaches and support professionals should therefore coordinate communication where appropriate and distinguish evidence-informed guidance from personal opinion. Athletes should also be encouraged to ask questions and clarify recommendations they do not understand.

5.3.5. Tangible support

Tangible support involves practical or material assistance. Examples include transportation to training, financial assistance, help with scheduling, access to equipment, accommodation during competition, and practical support during injury rehabilitation.

This dimension is important because psychological difficulties are not always resolved through changes in attitude or emotional encouragement. An athlete who cannot afford transportation to training may require a practical solution rather than motivational advice.

Tangible support can also reduce competing demands. Assistance with academic scheduling, travel arrangements, or daily responsibilities may enable athletes to allocate appropriate time to recovery and preparation.

5.3.6. Matching support to the athlete's needs

Support is most likely to be useful when its form matches the demands of the situation and the athlete's preferences.

An athlete who is distressed after a loss may initially need emotional support before being ready to consider technical feedback. An athlete facing a tactical problem may prefer specific information and opportunities for practice. During injury rehabilitation, practical assistance may be essential alongside reassurance and professional guidance.

This does not mean that athletes should receive only the support they explicitly request. Individuals may not always recognize what assistance is available or may hesitate to ask for it. Support providers should therefore combine attentive listening with appropriate offers of help.

The objective is to avoid two extremes: withholding assistance because the athlete has not requested it and imposing unwanted assistance that reduces the athlete's autonomy.

5.4. Social Support and Athlete Mental Health

5.4.1. Evidence concerning social support and psychological well-being

Social support has been examined as a potential resource for psychological well-being and the management of distress in sport.

Luo et al. (2025) conducted a systematic review and meta-analysis involving 40 studies and 14,462 athletes. Their analyses found that social support was positively associated with well-being and negatively associated with anxiety,

depression, and stress. The reported pooled correlations were approximately $r = .31$ for well-being, $r = -.22$ for anxiety, $r = -.27$ for depression, and $r = -.25$ for stress.

These findings suggest that athletes reporting greater social support also tend to report more favorable mental health indicators. However, the results should be interpreted carefully.

First, a correlation does not establish that social support directly caused the observed differences. Athletes experiencing better mental health may find it easier to maintain relationships or perceive available assistance positively. Second, the studies included different populations, measures, and forms of support, creating potential heterogeneity. Third, the strength of a relationship may differ across support sources and psychological outcomes.

The appropriate conclusion is therefore that social support represents a potentially important psychosocial resource, not that it guarantees protection from mental health difficulties.

5.4.2. The stress-buffering perspective

The stress-buffering perspective proposes that social support may reduce the harmful consequences of stress under particular circumstances. Support can influence how individuals appraise a stressful event, the coping resources they perceive themselves to possess, and the practical options available to them.

For example, an athlete who sustains an injury may initially interpret the event as a threat to their sporting future. A supportive coach can clarify the rehabilitation process, medical professionals can provide appropriate information, and teammates can help the athlete maintain a sense of connection with the group.

These resources may help the athlete manage uncertainty and remain engaged in rehabilitation. However, support does not eliminate the physical, financial, or career-related consequences of injury. Its contribution should be understood as one component of a broader recovery process.

Social support may also influence stress before a difficult event occurs. Knowing that assistance will be available can change how an athlete appraises a potential challenge, even when no immediate intervention is necessary.

5.4.3. Support from family, friends, coaches, and teammates

Different sources of support serve overlapping but distinct functions.

Family and friends may provide emotional stability, practical assistance, and a sense of identity that extends beyond athletic performance. These relationships can be particularly valuable during injury, deselection, career uncertainty, or retirement.

Coaches provide sport-specific feedback, technical instruction, role clarification, and opportunities for development. Their influence can be substantial because they often control training opportunities, selection decisions, and access to competition.

Teammates can offer shared understanding, practical cooperation, informal feedback, and a sense of belonging. Teammate support may be particularly relevant when athletes experience similar training demands or competitive pressures.

Sport science and healthcare professionals may provide specialized assistance concerning physical preparation, rehabilitation, nutrition, performance analysis, and mental health.

The importance of each source depends on the situation. A coach may be the most appropriate person to clarify a tactical role, whereas a family member may be better positioned to provide support unrelated to performance expectations.

Luo et al. (2025) found that family-and-friend support had a stronger negative association with depressive symptoms than team-based support in their subgroup analysis. This result reinforces the value of examining support sources separately rather than assuming that all social relationships operate in the same way.

5.4.4. When support becomes pressure

Social relationships can also create demands. Support may become controlling when it is accompanied by excessive expectations, intrusive monitoring, conditional approval, or pressure to prioritize sport over other important areas of life.

For example, a parent may intend to encourage an athlete by repeatedly discussing rankings and results. However, the athlete may interpret these interactions as evidence that affection or approval depends on performance.

Similarly, a coach may describe constant availability as commitment while unintentionally undermining recovery and personal boundaries.

Support should therefore be evaluated not only by the intention of the provider but also by its impact on the recipient. A socially supportive environment allows

athletes to communicate needs, disagree respectfully, and maintain appropriate autonomy.

5.5. The Coach–Athlete Relationship

5.5.1. The relational foundation of coaching

The coach–athlete relationship is a central component of the sporting environment. Coaches influence athletes through technical instruction, strategic decisions, feedback, selection, and interpersonal communication. Athletes, in turn, influence coaching through their responses, engagement, feedback, and expectations.

The relationship is therefore reciprocal rather than purely hierarchical. Although coaches may possess formal authority, the quality of the relationship depends partly on how both parties understand and respond to each other.

Jowett's work has made a major contribution to the conceptualization of coach–athlete relationships. Her 3 + 1Cs framework identifies closeness, commitment, complementarity, and co-orientation as interrelated dimensions of relationship quality (Jowett, 2007; Jowett, 2025).

The framework is useful because it moves beyond the assumption that effective coaching depends exclusively on technical knowledge or leadership style. It emphasizes the interpersonal processes through which coaching is experienced by athletes.

5.5.2. The 3 + 1Cs framework

Closeness

Closeness concerns the emotional connection between a coach and an athlete. It may be expressed through trust, respect, appreciation, care, and mutual concern.

A relationship characterized by closeness allows athletes to believe that their coach takes their development seriously and will respond to concerns in a respectful manner. Closeness does not require friendship outside professional boundaries; rather, it reflects the quality of the emotional connection within the coaching relationship.

Commitment

Commitment concerns the intention and willingness to maintain the relationship over time. It includes an investment in continued cooperation, development, and shared objectives.

Commitment should not be confused with unquestioning obedience. A committed athlete may challenge a decision respectfully, and a committed coach may acknowledge when an approach needs to change.

The quality of commitment depends partly on whether both parties perceive the relationship as meaningful and sustainable.

Complementarity

Complementarity concerns the coordination and responsiveness of the coach's and athlete's behaviors. Coaches provide direction, instruction, and feedback, while athletes engage, respond, and contribute to the learning process.

Complementary behavior does not imply that every interaction must be harmonious. Effective relationships can include disagreement, provided that the parties can communicate constructively and maintain respect.

Co-orientation

Co-orientation concerns the degree to which the coach and athlete understand their own perceptions of the relationship and how they believe the other person perceives it.

A coach may believe that an athlete feels supported, while the athlete may experience the coach's behavior as controlling. Such discrepancies can remain hidden when communication is limited.

Regular, constructive dialogue can help both parties identify and address these differences before they become persistent sources of conflict.

5.5.3. Relationship quality and performance development

A constructive coach–athlete relationship can support learning by creating conditions in which athletes are willing to ask questions, acknowledge mistakes, receive feedback, and communicate uncertainty.

These behaviors are important because skill development requires information about errors and opportunities to modify performance. If athletes fear humiliation after mistakes, they may conceal difficulties or avoid challenging tasks.

However, a positive relationship does not guarantee competitive success. Performance also depends on physical preparation, technical skill, tactical decisions, opponent quality, resources, and chance. The relationship should be understood as one factor that may facilitate or obstruct development rather than as a sufficient cause of success.

Jowett's (2025) review of 25 years of research on the 3 + 1Cs model emphasizes the sustained importance of relationship quality as a topic in sport psychology while also identifying the need for further research and practical tools.

5.5.4. Psychological safety within the coach–athlete relationship

Psychological safety refers to the perceived ability to communicate concerns, ask questions, acknowledge errors, and participate in interpersonal interactions without undue fear of humiliation or intimidation.

In sport, psychological safety is especially relevant because athletes operate in environments where evaluation and competition are unavoidable. The aim is not to remove standards or accountability. Rather, it is to create conditions in which performance-related problems can be discussed honestly and addressed constructively.

Jowett et al. (2023) examined communication, psychological safety, and coach–athlete relationship quality among 379 athletes. Their findings indicated that openness and conflict-management capacity were positively associated with psychological safety, which in turn was associated with relationship quality.

This evidence supports the importance of communication and relationship processes. However, because the study used questionnaire-based data, the findings should not be interpreted as definitive proof of a causal sequence.

Psychological safety may be strengthened when coaches:

- Invite questions and encourage athletes to raise concerns.
- Respond constructively when athletes acknowledge mistakes.
- Explain decisions and expectations clearly.
- Address interpersonal conflict without unnecessary humiliation.
- Avoid retaliation against athletes who raise legitimate concerns.
- Recognize that athletes may interpret the same interaction differently.
- Establish clear procedures for reporting serious concerns.

Psychological safety does not mean that all behavior is acceptable. It coexists with performance standards, professional boundaries, accountability, and safeguarding responsibilities.

5.6. Communication in Sport

5.6.1. Communication as an ongoing process

Communication involves more than transmitting information. It includes interpretation, feedback, nonverbal behavior, timing, and the relationship between the people communicating.

In sport, instructions may be technically accurate but ineffective if they are delivered at an inappropriate time or in a manner that creates confusion. Similarly, athletes may receive extensive feedback without feeling able to ask questions or explain their experiences.

Effective communication requires attention to both content and relational context. The same message may be interpreted differently depending on the history of the relationship, the athlete's emotional state, and the perceived consequences of disagreement.

5.6.2. Feedback and athlete learning

Feedback can inform athletes about their current performance, the gap between actual and intended execution, and the adjustments that may be necessary.

Effective feedback is generally specific, relevant, understandable, and connected to an actionable objective. It should distinguish between an athlete's behavior and their worth as a person.

For example, "Your positioning was too narrow during the transition; next time, scan earlier and maintain the passing angle" provides more actionable information than "You were terrible."

The purpose is not to eliminate critical feedback. Athletes need accurate information about errors. The objective is to communicate that information in a way that supports learning and accountability.

Feedback should also be proportionate. Excessive instructions may overload attention, while delayed feedback may be less useful for certain learning tasks. Coaches should consider the athlete's expertise, the task, and the timing of the interaction.

5.6.3. Listening and two-way communication

Listening is an essential but sometimes overlooked element of effective coaching. Athletes may possess information about pain, fatigue, confidence, interpersonal conflict, or perceived role ambiguity that is not visible to the coach.

Two-way communication allows this information to enter decision-making. It also helps clarify whether the athlete understands the coach's expectations and whether the coach understands the athlete's concerns.

Listening does not require the coach to agree with every request. It requires the coach to consider relevant information and explain decisions respectfully.

When disagreement occurs, a constructive process may involve clarifying the issue, identifying the interests of both parties, considering alternatives, and agreeing on a course of action.

5.6.4. Communication under pressure

Communication often becomes more difficult during competition because time is limited and emotional activation is elevated.

Teams can prepare for these conditions by establishing clear terminology, agreed communication signals, and role-specific expectations during training. Such preparation reduces the need to negotiate meaning during critical moments.

However, standardized communication should not eliminate flexibility. Athletes must be able to communicate unexpected information and adapt when circumstances change.

After competition, structured debriefing can help teams distinguish between tactical problems, communication failures, and individual execution errors. The objective is to learn from the event rather than simply assign blame.

5.7. Team Cohesion and Collective Functioning

5.7.1. Defining team cohesion

Team cohesion is commonly understood as a dynamic process reflected in a group's tendency to remain united in pursuit of collective objectives and/or in the satisfaction of members' social relationships.

Carron et al. (2002) examined the relationship between cohesion and team success in sport, contributing to a substantial body of research on the connection between group processes and performance.

Cohesion is not a single, uniform property. Teams may be united around performance objectives while having relatively weak interpersonal relationships. Conversely, team members may enjoy each other's company but struggle to coordinate their performance.

This distinction is commonly expressed through task cohesion and social cohesion.

Task cohesion concerns the extent to which team members work together toward shared performance goals.

Social cohesion concerns the extent to which members value their social relationships and wish to remain part of the group.

Both dimensions can matter, but their relevance depends on the sport, the task, and the stage of group development.

5.7.2. Task cohesion

Task cohesion involves collective commitment to the team's objectives and the coordination required to pursue them.

In football, task cohesion may be reflected in coordinated pressing, defensive coverage, and shared understanding of tactical responsibilities. In a relay team, it may involve pacing, exchange-zone coordination, and commitment to a collective performance plan.

Task cohesion does not require every athlete to have the same personal ambitions. It requires sufficient agreement about the collective objective and how individual roles contribute to it.

Teams can strengthen task cohesion by clarifying goals, defining responsibilities, reviewing performance collectively, and encouraging members to recognize the interdependence of their roles.

5.7.3. Social cohesion

Social cohesion concerns the interpersonal attraction, affiliation, and sense of belonging that develop among group members.

Athletes who feel accepted by teammates may be more willing to cooperate, communicate difficulties, and remain engaged during challenging periods.

However, strong social cohesion does not necessarily guarantee effective performance. A socially close group may avoid difficult conversations, resist changes, or prioritize interpersonal harmony over necessary performance feedback.

The objective is therefore not to maximize social closeness at any cost. It is to establish relationships that support both human well-being and the legitimate objectives of the team.

5.7.4. Cohesion and performance: Interpreting the evidence

Research has examined whether cohesive teams perform better and whether successful performance strengthens cohesion. These relationships are potentially reciprocal.

A cohesive team may coordinate more effectively, share information, and maintain commitment under pressure. Successful performance may also strengthen confidence in teammates and increase collective identification.

Nevertheless, the relationship is not universal or necessarily linear. Cohesion may be associated with performance differently across sports, competitive levels, and measures of success. Teams may also perform well despite interpersonal conflict when tactical systems, individual abilities, or other factors compensate for relational difficulties.

Carron et al. (2002) and Carron et al. (2002's broader research context) helped establish cohesion–performance relationships as an important empirical topic. The central implication is not that cohesion automatically produces victory, but that group processes should be investigated alongside technical and tactical variables.

Researchers and practitioners should distinguish between perceived cohesion, collective agreement about cohesion, actual interaction patterns, and objective performance. These measures capture related but different aspects of team functioning.

5.7.5. Developing cohesion without forcing conformity

Cohesion can be developed through shared objectives, clear roles, meaningful participation, respectful communication, and opportunities for members to understand one another.

However, cohesion should not be confused with conformity. Teams can become overly concerned with maintaining agreement, making athletes reluctant to challenge poor decisions or report harmful behavior.

A high-performing team needs both cooperation and the capacity for constructive disagreement. Athletes should be able to question tactical decisions, communicate concerns, and propose alternatives without being treated as disloyal.

Healthy cohesion therefore combines collective commitment with respect for individual differences and appropriate professional boundaries.

5.8. Social Identity and Belonging in Sport

5.8.1. Social identity as part of the athlete's self-concept

Social identity theory and self-categorization theory provide important perspectives on how group membership influences behavior.

Tajfel and Turner (1979) proposed that individuals derive part of their self-concept from their membership in social groups. Turner et al. (1987) further developed the self-categorization perspective, explaining how people may perceive themselves and others in terms of group membership under particular conditions.

In sport, an athlete may identify with a team, club, university, national squad, or sporting community. This identification can influence motivation, behavior, perceived support, and interpretations of collective success and failure.

A strong team identity may encourage cooperation because athletes understand themselves as members of a shared group rather than as isolated individuals competing for individual recognition.

However, social identity is not inherently positive. Group membership can also encourage hostility toward opponents, exclusion of outsiders, or pressure to conform to harmful norms.

The consequences depend partly on the content of the group's norms and the way leadership defines membership.

5.8.2. The social identity approach to sport psychology

Haslam et al. (2015) outlined a social identity approach to sport psychology, emphasizing that groups can become meaningful components of athletes' self-concepts and influence behavior, support, stress appraisal, and leadership.

From this perspective, belonging is not merely the result of being physically present in a team. Athletes must also perceive that the group is meaningful and that they are recognized as legitimate members.

A reserve player who attends every training session but is consistently excluded from team communication may experience weaker identification than a player whose role is clearly explained and whose contribution is acknowledged.

Similarly, a new athlete may struggle to feel part of the group if established members use informal norms that are difficult to understand or if access to social activities is restricted.

Teams can strengthen inclusive identity by communicating shared values, recognizing different forms of contribution, involving athletes in appropriate decisions, and addressing exclusionary behavior.

5.8.3. Shared identity and social support

A shared identity may influence whether support is offered, accepted, and interpreted as meaningful. Athletes may be more willing to assist teammates whom they perceive as part of their group, and receiving support from an identified group may strengthen belonging.

Nevertheless, group identification does not eliminate the need for individual attention. Athletes may share a team identity while differing substantially in age, cultural background, playing status, injury history, financial circumstances, and psychological needs.

Inclusive team environments must therefore balance collective identity with recognition of individual differences.

5.8.4. In-group and out-group dynamics

Group identification can create distinctions between members and nonmembers. In sport, these distinctions may appear in rivalries, selection processes, informal cliques, or differences between established players and newcomers.

Some forms of intergroup competition can support motivation and shared commitment. However, excessive in-group favoritism may undermine fairness, encourage hostility, and restrict cooperation across groups.

Coaches and organizations should distinguish legitimate competitive rivalry from dehumanization, harassment, discrimination, or behavior that compromises safety.

A healthy sporting identity communicates what members collectively value without requiring them to demean others.

5.9. Leadership and Shared Responsibility in Teams

5.9.1. Formal and informal leadership

Leadership in sport is not limited to the head coach or officially appointed captain. Athletes may influence team functioning through expertise, communication, emotional regulation, social relationships, and their responses to setbacks.

Formal leaders possess designated responsibilities and authority. Informal leaders gain influence through the trust, respect, and recognition of teammates.

Both forms of leadership can shape team norms. A captain may establish expectations about communication, while an experienced athlete may influence how teammates respond to mistakes or support injured players.

Leadership should therefore be understood as a social process rather than simply a personal characteristic.

5.9.2. Athlete leadership

Athlete leaders may contribute by clarifying team objectives, modeling professional behavior, supporting teammates, communicating concerns to coaches, and facilitating conflict resolution.

However, athlete leaders should not be expected to replace trained coaches, safeguarding officers, or mental health professionals. Their influence must operate within appropriate boundaries.

Organizations should also avoid assigning leadership responsibilities without providing support or clarifying expectations. A captain who is expected to manage team conflict without guidance may experience unnecessary pressure.

5.9.3. Shared leadership and collective efficacy

Shared leadership occurs when leadership functions are distributed among multiple team members rather than concentrated exclusively in one individual.

Different athletes may contribute in different domains. One may provide tactical guidance, another may help maintain emotional composure, and another may strengthen communication between newer and more experienced players.

Collective efficacy refers to a group's shared belief in its capacity to organize and execute the actions required to achieve particular objectives (Bandura, 1997). It differs from individual self-efficacy because it concerns perceived collective capability.

Collective efficacy may be strengthened through successful coordinated practice, clear role understanding, credible feedback, and experiences of overcoming difficulties together. However, it should remain grounded in realistic assessment rather than generalized confidence.

A team can believe strongly in its collective ability and still require improvements in preparation, strategy, or technical execution.

5.10. Interpersonal Conflict in Sport

5.10.1. Sources of conflict

Conflict is a normal possibility in environments characterized by competition, interdependence, limited resources, and performance evaluation.

Common sources include:

- Disagreement about playing time or selection.
- Unclear or overlapping roles.
- Differences in training priorities.
- Perceived unfairness in feedback or decision-making.
- Competition for status or leadership.
- Communication failures.
- Cultural or interpersonal misunderstandings.
- Conflicting expectations between athletes, coaches, and families.

Conflict is not necessarily destructive. Disagreement may reveal unclear expectations, identify problems in team organization, or encourage the reconsideration of ineffective strategies.

Its consequences depend on how it is expressed and managed.

5.10.2. Task conflict and relationship conflict

Task conflict concerns disagreement about decisions, strategies, or the content of work. Relationship conflict concerns interpersonal tension, dislike, or perceived incompatibility between individuals.

The distinction is useful because disagreement about tactics does not necessarily imply a damaged relationship. A team may benefit from respectful debate about strategy while maintaining trust among members.

However, task conflict can become relationship conflict when disagreement is personalized, when criticism becomes humiliating, or when individuals interpret alternative views as attacks on their competence or status.

Coaches can help preserve constructive disagreement by separating the problem from the person, clarifying the decision-making process, and ensuring that different views can be considered without retaliation.

5.10.3. Conflict resolution

An effective conflict-resolution process may involve several stages:

1. **Clarify the issue.** Identify the specific disagreement rather than relying on general accusations.
2. **Hear the perspectives involved.** Allow each party to explain relevant information and concerns.
3. **Separate observable behavior from interpretation.** Distinguish what occurred from assumptions about another person's intentions.
4. **Identify shared objectives.** Establish the outcomes that the parties need to protect.
5. **Develop possible solutions.** Consider alternatives that are practical, fair, and consistent with team responsibilities.
6. **Agree on responsibilities.** Clarify who will do what and when.
7. **Review the outcome.** Determine whether the agreement has resolved the issue or whether further action is needed.

Not every conflict can or should be resolved informally. Allegations involving abuse, harassment, discrimination, coercion, or safeguarding concerns require appropriate formal procedures. Mediation should not be used to pressure a person into reconciling with someone who has harmed them.

5.11. Psychological Safety, Inclusion, and Safeguarding

5.11.1. Inclusion as a condition of participation

Inclusion concerns whether individuals can participate meaningfully and are treated as legitimate members of the sporting environment.

Athletes may experience barriers related to gender, disability, socioeconomic status, ethnicity, language, age, religion, sexual harassment, or other forms of discrimination. These barriers can influence access to resources, opportunities for leadership, perceived belonging, and willingness to report concerns.

Inclusive practice requires more than general statements about respect. Organizations need clear policies, accessible procedures, fair opportunities, and mechanisms for addressing harmful behavior.

5.11.2. Psychological safety is not the absence of accountability

Psychological safety should not be interpreted as permission to disregard rules or avoid performance standards. Athletes remain responsible for their behavior, and coaches must be able to provide corrective feedback.

The distinction concerns how accountability is implemented. Constructive accountability explains expectations, identifies the relevant behavior, and provides a reasonable path toward improvement. Humiliation and intimidation may discourage disclosure without necessarily improving performance.

Athletes should be able to admit mistakes, ask for clarification, and report legitimate concerns while remaining accountable for their responsibilities.

5.11.3. Safeguarding and power differences

Sport relationships frequently involve unequal distributions of authority. Coaches may influence selection, scholarships, contracts, access to competition, and career development. Younger athletes may depend on adults for transportation, accommodation, and participation opportunities.

These power differences create responsibilities for organizations to establish appropriate boundaries, transparent procedures, and independent reporting mechanisms.

The International Olympic Committee's consensus work on interpersonal violence and safeguarding in sport emphasizes the importance of healthy, safe, and supportive relationships throughout the sporting environment (Mountjoy et al., 2024).

Safeguarding should not depend solely on an athlete's willingness to confront a person in authority. Organizations need procedures through which concerns can be raised and assessed without inappropriate pressure or retaliation.

5.12. Social Relationships Across the Athletic Career

5.12.1. Early participation and youth sport

During early participation, family members and coaches can influence whether sport is experienced as enjoyable, supportive, and developmentally appropriate.

Children may benefit when adults emphasize learning, effort, cooperation, and personal development rather than treating results as the only meaningful outcome.

Excessive pressure, public comparison, and conditional approval can undermine the social benefits of participation. Young athletes may also find it difficult to distinguish their own goals from the expectations of significant adults.

Developmentally appropriate communication should therefore recognize children's perspectives, provide clear boundaries, and protect their right to participate in a safe environment.

5.12.2. Adolescence and identity development

Adolescence often involves changes in identity, peer relationships, educational demands, and independence. Sport may provide a valuable setting for belonging and competence, but it can also intensify social comparison and concerns about acceptance.

Selection, body image, public performance evaluation, and team status may become particularly salient during this period.

Supportive adults can help young athletes balance sporting goals with education, friendships, family relationships, and other interests. A broad sense of identity may also reduce the risk that an individual interprets a temporary sporting setback as a complete judgment of personal worth.

5.12.3. Transition to elite and professional sport

As athletes progress toward elite levels, the social environment may become more specialized and demanding. Selection decisions, contractual arrangements, travel, media attention, and financial considerations can alter the nature of relationships.

Athletes may also experience changes in social networks as they relocate, leave educational settings, or spend extended periods away from family.

Organizations should recognize that increased competitive commitment may create practical and emotional demands beyond training itself. Appropriate support may include clear communication, career planning, access to healthcare, and assistance with transitions.

5.12.4. Injury, deselection, and retirement

Injury can interrupt an athlete's usual social interactions and threaten their sense of belonging within the team. Deselection may reduce opportunities for participation and create uncertainty about future prospects. Retirement can involve the loss of routine, status, identity, and established relationships.

During these transitions, support should not be limited to performance rehabilitation. Athletes may need assistance in maintaining social connection,

developing alternative goals, accessing education or employment, and reconstructing identity beyond competitive participation.

Relationships that remain supportive when performance declines are particularly valuable because they communicate that the athlete's worth is not determined exclusively by competitive contribution.

5.13. Practical Strategies for Developing Supportive Sporting Environments

The research reviewed in this chapter suggests that social relationships should be developed intentionally rather than assumed to emerge automatically through participation.

5.13.1. Strategies for coaches

Coaches can strengthen relational quality by:

- Communicating expectations and selection criteria clearly.
- Providing specific, respectful, and actionable feedback.
- Listening to athletes' concerns before making assumptions.
- Encouraging appropriate questions and constructive disagreement.
- Recognizing different forms of contribution to the team.
- Maintaining professional boundaries and consistent standards.
- Responding appropriately to signs of distress.
- Referring athletes to qualified professionals when necessary.

The purpose is not to eliminate authority but to exercise it responsibly.

5.13.2. Strategies for athletes

Athletes can contribute to supportive relationships by:

- Communicating needs and concerns clearly.
- Seeking clarification when expectations are uncertain.
- Offering practical and emotional assistance to teammates.
- Respecting differences in experience, role, and background.
- Addressing disagreement without personal humiliation.
- Recognizing when a concern requires support beyond the team.
- Maintaining relationships and interests outside sport.

These behaviors should be encouraged without transferring the responsibility for organizational safety from institutions to individual athletes.

5.13.3. Strategies for sport organizations

Organizations can support healthy relationships through:

- Clear codes of conduct.
- Transparent selection and evaluation procedures.
- Accessible and confidential reporting pathways.
- Appropriate coach education.
- Safeguarding policies and designated responsibilities.
- Regular opportunities for athlete feedback.
- Support during injury and career transitions.
- Access to qualified psychological and healthcare services.
- Monitoring of team climate and organizational culture.

These measures should be evaluated rather than treated as evidence of success merely because a policy exists.

5.13.4. An applied relational assessment framework

The following framework can be used as a structured discussion tool for teams, clubs, and sport organizations.

Domain	Assessment question	Possible indicator	Potential action
Social support	Do athletes know where to obtain appropriate assistance?	Perceived availability of emotional, informational, and practical support	Clarify support resources and referral pathways
Coach–athlete relationship	Are expectations, trust, and communication sufficiently clear?	Athlete feedback, relationship measures, observed communication	Establish regular two-way discussions
Task cohesion	Do team members understand and support shared objectives?	Goal clarity, role clarity, perceived task cohesion	Review collective goals and individual responsibilities
Social cohesion	Do athletes feel accepted and respected?	Belonging, inclusion, interpersonal trust	Address exclusion and strengthen constructive interaction
Communication	Can athletes raise concerns and ask questions?	Perceived openness, communication quality, conflict patterns	Establish clear communication routines

Domain	Assessment question	Possible indicator	Potential action
Psychological safety	Can mistakes and concerns be discussed without undue fear?	Athlete reports, help-seeking confidence, responses to errors	Train coaches and clarify reporting procedures
Inclusion and safeguarding	Are policies and reporting mechanisms accessible and credible?	Awareness of procedures, confidence in fairness	Review policy implementation and independent oversight
Transition support	Are athletes supported during injury, deselection, and retirement?	Access to practical, psychological, and career support	Develop transition-specific support plans

This framework is not a validated psychometric instrument. It is intended to structure discussion and identify areas requiring more formal assessment.

5.14. Methodological Considerations and Future Research

Research on social relationships in sport involves several methodological challenges.

First, social support, relationship quality, cohesion, and social identity are related but conceptually distinct. Studies should define these constructs carefully and avoid treating them as interchangeable indicators of a general positive team climate.

Second, many studies rely on self-report questionnaires. Such measures are valuable for assessing perceived experience but may be influenced by social desirability, current performance, and the respondent's general emotional state. Combining self-report measures with interviews, behavioral observations, longitudinal assessments, and relevant performance indicators may provide a more complete picture.

Third, cross-sectional studies cannot establish temporal or causal relationships. Athletes who perceive greater support may experience better well-being, but better well-being may also facilitate supportive relationships. Longitudinal and intervention studies are needed to clarify how these processes develop.

Fourth, social relationships operate at multiple levels. An individual athlete's perception of support is not equivalent to a team-wide climate, and team-level averages can conceal substantial differences among members. Multilevel designs can help distinguish individual perceptions from shared group characteristics.

Fifth, sport contexts differ substantially. Findings from elite adult athletes may not generalize directly to children, recreational participants, athletes with disabilities, or athletes in resource-limited settings. Research should examine the

influence of age, gender, cultural context, competitive level, sport structure, and organizational conditions.

Sixth, researchers should consider the possibility of negative or ambivalent social experiences. A relationship may provide practical assistance while simultaneously creating pressure. Measures that assess only the presence of support may overlook controlling, intrusive, or conditional forms of interaction.

Future research would benefit from longitudinal studies of coach–athlete relationships, investigations of the mechanisms linking social identity with support, and evaluations of organizational interventions designed to improve psychological safety. Further work is also needed to establish which forms of support are most useful during particular transitions, including injury rehabilitation, deselection, and retirement.

Finally, evidence concerning relationships and performance should be interpreted alongside athlete well-being. An intervention that improves team coordination but increases psychological distress should not be considered an unqualified success. Sport psychology research should therefore evaluate both performance-related and human outcomes.

5.15. Conclusion

Social relationships are fundamental components of the psychosocial environment of sport. They influence how athletes interpret demands, seek assistance, develop confidence, manage setbacks, and understand their place within a group.

Social support may provide emotional reassurance, esteem, information, and practical assistance. The coach–athlete relationship shapes opportunities for learning, communication, and trust. Team cohesion influences collective coordination and belonging, while social identity helps explain how group membership becomes part of an athlete's self-concept.

These processes can support performance and well-being, but their effects are not automatically positive. Support may become pressure, cohesion may encourage conformity, and authority may discourage athletes from raising concerns. The quality of the sporting environment therefore depends not simply on the existence of relationships but on how those relationships operate.

Evidence-informed practice should combine supportive interpersonal behavior with clear expectations, constructive communication, inclusive group norms, and appropriate organizational safeguards. Coaches and athletes share responsibilities

for developing respectful relationships, while sport organizations must provide the policies, resources, and procedures needed to protect participation and well-being.

Ultimately, successful sporting environments require more than technically skilled individuals. They require relationships through which athletes can learn, cooperate, communicate, recover from setbacks, and contribute meaningfully to collective goals. A psychosocial approach to sport recognizes that athletic development occurs not only within individuals but also through the social environments in which they participate.

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CHAPTER 6: Leadership, Coaching Styles, and the Psychosocial Climate of Sport

6.1. Introduction

Leadership is a central component of the psychosocial environment of sport. Coaches, captains, experienced athletes, and sport administrators influence how individuals understand collective objectives, respond to challenges, interpret feedback, and engage with their sporting environments. Leadership can affect not only the coordination of performance but also athletes' motivation, perceived competence, interpersonal relationships, psychological safety, and well-being.

However, leadership in sport cannot be reduced to the authority of a head coach or the ability to motivate athletes before competition. It is a multidimensional social process through which individuals influence collective action, communicate expectations, establish behavioral norms, and shape the conditions under which others learn and perform.

The effects of leadership depend partly on how influence is exercised. A coach may establish demanding performance standards while providing athletes with meaningful explanations, constructive feedback, and opportunities to participate in appropriate decisions. Another coach may pursue similar standards through intimidation, humiliation, or excessive control. Although both approaches may communicate high expectations, they can create substantially different psychosocial environments.

This distinction is important because performance demands and psychological support are not necessarily competing objectives. Clear expectations, consistent structure, and accountability can coexist with respect for athletes' autonomy and individual circumstances. Conversely, apparently supportive behavior may become ineffective when expectations remain unclear or when athletes receive insufficient guidance.

Contemporary sport psychology therefore examines leadership through several complementary perspectives, including transformational leadership, authentic leadership, social identity leadership, self-determination theory, achievement goal theory, and the multidimensional models of coaching behavior. These perspectives explain different aspects of leadership rather than providing interchangeable descriptions of the same phenomenon.

Recent empirical research reinforces the importance of distinguishing leadership styles, outcomes, and contexts. Clare et al. (2025), in an integrated systematic

review and meta-analysis of 50 studies involving 17,158 athletes, reported a small positive overall association between leadership and sport performance. The magnitude of the association varied according to the type of leader and leadership approach. This finding supports the relevance of leadership while demonstrating that its effects should not be assumed to be uniform or automatically large.

Similarly, research informed by self-determination theory emphasizes the relationship between coaching behavior, athletes' psychological needs, and autonomous motivation. Liu et al. (2026) synthesized 102 studies and found meaningful associations among coaches' basic psychological need support, athletes' need satisfaction, and autonomous motivation. Such findings suggest that leadership should be evaluated not only in terms of immediate competitive outcomes but also in relation to the motivational conditions it creates.

This chapter examines leadership and coaching styles as interconnected elements of the psychosocial environment of sport. It reviews major theoretical perspectives, distinguishes supportive from controlling behavior, examines motivational climate and athlete leadership, considers the role of organizational culture and ethics, and develops an evidence-informed framework for leadership practice.

6.2. Conceptualizing Leadership in Sport

6.2.1. Defining leadership

Leadership can be defined as a social influence process through which individuals contribute to the direction, coordination, motivation, and development of others in pursuit of shared objectives.

In sport, leadership may involve establishing goals, communicating expectations, making tactical decisions, coordinating team activities, supporting athletes, managing conflict, and maintaining standards of conduct.

Three features are particularly important.

First, leadership is relational. Its effectiveness depends partly on how influence is perceived and interpreted by athletes. A coach may intend to encourage an athlete, but the athlete may experience the interaction as controlling or dismissive.

Second, leadership is contextual. The behaviors required during technical instruction, competition, injury rehabilitation, and conflict resolution may differ. A highly directive approach may be appropriate when an immediate safety issue

requires a clear instruction, while a more participative approach may be suitable when athletes are reviewing training objectives.

Third, leadership is multidimensional. Technical competence, tactical knowledge, interpersonal skill, ethical judgment, and the ability to establish constructive group norms may all contribute to leadership effectiveness.

Consequently, leadership should not be assessed solely through a coach's reputation, personality, or competitive record. A broader assessment considers the behaviors demonstrated, the responses of athletes, the demands of the environment, and the outcomes achieved.

6.2.2. Leadership, management, and coaching

Leadership, management, and coaching overlap, but they are not identical.

Leadership concerns influence, direction, collective meaning, and the mobilization of individuals toward shared objectives.

Management concerns the organization of resources, schedules, responsibilities, procedures, and operational requirements.

Coaching encompasses the professional activities through which athletes develop technical, tactical, physical, psychological, and interpersonal capabilities.

A head coach may perform all three functions. However, a technically excellent coach may struggle to establish trust, while an inspiring leader may lack the organizational skills required to manage a complex training program.

Effective sport environments therefore benefit from the integration of these functions. Leadership provides direction and meaning; management creates the conditions for implementation; and coaching supports learning and performance development.

6.2.3. Formal and informal leadership

Formal leadership is associated with designated positions, such as head coach, assistant coach, captain, or performance director. These positions involve recognized responsibilities and, in some cases, decision-making authority.

Informal leadership emerges through the influence individuals gain from expertise, credibility, interpersonal relationships, experience, or their behavior within the group.

A senior athlete may influence training standards without holding the captaincy. A teammate who remains composed during difficult moments may help regulate the emotional climate of a team. An experienced athlete may also act as a bridge between coaches and younger players.

Both formal and informal leadership can influence performance and group functioning. However, informal influence should not become an excuse for avoiding formal responsibility. Organizations must retain clear accountability for selection, safeguarding, and other consequential decisions.

6.2.4. Leadership as a process rather than a fixed personal quality

Leadership is sometimes discussed as if effective leaders possess a stable set of characteristics that automatically produces success. Traits such as confidence, communication skill, emotional regulation, and decisiveness may be relevant, but their effectiveness depends on the context in which they are expressed.

For example, decisiveness may be valuable during a rapidly changing competitive situation. The same behavior may become counterproductive when a coach makes complex decisions without considering relevant information from athletes or support staff.

Similarly, confidence can provide direction, but excessive certainty may discourage feedback and conceal errors.

A process-oriented perspective therefore asks how leadership behaviors interact with situational demands, athlete characteristics, organizational conditions, and group expectations. It also recognizes that leadership can be developed through reflection, feedback, education, and experience.

6.3. Major Theoretical Perspectives on Leadership in Sport

6.3.1. The multidimensional model of leadership

The multidimensional model of leadership developed by Chelladurai (1978, 1990) is an influential framework in sport psychology. It proposes that leadership effectiveness depends on the relationship among required behavior, preferred behavior, and actual leader behavior.

Required behavior concerns what the situation demands. These demands may arise from the sport, organizational rules, competitive conditions, and the characteristics of the task.

Preferred behavior concerns the leadership behaviors desired by athletes. Preferences may differ according to experience, age, cultural expectations, competitive level, and individual needs.

Actual behavior concerns the behavior demonstrated by the leader.

The model proposes that outcomes such as performance and athlete satisfaction depend partly on the degree of congruence among these dimensions.

For example, a team facing a time-critical tactical situation may require clear and direct instructions. Athletes may also prefer decisive guidance in that context. If the coach responds with vague instructions, the mismatch may reduce coordination.

In another situation, experienced athletes may prefer involvement in the evaluation of training methods. A coach who consistently excludes them from appropriate discussions may create unnecessary dissatisfaction.

The model does not imply that athletes should determine every coaching decision. Rather, it highlights the importance of understanding situational requirements, athlete preferences, and the behavior necessary for effective performance.

Its practical value lies in encouraging coaches to examine whether their leadership approach fits the task and the people involved.

6.3.2. Transformational leadership

Transformational leadership emphasizes the capacity of leaders to develop shared purpose, encourage learning, stimulate new perspectives, and recognize the needs of individual followers.

Bass (1985) developed a general framework of transformational and transactional leadership, which was subsequently applied across multiple organizational settings, including sport.

Transformational leadership is commonly discussed through four components:

Idealized influence concerns the extent to which leaders demonstrate credible values and behavior that others respect.

Inspirational motivation involves communicating a meaningful vision and encouraging commitment to shared objectives.

Intellectual stimulation encourages individuals to examine assumptions, consider alternatives, and approach problems creatively.

Individualized consideration involves attending to the developmental needs and circumstances of individual followers.

In sport, a transformational coach may explain why a collective objective matters, encourage athletes to analyze tactical problems, and adapt developmental feedback to individual needs.

Transformational leadership should not be confused with charismatic presentation alone. A coach may communicate enthusiastically but fail to provide meaningful support or demonstrate ethical consistency.

Likewise, transformational leadership should not imply that athletes must subordinate all personal interests to collective success. An effective shared purpose must remain compatible with reasonable individual needs, health, and professional boundaries.

Kim and Cruz (2022) conducted a meta-analytic review of coach transformational leadership, player satisfaction, and commitment. Their findings indicated positive relationships between transformational leadership and these athlete outcomes. The evidence supports the relevance of transformational approaches, although the magnitude and practical implications of the relationships depend on the populations and measures included.

More recently, Clare et al. (2025) reported a stronger association between transformational leadership and performance than between social identity leadership and performance in their meta-analytic comparisons. Such results should be interpreted as comparative associations, not proof that one leadership approach will always outperform another in every sporting context.

6.3.3. Transactional leadership

Transactional leadership emphasizes expectations, contingent rewards, corrective feedback, and the relationship between behavior and consequences.

In sport, transactional behaviors may include clarifying performance standards, recognizing achievement, establishing responsibilities, and addressing failures to meet agreed requirements.

These practices can provide structure and predictability. Athletes need to understand the standards by which performance is evaluated and the consequences of relevant decisions.

However, transactional leadership can become problematic when rewards and sanctions are used excessively, inconsistently, or in ways that undermine athletes' psychological needs.

For example, performance-contingent recognition may communicate useful information about progress. It may also become controlling when approval is withdrawn to manipulate behavior or when athletes are valued exclusively for immediate results.

Transactional and transformational leadership should therefore not be treated as mutually exclusive. A coach may provide clear expectations and consequences while also supporting learning, autonomy, and individual development.

The critical question is how these behaviors are implemented and how athletes experience them.

6.3.4. Authentic leadership

Authentic leadership emphasizes self-awareness, consistency between values and behavior, balanced consideration of information, and relational transparency.

In sport, authenticity may involve acknowledging uncertainty, admitting mistakes, explaining decisions honestly, and demonstrating consistency between stated values and actual behavior.

An authentic coach does not need to disclose every personal thought or abandon professional boundaries. Instead, the coach communicates in a manner that is credible, appropriately transparent, and consistent with ethical responsibilities.

Authenticity is particularly relevant when athletes evaluate whether a leader can be trusted. A coach who publicly emphasizes respect but humiliates athletes after mistakes creates a discrepancy between stated values and observed behavior.

Nevertheless, authenticity alone does not guarantee effectiveness. A leader may express genuine beliefs that are poorly informed or ethically inappropriate. Leadership must therefore be considered alongside competence, accountability, and the effects of behavior on others.

6.3.5. Servant leadership

Servant leadership emphasizes the development, welfare, and empowerment of those being led. Rather than treating athletes primarily as instruments for achieving organizational outcomes, a servant-oriented approach recognizes their development as a central responsibility.

In sport, this perspective may involve listening carefully, supporting athlete learning, providing opportunities for growth, and considering long-term welfare alongside immediate results.

Servant leadership does not require the absence of authority. Coaches remain responsible for standards, safety, selection, and performance decisions. The distinction concerns the purpose and exercise of that authority.

A coach may make a difficult selection decision while communicating the rationale respectfully and identifying appropriate developmental opportunities for the athlete.

The approach is particularly relevant when organizations seek to balance competitive objectives with education, athlete development, and long-term well-being. However, sport-specific evidence should be examined carefully rather than assuming that findings from general organizational research transfer directly to all athletic contexts.

6.3.6. Social identity leadership

Social identity leadership emphasizes how leaders create, represent, advance, and embed a shared sense of group identity.

From this perspective, leaders are influential partly because they help group members understand who they are collectively, what they value, and how they should act as members of the group.

In sport, a captain may strengthen collective identity by emphasizing shared responsibilities and recognizing the contributions of different roles. A coach may communicate that team success depends on cooperation rather than on the status of a few prominent athletes.

However, collective identity can also be used to justify exclusion, excessive conformity, or hostility toward outsiders. Effective identity leadership therefore requires attention to the values and norms attached to group membership.

A healthy team identity should encourage cooperation and belonging without requiring athletes to suppress legitimate concerns or accept harmful behavior.

Clare et al. (2025) found a positive association between leadership and performance across several leadership categories, including social identity leadership. Their results indicate that athlete and coach leaders can contribute to performance, although the strength of the relationship varies across leadership roles and approaches.

6.4. Coaching Styles and Athlete Development

6.4.1. Directive coaching

Directive coaching involves providing clear instructions, specifying required behavior, and making decisions when necessary.

This style may be appropriate when athletes are inexperienced, tasks involve immediate safety considerations, or competitive situations require rapid coordination.

For example, a coach may need to provide explicit instructions during a technical safety demonstration or a time-critical tactical adjustment.

However, directive behavior becomes less appropriate when it is used indiscriminately or prevents athletes from developing independent judgment. Athletes who are never invited to analyze decisions may become overly dependent on the coach.

The effectiveness of directive coaching therefore depends on the task, the athlete's developmental stage, and whether the behavior provides necessary structure or unnecessarily restricts participation.

6.4.2. Participative coaching

Participative coaching involves athletes in appropriate aspects of decision-making. It may include collaborative goal setting, discussion of training methods, tactical reflection, and evaluation of performance.

Participation can support ownership and help athletes understand the rationale behind decisions. It can also provide coaches with information about fatigue, perceived difficulty, and practical constraints.

However, participative coaching does not mean that every decision must be made collectively. Time constraints, safety requirements, and professional responsibilities may require the coach to make a final decision.

A balanced approach clarifies which decisions are open to discussion, which are constrained by organizational requirements, and which remain the responsibility of the coach.

6.4.3. Autonomy-supportive coaching

Autonomy-supportive coaching is grounded in self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2017). It involves acknowledging athletes'

perspectives, providing meaningful rationales, offering appropriate choices, and supporting self-initiated engagement.

Autonomy support does not mean the absence of rules or performance expectations. Athletes can experience autonomy while following a demanding training plan if they understand its rationale and feel that their perspectives are taken seriously.

For example, a coach may explain why a particular conditioning session is required, ask athletes about relevant constraints, and provide choices where these are compatible with the training objective.

Such behavior differs from simply allowing athletes to do whatever they prefer. Autonomy support involves helping athletes internalize meaningful goals and participate constructively in their own development.

6.4.4. Controlling coaching

Controlling coaching attempts to regulate athletes' behavior through pressure, intimidation, conditional approval, excessive personal control, or the suppression of alternative perspectives.

Controlling behaviors may include humiliating criticism, threats unrelated to legitimate performance requirements, guilt-inducing communication, and the use of authority to discourage reasonable questions.

It is important to distinguish controlling behavior from clear instruction. A coach can insist on compliance with a safety requirement without using intimidation or personal humiliation.

Reynders et al. (2020) examined combinations of need-supportive and controlling coaching behaviors among team-sport athletes. Their findings indicated that combinations of behaviors mattered: profiles combining need support with domineering behavior were associated with less favorable motivational outcomes than profiles characterized by high need support and lower control.

This finding illustrates why coaching should not be categorized using a single behavior or isolated interaction. A coach may demonstrate supportive behavior in some situations while creating a controlling climate in others.

6.4.5. Coaching structure and autonomy are compatible

A common misunderstanding is that autonomy-supportive coaching must be permissive and that structured coaching must be controlling.

In fact, structure and autonomy support can coexist.

Structure clarifies goals, expectations, standards, and pathways toward improvement.

Autonomy support recognizes the athlete's perspective, provides meaningful rationales, and encourages appropriate participation.

A structured and autonomy-supportive coach might establish a demanding training objective, explain its purpose, invite questions, provide clear feedback, and help athletes understand how progress will be evaluated.

By contrast, a controlling coach may impose the same objective through threats, humiliation, or the deliberate restriction of information.

The distinction lies not simply in what athletes are required to do but also in how expectations are communicated and implemented.

6.5. Self-Determination Theory and Coaching Behavior

6.5.1. The basic psychological needs

Self-determination theory identifies three basic psychological needs: autonomy, competence, and relatedness (Ryan & Deci, 2017).

Autonomy concerns the experience of volition and meaningful endorsement of one's actions.

Competence concerns the experience of effectiveness and the capacity to develop relevant skills.

Relatedness concerns the experience of connection, care, and belonging.

These needs are relevant to coaching because interpersonal behavior can either support or frustrate them.

A coach may support autonomy by explaining decisions and acknowledging athlete perspectives. Competence may be supported through appropriately challenging tasks and informative feedback. Relatedness may be supported through respectful communication and genuine interest in athletes' development.

Conversely, excessive control may frustrate autonomy, humiliating criticism may undermine perceived competence, and exclusion may undermine relatedness.

6.5.2. How coaching behavior relates to motivation

Self-determination theory distinguishes different forms of motivation according to the degree to which behavior is experienced as self-endorsed.

Athletes may participate because they enjoy the activity, value its benefits, seek external rewards, fear punishment, or feel pressured by significant others.

These motives can coexist. An athlete may enjoy training while also wanting selection or financial rewards.

The coaching environment can influence how athletes understand and regulate their participation. When coaches provide meaningful rationales, support competence, and recognize individual perspectives, athletes may be more likely to internalize training objectives.

Liu et al. (2026) synthesized evidence from 102 studies and found associations among coaches' basic psychological need support, athletes' need satisfaction, and autonomous motivation. The analysis also identified relationships between athletes' motivational experiences and coaches' own psychological needs and motivation, suggesting that coaching dynamics may operate reciprocally.

Because the included evidence primarily concerns associations among measured variables, the findings should not be interpreted as proof that any single coaching behavior will produce a specific motivational outcome in every athlete.

6.5.3. Coaches' own psychological needs and well-being

Coaching behavior is influenced not only by professional knowledge but also by the conditions in which coaches work.

Stebbings et al. (2011) examined coaches' psychological needs, well-being, and interpersonal behaviors. Their findings indicated that coaches' need satisfaction and well-being were associated with more autonomy-supportive and less controlling behavior.

This research highlights an important practical issue: organizations cannot reasonably expect coaches to maintain constructive interpersonal behavior while ignoring their workload, resources, professional development, and working conditions.

A coach experiencing chronic insecurity, excessive administrative demands, or limited organizational support may find it more difficult to regulate frustration and respond constructively to athletes.

This does not remove responsibility for harmful behavior. Rather, it suggests that leadership development should combine individual education with organizational conditions that support effective coaching.

6.6. Motivational Climate in Sport

6.6.1. Defining motivational climate

Motivational climate refers to the social and environmental cues that communicate what is valued, rewarded, and considered evidence of success within a sporting context.

Coaches, teammates, parents, and sport organizations can all contribute to motivational climate. Their feedback, selection decisions, reward systems, and responses to mistakes communicate whether the environment emphasizes learning, effort, cooperation, social comparison, or winning at any cost.

The distinction between task-involving and ego-involving climates is associated with achievement goal theory (Nicholls, 1989).

In a **task-involving climate**, success is emphasized through learning, personal improvement, effort, cooperation, and the development of competence.

In an **ego-involving climate**, success is emphasized more strongly through outperforming others, demonstrating superior ability, and gaining recognition relative to competitors.

These climates are not necessarily mutually exclusive. A team may value both improvement and competitive achievement. The key issue is the relative emphasis placed on each and the consequences for athletes' behavior.

6.6.2. Task-involving climates

A task-involving climate communicates that athletes can demonstrate competence through effort, learning, improvement, and effective cooperation.

Such a climate may encourage athletes to approach challenging tasks, ask questions, and view errors as information for development.

For example, a coach may evaluate an athlete's tactical decision-making alongside the final result. A team may recognize improvements in communication even when the match is lost.

This approach does not imply that results are unimportant. Competitive outcomes remain relevant, but they are interpreted alongside the processes that contribute to long-term development.

Task-involving climates may be particularly valuable in developmental settings where athletes need opportunities to learn, experiment, and recover from mistakes.

6.6.3. Ego-involving climates

An ego-involving climate emphasizes relative ability, comparison, and visible indicators of superior performance.

Competition naturally involves comparison, and athletes need to understand their standing relative to relevant performance standards. However, a climate becomes problematic when social comparison dominates evaluation or when athletes perceive that mistakes threaten their status and acceptance.

Such conditions may encourage athletes to conceal weaknesses, avoid challenging tasks, or prioritize short-term recognition over development.

The implications depend on the athlete and context. Some athletes may respond positively to competitive comparison in particular situations, while others may experience greater anxiety or disengagement.

A balanced approach can acknowledge competitive standards without treating every performance as a judgment of personal worth.

6.6.4. Contemporary evidence on motivational climate

Gu and Cheng (2026) published a systematic review and meta-analysis of motivational climate and youth sport outcomes, incorporating 177 studies and 334 independent effect sizes. Their analysis reported an overall positive association between motivational climate and youth outcomes, while also identifying substantial heterogeneity across outcomes and climate types.

The reported association was stronger for motivational and cognitive outcomes than for behavioral engagement, performance, and health outcomes. The findings suggest that motivational climate may be particularly relevant to how young participants interpret sport and experience motivation, although effects differ according to the outcome being examined.

These findings support the value of considering climate as a meaningful feature of sport environments. They do not establish that any particular climate will produce identical outcomes across all populations.

6.6.5. Motivational climate and athlete well-being

Motivational climate can influence more than training effort or competitive performance. It may also affect whether athletes experience belonging, competence, pressure, and psychological safety.

An environment that consistently emphasizes improvement and constructive feedback may provide more opportunities for athletes to interpret mistakes as manageable aspects of learning.

By contrast, an environment in which approval depends exclusively on winning may create uncertainty about acceptance when results deteriorate.

Nevertheless, motivational climate should not be treated as the sole determinant of well-being. Mental health and sport participation are influenced by multiple individual, interpersonal, organizational, and social factors.

Coaches should therefore examine climate alongside training load, recovery, relationships, safeguarding, and access to appropriate support.

6.7. Leadership, Communication, and Feedback

6.7.1. Communication as a leadership behavior

Leadership is expressed partly through communication. Coaches communicate standards, priorities, interpretations of performance, and expectations concerning group membership.

The same information can have different effects depending on its timing, tone, clarity, and perceived fairness.

A coach who explains a tactical change and its rationale may help athletes understand their responsibilities. A coach who issues contradictory instructions may create uncertainty even when the technical objective is appropriate.

Effective communication therefore requires both informational accuracy and attention to interpersonal consequences.

6.7.2. Constructive feedback

Constructive feedback identifies observable behavior, explains its relevance, and provides an actionable direction for improvement.

For example, a coach might explain that an athlete's positioning created a tactical problem and then identify a specific adjustment for the next training session.

This differs from global criticism that attacks the athlete's character or competence without providing a clear pathway toward improvement.

Constructive feedback should not be confused with indiscriminate praise. Athletes need accurate information about weaknesses, errors, and performance limitations.

The objective is to communicate that information in a manner that supports learning, accountability, and appropriate motivation.

6.7.3. Listening and athlete voice

Athlete voice refers to opportunities for athletes to communicate perspectives, raise concerns, contribute information, and participate in appropriate decisions.

Listening can provide coaches with information about perceived difficulty, fatigue, uncertainty, interpersonal conflict, and barriers to training.

It can also strengthen the legitimacy of decisions when athletes understand that their perspectives have been considered, even when the final decision differs from their preference.

Athlete voice should not be reduced to occasional consultation. Organizations need to establish credible processes through which feedback can be communicated and considered.

6.7.4. Leadership during mistakes and setbacks

The response to mistakes is an important indicator of coaching climate.

If errors are consistently met with humiliation, athletes may become reluctant to experiment, communicate uncertainty, or acknowledge problems. If errors are ignored entirely, athletes may fail to receive necessary corrective information.

An effective response distinguishes between mistakes that provide learning opportunities, repeated errors requiring targeted intervention, and behavior that violates safety or professional standards.

The coach should identify the relevant issue, communicate expectations, and provide an appropriate route toward improvement.

This approach preserves accountability while reducing unnecessary interpersonal threat.

6.8. Athlete Leadership and Shared Leadership

6.8.1. The role of team captains

Team captains often serve as intermediaries between coaches and athletes. Their responsibilities may include communicating team expectations, representing athlete perspectives, supporting newcomers, and helping maintain standards of conduct.

However, captaincy does not automatically produce leadership effectiveness. Some captains possess strong technical credibility but limited interpersonal skills; others are respected socially but struggle to manage difficult conversations.

Organizations should therefore consider leadership development when appointing captains and clarify the boundaries of their responsibilities.

Captains should not be expected to resolve serious safeguarding concerns independently or substitute for formal organizational procedures.

6.8.2. Informal athlete leaders

Informal leaders can influence team functioning through their behavior, expertise, and relationships.

They may contribute by modeling preparation standards, maintaining composure, supporting teammates, or communicating tactical information.

Because their influence emerges from group interactions, informal leaders can reinforce either constructive or harmful norms. A respected athlete who humiliates newcomers may normalize exclusion, whereas an athlete who responds to mistakes constructively may support psychological safety.

Coaches should therefore pay attention to the influence of informal leaders without attempting to control every interpersonal interaction.

6.8.3. Shared leadership

Shared leadership involves distributing leadership functions among multiple individuals.

For example, one athlete may contribute tactical expertise, another may support team communication, and another may help coordinate social integration.

Shared leadership can broaden the resources available to a team and reduce dependence on a single individual. However, it requires clarity concerning responsibilities and decision-making authority.

When roles overlap without coordination, shared leadership may create confusion. Organizations should therefore identify which functions can be distributed and which require a clearly designated decision-maker.

6.8.4. Leadership and performance: Interpreting contemporary evidence

Clare et al. (2025) found a small positive overall association between leadership and performance across the studies included in their meta-analysis. The reported

association was stronger for team captains than for coaches and informal athlete leaders in the relevant comparisons.

This finding suggests that athlete leaders may make a meaningful contribution to collective performance. However, it should not be interpreted as evidence that captains are universally more effective than coaches. The studies may differ in leadership measures, performance indicators, sport types, and the contexts in which leadership is exercised.

A practical implication is that performance systems should consider leadership as a distributed resource while retaining clear professional responsibilities.

6.9. Ethical Leadership and Power in Sport

6.9.1. The ethical responsibilities of leaders

Leadership in sport involves power over opportunities, evaluation, selection, and access to resources. This power creates ethical responsibilities.

Coaches and administrators should communicate decisions transparently, apply standards consistently, respect professional boundaries, and avoid exploiting athletes' dependence on the sporting system.

Ethical leadership also requires recognizing the limits of authority. A coach's technical expertise does not justify humiliation, coercion, discrimination, or disregard for athlete welfare.

6.9.2. Performance pressure and harmful behavior

High-performance environments may normalize intense pressure, but competitive ambition does not justify harmful interpersonal conduct.

Athletes may tolerate inappropriate behavior because they fear losing selection opportunities, scholarships, contracts, or access to competition. These concerns can discourage disclosure and allow harmful practices to persist.

Organizations should therefore provide accessible reporting mechanisms and ensure that legitimate concerns can be raised without retaliation.

Leadership education should include safeguarding, appropriate communication, conflict management, professional boundaries, and the responsibilities associated with authority.

6.9.3. Ethical consistency and organizational culture

Organizational culture influences which leadership behaviors are rewarded, tolerated, or challenged.

A club may formally endorse respect while informally rewarding coaches who achieve results through intimidation. In such circumstances, written policies may have limited effect unless leadership behavior and institutional incentives are aligned.

Organizations should examine how performance is evaluated, how complaints are handled, and whether leaders are held accountable for their conduct.

Ethical leadership is therefore not simply an individual quality. It also depends on systems that establish clear standards, monitor behavior, and respond appropriately to violations.

6.10. Leadership Across Different Sporting Contexts

6.10.1. Youth sport

In youth sport, leadership must account for developmental needs, differences in experience, and the responsibilities of adults toward young participants.

Coaches should provide clear structure while supporting learning, age-appropriate participation, and the development of independent judgment.

An approach that may be acceptable for experienced adult athletes may be inappropriate for children who have limited ability to challenge authority or interpret performance feedback.

Leadership should therefore be developmentally appropriate and consistent with safeguarding responsibilities.

6.10.2. Elite and professional sport

Elite sport often involves substantial performance pressure, public evaluation, selection uncertainty, and organizational demands.

Leadership may need to combine clear standards with individualized support, tactical decisiveness, and attention to recovery and well-being.

The challenge is to maintain performance expectations without allowing competitive objectives to justify harmful behavior.

Because athletes may depend on a small number of decision-makers for career opportunities, transparency and appropriate checks on authority are particularly important.

6.10.3. Recreational and community sport

In recreational and community sport, participation, enjoyment, social connection, and continued engagement may be central objectives.

Leadership should reflect these priorities rather than applying professional performance standards indiscriminately.

A coach working with recreational adults may need to balance instruction with flexibility, accommodate different levels of experience, and create an environment in which participants feel welcome.

The appropriate leadership approach depends on the goals of the setting and the needs of the participants.

6.10.4. Individual sports

Athletes in individual sports often maintain close working relationships with coaches and support professionals. Leadership may involve detailed technical feedback, competition planning, emotional preparation, and coordination across several specialists.

Because the athlete may have limited daily interaction with teammates, the coach can become an especially influential source of information and evaluation.

This concentration of influence makes communication, professional boundaries, and access to additional support important considerations.

6.10.5. Team sports

Team sports require coordination among individuals whose roles may differ substantially. Leadership must therefore address collective objectives, role clarity, tactical communication, and the management of interpersonal relationships.

Coaches may need to balance the needs of starters, substitutes, younger athletes, and experienced leaders.

A team environment becomes more sustainable when members understand how different roles contribute to collective objectives and when selection decisions are communicated through appropriate procedures.

6.11. Developing Leadership Competence

6.11.1. Leadership as a learnable capability

Leadership competence can be developed through education, feedback, guided practice, and reflection.

Coaches may benefit from examining how their communication is experienced by athletes, identifying recurring interaction patterns, and evaluating whether their behavior aligns with their stated values.

Athlete leaders may require support in communication, conflict management, role clarification, and appropriate referral of concerns.

Leadership development should not rely exclusively on personality questionnaires or one-time workshops. It should include opportunities to apply skills and evaluate their effects over time.

6.11.2. Reflective practice

Reflective practice involves systematically examining decisions, interactions, and outcomes.

After a difficult training session, a coach might ask:

- Were the objectives clear?
- Did athletes understand the rationale for the session?
- Was feedback specific and actionable?
- Did the response to mistakes support learning?
- Were athletes given appropriate opportunities to communicate?
- Did the session place unreasonable demands on recovery?
- What should be retained or changed next time?

These questions can help identify the difference between the intended and experienced effects of coaching behavior.

Reflection should be supported by evidence where possible, including athlete feedback, observations, and relevant performance information.

6.11.3. Coach development interventions

Raabe et al. (2019) systematically reviewed autonomy-support interventions involving physical education teachers and youth sport coaches. The review included 21 studies and found that interventions were frequently successful in improving relevant teacher or coach behaviors, although further research was considered necessary.

This evidence suggests that coaching behavior can be influenced through structured development rather than being treated as an unchangeable personal characteristic.

Effective programs may include communication practice, feedback on observed behavior, discussion of motivational theory, and opportunities to evaluate athlete responses.

However, changes in coach behavior should not automatically be assumed to produce equivalent changes in performance or mental health. These outcomes require separate assessment.

6.11.4. Supporting coaches at the organizational level

Coach development is more likely to be sustainable when organizations provide appropriate working conditions.

Relevant factors include manageable workloads, access to professional development, clear role expectations, constructive supervision, and adequate resources.

Stebbings et al. (2011) demonstrated the relevance of coaches' psychological needs and well-being to their interpersonal behaviors. This suggests that organizations should consider the conditions that shape coaching behavior alongside the behaviors themselves.

Supporting coaches does not mean excusing misconduct. It means addressing modifiable organizational pressures while maintaining clear standards of accountability.

6.12. An Evidence-Informed Framework for Leadership Practice

The following framework integrates the theoretical and practical implications discussed in this chapter. It is intended as a planning and reflection tool rather than a validated measurement instrument.

Leadership domain	Key question	Evidence-informed practice	Possible indicator
Direction and structure	Are expectations and objectives clear?	Define goals, responsibilities, and performance standards	Athlete understanding of roles and objectives
Autonomy support	Are athlete perspectives considered appropriately?	Provide rationales, invite questions, and offer meaningful choices where possible	Perceived autonomy support
Competence support	Does feedback help athletes improve?	Use specific, informative, and actionable feedback	Perceived competence and clarity of feedback
Relatedness	Are athletes treated with respect?	Demonstrate care, consistency, and appropriate interpersonal boundaries	Perceived belonging and relationship quality
Motivational climate	What does the environment communicate about success?	Recognize learning, effort, improvement, and legitimate competitive achievement	Perceived task- and ego-involving climate

Leadership domain	Key question	Evidence-informed practice	Possible indicator
Communication	Can information move in both directions?	Establish regular opportunities for dialogue and clarification	Communication quality and role clarity
Athlete leadership	Are leadership functions distributed appropriately?	Develop captains and informal leaders while clarifying responsibilities	Athlete leadership feedback
Ethical practice	Are standards applied fairly and safely?	Maintain transparent procedures and credible reporting pathways	Awareness of policies and confidence in procedures
Coach well-being	Are working conditions compatible with effective leadership?	Review workload, resources, support, and development needs	Coach well-being and observed behavior
Evaluation	Are leadership effects being assessed?	Combine athlete feedback, observation, and relevant outcomes	Changes in behavior, motivation, and well-being

The framework encourages organizations to move beyond general claims that a coach is supportive or effective. Leadership should be evaluated through specific behaviors, athlete experiences, and outcomes that are relevant to the setting.

6.13. Methodological Considerations and Future Research

Research on leadership and coaching in sport involves several methodological challenges.

First, leadership constructs must be clearly distinguished. Transformational leadership, autonomy-supportive coaching, authentic leadership, and social identity leadership overlap in some respects but have different theoretical foundations. Treating them as interchangeable may obscure the mechanisms through which particular behaviors influence athletes.

Second, leadership is relational. Coaches' self-reports do not necessarily correspond to athletes' experiences of their behavior. Research should therefore consider data from multiple perspectives, including coaches, athletes, and, where appropriate, other members of the support team.

Third, many studies use cross-sectional designs. Such studies can identify associations but cannot establish whether leadership behavior caused a particular outcome. Longitudinal and intervention designs are needed to examine how leadership and athlete experiences change over time.

Fourth, outcomes should be differentiated. Performance, motivation, satisfaction, psychological well-being, burnout, retention, and team cohesion are related but

distinct. An intervention may improve one outcome without producing an immediate change in another.

Fifth, context matters. Leadership behavior may be interpreted differently across age groups, sports, competitive levels, and cultural settings. Research should examine these differences rather than assuming that findings from one sporting environment generalize universally.

Sixth, researchers should consider the possibility that the same leader demonstrates different behaviors across situations. A coach may be supportive during training but controlling during competition. Person-centered and observational approaches can help capture these combinations more accurately than a single global score.

Seventh, organizational factors deserve greater attention. Leadership behavior is shaped by workload, institutional incentives, selection systems, resource availability, and the expectations imposed on coaches. Research that ignores these conditions may place excessive responsibility on individual leaders while overlooking modifiable organizational influences.

Future research should prioritize longitudinal and dyadic studies, carefully designed coach-development interventions, and research that examines both athlete and coach well-being. It should also investigate how leadership interacts with safeguarding, psychological safety, and organizational culture.

The growing evidence base supports a broad conclusion: leadership is relevant to sport performance and athlete experience, but its effects depend on the behaviors involved, the relationships in which they occur, and the contexts that shape them.

6.14. Conclusion

Leadership and coaching behavior are central elements of the psychosocial environment of sport. They influence how athletes understand expectations, develop motivation, respond to feedback, coordinate collective action, and experience their relationships with coaches and teammates.

The multidimensional model of leadership emphasizes the importance of alignment between situational demands, athlete preferences, and actual leadership behavior. Transformational, transactional, authentic, servant, and social identity perspectives offer complementary explanations of how leaders influence individuals and groups.

Self-determination theory further demonstrates the relevance of autonomy, competence, and relatedness to coaching behavior and athlete motivation. The

distinction between autonomy-supportive and controlling coaching is particularly important because clear structure and demanding standards do not require humiliation, coercion, or unnecessary restriction of athlete participation.

Motivational climate also shapes how athletes interpret success, effort, mistakes, and social comparison. Task-involving environments may support learning and improvement, while excessive emphasis on relative status can create additional pressure. However, leadership effects should not be assumed to be uniform across sports, individuals, and outcomes.

Effective leadership requires more than personal charisma or technical expertise. It involves communication, ethical judgment, reflective practice, professional competence, and the capacity to establish conditions in which athletes can develop and contribute meaningfully.

Ultimately, a sustainable approach to leadership in sport integrates performance expectations with respect for athletes' psychological needs, individual development, and well-being. Organizations must support this approach through appropriate working conditions, coach education, clear accountability, and credible safeguarding procedures.

The central implication is that leadership should be evaluated not only by whether a team wins, but also by how the team functions, how athletes develop, and whether the environment supports safe, meaningful, and sustainable participation in sport.

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CHAPTER 7: Team Cohesion, Group Dynamics, and Collective Efficacy in Sport

7.1. Introduction

Sport performance is often evaluated through individual statistics, technical execution, physical capacity, and competitive outcomes. However, in team sports and other interdependent performance environments, individual ability represents only one component of successful functioning. Athletes must coordinate their actions, interpret shared information, understand their roles, adapt to changing circumstances, and maintain cooperation under pressure. These requirements make group dynamics a central concern within sport psychology.

A team is not simply a collection of talented individuals. It is a social system in which members develop relationships, establish norms, distribute responsibilities, communicate information, and influence one another's behavior. The quality of these processes can affect how effectively athletes coordinate their efforts and respond to competitive challenges.

Several related constructs help explain these processes. **Team cohesion** concerns the forces that encourage group members to remain united around shared objectives or social relationships. **Collective efficacy** concerns a group's shared belief in its capacity to organize and execute the actions required to achieve particular goals. **Group dynamics** encompasses the broader processes through which group structure, relationships, norms, communication, leadership, and collective behavior develop and interact.

Although these constructs are related, they should not be treated as interchangeable. A team may report strong social cohesion while lacking confidence in its ability to execute a tactical plan. Another team may possess strong collective efficacy but experience interpersonal tension. A third may demonstrate effective coordination despite relatively limited social interaction outside training.

Understanding these distinctions is important for both research and applied practice. Interventions intended to strengthen team relationships may not automatically improve tactical coordination, and programs designed to increase confidence may have limited value if role ambiguity or communication problems remain unresolved.

Research has examined the relationship between cohesion and performance for several decades. Carron et al. (2002b) reported a positive association between

cohesion and performance in a meta-analysis of sport studies. However, the relationship should not be interpreted as a universal causal law. Successful performance may strengthen cohesion, cohesion may facilitate performance, and both may be influenced by other factors, including leadership, resources, team experience, and competitive context.

More recent work has also emphasized the importance of examining how cohesion is conceptualized and measured. Eys and Beauchamp (2025) critically reviewed established approaches to cohesion and proposed a theoretical realignment intended to guide future research. Their work highlights the need to distinguish the different processes that contribute to group unity rather than assuming that cohesion is a single, uncomplicated team characteristic.

This chapter examines the psychological and social foundations of team functioning. It reviews major approaches to cohesion, group structure and norms, collective efficacy, communication and coordination, team cognition, shared leadership, conflict, and team-building interventions. The final sections translate these concepts into an evidence-informed framework for improving team functioning while identifying methodological priorities for future research.

7.2. Understanding Group Dynamics in Sport

7.2.1. Defining group dynamics

Group dynamics refers to the processes through which individuals interact within a group and influence its structure, relationships, decisions, and collective behavior.

In sport, these processes include the development of roles, communication patterns, interpersonal relationships, leadership structures, performance norms, and collective expectations. They also include the ways teams respond to success, failure, uncertainty, and changes in membership.

Group dynamics can be examined at several interconnected levels.

The individual level concerns the characteristics, perceptions, skills, motives, and behaviors of individual athletes.

The interpersonal level concerns interactions between athletes, including trust, cooperation, competition, communication, and conflict.

The group level concerns shared norms, collective identity, cohesion, role structures, and common beliefs about team capability.

The organizational level concerns the broader conditions in which teams operate, including coaching systems, selection policies, resource availability, competition schedules, and institutional expectations.

These levels interact continuously. For example, a change in selection policy may alter perceived fairness, which may affect interpersonal relationships and ultimately influence team cohesion. Similarly, a captain's response to a mistake may shape both an individual athlete's confidence and the group's expectations concerning acceptable behavior.

A comprehensive approach to group dynamics therefore considers not only the characteristics of individual team members but also the relationships and structures through which their behavior becomes coordinated.

7.2.2. A team as an interdependent system

In interdependent sports, the performance of one athlete often depends on the actions of others. A defender's positioning influences the options available to teammates, a setter's decisions affect an attacker's opportunities, and a relay runner's preparation affects the quality of an exchange.

This interdependence means that team performance cannot be understood simply by adding individual performances together.

A team composed of highly skilled athletes may underperform when members do not understand their roles, communicate poorly, or fail to coordinate their actions. Conversely, a team with fewer individually outstanding athletes may function effectively because members understand their responsibilities and cooperate consistently.

The relationship between individual ability and collective performance is therefore conditional. Individual skill remains important, but its contribution depends partly on how effectively it is integrated into the team's tactical and social system.

This perspective also applies to individual sports in which athletes train collectively. Training groups may share facilities, coaching resources, practice routines, and feedback, creating group processes that influence individual development even when competition results are recorded separately.

7.2.3. Inputs, processes, and outcomes

A useful framework for analyzing group functioning distinguishes among inputs, group processes, and outcomes.

Inputs include athlete characteristics, team composition, coaching resources, prior experience, organizational conditions, and the demands of the sport.

Group processes include communication, coordination, leadership, role negotiation, collective decision-making, and conflict management.

Outcomes include competitive performance, team satisfaction, cohesion, collective efficacy, athlete retention, and psychological well-being.

These categories are analytically distinct but dynamically related. Outcomes can influence future inputs and processes. A successful season may strengthen confidence and attract new athletes, while repeated failures may lead to changes in membership, leadership, or training practices.

Carron and Eys (2012) developed a broad conceptual approach to studying sport teams that emphasizes the relationships among group structure, cohesion, group processes, and outcomes. Such frameworks help researchers avoid treating team characteristics as isolated variables.

A team should therefore be evaluated not only through its final results but also through the processes that produce those results and the conditions under which athletes participate.

7.3. Team Cohesion: Definition and Conceptual Foundations

7.3.1. Defining team cohesion

Team cohesion is commonly defined through the tendency of a group to remain united in pursuit of its objectives and/or in the satisfaction of members' social relationships.

Carron et al. (1985) developed an influential conceptual foundation for the study of cohesion in sport. Their work distinguished different dimensions of group unity and contributed to the development of the Group Environment Questionnaire (GEQ), a widely used instrument in sport psychology research.

Cohesion is often described as a dynamic property because it can change over time as athletes interact, experience success or failure, enter or leave a team, and respond to changing competitive demands.

It should not be understood simply as friendliness or the absence of disagreement. A cohesive team may experience conflict while remaining committed to shared objectives. Likewise, athletes may enjoy one another's company without coordinating their performance effectively.

The meaning of cohesion therefore depends on the dimension being examined and the context in which the team operates.

7.3.2. Task cohesion and social cohesion

A widely used distinction separates task cohesion from social cohesion.

Task cohesion concerns the extent to which team members work together toward shared performance objectives.

Social cohesion concerns the extent to which members value their interpersonal relationships and wish to remain part of the group.

Task cohesion may be reflected in a team's commitment to a tactical plan, willingness to coordinate defensive responsibilities, or shared effort toward a collective training objective.

Social cohesion may be reflected in interpersonal attraction, mutual acceptance, social interaction, and the sense that members belong to the same group.

The two dimensions can reinforce one another, but they do not necessarily develop together.

A team may demonstrate strong task cohesion because its members understand their responsibilities and remain committed to a shared objective, even if they do not maintain close friendships. Conversely, a socially close team may struggle to challenge ineffective decisions because members prioritize interpersonal harmony.

Neither pattern should be judged without considering the team's objectives and demands. In high-interdependence sports, task cohesion may be particularly relevant to coordinated execution, while social cohesion may contribute to belonging and the quality of the team environment.

7.3.3. Group integration and individual attraction to the group

The GEQ conceptual framework also distinguishes between group integration and individual attraction to the group.

Group integration concerns an athlete's perception of the team as a unified entity. It reflects beliefs about the degree to which the group is united around tasks or social relationships.

Individual attraction to the group concerns the athlete's personal involvement and attraction to the team in task-related or social terms.

These dimensions are important because an athlete's personal experience may differ from their perception of the group as a whole.

For example, a player may personally enjoy participating and value the team's objectives while believing that other members are divided into competing subgroups. Another player may perceive the team as highly unified but feel personally excluded from important relationships.

Researchers should therefore distinguish between individual perceptions and group-level properties.

Carron et al. (2003) examined whether individual perceptions of cohesion reflect shared beliefs within sport teams. Their findings demonstrated that agreement among team members varied according to the cohesion dimension being assessed. This has important implications for research design: averaging individual responses to create a team-level score requires evidence that members share sufficiently similar perceptions.

7.3.4. Cohesion as a dynamic and multidimensional process

Cohesion may change across a season, within a competition, or following major events such as injury, selection changes, coaching transitions, and unexpected results.

A newly formed team may initially rely on formal instructions and clearly defined roles. Over time, members may develop shared expectations, informal communication patterns, and stronger collective identification.

However, cohesion does not necessarily increase continuously. A period of poor performance may expose disagreements about roles or strategy. A successful team may experience internal competition when athletes begin to prioritize individual recognition.

Eys and Beauchamp (2025) argue that cohesion research would benefit from reconsidering established conceptual assumptions and developing clearer theoretical pathways for future work. Their review reinforces the need to examine how group unity develops, what forms it takes, and how it relates to other aspects of team functioning.

The practical implication is that cohesion should be monitored and interpreted in context rather than treated as a fixed attribute that a team either possesses or lacks.

7.4. Team Cohesion and Competitive Performance

7.4.1. The cohesion–performance relationship

The relationship between cohesion and performance has received considerable attention in sport psychology.

Carron et al. (2002b) conducted a meta-analysis examining cohesion and performance across sport studies. Their findings supported a positive overall relationship, suggesting that more cohesive teams tend to demonstrate better performance outcomes.

Carron et al. (2002a) also investigated cohesion and success in elite university basketball and club soccer teams. Their findings indicated a strong association between task cohesion and winning percentage in the teams studied.

These results provide an important foundation for understanding cohesion as a potential contributor to team effectiveness. Nevertheless, the findings do not demonstrate that cohesion is sufficient to produce success or that the same relationship applies uniformly across all sports.

Performance depends on numerous interacting variables, including technical ability, tactical preparation, physical conditioning, opponent quality, injuries, resources, and situational uncertainty. Cohesion is one component of this broader system.

7.4.2. Why cohesive teams may perform effectively

Several mechanisms may help explain why cohesion is associated with performance.

Coordination. Cohesive teams may be more willing to cooperate and maintain shared responsibilities during complex tasks.

Communication. Members who trust one another may be more willing to exchange information, clarify uncertainty, and provide timely feedback.

Persistence. Shared commitment may help athletes maintain collective effort when facing setbacks.

Role acceptance. Athletes may be more willing to perform specialized or less visible roles when they understand how these roles contribute to team objectives.

Mutual support. Members may provide assistance when teammates experience errors, fatigue, or temporary declines in confidence.

Collective commitment. Team members may be more likely to prioritize coordinated action over immediate individual recognition when collective objectives are clearly established.

These mechanisms are plausible explanations of the cohesion–performance relationship, but they should not automatically be assumed to mediate the relationship in every team. Each mechanism requires appropriate empirical assessment.

7.4.3. Does success produce cohesion?

The relationship between cohesion and performance may be reciprocal.

Cohesion may support coordination and persistence, thereby contributing to performance. Successful performance may also strengthen confidence in teammates, reinforce shared identity, and increase the perceived value of collective effort.

Conversely, repeated failure may generate disagreement, reduce confidence, or increase competition for limited opportunities.

This reciprocal relationship creates a methodological challenge. A cross-sectional study that identifies an association between cohesion and performance cannot determine which variable influenced the other or whether both were affected by a third factor.

Longitudinal studies are therefore particularly valuable. Repeated assessments across a season can help clarify whether changes in cohesion precede changes in performance, follow successful or unsuccessful results, or occur in parallel with other group processes.

7.4.4. When cohesion may not improve performance

High cohesion does not guarantee effective performance.

A socially close team may avoid difficult conversations, resist tactical changes, or accept ineffective strategies because members do not wish to challenge one another.

A team may also be united around objectives that are unrealistic or poorly designed. Collective commitment cannot compensate indefinitely for inadequate preparation or inappropriate tactical decisions.

In addition, excessive pressure to preserve unity may discourage athletes from reporting fatigue, injury, discrimination, or interpersonal concerns.

Effective teams therefore require a balance between unity and critical reflection. Cohesion should support constructive cooperation rather than eliminate disagreement or reduce accountability.

7.5. Collective Efficacy in Sport

7.5.1. Defining collective efficacy

Collective efficacy refers to a group's shared belief in its capacity to organize and execute the actions required to achieve particular goals.

Bandura (1997) distinguished collective efficacy from individual self-efficacy. Self-efficacy concerns an individual's belief in their capability to perform a task, whereas collective efficacy concerns perceived group capability.

In sport, collective efficacy may involve a team's belief that it can execute a defensive system, maintain composure under pressure, recover from a deficit, or coordinate effectively against a particular opponent.

Collective efficacy is not simply optimism or confidence in winning. It concerns perceived capability to perform the actions necessary to pursue an objective.

A team may believe that it can execute a tactical plan effectively while recognizing that the opponent remains highly capable. Conversely, a team may expect to win because it underestimates the opponent without possessing strong collective confidence in its own coordinated abilities.

The distinction between capability beliefs and outcome expectations is therefore important.

7.5.2. Collective efficacy and individual self-efficacy

Individual self-efficacy and collective efficacy are related but conceptually distinct.

A player may have high confidence in their individual technical ability while doubting the team's capacity to coordinate effectively. Another player may have moderate confidence in their own contribution but believe strongly in the team's collective capability.

These differences can influence behavior.

An athlete who doubts collective efficacy may focus excessively on individual solutions, reduce reliance on teammates, or become reluctant to follow a shared tactical plan.

An athlete who trusts the team's collective capability may be more willing to perform a specialized role, communicate information, and coordinate decisions.

However, collective efficacy should not eliminate individual accountability. Teams require members to develop relevant skills and execute their responsibilities within the collective system.

7.5.3. Sources of collective efficacy

Bandura's (1997) social cognitive framework identifies several sources of efficacy beliefs that can be applied to collective contexts.

Mastery experiences. Successful execution of relevant tasks provides evidence that the group can coordinate its efforts effectively.

Vicarious experiences. Observing comparable groups perform successfully may strengthen beliefs about what a team can accomplish.

Social persuasion. Credible feedback and encouragement may reinforce beliefs about collective capability.

Interpretation of physiological and emotional states. Team members may interpret fatigue, arousal, or uncertainty as evidence of inadequate preparation or as manageable aspects of demanding performance.

In sport, mastery experiences may include executing a tactical system successfully during training, recovering from a competitive setback, or coordinating effectively against a difficult opponent.

The quality of the experience matters. A victory achieved primarily through opponent errors may provide less reliable information about the team's own capabilities than a performance demonstrating consistent execution of relevant skills.

Likewise, encouragement is most credible when it is connected to evidence of preparation and capability rather than unrealistic promises of success.

7.5.4. Collective efficacy and team performance

Collective efficacy may influence performance by shaping effort, persistence, coordination, and responses to difficulty.

Teams that believe they can execute a task may be more willing to invest effort and remain engaged when the task becomes challenging. These beliefs may also support more effective communication and reduce premature disengagement.

However, collective efficacy does not guarantee success. A team may be confident but inadequately prepared, or it may encounter an opponent whose performance exceeds expectations.

Excessive confidence may also create problems if it leads to complacency or inaccurate assessment of risk.

The goal is therefore not to maximize confidence without qualification. It is to develop collective efficacy that is grounded in realistic evidence of team capability.

7.5.5. Collective efficacy and cohesion

Cohesion and collective efficacy are related but distinct.

Cohesion concerns unity around shared objectives or social relationships. Collective efficacy concerns shared beliefs about capability.

A cohesive team may trust its members and remain committed to collective goals but lack confidence in its ability to execute those goals. A team may possess high collective efficacy because its members have strong technical competence, even if interpersonal relationships remain relatively distant.

These constructs may reinforce one another. Cohesion may facilitate the communication and coordination required for successful experiences, while collective efficacy may strengthen commitment to shared objectives.

Nevertheless, the relationship should be investigated empirically rather than assumed to be automatic.

A practical assessment should therefore examine both whether athletes feel united and whether they believe the team can perform the required actions effectively.

7.6. Group Structure, Roles, and Norms

7.6.1. Role clarity and role ambiguity

A role refers to the set of responsibilities and expected behaviors associated with a position within a team.

Role clarity exists when athletes understand their responsibilities, performance expectations, and the relationship between their role and collective objectives.

Role ambiguity occurs when these expectations are uncertain or insufficiently communicated.

In sport, role ambiguity may concern tactical responsibilities, playing time, leadership expectations, selection criteria, or the tasks an athlete is expected to perform during training.

Ambiguity can create uncertainty and interpersonal conflict. Athletes may duplicate responsibilities, neglect important tasks, or interpret another player's actions as inappropriate interference.

Clear roles can support coordination and reduce unnecessary uncertainty. However, role clarity should not imply that roles must remain unchanged. Teams need procedures for adapting responsibilities when circumstances change.

7.6.2. Role acceptance and role conflict

Role acceptance concerns whether athletes understand and are willing to perform the responsibilities associated with their positions.

An athlete may understand a role but consider it unfair or inconsistent with their skills and goals. A reserve player, for example, may recognize the team's tactical rationale while feeling uncertain about their development opportunities.

Role conflict occurs when expectations are incompatible or when different individuals communicate contradictory requirements.

A coach may instruct an athlete to prioritize defensive coverage while teammates expect that athlete to contribute more aggressively to attacking play. Without clarification, the athlete may struggle to determine which expectation takes priority.

Coaches can reduce role conflict by explaining responsibilities, identifying competing demands, and creating opportunities for clarification.

Role discussions are particularly important when selection changes, injuries, tactical adjustments, or new team members alter established patterns.

7.6.3. Team norms

Team norms are shared expectations about acceptable behavior.

They may concern preparation, punctuality, communication, effort, conflict, recovery, respect, and responses to mistakes.

Norms can support team functioning when they encourage consistent preparation, cooperation, and accountability. However, they may become harmful when they normalize excessive training, discourage help-seeking, or tolerate humiliating behavior.

For example, a team may develop a norm that members never acknowledge fatigue or psychological distress. Although this norm may be interpreted as toughness, it can discourage athletes from communicating information relevant to health and performance.

Effective teams establish norms that support both performance and appropriate boundaries. Leaders play an important role because their behavior communicates which norms are genuinely valued.

7.6.4. Status, influence, and informal hierarchies

Sport teams often develop informal status hierarchies based on experience, performance, seniority, reputation, or interpersonal influence.

These hierarchies may help teams organize responsibilities and recognize expertise. However, they may also create unequal access to information, social exclusion, or reluctance among less experienced athletes to raise concerns.

A highly influential player may shape the group's response to coaching decisions even without holding a formal leadership position.

Coaches should therefore consider how informal status influences communication and participation. Respect for experience should not prevent other athletes from contributing information or raising legitimate concerns.

7.7. Communication, Coordination, and Team Cognition

7.7.1. Communication as a mechanism of coordination

Communication enables team members to exchange information, coordinate action, clarify expectations, and adapt to changing circumstances.

In fast-paced sports, communication must often be concise, timely, and closely connected to the task. Athletes may use verbal instructions, gestures, spatial positioning, or established tactical signals.

The effectiveness of communication depends on more than frequency. Messages must be understood, relevant, and delivered in time to influence action.

Excessive communication may distract athletes or overload attention. Insufficient communication may create uncertainty or prevent timely coordination.

Teams should therefore develop communication practices appropriate to their sport, tactical system, and level of experience.

7.7.2. Shared mental models

Shared mental models refer to overlapping understandings among team members concerning relevant tasks, roles, procedures, and the operating environment.

In sport, shared mental models may concern tactical principles, defensive responsibilities, transition patterns, and expectations about teammates' actions.

When athletes possess sufficiently aligned understandings, they may anticipate one another's behavior and coordinate with less explicit communication.

For example, a midfielder may recognize when a teammate is likely to move into space because both athletes understand the tactical pattern and the cues that initiate it.

Shared mental models do not require identical knowledge or identical perspectives. Different positions may require different information. The important issue is whether members understand enough about one another's responsibilities to coordinate effectively.

7.7.3. Transactive memory systems

A transactive memory system concerns a group's shared understanding of who possesses particular knowledge and expertise.

In sport, team members may know which player is most experienced in organizing defensive positioning, which teammate provides tactical information, or which specialist can clarify a technical issue.

This knowledge allows a team to distribute cognitive responsibilities rather than requiring every member to possess identical expertise.

However, a transactive memory system depends on accurate knowledge of teammates' capabilities and reliable access to relevant information. If expertise is misidentified or communication channels fail, the system may create delays or errors.

Research examining professional soccer teams has included transactive memory systems among the group processes associated with collective efficacy and team functioning (see the conceptual framework discussed in the professional soccer study indexed in PubMed Central).

7.7.4. Coordination under pressure

Competitive pressure can make coordination more difficult because athletes may experience elevated arousal, reduced attentional flexibility, and increased concern about individual performance.

Teams can prepare for these demands by rehearsing tactical patterns, clarifying communication signals, and practicing responses to realistic pressure situations.

Training should also include opportunities to recover from errors without abandoning the collective plan. A team that has practiced responses to unexpected situations may be better prepared to adapt when competition does not unfold as anticipated.

Nevertheless, rehearsal should not become rigid dependence on predetermined sequences. Effective coordination requires both shared structure and the capacity to respond flexibly to new information.

7.8. Collective Efficacy, Team Resilience, and Adaptation

7.8.1. Understanding team resilience

Team resilience refers to the collective capacity to respond to adversity, adapt to changing demands, and continue functioning in pursuit of relevant objectives.

In sport, adversity may involve losing an important match, experiencing a series of injuries, facing an unexpected tactical challenge, or navigating changes in leadership and team composition.

Team resilience should not be understood as the ability to tolerate every demand without difficulty. Effective adaptation may require changing goals, adjusting workloads, seeking external assistance, or acknowledging that a particular strategy is no longer appropriate.

A resilient team is therefore not necessarily one that maintains the same behavior under all conditions. It is one that can recognize challenges, mobilize resources, learn from experience, and adapt when necessary.

7.8.2. The relationship between collective efficacy and resilience

Collective efficacy may contribute to team resilience by influencing whether members believe that coordinated action can help them respond to adversity.

A team that believes it can recover from a deficit may remain engaged and communicate constructively after an error. A team with low collective efficacy

may interpret the same setback as evidence that further effort is unlikely to succeed.

However, collective efficacy alone cannot ensure adaptation. Teams also need appropriate tactical options, physical readiness, communication, leadership, and the willingness to recognize mistakes.

Overconfidence may even interfere with adaptation if team members dismiss warning signs or refuse to reconsider ineffective strategies.

Collective efficacy should therefore be developed alongside realistic evaluation and a willingness to learn.

7.8.3. Learning from setbacks

Setbacks can provide information about team functioning when they are examined systematically.

A post-competition review may consider whether the team understood its objectives, communicated effectively, adapted to the opponent, and executed its responsibilities.

The review should distinguish between controllable processes and factors that were outside the team's influence. It should also avoid attributing collective outcomes to a single individual when performance emerged through multiple interacting processes.

A constructive review can strengthen shared understanding and identify specific areas for development. However, repeated analysis without meaningful changes in training or decision-making is unlikely to improve functioning.

The value of reflection depends on whether it produces actionable learning and whether the team can implement the resulting adjustments.

7.9. Team-Building Interventions

7.9.1. Defining team building

Team building refers to planned activities designed to improve aspects of group functioning, including cohesion, communication, cooperation, role clarity, and shared commitment.

It should be distinguished from recreational social events that do not have explicit developmental objectives. Although informal activities may strengthen relationships, effective team-building interventions should be linked to identifiable needs and evaluated through relevant outcomes.

Team building can focus on task-related processes, social relationships, or a combination of both.

Task-focused activities may involve collective goal setting, role clarification, tactical problem-solving, and performance review.

Socially focused activities may involve structured opportunities for interaction, mutual understanding, and the development of interpersonal relationships.

The appropriate intervention depends on the difficulties identified within the team.

7.9.2. Evidence from meta-analysis

Kwon (2024) conducted a meta-analysis of team-building interventions in sport, drawing on 15 articles and 52 effect-size cases.

The analysis reported an overall effect size of approximately Hedges' $g = 0.65$ for team-building interventions and cohesion, with a 95% confidence interval of approximately 0.39 to 0.91. The analysis also reported very high heterogeneity, indicating substantial variation across the included findings.

The results suggest that team-building interventions can improve cohesion on average. However, the high heterogeneity means that the magnitude of benefit should not be assumed to be identical across interventions or teams.

Kwon (2024) reported that the effects varied according to the characteristics of the participants and intervention context. Task-related attraction to the group showed a comparatively large estimated effect, while the analysis did not identify statistically significant differences among the four cohesion dimensions examined.

The study also identified competitive skill level as a significant moderator in its analysis. Findings from school and collegiate settings differed from those observed in professional club settings, where the estimated effect did not reach statistical significance.

These results should be interpreted cautiously because subgroup findings may be affected by the number and quality of available studies. They nevertheless support the principle that intervention design should account for the characteristics of the team and the context in which it operates.

7.9.3. Components of an effective team-building program

A structured team-building program may include several components.

Needs assessment. Identify whether the primary difficulty concerns task cohesion, social cohesion, role clarity, communication, collective efficacy, or conflict.

Goal setting. Establish specific objectives that correspond to the identified problem.

Role clarification. Ensure that athletes understand their responsibilities and how those responsibilities contribute to collective goals.

Communication practice. Develop routines for exchanging information, providing feedback, and discussing disagreement.

Collaborative problem-solving. Give athletes opportunities to analyze relevant performance problems and develop shared responses.

Reflection and review. Evaluate what changed, what remains difficult, and whether the intervention has improved the intended outcome.

Follow-up. Reassess the team after sufficient time to determine whether changes have been maintained.

The program should be proportionate to the team's needs. A team experiencing role ambiguity may benefit more from structured role discussions than from an unrelated social activity.

7.9.4. Why team-building interventions may fail

Team-building interventions may fail when they address the wrong problem, lack follow-up, or are implemented without meaningful athlete participation.

A social event may have limited value when the primary issue is unclear selection criteria. A communication workshop may not resolve conflict if athletes fear retaliation for expressing disagreement.

Interventions may also be undermined when coaches communicate one set of values during a workshop but reward contradictory behavior during competition.

Team building should therefore be integrated into the broader organizational environment. It is unlikely to produce sustainable change if the underlying structures and incentives remain inconsistent with the intended outcomes.

7.9.5. Evaluating intervention effectiveness

Evaluation should correspond to the objectives of the intervention.

If the goal is to improve task cohesion, researchers may assess perceptions of collective commitment, role coordination, and shared performance objectives.

If the goal is to improve social cohesion, relevant outcomes may include belonging, interpersonal trust, and the perceived quality of relationships.

If the objective is to improve collective efficacy, assessment should focus on beliefs about the team's capacity to perform specific collective tasks.

Performance outcomes may also be examined, but they should not be treated as the only indicators of effectiveness. Changes in cohesion may occur without immediate improvements in competitive results, particularly when performance is influenced by factors outside the intervention.

A rigorous evaluation should include baseline measurement, post-intervention assessment, and, where possible, follow-up measurement. Comparison groups and repeated assessments can help distinguish intervention effects from natural changes over a season.

7.10. Group Conflict, Subgroups, and Dysfunctional Cohesion

7.10.1. Conflict within teams

Conflict is a normal possibility in groups that involve interdependence, competition for opportunities, and differences in perspective.

Task conflict concerns disagreement about strategy, decisions, or the content of work. Relationship conflict concerns interpersonal tension, dislike, or perceived incompatibility.

Task conflict may contribute to learning when it encourages critical examination and alternative perspectives. However, it can become destructive when disagreement is personalized or when members lack appropriate ways to resolve it.

Relationship conflict may undermine trust, communication, and willingness to cooperate. It can also influence how athletes interpret feedback and the behavior of teammates.

The practical objective is not to eliminate every disagreement but to develop procedures through which conflict can be addressed constructively.

7.10.2. Subgroups and social fragmentation

Sport teams may develop subgroups based on playing status, age, experience, language, cultural background, or interpersonal relationships.

Subgroups are not necessarily harmful. Athletes may naturally develop closer relationships with teammates who share similar responsibilities or experiences.

Problems arise when subgroup boundaries restrict information exchange, create unequal access to opportunities, or undermine collective objectives.

For example, established players may develop informal communication patterns that exclude newcomers. Reserve players may form a separate social group if they receive insufficient information about their roles or future opportunities.

Coaches can reduce harmful fragmentation by establishing inclusive communication practices, clarifying responsibilities, and ensuring that relevant information reaches all team members.

7.10.3. When cohesion becomes dysfunctional

Cohesion is not inherently beneficial in every form.

A highly cohesive group may discourage dissent, conceal problems, or prioritize loyalty over ethical judgment. Members may remain silent about harmful behavior because they fear damaging the group's reputation or losing their social position.

This pattern illustrates why cohesion should be distinguished from psychological safety and ethical functioning.

Healthy cohesion supports cooperation while allowing constructive disagreement. Dysfunctional cohesion demands conformity and treats legitimate criticism as disloyalty.

Teams should therefore establish norms that protect both collective commitment and individual responsibility.

7.10.4. Groupthink and collective decision-making

Groupthink is commonly used to describe decision-making conditions in which the desire for agreement interferes with critical evaluation of alternatives.

In sport, a team may continue using an ineffective tactical approach because members are reluctant to challenge the coach or influential teammates. A group may also underestimate an opponent because its members reinforce one another's confidence without examining relevant evidence.

To reduce these risks, teams can establish structured review procedures, invite alternative perspectives, and distinguish disagreement about a decision from personal disloyalty.

Critical evaluation is particularly important when the consequences of a decision are substantial or when the group has experienced repeated success that may encourage overconfidence.

7.11. Practical Applications for Coaches, Athletes, and Sport Organizations

7.11.1. Applications for coaches

Coaches can strengthen group functioning by:

- Clarifying collective objectives and individual responsibilities.
- Distinguishing task cohesion from social cohesion.
- Monitoring role ambiguity and perceived unfairness.
- Establishing consistent communication routines.
- Encouraging constructive disagreement.
- Developing realistic collective efficacy through evidence of preparation.
- Evaluating team-building interventions rather than assuming they are effective.
- Responding to harmful norms and exclusionary behavior.
- Reviewing how selection and feedback influence group processes.

These practices should be adapted to the sport, age group, competitive level, and organizational context.

7.11.2. Applications for athletes

Athletes can contribute to effective group functioning by:

- Understanding how individual responsibilities contribute to collective objectives.
- Communicating relevant information in a timely manner.
- Supporting teammates without avoiding necessary feedback.
- Recognizing the value of different roles.
- Participating in structured performance review.
- Addressing disagreement respectfully.
- Avoiding the use of social status to exclude or intimidate others.
- Maintaining realistic confidence in collective capability.

Athletes should not be expected to resolve every organizational problem themselves. Coaches and sport organizations remain responsible for establishing appropriate structures and responding to serious concerns.

7.11.3. Applications for sport organizations

Sport organizations can support team functioning by:

- Providing coach education in group dynamics and conflict management.
- Establishing transparent selection and role-allocation procedures.
- Creating mechanisms for athlete feedback.
- Supporting leadership development among athletes.
- Providing access to sport psychology services where appropriate.
- Monitoring team climate and psychological safety.
- Ensuring that team-building activities have clear objectives.
- Evaluating whether policies are implemented consistently.
- Addressing organizational conditions that undermine cooperation.

Organizations should recognize that team cohesion cannot be developed sustainably through isolated activities if daily practices continue to reward exclusion, intimidation, or unclear communication.

7.12. An Evidence-Informed Framework for Assessing Team Functioning

The following framework can be used to structure team assessment and intervention planning. It is a practical organizing tool rather than a validated diagnostic instrument.

Domain	Central question	Possible indicators	Potential intervention
Task cohesion	Are members committed to shared performance objectives?	Shared goals, perceived task unity, coordination	Collective goal setting and role clarification
Social cohesion	Do athletes experience belonging and interpersonal connection?	Trust, acceptance, perceived belonging	Structured interaction and inclusive team practices
Collective efficacy	Does the team believe it can execute required collective tasks?	Task-specific collective confidence	Progressive mastery experiences and realistic feedback
Role clarity	Do athletes understand their responsibilities?	Role understanding, reduced ambiguity	Individual role discussions and tactical clarification

Domain	Central question	Possible indicators	Potential intervention
Team norms	Are behavioral expectations constructive and consistent?	Preparation standards, response to mistakes	Explicitly defined norms and leadership modeling
Communication	Is relevant information exchanged effectively?	Timeliness, clarity, shared understanding	Communication routines and structured review
Team cognition	Do members understand relevant tasks and responsibilities?	Shared tactical understanding, knowledge of expertise	Scenario-based practice and tactical rehearsal
Conflict management	Can disagreement be addressed constructively?	Perceived fairness, resolution processes	Facilitated discussion and clear procedures
Inclusion	Can all members participate meaningfully?	Access to information, perceived acceptance	Inclusive communication and review of subgroup dynamics
Adaptation	Can the team learn from setbacks?	Post-event reflection, implementation of changes	Structured debriefing and follow-up assessment

This framework encourages practitioners to identify the specific dimension of team functioning that requires attention. It also helps avoid the assumption that every group problem can be solved through a generic cohesion-building activity.

7.13. Methodological Considerations and Future Research

Research on team cohesion, group dynamics, and collective efficacy faces several methodological challenges.

First, construct definition remains important. Cohesion, collective efficacy, social identity, psychological safety, and communication are related but distinct. Studies should specify which construct is being measured and avoid using a single general measure of team functioning as a substitute for more precise assessment.

Second, the level of analysis must match the theoretical question. An individual's perception of cohesion is not automatically a team-level property. Researchers who aggregate individual responses should examine whether sufficient agreement exists among team members and whether the measure supports the proposed level of analysis.

Third, temporal design matters. Cohesion and collective efficacy may change during a season and may respond to performance, selection decisions, injuries, and changes in leadership. Longitudinal studies can help establish the sequence of these changes more effectively than single-time-point assessments.

Fourth, causal inference requires caution. A positive association between cohesion and performance does not demonstrate that cohesion caused performance. Successful teams may become more cohesive, and both variables may be influenced by leadership, resources, or other factors.

Fifth, research should examine heterogeneity across sporting contexts. Individual and team sports, youth and adult populations, amateur and professional environments, and different cultural settings may involve different group demands.

Sixth, intervention research should be designed to identify which components are effective. Team-building programs often combine several activities, making it difficult to determine whether improvements result from goal setting, communication practice, social interaction, role clarification, or other elements.

Seventh, researchers should examine potential negative outcomes. Excessive cohesion may be associated with conformity, exclusion, or reluctance to report concerns. Collective efficacy may become unrealistic confidence if it is not grounded in accurate performance information.

Finally, future research should integrate performance and well-being outcomes. A team intervention that improves coordination while increasing psychological distress or reducing athlete autonomy should not be considered an unqualified success.

Eys and Beauchamp's (2025) theoretical review provides a useful foundation for future cohesion research by highlighting the need for conceptual refinement. Kwon's (2024) meta-analysis similarly demonstrates the importance of examining intervention characteristics and contextual variation rather than assuming that team-building activities produce uniform results.

7.14. Conclusion

Team cohesion, group dynamics, and collective efficacy are important components of the psychosocial foundations of sport. They help explain how individual athletes become coordinated members of a collective system and how groups develop shared expectations, relationships, and beliefs about their capabilities.

Cohesion concerns unity around task objectives and social relationships, whereas collective efficacy concerns shared beliefs about the team's capacity to execute relevant actions. Group dynamics encompasses the broader processes through

which roles, norms, communication, leadership, and interpersonal relationships influence collective functioning.

Research supports a positive association between cohesion and performance, but this relationship should not be interpreted as universally causal. Cohesion may support coordination, persistence, and communication, while successful performance may also strengthen group unity. The direction and magnitude of these relationships depend on the team and its environment.

Collective efficacy can support effort and adaptation when it is grounded in realistic evidence of capability. Team-building interventions may improve cohesion, but their effects vary according to intervention design, participant characteristics, and context. Effective practice therefore requires assessment, clear objectives, implementation, and evaluation rather than reliance on generic activities.

A well-functioning team needs more than interpersonal harmony. It requires clear roles, shared understanding, constructive communication, realistic confidence, ethical norms, and the capacity to challenge ineffective decisions. Excessive conformity and harmful behavior can exist even within highly cohesive groups.

Ultimately, the development of effective teams requires an integrated approach that connects individual capabilities with social relationships, collective processes, and organizational conditions. The objective is not simply to make athletes feel united, but to create environments in which they can coordinate effectively, learn from setbacks, contribute meaningfully, and pursue shared objectives without compromising individual well-being.

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CHAPTER 8: Psychological Resilience, Coping, and Adaptation In Sport

8.1. Introduction

Sport participation involves continuous exposure to demands that require athletes to adapt physically, psychologically, socially, and behaviorally. Competitive pressure, injury, performance setbacks, selection uncertainty, interpersonal conflict, and changes in athletic roles can challenge an athlete's capacity to maintain effective functioning. Even athletes with extensive experience and high levels of expertise may encounter periods of uncertainty, reduced confidence, emotional distress, or difficulty adjusting to changing circumstances.

These experiences have contributed to growing interest in psychological resilience and coping within sport psychology. Psychological resilience concerns the processes through which individuals maintain or regain adaptive functioning when facing significant adversity or stress. Coping refers to the cognitive and behavioral efforts individuals use to manage demands that they perceive as challenging or exceeding their resources. Adaptation concerns the adjustments through which individuals respond to changing conditions over time.

Although these concepts are closely related, they are not interchangeable. Coping describes responses to particular demands, whereas resilience concerns adaptive processes and outcomes across adversity. Adaptation is broader still, encompassing changes in behavior, psychological functioning, skills, relationships, and strategies as circumstances evolve.

The distinction matters because athletes do not demonstrate resilience simply by continuing to compete regardless of the consequences. An athlete who ignores persistent pain, conceals psychological distress, or continues training under unsafe conditions may appear determined while experiencing deteriorating health. Similarly, an athlete who temporarily reduces training or seeks professional assistance may be demonstrating adaptive judgment rather than a lack of resilience.

Contemporary approaches therefore move beyond the assumption that resilience is an immutable personal quality possessed by some athletes but absent in others. Resilience is better understood as a dynamic process shaped by the interaction between individual characteristics, coping resources, social relationships, environmental demands, and available opportunities for recovery.

Fletcher and Sarkar (2012), in their grounded-theory investigation of Olympic champions, identified psychological factors associated with how athletes interpreted and responded to competitive stressors. Their findings highlighted the importance of challenge appraisal, positive psychological characteristics, motivation, confidence, focus, and perceived social support. Their subsequent review examined the stressors athletes encounter and the protective factors that may support resilient functioning (Sarkar & Fletcher, 2014).

More recent work has further emphasized the need for a dynamic and personalized understanding of resilience. Den Hartigh et al. (2024) proposed a multidisciplinary perspective in which resilience is understood through the interaction of psychological, behavioral, and contextual processes rather than through a single stable characteristic.

At the same time, resilience should not be treated as a guarantee of successful performance or freedom from mental health difficulties. Athletes can demonstrate adaptive coping while experiencing distress, and they may require professional support even when they possess substantial psychological resources.

This chapter examines resilience, coping, and adaptation through an integrated psychosocial framework. It considers theoretical foundations, stress appraisal, coping strategies, protective and risk factors, social support, injury and career transitions, evidence-informed interventions, and methodological challenges. Particular attention is given to the distinction between healthy adaptation and the harmful normalization of excessive pressure.

8.2. Conceptual Foundations of Psychological Resilience

8.2.1. Defining psychological resilience

Psychological resilience is commonly associated with the capacity to maintain or regain adaptive functioning when confronted with adversity, significant stress, or challenging circumstances.

In sport, adversity may include performance failure, injury, deselection, prolonged competitive pressure, organizational instability, or major life transitions. However, the presence of a stressor alone does not establish that an athlete has demonstrated resilience. Researchers must also consider the nature of the adversity, the athlete's response, the relevant time frame, and the outcomes used to assess adaptation.

A useful conceptual distinction separates three elements:

1. **Adversity or significant demand:** The circumstances that challenge an athlete's functioning.
2. **Adaptive processes:** The psychological, behavioral, interpersonal, and organizational responses through which the athlete manages the demand.
3. **Adaptive outcomes:** The extent to which the athlete maintains or regains relevant functioning over time.

This distinction helps prevent resilience from becoming a vague synonym for confidence, determination, optimism, or mental toughness.

For example, an athlete who returns to effective training following an injury may demonstrate adaptation through appropriate rehabilitation, realistic goal adjustment, and the use of social support. Another athlete may remain highly motivated but struggle to adapt because medical, financial, or organizational resources are unavailable.

The difference illustrates why resilience cannot be understood solely by examining personal attitudes.

8.2.2. Resilience as a process rather than a fixed trait

Some approaches have treated resilience as a relatively stable individual characteristic. Although individual differences may influence how athletes respond to adversity, a purely trait-based interpretation risks overlooking changes across situations and time.

An athlete may respond effectively to competitive pressure but experience substantial difficulty following an injury. Another may initially struggle with performance anxiety but develop more effective coping strategies through experience, appropriate support, and psychological skills training.

These patterns suggest that resilience can vary across domains and circumstances.

Den Hartigh et al. (2024) advocated a multidisciplinary, dynamic, and personalized perspective on resilience in sport. This approach emphasizes the importance of understanding individual adaptation within the specific conditions in which it occurs.

From this perspective, resilience is not simply something an athlete possesses. It emerges through interactions among personal resources, stressors, behavior, physiological conditions, social relationships, and environmental opportunities.

This interpretation has important implications for practice. Instead of labeling an athlete as resilient or nonresilient, practitioners can investigate which resources

are available, which demands are creating difficulties, and which adjustments may support recovery and continued development.

8.2.3. Resilience and successful performance are not identical

Resilience is sometimes discussed as if it necessarily produces victory, high performance, or exceptional achievement. This interpretation is too narrow.

An athlete may respond adaptively to adversity by recognizing that a particular competitive goal is no longer realistic, modifying training, seeking medical assistance, or prioritizing rehabilitation. These decisions may temporarily reduce performance but protect longer-term functioning.

Conversely, an athlete may win a competition while experiencing substantial psychological distress, inadequate recovery, or harmful interpersonal pressure.

Resilience should therefore be evaluated through clearly specified outcomes rather than inferred solely from competitive results.

Relevant outcomes may include psychological functioning, recovery, continued participation, effective coping, rehabilitation adherence, relationships, and the ability to make appropriate decisions under pressure.

Performance remains an important outcome in competitive sport, but it is not the only indicator of successful adaptation.

8.2.4. Resilience, mental toughness, and hardiness

Resilience is related to several constructs that are frequently discussed in sport psychology, including mental toughness and psychological hardiness. However, these concepts should not be treated as synonyms.

Mental toughness is commonly associated with the psychological resources and behaviors used to sustain effective functioning under demanding conditions. Its conceptualization and measurement vary across research traditions.

Psychological hardiness traditionally concerns patterns of commitment, control, and challenge in the interpretation of stressful experiences.

Psychological resilience focuses more directly on adaptive processes and outcomes in response to adversity.

The constructs may overlap in their relationships with confidence, persistence, stress appraisal, and coping. Nevertheless, their theoretical definitions and measurement approaches differ.

For example, an athlete may report high mental toughness but experience a prolonged maladaptive response to injury. Another may experience substantial distress yet demonstrate resilience by seeking assistance, adjusting expectations, and gradually returning to meaningful participation.

Researchers should specify the construct under investigation and avoid assuming that a measure of one concept adequately captures the others.

8.3. Theoretical Perspectives on Resilience in Sport

8.3.1. The transactional model of stress and coping

The transactional model developed by Lazarus and Folkman (1984) provides an important foundation for understanding how athletes interpret and respond to adversity.

According to this model, stress emerges through the relationship between individuals and their environments, particularly when demands are perceived to threaten well-being or exceed available resources.

Primary appraisal concerns the perceived significance of a situation. An athlete may interpret an event as a threat, a challenge, a loss, or an event of limited significance.

Secondary appraisal concerns the resources and options available for responding. These may include technical competence, time, social support, medical assistance, and the ability to influence the situation.

Coping involves cognitive and behavioral efforts to manage the demands and their consequences.

These processes are dynamic. An athlete's appraisal may change after receiving new information, experiencing a setback, or discovering that a planned strategy is ineffective.

For example, an athlete who experiences a serious injury may initially perceive the event as a threat to their career. Following a clear medical assessment and the development of a rehabilitation plan, the athlete may begin to perceive the situation as difficult but manageable.

The injury itself remains significant, but the athlete's understanding of the situation and the available response options have changed.

This model suggests that resilience can be supported by improving appraisal accuracy, expanding coping resources, and creating conditions in which athletes can make informed decisions.

8.3.2. A grounded theory of resilience in Olympic champions

Fletcher and Sarkar (2012) examined psychological resilience among 12 Olympic champions representing different sports. Using a grounded-theory approach, they explored how elite athletes experienced and responded to pressure during their sporting careers.

Their findings highlighted psychological factors involving positive personality characteristics, motivation, confidence, focus, and perceived social support. These factors appeared to influence how athletes appraised stressors and interpreted their own responses.

The study provided an influential account of resilience in elite performance because it connected psychological resources with the appraisal of competitive demands rather than treating resilience as a single isolated characteristic.

Nevertheless, the study's qualitative design and sample of Olympic champions limit the extent to which its findings can be generalized to all athletes. The experiences of successful Olympic athletes may differ from those of developing athletes, recreational participants, or athletes facing substantial resource constraints.

The framework is therefore valuable as a theoretical contribution, but its components should be examined in diverse populations and through complementary research designs.

8.3.3. The stressor–protective factor perspective

Sarkar and Fletcher (2014) reviewed stressors and protective factors associated with psychological resilience in sport performers.

Their review emphasized that athletes encounter multiple demands and that protective factors may help them manage these demands more effectively.

Potential protective factors include psychological resources, effective coping strategies, confidence, motivation, social support, and characteristics of the sporting environment.

Importantly, protective factors should not be understood as guarantees against adversity. A supportive coach cannot eliminate every consequence of injury, and confidence cannot compensate indefinitely for inadequate recovery or insufficient resources.

The value of a protective factor depends on the type of stressor, the athlete's circumstances, and the other resources available.

A factor that is useful in one situation may have limited relevance in another. For example, confidence in technical ability may be important when managing competitive uncertainty but insufficient when an athlete is experiencing financial insecurity or persistent organizational conflict.

The practical implication is that resilience interventions should begin with an assessment of the actual demands and resources involved.

8.3.4. A dynamic and personalized perspective

A dynamic perspective recognizes that resilience develops through changing interactions among the athlete, their environment, and the demands they encounter.

This approach moves beyond the assumption that the same intervention will produce the same outcome for every athlete.

One athlete may benefit from more effective emotion regulation. Another may need clearer role expectations, reduced training demands, or access to medical and psychological support. A third may require organizational changes because the main stressor originates in the sporting environment.

Den Hartigh et al. (2024) emphasized the value of integrating psychological, behavioral, and contextual information to understand resilience.

A personalized approach therefore considers the nature of the adversity, the athlete's history, current resources, developmental stage, and the relevant outcomes.

It also recognizes that adaptation can involve changes in the environment, not simply changes in the athlete. When an organizational practice repeatedly creates unnecessary stress, resilience may require addressing that practice rather than training athletes to tolerate it.

8.4. Sources of Adversity in Sport

8.4.1. Competitive stressors

Competitive stressors include performance expectations, uncertainty about outcomes, fear of failure, selection decisions, public evaluation, and the demands of competing against highly skilled opponents.

These stressors may be particularly salient when athletes believe that a single result will determine future opportunities or professional status.

Competitive demands can also accumulate. An athlete may experience pressure from a major event while simultaneously managing fatigue, travel, academic responsibilities, and uncertainty about their role.

The psychological significance of a stressor depends partly on the consequences the athlete associates with it and the resources available for responding.

A competition that is objectively important may be appraised as manageable by an experienced athlete who has prepared effectively. A comparatively minor event may generate substantial distress when the athlete perceives that failure will damage an important relationship or future opportunity.

8.4.2. Organizational stressors

Sport organizations can create stress through unclear communication, role ambiguity, inconsistent selection procedures, inadequate resources, unstable contracts, and perceived unfairness.

Fletcher et al. (2012) developed a conceptual framework of organizational stressors in sport performers based on interviews with elite and nonelite athletes.

Their framework identified five broad dimensions: factors intrinsic to the sport, roles within the sport organization, sport relationships and interpersonal demands, athletic career and performance development issues, and organizational structure and climate.

This framework is important because it demonstrates that not all athletic stress originates in competition or within the individual.

An athlete may experience persistent distress because selection criteria are unclear, communication is inconsistent, or responsibilities change without adequate explanation.

In such circumstances, individual coping skills may be helpful but insufficient. Organizational intervention may be necessary to reduce the source of the stressor.

8.4.3. Injury and rehabilitation

Injury can challenge an athlete's physical functioning, identity, confidence, social relationships, and expectations about the future.

The psychological consequences depend on the nature of the injury, perceived severity, rehabilitation demands, previous experiences, available support, and uncertainty concerning return to sport.

Some athletes may experience frustration because they cannot participate in familiar activities. Others may fear reinjury, loss of selection opportunities, or a decline in performance after returning.

Psychological adaptation during rehabilitation may involve realistic goal setting, emotional regulation, social support, and collaboration with medical and sport science professionals.

However, resilience should not be equated with a willingness to return as quickly as possible. An appropriate rehabilitation process must remain consistent with medical guidance and the athlete's physical readiness.

8.4.4. Interpersonal and relational stressors

Relationships can provide resources for adaptation, but they can also become sources of adversity.

Conflict with coaches, exclusion by teammates, family pressure, harassment, and uncertainty about interpersonal expectations may affect athletes' emotional functioning and engagement.

Interpersonal stressors can be particularly difficult when the people involved also control access to training, selection, or career opportunities.

Athletes may hesitate to disclose concerns when they fear retaliation or believe that reporting a problem will damage their position within the team.

These conditions illustrate why resilience cannot be understood exclusively as the ability to manage personal emotions. A supportive and safe environment is also necessary.

8.4.5. Life transitions and multiple-role demands

Athletes frequently combine sport with education, employment, family responsibilities, and other social roles.

Transitions such as moving to a new club, entering professional sport, changing educational institutions, becoming a parent, or retiring from competition may require substantial adjustment.

Multiple-role demands can create time pressure and reduce opportunities for recovery. They may also influence how athletes understand their identity and future possibilities.

A student-athlete who experiences academic difficulty may worry about eligibility, family expectations, and sporting performance simultaneously.

Support for adaptation may therefore involve academic planning, career guidance, financial assistance, and the development of a broader identity beyond sport.

8.5. Coping Strategies in Sport

8.5.1. Defining coping

Coping refers to cognitive and behavioral efforts used to manage demands that are appraised as challenging or exceeding available resources (Lazarus & Folkman, 1984).

Coping strategies are not inherently effective or ineffective in every situation. Their usefulness depends on the stressor, the athlete's goals, the timing of the response, and the resources available.

For example, problem-solving may be useful when an athlete can influence the source of a difficulty. Acceptance and emotional regulation may be more appropriate when the situation cannot be changed immediately.

Coping should therefore be evaluated in relation to its function and consequences rather than classified simply according to whether it appears active or passive.

8.5.2. Problem-focused coping

Problem-focused coping aims to address the source of a stressor or change the circumstances contributing to it.

In sport, this may involve clarifying a role with a coach, developing a revised competition plan, improving a technical skill, organizing rehabilitation appointments, or adjusting a training schedule.

Problem-focused coping is particularly relevant when athletes possess meaningful control over the situation.

However, attempts to solve a problem may become counterproductive when the situation is largely outside the athlete's control or when the athlete repeatedly pursues an unrealistic solution.

An athlete cannot directly control an opponent's decisions or reverse a completed selection decision. In such situations, problem-solving may need to focus on available alternatives rather than on changing the uncontrollable event itself.

8.5.3. Emotion-focused coping

Emotion-focused coping aims to manage emotional responses associated with a stressful situation.

Strategies may include relaxation, emotional expression, cognitive reappraisal, acceptance, mindfulness, and seeking emotional support.

For example, an athlete who experiences frustration following an unexpected performance decline may use a structured reflection process to recognize the emotion and identify the next appropriate action.

Emotion-focused coping is not equivalent to ignoring the problem. It can help athletes regulate their responses sufficiently to make informed decisions and engage in subsequent problem-solving.

Nevertheless, emotional regulation should not be used to normalize preventable organizational stressors or harmful behavior.

8.5.4. Approach and avoidance coping

Approach-oriented coping involves engaging with a stressor, gathering relevant information, addressing a problem, or processing an emotional response.

Avoidance-oriented coping involves attempts to disengage from the stressor or its associated thoughts and feelings.

The distinction is useful, but avoidance should not automatically be considered maladaptive.

Temporary disengagement may allow an athlete to regulate emotions before a difficult conversation. Taking a planned recovery period may also be an appropriate response to fatigue.

However, persistent avoidance may become problematic when it prevents the athlete from addressing an injury concern, seeking support, or resolving an important interpersonal issue.

The function and duration of the behavior therefore matter more than the label alone.

8.5.5. Coping effectiveness

Coping effectiveness concerns whether a strategy helps an individual manage the demands and achieve relevant outcomes.

A strategy may reduce immediate distress but create longer-term difficulties. For example, avoiding a difficult conversation may temporarily reduce anxiety while allowing role ambiguity to persist.

Conversely, a strategy may initially increase discomfort but support longer-term adaptation. Discussing a conflict respectfully may be emotionally demanding while improving communication and reducing uncertainty.

Coping effectiveness should therefore be evaluated across appropriate time frames and outcomes.

Researchers and practitioners should consider emotional functioning, behavior, recovery, interpersonal consequences, and performance rather than relying on a single immediate indicator.

8.5.6. Evidence on coping strategies among elite athletes

Nuetzel (2023) conducted a systematic review of coping strategies used by elite athletes to manage stress and support mental health. The review included 30 studies and identified a broad range of coping responses.

The findings supported the importance of developing coping skills among athletes, particularly young athletes facing multiple sport-related demands. The review also highlighted the potential value of educating coaches and teammates about social support.

However, Nuetzel (2023) noted that the relationships among stressors, appraisal, coping strategies, and mental health outcomes remain incompletely understood. Intervention-based evidence was limited, making it difficult to establish which strategies produce the most reliable benefits under particular circumstances.

The appropriate conclusion is that athletes use diverse coping strategies and that psychological preparation may be beneficial, but the effectiveness of a strategy should be assessed in relation to the situation and the evidence available.

8.6. Interpersonal Coping and Social Resources

8.6.1. Coping as a relational process

Coping is often examined as an individual process, but athletes rarely manage all demands independently.

Coaches, teammates, family members, sport psychologists, medical professionals, and other significant individuals may participate in how stress is interpreted and managed.

Woodhead et al. (2024) systematically reviewed interpersonal coping in sport, including 28 studies. Their synthesis identified factors associated with interpersonal coping, including relationship quality, communication, shared

demands, support, cultural values, and the characteristics of the individuals involved.

The review also highlighted potential outcomes involving performance, relationships, and emotional regulation.

This perspective expands the concept of coping beyond the strategies used by an individual. It recognizes that people can coordinate their efforts, share information, and influence one another's responses to adversity.

8.6.2. Shared coping and collaborative responses

Shared coping occurs when individuals coordinate their responses to a stressor that affects them collectively or influences their relationship.

For example, a coach and athlete may work together to adjust training following an injury. A team may collectively review a tactical problem after a difficult match. Family members may coordinate practical support during an athlete's rehabilitation.

These processes can be beneficial when the individuals involved communicate clearly, recognize each other's perspectives, and agree on appropriate responsibilities.

However, shared coping can become ineffective when one individual assumes excessive responsibility, when information is withheld, or when the group pressures an athlete to respond in a particular way.

Collaborative coping should therefore support participation and shared understanding without removing the athlete's right to make informed decisions about their own needs.

8.6.3. Social support and resilience

Social support may help athletes manage adversity by providing emotional reassurance, practical assistance, information, and opportunities to reinterpret difficult experiences.

Fletcher and Sarkar (2012) identified perceived social support as one of the factors associated with resilience in Olympic champions.

Support may be especially important when athletes experience injury, selection uncertainty, or major career transitions.

Nevertheless, social support is not a universal solution. An athlete may receive substantial encouragement while still lacking the medical, financial, or organizational resources required to resolve a problem.

The usefulness of support depends on its availability, credibility, relevance, and compatibility with the athlete's needs.

8.6.4. When social support becomes counterproductive

Support may become counterproductive when it is controlling, intrusive, or inconsistent with the athlete's preferences.

A coach may intend to encourage an athlete but communicate in a way that increases pressure. Family members may express concern through excessive monitoring. Teammates may offer advice that conflicts with medical recommendations.

Support providers should therefore distinguish between offering assistance and imposing a response.

Athletes should be encouraged to communicate what they find helpful, while support providers remain responsible for maintaining appropriate boundaries and referring serious concerns to qualified professionals.

8.7. Protective Factors and Resources for Resilience

8.7.1. Self-efficacy and perceived competence

Self-efficacy concerns an individual's belief in their capacity to organize and execute the actions required to achieve a particular goal (Bandura, 1997).

In sport, self-efficacy may influence how athletes approach challenges, interpret setbacks, and persist when tasks become difficult.

An athlete who believes they can execute relevant rehabilitation exercises may be more willing to engage consistently with the recovery process.

However, self-efficacy should be grounded in realistic assessment. Excessive confidence may lead athletes to underestimate demands or ignore relevant risks.

Resilience is therefore supported not by confidence alone but by confidence combined with accurate information, appropriate skills, and access to relevant resources.

8.7.2. Emotional awareness and regulation

Emotional awareness involves recognizing and differentiating emotional experiences, while emotion regulation concerns processes through which individuals influence their emotional responses.

Athletes who recognize frustration, fear, disappointment, or uncertainty may be better positioned to select an appropriate coping strategy.

For example, an athlete who recognizes that anxiety is interfering with concentration may use an established attentional routine rather than interpreting the emotion as proof that failure is inevitable.

However, emotional regulation does not require eliminating every negative emotion. Athletes can experience disappointment or fear while still making effective decisions.

The goal is to develop flexible responses that preserve appropriate engagement and protect well-being.

8.7.3. Goal adjustment and flexible persistence

Goal setting can support resilience by providing direction and measurable indicators of progress.

However, resilience does not always require persistent pursuit of the original goal. When circumstances change, athletes may need to revise goals, adjust timelines, or develop alternative pathways.

An injured athlete may initially aim to return to competition within a particular period. Following medical reassessment, a revised timeline may be more appropriate.

Flexible goal adjustment does not necessarily represent failure. It can reflect realistic appraisal and effective decision-making.

The distinction is between abandoning a goal because of temporary discomfort and revising a goal because the available evidence indicates that a different course of action is more appropriate.

8.7.4. Self-compassion

Self-compassion involves responding to personal difficulties with understanding, balanced awareness, and recognition that setbacks are part of human experience rather than evidence of personal worthlessness.

Neff (2003) conceptualized self-compassion through three interrelated components: self-kindness rather than harsh self-judgment, common humanity rather than isolation, and mindfulness rather than overidentification with distress.

In sport, self-compassion may be relevant when athletes experience mistakes, selection disappointment, injury, or performance decline.

An athlete may recognize a poor performance without treating it as a complete judgment of personal ability. This can support constructive reflection while reducing unproductive self-criticism.

Self-compassion should not be confused with avoiding responsibility. Athletes can acknowledge mistakes, accept consequences, and pursue improvement while responding to themselves in a balanced manner.

Kuchar et al. (2023) examined a brief self-compassion intervention among NCAA student-athletes in the Resilience and Enhancement in Sport, Exercise, and Training (RESET) study. This work contributes to research examining whether self-compassion-based approaches can be applied within athlete development settings.

Intervention findings should be interpreted according to the study design, outcomes, and population rather than assumed to establish universal benefits.

8.7.5. Psychological flexibility

Psychological flexibility concerns the ability to respond to changing circumstances while remaining guided by meaningful goals and values.

In sport, flexibility may involve recognizing difficult thoughts without allowing them to determine every action, adjusting strategies when circumstances change, and accepting temporary discomfort when it accompanies a meaningful objective.

For example, an athlete may experience uncertainty about returning to competition while continuing to participate in a medically appropriate rehabilitation process.

Psychological flexibility does not require passive acceptance of harmful conditions. It can also involve recognizing that a situation needs to change and taking appropriate action.

8.7.6. Recovery and physical resources

Psychological resilience depends partly on the physical and organizational conditions in which athletes operate.

Sleep, nutrition, recovery opportunities, appropriate training loads, medical support, and access to facilities may influence how athletes respond to demands.

An athlete experiencing persistent fatigue may have fewer resources available for emotional regulation and decision-making. A team with inadequate recovery time may expose its members to repeated stress without sufficient opportunity for restoration.

Resilience should therefore not be reduced to psychological skills training. The management of physical and environmental demands is also important.

8.8. Injury, Rehabilitation, and Return to Sport

8.8.1. The psychological experience of injury

Injury may challenge an athlete's confidence, identity, social relationships, and expectations concerning future performance.

The athlete may experience uncertainty about recovery, fear of reinjury, frustration with reduced participation, or concern about losing selection opportunities.

These responses vary according to the injury, the athlete's history, the quality of medical communication, and the support available.

An effective rehabilitation process recognizes psychological responses as part of the broader recovery experience without assuming that every athlete will respond in the same way.

8.8.2. Psychological responses during rehabilitation

Psychological adaptation during rehabilitation may involve several processes:

- Understanding the injury and the expected recovery pathway.
- Establishing realistic short-term and long-term goals.
- Maintaining appropriate contact with teammates.
- Developing confidence in rehabilitation tasks.
- Managing uncertainty about progress.
- Communicating concerns with healthcare professionals.
- Adjusting expectations when recovery does not follow the original timeline.

These processes should be coordinated with medical guidance. Psychological techniques cannot substitute for appropriate diagnosis, treatment, or physical rehabilitation.

8.8.3. Fear of reinjury and return-to-sport confidence

Fear of reinjury may influence an athlete's willingness to return to particular movements or competitive situations.

Some caution may be appropriate because returning to sport involves genuine physical demands. However, excessive fear may interfere with participation even when the athlete has received appropriate medical clearance.

Return-to-sport decisions should integrate physical readiness, medical assessment, sport-specific demands, psychological readiness, and relevant contextual factors.

An athlete's willingness to return is not, by itself, evidence of physical readiness. Conversely, hesitation does not automatically mean that the athlete lacks resilience.

A coordinated approach can help athletes understand the relevant risks, develop confidence through appropriate progression, and communicate concerns without undue pressure.

8.8.4. Avoiding the harmful interpretation of resilience

Injury contexts illustrate why resilience should not be equated with returning as quickly as possible.

An athlete who reports pain or requests clarification may be making an appropriate decision. A coach who pressures an athlete to return prematurely may undermine both health and long-term performance.

Resilience should support informed participation and appropriate recovery, not the concealment of symptoms or the normalization of preventable harm.

8.9. Resilience, Burnout, and Sustainable Participation

8.9.1. Understanding athletic burnout

Athletic burnout is associated with sustained psychological and physical demands and difficulties maintaining a meaningful, manageable relationship with sport.

It is commonly discussed through dimensions such as emotional and physical exhaustion, reduced sense of accomplishment, and sport devaluation.

Burnout should not be treated as synonymous with ordinary fatigue, temporary disappointment, or a single period of reduced motivation.

The duration, severity, context, and functional consequences of symptoms require careful consideration.

8.9.2. The relationship between resilience and burnout

Resilience may help athletes respond to demands, but it cannot eliminate the consequences of excessive workload, inadequate recovery, controlling relationships, or persistent organizational stress.

An athlete may possess substantial coping resources and still experience burnout when demands remain high and opportunities for recovery are insufficient.

This distinction is important because resilience interventions can become harmful if they are used to encourage athletes to tolerate conditions that should be changed.

Prevention should therefore combine individual support with appropriate training management, fair treatment, realistic expectations, and access to professional assistance.

8.9.3. Sustainable engagement in sport

Sustainable participation involves maintaining a meaningful relationship with sport while protecting physical health, psychological well-being, and the capacity to engage in other important life domains.

For some athletes, sustainability may involve continuing at an elite level. For others, it may involve changing competitive objectives, moving to recreational participation, or retiring from competition.

These outcomes should not automatically be interpreted as differences in resilience. Athletes face different circumstances, opportunities, and constraints.

A broader approach recognizes that successful adaptation may involve continued participation, modification of goals, or a transition to a different role within or outside sport.

8.10. Psychological Interventions to Support Resilience and Coping

8.10.1. Psychological skills training

Psychological skills training may include goal setting, self-talk, imagery, attentional control, relaxation, and pre-performance routines.

These techniques can help athletes prepare for demanding situations, manage emotional responses, and maintain attention on relevant tasks.

However, psychological skills should be selected according to the athlete's needs rather than delivered as a universal package.

An athlete who experiences persistent worry may benefit from cognitive and attentional strategies. An athlete facing role ambiguity may require a structured conversation with the coach. An athlete experiencing serious psychological distress may need clinical assessment rather than performance-focused skills training alone.

8.10.2. Cognitive-behavioral approaches

Cognitive-behavioral approaches examine the relationships among thoughts, emotions, behavior, and situational demands.

In sport, these approaches may help athletes identify unhelpful interpretations, evaluate available evidence, and develop more realistic responses to setbacks.

For example, an athlete who interprets one poor performance as proof that their career is over may learn to distinguish the immediate result from the broader evidence concerning their development.

The objective is not to replace every negative thought with a positive statement. It is to develop interpretations that are accurate, flexible, and useful for decision-making.

When symptoms are persistent, severe, or impair daily functioning, a qualified mental health professional should determine whether clinical treatment is appropriate.

8.10.3. Mindfulness and acceptance-based approaches

Mindfulness-based approaches emphasize awareness of present-moment experience, while acceptance-based approaches encourage individuals to respond flexibly to uncomfortable thoughts and emotions.

In sport, these approaches may help athletes recognize distress without becoming entirely controlled by it.

For example, an athlete who experiences frustration during rehabilitation may acknowledge the emotion while continuing to follow an appropriate recovery plan.

Acceptance should not be confused with tolerating abuse, ignoring injury symptoms, or refusing to address preventable stressors. It concerns how individuals respond to internal experiences, not whether harmful external conditions should remain unchanged.

8.10.4. Self-compassion interventions

Self-compassion interventions aim to help athletes respond to mistakes and setbacks with balanced awareness and constructive self-evaluation.

These approaches may be particularly relevant when athletes use harsh self-criticism as their primary method of maintaining motivation.

Self-compassion can coexist with high standards. An athlete may acknowledge that performance was inadequate while avoiding global conclusions about personal worth.

Intervention effectiveness should be evaluated using relevant measures of self-compassion, distress, motivation, and functioning. The presence of a theoretically plausible mechanism does not establish that every intervention will be effective in every context.

8.10.5. Social and organizational interventions

Because resilience is shaped by context, interventions should also address the environment in which athletes participate.

Relevant approaches may include improving coach communication, clarifying roles, reducing unnecessary organizational uncertainty, strengthening peer support, and establishing accessible referral pathways.

Fletcher et al. (2012) demonstrated the relevance of organizational stressors to athletes' experiences. Their framework supports the principle that stress management should include attention to the structures and relationships that generate demands.

For example, a team experiencing repeated conflict because of unclear selection procedures may benefit more from transparent decision-making than from a workshop focused exclusively on individual stress management.

8.10.6. Integrating individual and environmental approaches

An integrated resilience program may involve the following sequence:

1. Identify the relevant stressors and the outcomes requiring improvement.
2. Assess the athlete's coping resources and current environment.

3. Distinguish modifiable demands from circumstances that cannot be changed immediately.
4. Select psychological, interpersonal, medical, or organizational responses appropriate to the problem.
5. Practice relevant skills under realistic but manageable conditions.
6. Monitor psychological functioning, behavior, recovery, and participation.
7. Review outcomes and adjust the intervention when necessary.

This sequence emphasizes that resilience development should be based on assessment and evaluation rather than on assumptions about what athletes need.

8.11. An Applied Framework for Resilience Assessment

The following framework provides a practical structure for examining resilience-related processes in sport. It is an organizing tool rather than a validated diagnostic instrument.

Domain	Key question	Possible indicators	Potential response
Stressor identification	What is creating the main demand?	Competitive pressure, injury, role ambiguity, interpersonal conflict	Clarify the nature and source of the demand
Appraisal	How does the athlete interpret the situation?	Perceived threat, challenge, uncertainty, control	Support realistic appraisal and informed decision-making
Coping resources	What strategies and resources are available?	Problem-solving, emotion regulation, support, relevant skills	Select strategies matched to the situation
Self-efficacy	Does the athlete believe they can perform the required actions?	Task-specific confidence and perceived competence	Develop relevant skills and realistic mastery experiences
Social support	Is appropriate assistance available?	Perceived emotional, informational, and practical support	Strengthen support and referral pathways
Environmental conditions	Are organizational demands manageable and fair?	Workload, communication, role clarity, recovery opportunities	Address modifiable environmental stressors
Recovery	Does the athlete have sufficient opportunity to recover?	Sleep, fatigue, training load, rehabilitation progress	Coordinate appropriate recovery and professional support
Adaptation	Is functioning improving or deteriorating over time?	Participation, psychological functioning, behavior, recovery	Review progress and revise the response

Domain	Key question	Possible indicators	Potential response
Mental health	Are symptoms persistent or functionally impairing?	Duration, severity, daily functioning, help-seeking needs	Facilitate assessment by qualified professionals
Sustainability	Can participation continue without unacceptable harm?	Well-being, meaningful engagement, balance across life domains	Adjust goals, resources, or participation arrangements

The framework encourages practitioners to distinguish between individual coping needs and environmental problems. It also emphasizes that resilience should be evaluated through relevant outcomes over time rather than inferred from a single performance or questionnaire score.

8.12. Methodological Considerations and Future Research

Research on resilience, coping, and adaptation in sport faces several methodological challenges.

First, resilience requires clear conceptualization. Studies that measure resilience as a stable trait may capture different processes from studies that assess adaptation following a specific adversity. Researchers should specify whether they are examining personal resources, coping processes, adaptive outcomes, or a combination of these elements.

Second, the adversity being studied must be defined. A questionnaire administered to athletes without identifying relevant stressors may provide limited information about resilience as a response to adversity.

Third, temporal design is important. Resilience is dynamic, and the same athlete may respond differently across a season or career. Longitudinal and repeated-measurement designs can help identify changes in appraisal, coping, and functioning over time.

Fourth, researchers should distinguish correlation from causation. Athletes who report greater resilience may also report better well-being, but the relationship may be influenced by social support, training conditions, physical health, or other factors.

Fifth, measurement should account for context. A measure developed for elite adult athletes may not be appropriate for children, recreational participants, athletes with disabilities, or individuals participating in resource-limited settings without further evaluation.

Sixth, research should examine both individual and environmental factors. Studies that focus exclusively on psychological characteristics may overlook

organizational stressors, inadequate recovery, discrimination, or unequal access to support.

Seventh, intervention research should assess meaningful outcomes. Changes in self-reported resilience do not necessarily establish improvements in recovery, performance, mental health, or long-term participation. These outcomes should be measured directly.

Finally, researchers should examine potential adverse consequences of resilience messaging. If resilience is defined primarily as enduring hardship, athletes may feel pressure to conceal distress or remain in harmful environments. Research should therefore investigate how resilience interventions influence help-seeking, health-related decisions, and the willingness to report concerns.

Future research would benefit from longitudinal designs, context-sensitive measures, stronger intervention studies, and more systematic examination of interpersonal and organizational processes. The dynamic perspective proposed by Den Hartigh et al. (2024), the resilience framework developed by Fletcher and Sarkar (2012), and the systematic reviews of coping in sport provide complementary foundations for this work.

8.13. Conclusion

Psychological resilience, coping, and adaptation are important components of athletes' responses to adversity. They help explain how individuals interpret stressors, mobilize resources, manage emotional responses, and adjust their behavior as circumstances change.

Resilience should not be reduced to a fixed personality trait or equated with winning, persistence, or the absence of distress. It is better understood as a dynamic process shaped by the interaction between personal resources, coping strategies, relationships, organizational conditions, and opportunities for recovery.

The transactional model of stress and coping highlights the importance of appraisal and available resources. Research involving Olympic champions demonstrates how confidence, motivation, focus, and perceived support may contribute to adaptive responses. Contemporary perspectives further emphasize the importance of individual differences, context, and change over time.

Coping strategies are most useful when they are matched to the demands of the situation. Problem-focused approaches may help when the source of stress can be modified, while emotion-focused approaches may help athletes manage

responses to circumstances that cannot immediately be changed. Interpersonal coping and social support further demonstrate that adaptation often occurs through relationships rather than through individual effort alone.

Resilience development also requires attention to the sporting environment. Inadequate recovery, unclear organizational procedures, harmful interpersonal behavior, and limited access to support cannot be resolved through psychological skills training alone.

Ultimately, a comprehensive approach to resilience combines individual skills, constructive relationships, appropriate recovery, organizational responsibility, and access to professional assistance when needed. The objective is not to encourage athletes to tolerate every demand, but to help them respond adaptively, protect their well-being, learn from experience, and sustain meaningful participation in sport.

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CHAPTER 9: Psychological Well-Being, Mental Health, and Flourishing in Sport

9.1. Introduction

Sport is commonly associated with physical fitness, competitive achievement, discipline, and personal development. Participation in sport can also provide opportunities for social connection, emotional regulation, identity development, and the experience of competence and purpose. Nevertheless, the psychological consequences of sport participation are not uniformly positive. The same environment that facilitates confidence, belonging, and personal growth may also expose athletes to excessive performance pressure, social comparison, injury, discrimination, uncertainty, and persistent fear of failure. Understanding sport as a context for psychological development therefore requires a perspective that considers both its potential benefits and its possible risks.

Psychological well-being and mental health have become increasingly important topics in sport psychology, sport medicine, coaching science, and sport management. Contemporary approaches recognise that athlete mental health cannot be reduced to the absence of a diagnosed psychological disorder. Athletes may experience meaningful distress without meeting diagnostic criteria for a mental disorder, while others may continue to perform at a high level despite substantial psychological difficulties. Conversely, an athlete may be free from clinically significant symptoms but still experience low life satisfaction, limited social connection, or a diminished sense of purpose. These distinctions demonstrate why mental health assessment should consider both psychological difficulties and positive dimensions of functioning (Keyes, 2002; Reardon et al., 2019).

The International Olympic Committee's updated consensus statement on mental health in elite athletes emphasises that mental health symptoms and disorders are common, may be associated with sport-specific and broader life circumstances, and can affect performance and well-being. The statement also recommends validated screening and monitoring, individualised support, and attention to the environments in which athletes train and compete (International Olympic Committee [IOC], 2026). This position represents an important conceptual shift: mental health is not solely an individual responsibility but also an organisational and environmental concern.

This chapter examines psychological well-being, mental health, and flourishing in sport. It distinguishes these related concepts, discusses relevant theoretical

perspectives, identifies individual and environmental determinants, and considers how coaches, sport psychologists, healthcare professionals, families, and sport organisations can support sustainable psychological functioning. Particular attention is given to help-seeking, stigma, athlete identity, transitions, safeguarding, and the development of psychologically healthy sport environments.

The central argument is that high-quality sport should not be evaluated exclusively through competitive outcomes. A comprehensive understanding of sport success must also consider whether athletes can participate safely, develop meaningful relationships, exercise agency, access appropriate support, and maintain psychological well-being throughout their sporting careers.

9.2. Conceptualising Mental Health and Psychological Well-Being in Sport

9.2.1. Mental health as a multidimensional construct

Mental health is a multidimensional aspect of human functioning involving emotional, psychological, and social dimensions. It influences how individuals respond to everyday demands, develop relationships, make decisions, and participate in their communities. Within sport, mental health also interacts with training demands, competitive pressure, injury, selection decisions, travel, public scrutiny, and the expectations of coaches and teammates.

A useful distinction is between mental health symptoms and mental disorders. Symptoms may include persistent worry, low mood, irritability, sleep disturbance, reduced motivation, or difficulties concentrating. These experiences can be significant even when they do not meet the diagnostic criteria for a particular disorder. A mental disorder, by contrast, requires assessment against established diagnostic criteria and consideration of the duration, severity, context, and functional consequences of symptoms. Confusing the two can lead either to the unnecessary pathologisation of normal responses to adversity or to the underrecognition of clinically important difficulties (Reardon et al., 2019).

Athletes should not be assumed to have superior mental health simply because they are physically fit, disciplined, or successful. Nor should every experience of anxiety before competition be interpreted as evidence of a disorder. Psychological experiences must be understood in relation to their intensity, persistence, functional impact, and broader context.

The distinction is especially important in high-performance environments. Athletes may normalise fatigue, emotional distress, sleep difficulties, and persistent worry because these experiences are interpreted as unavoidable

consequences of competitive commitment. When such experiences become persistent or impair daily functioning, however, they require appropriate attention rather than automatic acceptance as part of elite sport.

9.2.2. Psychological well-being

Psychological well-being concerns how individuals function psychologically and experience meaning, purpose, autonomy, personal development, and positive relationships. It is broader than temporary happiness or the absence of negative emotions. An athlete may experience disappointment after a loss while continuing to demonstrate psychological well-being through a stable sense of identity, supportive relationships, meaningful goals, and confidence in the capacity to learn.

Ryff's (1989) model identifies six dimensions of psychological well-being:

1. **Autonomy:** the capacity to make decisions consistent with personal values and considered preferences.
2. **Environmental mastery:** the ability to manage life demands and navigate relevant circumstances.
3. **Personal growth:** the experience of development, learning, and expanding one's capabilities.
4. **Positive relations with others:** the capacity to establish meaningful, trusting, and supportive relationships.
5. **Purpose in life:** the experience of direction, meaning, and personally significant goals.
6. **Self-acceptance:** a relatively balanced and accepting attitude toward oneself.

These dimensions can be applied to sporting contexts. Autonomy may involve having a meaningful voice in training decisions. Environmental mastery may involve balancing sport, education, family responsibilities, and recovery. Personal growth may be expressed through the development of technical, tactical, and interpersonal skills. Positive relationships may be reflected in trust between athletes and coaches. Purpose may extend beyond winning to include learning, representing a community, or contributing to a team. Self-acceptance may involve maintaining a balanced identity despite fluctuations in performance.

The model also illustrates why competitive achievement cannot serve as a complete measure of psychological health. An athlete may win medals while

experiencing limited autonomy, strained relationships, or an identity almost entirely dependent on results.

9.2.3. Subjective well-being

Subjective well-being generally concerns individuals' evaluations of their lives, including life satisfaction and the frequency or intensity of positive and negative affect. Diener (1984) established a foundational framework for understanding subjective well-being as an individual's evaluation of life rather than a judgment imposed by external observers.

In sport, subjective well-being can be influenced by enjoyment, perceived progress, social support, workload, selection outcomes, financial security, and the perceived fairness of organisational decisions. Athletes may experience positive emotions following successful performances, but the temporary pleasure associated with victory is not equivalent to sustained life satisfaction.

A narrow focus on competitive results can obscure the broader conditions that support well-being. For example, an athlete may perform successfully while sacrificing important relationships or experiencing persistent uncertainty about contract renewal. Conversely, an athlete who does not reach a competitive target may still experience satisfaction through meaningful learning, improved competence, and supportive team relationships.

It is therefore important to distinguish immediate affective responses to competition from broader evaluations of life and sporting experience.

9.3. Flourishing: Beyond the Absence of Psychological Difficulties

9.3.1. Defining flourishing

Flourishing describes a pattern of positive functioning in which individuals experience a combination of emotional well-being, psychological functioning, and social connectedness. In Keyes's (2002) mental health continuum model, mental health is conceptualised as more than the absence of mental illness. Individuals can experience different levels of positive mental health, ranging from flourishing to languishing.

Flourishing should not be understood as a permanent state of happiness or an expectation that athletes must remain positive in every circumstance. Disappointment, frustration, sadness, and uncertainty are normal aspects of sport. The relevant question is whether athletes have the psychological and social resources to respond to these experiences without sustained deterioration in functioning.

In sport, flourishing may be reflected in the capacity to pursue meaningful goals, experience enjoyment and engagement, maintain supportive relationships, recover from setbacks, and develop an identity that extends beyond performance outcomes. It also involves having sufficient agency to make decisions about participation and access to environments that respect personal dignity.

Flourishing can occur at different levels of performance. It is not restricted to elite athletes, medal winners, or individuals who have achieved public recognition. A recreational participant who experiences belonging, personal growth, and meaningful enjoyment may flourish through sport even without competitive ambition.

9.3.2. A multidimensional perspective on flourishing in sport

A sport-specific conceptualisation of flourishing can be organised around several interrelated dimensions.

Emotional well-being. Athletes experience enjoyment, interest, positive affect, and a manageable relationship with negative emotions. Emotional well-being does not require the absence of competitive anxiety or disappointment.

Psychological functioning. Athletes experience agency, competence, personal growth, purpose, and a relatively stable sense of self. They can evaluate performance constructively without treating every result as a judgment of their personal worth.

Social connectedness. Athletes experience belonging, trust, respect, and meaningful relationships with teammates, coaches, family members, and other important people.

Physical and psychological sustainability. Training and competition are organised in ways that allow adequate recovery and reduce avoidable risks to health. Athletes can recognise and communicate concerns without unreasonable fear of punishment or exclusion.

Meaning and identity. Sport contributes to a broader sense of identity rather than completely determining self-worth. Athletes can identify values, interests, and roles beyond their competitive position.

Development and contribution. Athletes have opportunities to learn, contribute to collective goals, and use their experiences to support others or engage positively with their communities.

These dimensions are interconnected. For example, a supportive coach may strengthen belonging and confidence, while an unfair selection process may

undermine trust and increase anxiety. The same athlete can experience flourishing in one area and difficulties in another. Accordingly, flourishing is better understood as a multidimensional pattern of functioning than as a single score or fixed personal characteristic.

9.3.3. Flourishing and competitive success

Competitive achievement and flourishing can support one another, but they should not be treated as interchangeable outcomes. Confidence, positive relationships, and a sense of purpose may help athletes sustain engagement and respond constructively to pressure. However, performance remains influenced by many factors, including physical capacity, technical preparation, tactical decisions, opponent quality, and chance.

It would therefore be inappropriate to conclude that flourishing automatically produces superior performance or that athletes who experience psychological difficulties cannot succeed. The more defensible position is that psychological well-being is an important outcome in its own right and may also contribute to sustainable participation and effective functioning.

Sport organisations should avoid using well-being initiatives merely as instruments for extracting greater performance. If psychological support is offered only because it is expected to improve competitive results, athletes may reasonably perceive that their well-being is valued instrumentally. A stronger approach recognises that athletes have intrinsic interests in health, dignity, meaningful participation, and life beyond sport.

9.4. Theoretical Perspectives on Well-Being and Mental Health in Sport

9.4.1. The mental health continuum perspective

The mental health continuum framework distinguishes positive mental health from mental illness while recognising that these dimensions are related (Keyes, 2002). An athlete may experience symptoms of anxiety or depression while retaining some areas of positive functioning. Another athlete may report few symptoms but experience low purpose, social isolation, or limited life satisfaction.

This distinction has practical implications for sport psychology. Screening only for symptoms may overlook athletes who are struggling with disengagement or a lack of meaning. Conversely, assessing positive well-being alone may fail to identify serious psychological symptoms requiring clinical attention.

A comprehensive approach should therefore consider both negative indicators, such as persistent distress and functional impairment, and positive indicators, such as life satisfaction, social connection, purpose, and perceived competence.

9.4.2. Self-determination theory

Self-determination theory proposes that autonomy, competence, and relatedness are basic psychological needs relevant to motivation and well-being (Deci & Ryan, 2000).

In sport, **autonomy** refers to experiencing meaningful choice and understanding the rationale for training demands. It does not mean that athletes must determine every aspect of their programme independently. Coaches can maintain necessary structure while explaining decisions, listening to athletes, and offering appropriate opportunities for participation in decision-making.

Competence concerns the experience of being effective and capable of developing skills. Clear feedback, realistic challenges, and opportunities for improvement can support competence. Persistent humiliation, unpredictable evaluation, and comparisons that disregard individual development may undermine it.

Relatedness concerns feeling accepted, respected, and connected to others. Teammate support, trustworthy coaching relationships, and inclusive team practices may contribute to this need. Conversely, exclusion, bullying, discriminatory treatment, or relationships based exclusively on performance can threaten it.

The theory suggests that psychologically supportive environments should combine clear expectations with meaningful choice, competence-building feedback, and social connection. It also cautions against assuming that external rewards or controlling motivational strategies will necessarily support long-term well-being.

9.4.3. Eudaimonic and hedonic well-being

Hedonic well-being emphasises positive experiences and life satisfaction, whereas eudaimonic approaches emphasise meaning, purpose, personal growth, and the realisation of human potential. Although the distinction is useful, these perspectives are not mutually exclusive.

An athlete may experience hedonic well-being through enjoyment, positive social experiences, and satisfaction following a successful performance. Eudaimonic well-being may emerge through mastering difficult skills, contributing to a team,

developing leadership, or pursuing personally meaningful goals despite temporary discomfort.

Training illustrates the relationship between these perspectives. Some demanding sessions may not be enjoyable in the moment, yet athletes may value them because they contribute to development. However, the pursuit of long-term goals should not be used to justify chronic distress, unsafe workloads, or abusive treatment. Meaningful effort and preventable harm are not equivalent.

A balanced sport environment supports both enjoyable participation and opportunities for purposeful development.

9.4.4. Biopsychosocial and ecological perspectives

The biopsychosocial perspective conceptualises health as the outcome of interactions among biological, psychological, and social factors. In sport, these factors may include sleep, injury, training load, nutritional status, emotional regulation, relationships, financial pressures, and organisational culture.

An ecological perspective extends this analysis by considering multiple levels of influence. Purcell et al. (2019) argue that athlete mental health should be understood through an early-intervention framework that extends beyond individual awareness and recognises the broader sporting environment.

Relevant levels include:

- **Individual:** personal history, coping resources, physical health, psychological symptoms, and identity.
- **Interpersonal:** relationships with coaches, teammates, family members, and support staff.
- **Organisational:** selection policies, workload expectations, communication practices, access to care, and safeguarding procedures.
- **Community and societal:** cultural attitudes toward mental health, gender norms, socioeconomic conditions, public expectations, and available healthcare services.
- **Sport-system level:** regulations, competition calendars, governance structures, and institutional priorities.

These levels interact. An athlete experiencing distress may benefit from psychological support, but individual treatment alone may be insufficient if the underlying cause includes excessive workload, harassment, persistent insecurity, or fear of deselection for disclosing a problem.

A comprehensive approach therefore combines individual support with changes to relevant environmental conditions.

9.5. Determinants of Psychological Well-Being in Sport

9.5.1. Training demands and recovery

Training is essential to athletic development, but its psychological effects depend on the relationship between demands, recovery, resources, and the athlete's circumstances. High workloads, insufficient rest, repeated travel, and competing academic or employment responsibilities may contribute to fatigue and reduced well-being when recovery is inadequate.

Training load should be considered in both physical and psychological terms. Athletes may experience substantial stress from uncertainty, interpersonal conflict, performance evaluation, or fear of losing their position, even when the physical workload appears manageable.

Monitoring should consequently include dialogue about perceived fatigue, sleep, mood, motivation, and recovery. Such information should inform decisions rather than merely be collected to demonstrate that monitoring has occurred.

9.5.2. Performance pressure and evaluation

Competitive sport involves evaluation, comparison, and the possibility of failure. These features are not inherently harmful; appropriately managed challenges can support learning and achievement. Problems may arise when performance outcomes become the dominant or exclusive basis for approval, selection, financial security, or personal identity.

A climate characterised by conditional acceptance may encourage athletes to conceal difficulties and continue training despite concerns. A more supportive climate communicates that effort, learning, ethical behaviour, communication, and recovery are also important.

The distinction between high standards and psychologically harmful pressure is critical. High standards can coexist with respect and support. Psychological harm becomes more likely when expectations are communicated through intimidation, humiliation, unpredictable punishment, or threats that discourage athletes from reporting difficulties.

9.5.3. Injury and rehabilitation

Sport injuries can affect mental health through pain, uncertainty, reduced independence, social separation, and concerns about selection or career

continuation. Athletes may experience frustration, sadness, anxiety, or a temporary loss of identity when they cannot participate.

The psychological effects of injury are not uniform. They may depend on injury severity, previous experiences, available support, the athlete's interpretation of the injury, and confidence in the rehabilitation process. Some athletes adapt effectively, while others experience persistent distress.

Mental health should therefore be considered alongside physical rehabilitation. Athletes may benefit from clear information, realistic milestones, social contact with teammates, opportunities to maintain involvement in team activities, and access to appropriate psychological support. Return-to-sport decisions should consider psychological readiness as well as physical criteria, without assuming that a single questionnaire can determine whether an athlete is ready.

9.5.4. Social support and belonging

Supportive relationships can help athletes interpret stressful events, maintain perspective, and access practical assistance. Support may come from coaches, teammates, family members, friends, sport psychologists, medical professionals, and mentors.

However, the presence of other people does not guarantee that support will be experienced as helpful. Advice may feel controlling when it ignores the athlete's preferences, and expressions of concern may be perceived as threatening if they imply weakness or incompetence.

Effective support requires responsiveness to the athlete's needs. Sometimes an athlete needs practical assistance; at other times, the priority may be listening, emotional validation, or professional referral. Confidentiality and trust are particularly important when athletes fear that disclosures could influence selection or career opportunities.

9.5.5. Identity and self-worth

Athletic identity refers to the degree to which an individual identifies with the athlete role. A strong athletic identity may support commitment, discipline, and belonging. However, when identity becomes excessively narrow, setbacks or career transitions can threaten the individual's broader sense of self.

Athletes may be especially vulnerable when self-worth depends almost entirely on performance, selection, or public recognition. Injury, deselection, retirement, or a decline in performance can then be experienced not simply as a sporting setback but as a threat to personal value.

Supporting a broader identity does not require reducing commitment to sport. Athletes can remain highly dedicated while also developing educational interests, relationships, family roles, leadership capacities, and future career plans. A broader identity may provide additional resources when sport circumstances change.

9.6. Mental Health Challenges in Sporting Contexts

9.6.1. Anxiety and depressive symptoms

Athletes may experience anxiety in relation to performance, selection, injury, public scrutiny, or uncertainty about the future. Some anxiety before competition is common and does not necessarily indicate a mental disorder. Its significance depends on factors such as intensity, persistence, perceived controllability, and interference with functioning.

Depressive symptoms may include persistent low mood, loss of interest, changes in sleep or appetite, reduced energy, feelings of worthlessness, and difficulties concentrating. In athletes, these symptoms may overlap with physical fatigue or training-related changes, making contextual assessment important.

A sport-specific explanation should not be used to dismiss symptoms that may require clinical attention. Equally, ordinary fluctuations in mood should not automatically be treated as pathology. Qualified professionals should consider symptom patterns, duration, severity, and possible medical or situational contributors.

9.6.2. Burnout and emotional exhaustion

Athlete burnout is commonly discussed in relation to emotional and physical exhaustion, a reduced sense of accomplishment, and devaluation of sport participation. Burnout may develop in contexts involving sustained demands, insufficient recovery, limited autonomy, or a perceived mismatch between effort and reward.

Burnout is not synonymous with every period of fatigue or reduced motivation. Athletes can experience temporary tiredness and frustration without developing a persistent burnout pattern. Nevertheless, prolonged exhaustion and disengagement warrant attention, particularly when they coincide with declining enjoyment and a sense of being trapped in sport.

Prevention should consider training and competition demands, recovery, communication, personal agency, and the quality of the sport environment. An intervention focused exclusively on individual time management may be

inadequate when the principal problem is excessive or poorly managed organisational demand.

9.6.3. Eating and body-image concerns

Body image and eating-related concerns may emerge in sporting contexts where body composition, weight categories, aesthetic evaluation, or performance-related physical characteristics receive substantial attention. Risk may also be influenced by perfectionism, social comparison, cultural expectations, and inappropriate comments from coaches or peers.

Weight management and nutrition can be legitimate aspects of some sports, but they require appropriate professional guidance. Public weighing, humiliating body-related comments, unqualified dietary advice, and pressure to achieve unrealistic physical ideals can undermine well-being.

Potential warning signs should be approached sensitively and without premature diagnosis. Coaches and support staff should refer concerns to qualified healthcare professionals rather than attempting to manage suspected eating disorders independently.

9.6.4. Substance use and maladaptive coping

Some athletes may use alcohol or other substances in attempts to manage distress, sleep difficulties, social pressure, or emotional discomfort. The relevance of substance use varies across individuals and contexts, and it should not be assumed to occur simply because an athlete participates in competitive sport.

Sport organisations should avoid responses based solely on punishment or reputational management. Where substance-related concerns arise, assessment should consider health, safety, possible dependence, and the circumstances contributing to use. Appropriate clinical care and clear organisational procedures may be necessary.

9.6.5. Harassment, abuse, and psychological safety

Psychological well-being is incompatible with environments in which athletes are subjected to abuse, coercion, discrimination, or persistent humiliation. Harmful conduct may include verbal degradation, threats, unwanted sexual behaviour, bullying, neglect, and the misuse of authority.

Power differences are especially important in sport. Coaches, selectors, administrators, and other authority figures may influence access to competition, funding, scholarships, and career progression. Athletes may therefore feel unable to challenge inappropriate conduct or disclose experiences of harm.

Safeguarding requires more than general statements about respect. Sport organisations need accessible reporting procedures, clear responsibilities, appropriate investigation processes, protection against retaliation, and support for affected individuals. Reports should be handled seriously and fairly, with attention to confidentiality and the safety of all relevant parties.

A psychologically healthy environment is not one in which conflict never occurs. It is one in which concerns can be raised, mistakes can be discussed, boundaries are respected, and harmful behaviour is addressed through transparent procedures.

9.7. Stigma, Help-Seeking, and Access to Mental Health Care

9.7.1. Barriers to help-seeking

Athletes may delay seeking psychological support because of stigma, limited mental health literacy, concerns about confidentiality, financial barriers, or uncertainty about where to obtain care. Sport-specific concerns can include fear of deselection, worries about appearing mentally weak, and doubts about whether a coach or organisation will respond supportively.

Cosh et al. (2024), in a systematic review and meta-analysis, estimated that approximately 22.4% of athletes in the included studies had sought formal mental health support. The estimate should not be interpreted as a universal rate for all athletes, because the underlying studies varied and statistical heterogeneity was high. Nevertheless, the findings highlight the importance of understanding barriers to care rather than assuming that athletes will seek help whenever it is needed.

Help-seeking is shaped by both personal attitudes and the social consequences athletes anticipate. An athlete may recognise the need for support but decide not to disclose distress if doing so appears likely to threaten selection or contract security.

9.7.2. Mental health literacy

Mental health literacy includes knowledge and beliefs that support the recognition, understanding, and appropriate response to mental health difficulties. In sport, literacy should extend beyond recognising symptoms. Athletes and staff should understand how to access support, how confidentiality works, what constitutes an emergency, and the limits of their own roles.

Education should be tailored to different groups. Athletes may need information about recognising difficulties and obtaining help. Coaches may need guidance on

supportive communication, boundaries, early recognition, and referral. Administrators may require training in confidentiality, safeguarding, workload policy, and the organisational conditions that influence well-being.

Education alone, however, is insufficient if the environment continues to penalise disclosure. Mental health literacy should be accompanied by accessible services, credible confidentiality arrangements, and clear procedures for referral and follow-up (Purcell et al., 2019).

9.7.3. Confidentiality and trust

Confidentiality is central to effective mental health support. Athletes need to understand who can access their information, under what circumstances information may be shared, and how clinical care relates to selection and performance management.

Complete secrecy cannot always be guaranteed, particularly where there is an immediate risk of serious harm or a legal safeguarding obligation. Such limits should be explained clearly and in advance. Information should be shared only in accordance with applicable professional, ethical, and legal requirements.

Where possible, clinical decision-making should remain distinct from performance selection. A sport organisation may legitimately need limited information to manage safety or participation, but this does not justify unrestricted access to an athlete's private clinical information.

9.7.4. Normalising help-seeking

Sport organisations can reduce stigma by presenting psychological support as a routine component of health and performance care rather than as a response reserved for crisis. This approach should not imply that every athlete requires therapy. Instead, it establishes that seeking help is an acceptable option when difficulties arise.

Athlete role models, respected coaches, and senior staff can help normalise help-seeking when they communicate about mental health responsibly. However, public disclosure should never be required as proof of commitment to a mental health initiative. Athletes should retain control over personal disclosures except where specific safety or legal obligations apply.

9.8. The Role of Coaches and Sport Organisations

9.8.1. Coaching behaviour and psychological climate

Coaches influence athletes through technical instruction, performance evaluation, interpersonal behaviour, and the management of team expectations. Their behaviour can shape whether athletes feel respected, competent, and comfortable communicating concerns.

A supportive coaching climate includes clear expectations, constructive feedback, fair treatment, and respect for individual differences. Coaches can encourage athletes to discuss difficulties without automatically interpreting disclosure as a lack of commitment.

Supportive coaching should not be confused with the absence of standards. Coaches can demand effort, discipline, and accountability while avoiding humiliation, threats, or coercive control. The key distinction is whether expectations are communicated and enforced in ways that preserve dignity and enable learning.

Coaches should also recognise the limits of their professional competence. They can notice changes in behaviour, listen without judgment, and facilitate referral, but they should not diagnose mental disorders or attempt to replace qualified mental health professionals.

9.8.2. Organisational responsibility

Mental health initiatives are unlikely to be effective if responsibility is placed entirely on individual athletes. Sport organisations influence well-being through workload policies, scheduling, selection systems, safeguarding, resource allocation, and the behaviours they reward.

A club or federation may publicly promote mental health while maintaining practices that discourage recovery or punish athletes for disclosing difficulties. This creates a discrepancy between stated values and operational priorities.

Organisational responsibility includes:

- Establishing clear mental health and safeguarding policies.
- Providing accessible pathways to qualified care.
- Training coaches and relevant staff in recognition and referral.
- Developing fair and transparent selection and communication procedures.
- Reviewing training demands and recovery opportunities.

- Protecting athletes from harassment, discrimination, and retaliation.
- Providing appropriate support during injury and major transitions.
- Evaluating the effectiveness of mental health initiatives rather than relying on participation counts alone.

Responsibility should be shared, but it should not become diffuse. Named personnel, defined procedures, and clear accountability are necessary for implementation.

9.8.3. Creating a psychologically safe environment

Psychological safety refers to a climate in which individuals feel able to ask questions, express concerns, acknowledge mistakes, and seek assistance without unreasonable fear of humiliation or interpersonal punishment. In sport, psychological safety can support communication about pain, fatigue, tactical uncertainty, interpersonal conflict, and mental health.

Psychological safety does not eliminate accountability. Rather, it makes it possible to address problems openly and constructively. Athletes should remain accountable for their behaviour, while coaches and organisations should also be accountable for the conditions they create.

Practical indicators of psychological safety may include athletes' willingness to raise concerns, confidence in reporting procedures, perceived fairness, trust in staff, and the absence of retaliation following good-faith disclosures. These indicators should be interpreted alongside broader evidence about organisational behaviour and athlete experiences.

9.9. Psychological Well-Being Across the Athletic Career

9.9.1. Youth and adolescent athletes

Young athletes navigate sport alongside developmental changes, educational demands, family relationships, and the formation of personal identity. Their experiences may be particularly sensitive to adult expectations, selection decisions, and the social consequences of success or failure.

Developmentally appropriate sport environments should prioritise safety, learning, enjoyment, and gradual skill development. Parents and coaches should avoid communicating that a young person's value depends on sporting achievement. Educational continuity, social relationships, rest, and opportunities to explore interests outside sport are also important.

Mental health support for young athletes should account for developmental stage, family circumstances, safeguarding requirements, and the possibility that athletes may have limited control over training and competition decisions.

9.9.2. University and collegiate athletes

University athletes often combine training and competition with academic work, examinations, financial concerns, and decisions about future employment. Time pressure and conflicting demands may affect sleep, recovery, and access to support.

Institutions should consider the interaction between academic and sporting schedules. Coordination among academic advisers, coaches, medical services, and student support teams may help identify avoidable conflicts and facilitate access to care.

Support should also recognise that university athletes differ in their financial resources, family responsibilities, cultural backgrounds, and levels of competitive commitment. A uniform intervention may not meet the needs of every student-athlete.

9.9.3. Elite and professional athletes

Elite athletes may experience additional pressures associated with public visibility, contractual uncertainty, sponsorship, national representation, frequent travel, and the consequences of selection or deselection. Some may have access to extensive support services, while others operate in environments where qualified care is limited.

A high-performance system should not assume that resources alone guarantee psychological safety. Athletes may still avoid help-seeking if they fear reputational damage or loss of opportunities. Effective provision therefore requires both access to care and confidence that seeking care will be handled appropriately.

The IOC's 2026 consensus statement supports routine screening and monitoring with validated instruments, attention to environmental contributors, and individualised management of mental health concerns (IOC, 2026). These recommendations reinforce the importance of embedding mental health within routine athlete care rather than treating it as an exceptional issue.

9.9.4. Injury-related transitions

Injury can alter an athlete's daily routines, social contact, and perceived role within the team. Psychological support should be integrated into rehabilitation rather than postponed until physical recovery is complete.

Athletes may benefit from realistic information about recovery, opportunities to remain connected to the team, and collaborative goal setting. Where distress persists or functioning deteriorates, appropriate professional assessment should be considered.

Return-to-sport decisions should integrate physical readiness, psychological considerations, and relevant safety criteria. Neither pressure to return quickly nor an assumption that psychological distress automatically prevents participation is appropriate. Decisions should be individualised and made with relevant professionals.

9.9.5. Retirement and post-sport identity

Retirement from competitive sport can involve relief, uncertainty, grief, changes in social networks, and the loss of a familiar routine. The experience varies according to whether retirement is voluntary, planned, injury-related, or imposed by deselection or financial circumstances.

Preparation for transition should begin before retirement whenever possible. Athletes may benefit from career planning, educational opportunities, financial guidance, relationships outside sport, and opportunities to develop a broader sense of identity.

Sport organisations should recognise that their responsibilities may extend beyond an athlete's final competition. Appropriate transition support can help individuals navigate changes in identity, purpose, and social connection. The evidence base remains uneven across athlete groups and sporting contexts, so transition programmes should be evaluated rather than assumed effective.

9.10. Evidence-Informed Strategies to Promote Well-Being and Flourishing

9.10.1. Individual-level strategies

Individual strategies can help athletes recognise their needs, regulate emotions, and respond constructively to challenges. They may include:

Self-awareness. Athletes can learn to identify changes in mood, sleep, motivation, concentration, and social engagement. Awareness is most useful

when it supports appropriate action rather than encouraging excessive self-monitoring.

Emotion regulation. Athletes may use breathing strategies, attentional techniques, cognitive reappraisal, and structured reflection to manage competition-related emotions. These strategies should be selected according to the athlete's needs and context.

Self-compassion. Self-compassion involves responding to personal difficulty with understanding rather than harsh self-criticism, while maintaining the capacity to learn and take responsibility. Neff (2003) identifies self-kindness, common humanity, and mindfulness as central components of the construct. In sport, this perspective may help athletes respond to errors without treating failure as evidence of personal inadequacy.

Values-based goal setting. Goals can include technical development, ethical behaviour, teamwork, enjoyment, and sustainable participation, rather than focusing exclusively on rankings or results. This approach may help athletes maintain a broader perspective when outcomes are uncertain.

Recovery and daily routines. Sleep, rest, nutrition, social contact, and appropriate management of training demands contribute to the conditions in which psychological well-being can be maintained. Persistent difficulties should not be reduced to a failure of personal discipline; medical, psychological, and environmental contributors may require assessment.

These strategies are supportive resources, not substitutes for clinical care when an athlete experiences significant or persistent symptoms.

9.10.2. Interpersonal strategies

Interpersonal strategies focus on the quality of relationships and communication within the sporting environment.

Coaches can use regular check-ins to discuss workload, recovery, confidence, and concerns. Such conversations should not be conducted solely when performance declines, because that pattern may communicate that psychological well-being matters only when results are affected.

Teams can establish shared expectations about respect, inclusion, confidentiality, and the appropriate management of disagreement. Peer-support initiatives may also help athletes recognise difficulties and access services, provided that participants understand the boundaries of their role and are not expected to provide clinical care.

Family members can contribute by offering practical and emotional support without making approval conditional on performance. The form of support should reflect the athlete's age, preferences, and circumstances.

9.10.3. Organisational strategies

Organisational strategies address the structures that influence athlete well-being. They may include:

- Regular review of training and competition demands.
- Accessible and confidential mental health services.
- Clear referral pathways and emergency procedures.
- Appropriate mental health education for coaches and staff.
- Safeguarding policies with clear reporting and accountability.
- Fair selection and communication practices.
- Support for athletes experiencing injury or career transition.
- Routine evaluation of athlete experiences and organisational climate.

These measures should be integrated into normal organisational practice. A one-off awareness campaign may increase recognition but is unlikely to resolve persistent problems caused by workload, inaccessible services, or fear of retaliation.

9.10.4. Clinical care and referral

When athletes experience persistent or severe symptoms, significant functional impairment, or concerns that exceed the competence of coaches and support staff, referral to qualified healthcare professionals is appropriate.

Depending on the assessment and individual circumstances, care may involve psychological therapy, medical assessment, medication, or other evidence-based and culturally appropriate interventions. Treatment decisions should be made by qualified professionals in consultation with the athlete.

Mental health emergencies require prompt action through appropriate local emergency services and established organisational procedures. Sport-specific concerns should not delay urgent care.

The purpose of referral is not to remove athletes automatically from sport. Many athletes can continue training or competing with appropriate support, while others may need temporary adjustments or a pause in participation. Decisions should be

based on individual needs, safety, clinical guidance, and the relevant sporting context (IOC, 2026).

9.11. Assessment and Monitoring of Psychological Well-Being

9.11.1. Principles of assessment

Assessment should be proportionate to its purpose, use appropriate methods, and respect athlete privacy. A single questionnaire cannot capture every dimension of mental health or determine an athlete's overall readiness to compete.

A comprehensive assessment may combine validated self-report measures, confidential interviews, clinical assessment where indicated, and relevant contextual information. The choice of instrument should reflect the construct being measured, the athlete's age and language, the purpose of assessment, and the evidence supporting its use in the relevant population.

Three principles are particularly important.

First, **screening is not diagnosis**. Screening identifies possible concerns that may require further assessment; it does not independently establish a clinical diagnosis.

Second, **well-being and symptoms should be assessed separately**. An athlete may report low symptom levels but limited life satisfaction or social connection. Another athlete may report meaningful well-being while experiencing temporary competitive anxiety.

Third, **assessment must lead to an appropriate response**. Collecting sensitive information without providing a clear pathway to support can undermine trust and may discourage future disclosure.

9.11.2. Monitoring change over time

Mental health and well-being can change in response to injury, selection, workload, personal circumstances, and major transitions. Repeated assessment may help identify patterns that are difficult to detect through a single measurement.

Monitoring should not become a mechanism for surveillance or coercion. Athletes should understand the purpose of data collection, who will access the information, and how the results will be used. Whenever possible, well-being data should be separated from routine selection decisions and protected through appropriate information-governance procedures.

Organisations should avoid interpreting a low score as evidence of weak character or lack of competitive suitability. Measures should support appropriate care and informed decision-making rather than create new sources of pressure.

9.11.3. Evaluation of interventions

Interventions should be evaluated using outcomes that reflect their intended purpose. If a programme aims to improve help-seeking, evaluation might examine awareness of services, confidence in confidentiality, and actual referral uptake. If the goal is to improve organisational climate, relevant outcomes might include perceived respect, psychological safety, fairness, and confidence in reporting procedures.

Performance outcomes may be relevant to some interventions, but they should not be the sole criteria for success. A programme may be valuable because it improves quality of life, reduces distress, or supports safer participation even if competitive results remain unchanged.

Evaluation should also consider unintended consequences. For example, mandatory screening without credible confidentiality safeguards could increase anxiety about disclosure. A well-designed programme should monitor not only intended benefits but also possible harms.

9.12. An Applied Framework for Promoting Flourishing in Sport

The following framework translates the chapter's conceptual discussion into a practical model for sport organisations.

Stage 1: Establish the purpose and responsibilities

Organisations should define what they mean by mental health, psychological well-being, and flourishing. Responsibilities should be assigned to relevant personnel, and policies should clarify the boundaries between coaching, clinical care, administration, and safeguarding.

The objective is not to medicalise every sporting difficulty. It is to ensure that concerns can be recognised and addressed appropriately.

Stage 2: Assess the sporting environment

An assessment should consider workload, recovery, communication, selection practices, social relationships, access to care, and safeguarding. Athlete feedback should be gathered through methods that protect confidentiality and reduce fear of retaliation.

Environmental assessment is essential because individual interventions may have limited value when the conditions producing distress remain unchanged.

Stage 3: Establish accessible support pathways

Athletes and staff should know where to seek assistance, how referrals are made, and what confidentiality means in practice. Support pathways should distinguish routine concerns from situations requiring urgent clinical or safeguarding action.

Where resources are limited, organisations should still establish clear referral arrangements with qualified external providers and local services.

Stage 4: Strengthen individual and interpersonal resources

Education and practical support can address emotional awareness, coping, communication, self-compassion, constructive feedback, and help-seeking. These activities should be integrated into ordinary training and team routines rather than delivered only after a crisis.

The emphasis should be on practical competence and a supportive climate, not on requiring athletes to display constant positivity.

Stage 5: Monitor well-being and organisational conditions

Monitoring should use appropriate measures and be combined with contextual information. Relevant indicators may include perceived support, psychological safety, access to care, workload and recovery concerns, and the quality of team relationships.

Monitoring procedures should be transparent and proportionate, with appropriate protections for sensitive information.

Stage 6: Review and improve

Organisations should review whether support pathways are being used, whether athletes trust them, and whether reported concerns lead to appropriate responses. Feedback should inform changes to policies, staffing, education, and everyday practice.

Continuous improvement is particularly important because the needs of youth athletes, recreational participants, elite performers, Para athletes, and retiring athletes may differ substantially.

Table 9.1. A multilevel framework for promoting psychological well-being in sport

Level	Primary focus	Illustrative actions	Potential indicators
Individual	Psychological resources and access to care	Self-awareness, appropriate coping strategies, help-seeking, professional referral	Well-being, symptoms, perceived competence, service access
Interpersonal	Relationships and communication	Supportive coaching, peer connection, constructive feedback, respectful conflict management	Trust, belonging, perceived support, communication quality
Organisational	Policies and sport environment	Workload review, confidentiality procedures, safeguarding, staff education	Psychological safety, fairness, referral accessibility, response quality
Sport-system	Governance and structural conditions	Clear standards, accessible services, transition support, accountability mechanisms	Policy implementation, service coverage, safeguarding outcomes
Evaluation	Learning and continuous improvement	Confidential feedback, appropriate monitoring, programme evaluation	Changes over time, athlete experience, unintended consequences

Note. The indicators are illustrative rather than a validated composite scale. Organisations should select measures that fit their context and use validated instruments where available.

9.13. Methodological Considerations and Future Research

Research on psychological well-being in sport faces several conceptual and methodological challenges.

9.13.1. Conceptual clarity

Studies do not always distinguish psychological well-being, subjective well-being, flourishing, mental health symptoms, and clinical disorders. These constructs overlap, but they are not interchangeable. Clear definitions are necessary to support valid measurement and meaningful comparison across studies.

Future research should specify whether it examines positive functioning, symptoms, diagnosed disorders, or combinations of these outcomes. Researchers should also explain whether well-being is treated as an outcome, a potential predictor, or a mechanism through which sporting experiences influence other variables.

9.13.2. Longitudinal and multilevel research

Cross-sectional studies can identify associations but generally cannot establish temporal order or causal relationships. Longitudinal research is needed to examine how well-being changes across training cycles, injuries, selection decisions, major competitions, and career transitions.

Multilevel designs can help distinguish individual differences from team and organisational influences. For example, researchers could investigate whether athletes' well-being is associated not only with personal coping resources but also with coaching climate, selection procedures, and access to professional support.

Such work would help determine which interventions are most appropriate at the individual, interpersonal, and organisational levels.

9.13.3. Diversity and representation

Evidence from elite athletes in well-resourced sporting systems may not generalise to recreational participants, athletes in lower-resource environments, youth sport, Para sport, or athletes from different cultural backgrounds.

Future studies should address differences associated with age, gender, disability, socioeconomic circumstances, sport type, competitive level, and access to healthcare. Researchers should also consider how social inequality, discrimination, and power differences shape the experience of well-being.

Cross-cultural research requires particular care. Measures developed in one language or cultural context should not be assumed to have identical meanings in another without appropriate adaptation and validation.

9.13.4. Intervention effectiveness and implementation

There is a need for rigorous evaluation of interventions designed to improve well-being, reduce stigma, facilitate help-seeking, and strengthen organisational conditions. Studies should examine not only whether interventions produce change but also whether they are acceptable, accessible, sustainable, and implemented as intended.

Implementation research is especially important because an effective intervention may have limited impact if athletes cannot access it, staff are inadequately trained, or confidentiality is not trusted.

Researchers should also examine possible unintended consequences, including increased pressure to disclose personal information, excessive monitoring, and the misuse of well-being data in selection decisions.

9.13.5. Ethical use of digital monitoring

Wearable technologies, mobile applications, and digital questionnaires create opportunities to monitor aspects of training, recovery, and self-reported well-being. However, collecting more data does not automatically improve care.

Digital monitoring raises questions about consent, data security, interpretation, algorithmic bias, and responsibility for responding to concerning results. Athletes should not be expected to provide continuous psychological data without a clear purpose and appropriate safeguards.

Future research should evaluate whether digital approaches improve access to support and whether their benefits justify the associated privacy and implementation risks.

9.14. Conclusion

Psychological well-being, mental health, and flourishing are essential dimensions of sport participation and athlete development. Although these concepts are related, they describe different aspects of functioning. Mental health includes both psychological difficulties and positive functioning; psychological well-being concerns meaning, autonomy, relationships, and personal development; flourishing represents a broader pattern of positive emotional, psychological, and social functioning.

Sport can provide important opportunities for belonging, competence, purpose, and growth. However, these benefits are not automatic. Excessive demands, injury, insecure selection processes, discrimination, harassment, narrow athletic identity, and barriers to help-seeking may undermine psychological health. The consequences depend not only on individual characteristics but also on interpersonal relationships and the wider sporting environment.

A comprehensive approach therefore combines individual resources with supportive relationships, accessible professional care, effective safeguarding, and organisational accountability. Coaches should be able to recognise concerns and facilitate referral without being expected to act as clinicians. Sport organisations should establish credible pathways to care and ensure that psychological well-being is reflected in everyday decisions, not merely in policy statements.

Assessment should distinguish screening from diagnosis, evaluate both symptoms and positive functioning, and protect athletes' privacy. Interventions should be evaluated through outcomes appropriate to their purpose, including well-being, access to support, psychological safety, and sustainable participation.

Competitive performance may be relevant, but it should not replace the intrinsic value of athlete health and dignity.

Ultimately, a psychologically healthy sporting environment is one in which athletes can pursue excellence without being required to sacrifice their well-being, can discuss difficulties without unreasonable fear of punishment, and can develop identities and relationships that remain meaningful beyond the competitive arena. Flourishing in sport should therefore be understood not as a demand for constant positivity, but as the opportunity to participate, develop, contribute, and seek support within an environment that respects human needs and individual differences.

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CHAPTER 10: Emotion Regulation, Emotional Intelligence, and Psychological Skills Training in Sport

10.1. Introduction

Sport performance is shaped by the interaction of physical capacities, technical proficiency, tactical decision-making, cognitive processes, and emotional experiences. Athletes may possess the physical and technical resources required to succeed but struggle to demonstrate their abilities consistently when confronted with competitive pressure, uncertainty, fatigue, or emotionally demanding situations. Conversely, athletes who can recognise their emotional states, direct attention effectively, and use appropriate psychological strategies may be better equipped to respond adaptively to the demands of competition.

The psychological dimensions of sport performance extend beyond the elimination of anxiety or the maintenance of confidence. Competitive athletes experience a wide range of emotions, including excitement, anger, fear, frustration, pride, disappointment, and relief. These emotions may influence attention, motivation, interpersonal communication, risk perception, and decision-making. Their effects depend on the nature of the emotion, its intensity and duration, the athlete's interpretation of the situation, and the demands of the task.

For example, anger may sometimes accompany increased determination, but it can also narrow attention and contribute to impulsive decisions. Anxiety may interfere with a well-learned motor routine in one context while increasing preparation and vigilance in another. Confidence may facilitate decisive action, but excessive confidence can also encourage inadequate preparation or inappropriate risk-taking. Therefore, psychological effectiveness should not be defined as the permanent maintenance of positive emotions. A more useful objective is to develop the capacity to recognise, understand, regulate, and respond constructively to emotional experiences.

Emotion regulation and emotional intelligence are related but distinct concepts. Emotion regulation refers to the processes through which individuals influence which emotions they experience, when they experience them, and how they express or respond to them. Emotional intelligence concerns the perception, understanding, use, and management of emotional information. Psychological skills training (PST), meanwhile, refers to structured approaches designed to develop psychological capacities relevant to sport, including goal setting, imagery, self-talk, attentional control, relaxation, and pre-performance routines.

These concepts can be integrated within a systematic approach to athlete development. Rather than introducing psychological techniques only when an athlete experiences a performance crisis, coaches and sport psychology practitioners can incorporate psychological preparation into regular training. This approach allows athletes to practise relevant skills, evaluate their usefulness, and adapt them to individual and situational demands.

Research supports the potential value of psychological interventions in sport, but the strength of evidence varies across techniques, populations, and performance outcomes. Reinebo et al. (2024), for example, reported favourable findings for several intervention categories in their systematic review and meta-analysis, while also showing that some results were sensitive to study quality and outcome measurement. Recent reviews of imagery practice similarly indicate potential benefits while identifying variation in methods, intervention dosage, and the quality of the underlying evidence (Liu et al., 2025). Psychological skills should therefore be presented as evidence-informed tools whose effectiveness depends on appropriate implementation, not as guaranteed methods for producing superior performance.

This chapter examines the conceptual foundations of emotion regulation and emotional intelligence, explains major psychological skills used in sport, and presents an applied framework for developing, implementing, and evaluating psychological skills training. It also addresses ethical considerations, individual differences, measurement, and future research priorities.

10.2. Understanding Emotion in Sport

10.2.1. The nature of emotion

Emotions are multidimensional responses to events that individuals perceive as personally significant. They may involve subjective feelings, physiological changes, cognitive appraisals, action tendencies, and expressive behaviour. In sport, an emotion may emerge when an athlete interprets an event as relevant to a goal, a threat to self-esteem, an opportunity for success, or a challenge to personal competence.

Emotions should be distinguished from related concepts. **Affect** is a broad term that includes emotional experiences and mood states. **Mood** generally refers to a more diffuse affective state that may persist without a clearly identifiable immediate cause. **Emotion**, by contrast, is often associated with a more specific event or appraisal, although emotional episodes can vary considerably in duration and intensity.

Arousal refers to a dimension of activation involving physiological and psychological readiness. It is not an emotion in itself. An athlete may experience high arousal accompanied by excitement, fear, anger, or determination. Consequently, reducing arousal does not necessarily mean reducing negative emotion, and increasing arousal does not automatically improve performance.

These distinctions matter because interventions should target the actual process that is interfering with performance. An athlete experiencing attentional distraction may need a refocusing routine rather than a relaxation exercise. An athlete who interprets normal competitive arousal as evidence of impending failure may benefit from cognitive reappraisal rather than simply attempting to lower physiological activation.

10.2.2. Appraisal and emotional responses

Emotional experiences are influenced by how individuals interpret situations. The same event can generate different emotions because athletes differ in their goals, expectations, experience, perceived control, and understanding of the consequences.

Consider two athletes preparing for a final. One interprets the competition as an opportunity to demonstrate progress and may experience excitement. The other interprets it primarily as a threat to reputation and may experience anxiety. The competitive event is similar, but the athletes' appraisals differ.

Appraisal processes are not necessarily deliberate. Athletes may develop habitual interpretations through previous experiences, coaching relationships, cultural expectations, and repeated exposure to competitive situations. Psychological training can help athletes recognise these interpretations and examine whether alternative appraisals are more accurate or useful.

However, reappraisal should not be confused with unrealistic optimism. An athlete should not be encouraged to ignore genuine threats, inadequate preparation, injury symptoms, or unfair treatment. Effective appraisal requires realistic evaluation and an appropriate response to the actual situation.

10.2.3. Functional and dysfunctional emotional responses

Emotions do not have universally positive or negative effects on sport performance. Their consequences depend on the task and the athlete's interpretation.

For example:

- Anxiety may increase vigilance in some circumstances but disrupt concentration in others.
- Anger may accompany determination but may also contribute to impulsive decisions.
- Excitement may increase engagement but become distracting when it interferes with attentional control.
- Disappointment may prompt constructive reflection or develop into persistent self-criticism.
- Confidence may support decisive performance but become problematic when it reduces preparation or openness to feedback.

The practical objective is therefore not to eliminate specific emotions but to understand their effects and develop appropriate responses. This approach recognises that athletes can perform effectively while experiencing uncomfortable emotions and that emotional comfort is not always a prerequisite for effective action.

10.3. Emotion Regulation: Theoretical Foundations

10.3.1. Defining emotion regulation

Emotion regulation refers to the processes through which individuals influence the occurrence, intensity, duration, interpretation, or expression of emotional experiences. Gross (1998) distinguished between strategies that operate relatively early in the development of an emotional response and those that operate after an emotional response has developed.

This distinction is particularly relevant in sport. Some strategies involve changing the conditions that generate an emotion, while others involve responding differently once the emotion is already present.

An athlete may regulate anxiety by preparing more thoroughly, changing an unhelpful interpretation of competition, directing attention toward task-relevant information, or using a breathing routine. These strategies target different processes and may be useful at different points in the competitive cycle.

Emotion regulation should also be distinguished from emotional suppression. Regulation includes a broad range of strategies, some of which involve changing emotional experience and others that involve changing how emotions are expressed. Suppression generally refers to inhibiting the outward expression of an emotional response. Suppression may sometimes be appropriate, but habitual

suppression can be costly if it prevents communication, increases internal strain, or interferes with interpersonal relationships.

10.3.2. The process model of emotion regulation

Gross's (1998) process model identifies several points at which emotion regulation can occur.

Situation selection. Individuals approach or avoid situations according to their anticipated emotional consequences. In sport, an athlete may choose a particular preparation environment or arrange a conversation with a coach before a high-pressure competition.

Situation modification. Individuals change aspects of a situation to influence its emotional impact. An athlete might clarify competition procedures, request feedback, or establish a more predictable pre-performance routine.

Attentional deployment. Individuals direct attention toward or away from particular aspects of an event. An athlete may focus on a technical cue rather than the crowd, the scoreboard, or the possible consequences of failure.

Cognitive change. Individuals modify how they interpret a situation. An athlete may view competitive nerves as a normal response to importance rather than evidence of insufficient ability.

Response modulation. Individuals influence emotional responses after they have developed. Examples include paced breathing, relaxation, and deliberate management of emotional expression.

These strategies are not equally appropriate in every situation. Early strategies may help prevent an unhelpful emotional response, whereas response-focused techniques may be more practical when the athlete has limited control over the situation or when the emotion emerges unexpectedly.

10.3.3. Cognitive reappraisal and expressive suppression

Cognitive reappraisal involves changing the interpretation of an event in ways that alter its emotional significance. An athlete who interprets a mistake as proof of incompetence may instead view it as specific information about a technical adjustment. This does not deny that the mistake occurred; it changes the meaning assigned to it.

Expressive suppression involves inhibiting outward expressions of emotion. An athlete may suppress visible frustration during competition to avoid distracting teammates or provoking an opponent. In some contexts, controlling expression

may serve an immediate purpose. However, suppression does not necessarily reduce the internal experience of emotion and may create difficulties when it becomes the athlete's only available strategy.

The distinction is important because emotional control is sometimes incorrectly equated with the absence of visible emotion. Athletes who appear calm may still experience substantial distress, while athletes who visibly express frustration may be able to recover quickly and continue performing effectively.

Psychological practitioners should therefore examine both emotional experience and behavioural consequences rather than relying exclusively on outward appearance.

10.3.4. Acceptance and psychological flexibility

Acceptance-based approaches emphasise the capacity to experience thoughts, emotions, and bodily sensations without automatically attempting to eliminate or avoid them. Psychological flexibility involves responding to internal experiences in ways that remain consistent with relevant goals and values.

In sport, an athlete may experience anxiety before a decisive penalty or serve. An acceptance-based approach does not require the athlete to make anxiety disappear. Instead, the athlete learns to acknowledge the experience and return attention to the task.

This distinction is useful because efforts to suppress every uncomfortable thought can increase self-monitoring and distraction. An athlete who continually asks, "Am I nervous?" may become more focused on internal discomfort than on the performance task.

Acceptance does not mean passivity or resignation. Athletes can accept the presence of anxiety while taking deliberate action, preparing effectively, communicating concerns, and addressing problems that are within their control.

10.4. Emotional Intelligence in Sport

10.4.1. Defining emotional intelligence

Emotional intelligence (EI) concerns the processing of emotional information and the capacity to use that information to guide thinking and behaviour. Mayer and Salovey's ability-based approach conceptualises emotional intelligence in terms of abilities related to perceiving emotion, using emotion to facilitate thought, understanding emotional information, and managing emotions (Mayer & Salovey, 1995).

Within sport, emotional intelligence may be relevant to how athletes interpret their own emotional states, understand the reactions of teammates, respond to feedback, and navigate interpersonal conflict. It may also be important for coaches who must communicate under pressure, manage group dynamics, and respond to athletes experiencing different emotional reactions to the same event.

Emotional intelligence should not be interpreted as a guarantee of emotional stability or superior performance. Athletes with strong emotional awareness may still experience anxiety, frustration, or interpersonal conflict. The potential value lies in recognising emotional information and responding appropriately rather than being unaffected by emotion.

10.4.2. Perceiving and understanding emotions

Perceiving emotion involves recognising emotional signals in oneself and others. These signals may include facial expression, voice, posture, behaviour, and subjective experience.

In team sport, recognising that a teammate is becoming frustrated may help an athlete adjust communication or provide support. A coach who notices signs of reduced confidence may change the timing or form of feedback. However, emotional signals are not definitive evidence of a person's internal state. Quietness may indicate concentration, fatigue, discomfort, or a preference for limited interaction.

Emotional understanding involves recognising how emotions develop, how they may change, and how they interact. For example, frustration following repeated errors may develop into anger, withdrawal, or anxiety about further mistakes. Understanding these possibilities can help athletes and coaches respond before an emotional episode begins to interfere substantially with task execution.

Such interpretation should remain tentative and open to correction. Asking an athlete how they are experiencing a situation is often more appropriate than assuming that a particular behaviour reveals a specific emotion.

10.4.3. Using emotion to facilitate thought

Emotions can provide information about goals, perceived threats, interpersonal relationships, and the significance of events. Emotional intelligence includes the capacity to consider how emotional states may influence attention and reasoning.

For example, excitement may encourage an athlete to pursue an opportunity, whereas apprehension may prompt additional preparation. The usefulness of an emotional signal depends on the circumstances. Fear can identify a genuine safety

concern, but it can also exaggerate a perceived threat. Confidence may support action, but it does not establish that an athlete is adequately prepared.

Athletes should therefore learn to treat emotions as information rather than unquestionable instructions. A useful reflective question is: "What might this emotion be telling me, and what evidence do I have about the situation?"

10.4.4. Managing emotions in interpersonal relationships

Sport involves repeated interaction under conditions of evaluation, competition, and shared responsibility. Emotional intelligence may help athletes communicate needs, respond constructively to disagreement, and recognise when emotional reactions are affecting relationships.

A player who feels overlooked may interpret a coach's decision as personal rejection. Without appropriate communication, this interpretation can contribute to resentment and reduced trust. A structured conversation may help distinguish the athlete's emotional response from the coach's actual reasoning.

Emotional intelligence also has limits. Athletes should not be expected to tolerate abusive conduct simply because they are capable of understanding another person's emotions. Emotional awareness must operate alongside boundaries, accountability, and safeguarding.

10.4.5. Emotional intelligence and measurement

Emotional intelligence is measured through different approaches, including ability-based assessments, self-report questionnaires, and measures of perceived emotional competencies. These approaches do not necessarily assess the same construct.

Ability-based measures attempt to assess performance on tasks involving emotional information. Self-report measures assess how individuals perceive their own emotional capacities or tendencies. Trait-based approaches may overlap with personality characteristics.

Researchers and practitioners should identify which form of emotional intelligence a measure assesses and avoid treating scores from different instruments as interchangeable. Self-reported confidence in emotional competence does not necessarily demonstrate objective ability, while performance on an emotional reasoning task does not capture every aspect of interpersonal functioning.

In applied settings, emotional intelligence assessment should be used cautiously and should not serve as the sole basis for selection, deselection, or judgments about an athlete's suitability for leadership.

10.5. Psychological Skills Training: Principles and Structure

10.5.1. What is psychological skills training?

Psychological skills training is a systematic process through which athletes learn, practise, and evaluate psychological strategies intended to support performance, coping, and other relevant outcomes.

PST commonly includes goal setting, imagery, self-talk, attentional control, relaxation, activation regulation, and pre-performance routines. These strategies may be used individually or combined within a broader programme.

Effective PST is not simply the delivery of a list of techniques. It requires an assessment of the athlete's needs, an explanation of the rationale for each technique, structured practice, feedback, and evaluation. The process should also account for the sport, the athlete's experience, the demands of competition, and the practical constraints of training.

A strategy that is useful for a golfer preparing a putt may not be directly transferable to a footballer responding to rapidly changing play. Similarly, an experienced athlete may need refinement of an established routine, whereas a novice may need basic instruction and repeated practice.

10.5.2. Principles of effective psychological skills training

Several principles are central to a systematic PST programme.

Individualisation. Psychological strategies should reflect the athlete's needs, preferences, sport, and experience. There is no single routine that is optimal for every athlete.

Specificity. Techniques should be connected to the demands of the target task. Attention cues for a precision skill may differ from those used in a high-speed team sport.

Progressive practice. Athletes should develop techniques in manageable training conditions before applying them under more demanding circumstances.

Integration. Psychological preparation should be coordinated with technical, tactical, physical, and recovery activities rather than treated as an unrelated addition.

Consistency with flexibility. Athletes benefit from familiar routines but should also be able to adapt when circumstances change. A routine should support performance, not become a rigid ritual that generates distress when disrupted.

Evaluation. The usefulness of each technique should be assessed through relevant indicators, such as task execution, attentional control, perceived readiness, or performance outcomes.

Ethical practice. Psychological interventions should respect athlete autonomy, confidentiality, safety, and the limits of practitioner competence.

10.5.3. Psychological skills training as a developmental process

A useful PST programme can be organised into four broad phases.

1. **Education and awareness:** Athletes learn the purpose of a psychological skill and identify situations in which it may be useful.
2. **Acquisition:** Athletes practise the technique in controlled, relatively low-pressure conditions.
3. **Implementation:** Athletes apply the technique during increasingly demanding training and competition simulations.
4. **Evaluation and refinement:** Athletes review whether the strategy helped, identify barriers, and make appropriate adjustments.

This structure discourages the expectation that a technique should produce immediate and universal benefits. Some athletes may initially find imagery difficult, while others may use self-talk in ways that increase distraction. Adaptation and repeated practice are therefore essential.

10.6. Goal Setting and Performance Regulation

10.6.1. The function of goals

Goal setting directs attention, supports effort, and provides criteria for evaluating progress. In sport, goals can help athletes translate broad ambitions into specific actions and monitor development over time.

A distinction is commonly made between outcome, performance, and process goals.

Outcome goals focus on competitive results, such as winning a match, reaching a final, or obtaining a particular ranking.

Performance goals focus on standards of individual execution, such as achieving a personal best or improving a technical measure.

Process goals focus on specific behaviours within the athlete's control, such as maintaining a particular attentional cue or executing a tactical movement.

Outcome goals can provide direction, but they depend partly on opponents, judges, environmental conditions, and other factors outside the athlete's control. Process goals can provide a more immediate focus for action.

10.6.2. Constructing effective goals

Effective goal setting requires goals that are meaningful, appropriately challenging, and linked to observable actions. A goal should be sufficiently specific to guide behaviour while remaining realistic in relation to the athlete's current abilities and circumstances.

For example, "perform better under pressure" is a broad intention. A more actionable goal might be: "During the next four training sessions, use the agreed breathing and attentional routine before each penalty kick, then record whether the routine was completed and how attention was directed."

This goal specifies an action and a period of practice. It does not guarantee improved performance, but it creates an opportunity to evaluate whether the routine is feasible and useful.

Goals should be reviewed as circumstances change. Injury, workload, competition schedules, and personal circumstances may require adjustments. Revising a goal in response to new information is not necessarily a sign of weak commitment; it can reflect effective self-regulation.

10.6.3. Goal setting and well-being

Goal setting can support motivation and a sense of progress, but it can also contribute to excessive pressure if goals become rigid or are tied to personal worth. Athletes may experience distress when they interpret every missed target as evidence of failure.

A balanced approach includes both achievement goals and process goals, as well as attention to recovery, learning, relationships, and sustainable participation. Coaches should avoid using goals primarily as instruments of control or as reasons to ignore health concerns.

Goals should help athletes organise effort and evaluate learning, not make their self-worth conditional on performance.

10.7. Imagery and Mental Practice

10.7.1. Defining imagery

Imagery is the deliberate use of mental representations involving sensory, cognitive, and emotional elements. Athletes may imagine visual scenes, bodily sensations, movement timing, sounds, or the anticipated experience of executing a skill.

Imagery differs from simply thinking about a desired outcome. Effective mental practice often includes the sequence of actions, relevant environmental cues, the athlete's perspective, and the timing of movement. It may also include anticipated obstacles and the athlete's response to them.

Imagery can be used to rehearse a technical skill, prepare for competition, support confidence, practise coping with adversity, or maintain familiarity with movement during some forms of injury rehabilitation. Its purpose should be specified before practice begins.

10.7.2. Types of imagery

Several forms of imagery are relevant to sport.

Internal imagery involves imagining an experience from the athlete's own perspective, similar to seeing or feeling the movement while performing it.

External imagery involves observing the imagined movement from an outside perspective, similar to watching a recording.

Cognitive imagery focuses on technical execution, tactical decisions, and movement sequences.

Motivational imagery focuses on outcomes, confidence, emotional readiness, or effective responses to demanding situations.

These categories can overlap. A tennis player might use internal imagery to rehearse the feel and timing of a serve, then use external imagery to examine the movement pattern, followed by motivational imagery to rehearse a confident response to a difficult score.

The preferred form depends on the task and the athlete's experience. Practitioners should not assume that one perspective is universally superior.

10.7.3. Evidence and practical application

Liu et al. (2025) conducted a systematic review and multilevel meta-analysis of imagery practice in athletes. Their findings indicated potential performance

benefits across the included studies, while also illustrating the importance of considering intervention design and dosage.

The findings support the inclusion of imagery as a possible component of psychological preparation, but they should not be interpreted as proof that a single imagery protocol works equally well for all sports and athletes.

An applied imagery session may include the following steps:

1. Identify a specific skill or competitive situation.
2. Establish a clear and realistic mental representation of the task.
3. Include relevant sensory and movement information.
4. Rehearse the action at an appropriate pace.
5. Introduce realistic competitive demands when appropriate.
6. Review the experience and identify aspects that require refinement.

Imagery should be integrated with physical practice rather than automatically replacing it. Athletes should also be allowed to report if imagery is uncomfortable, difficult, or counterproductive. Some experiences, particularly those involving injury or previous distressing events, may require specialist guidance.

10.8. Self-Talk and Cognitive Regulation

10.8.1. Understanding self-talk

Self-talk refers to verbal or verbal-like statements directed toward oneself. It may occur spontaneously or be deliberately used to guide attention, regulate emotion, maintain motivation, and support skill execution.

Athletes may engage in self-talk before competition, during a technical movement, after an error, or when responding to fatigue. The content and function of self-talk can vary considerably.

Instructional self-talk provides task-relevant cues, such as "smooth release" or "watch the ball."

Motivational self-talk is intended to support effort, confidence, or persistence, such as "stay committed" or "keep working."

Reflective self-talk helps athletes evaluate an event and identify a constructive next action.

The distinction between helpful and unhelpful self-talk depends on context. A long internal instruction may be useful during technical learning but disruptive during a rapid, well-learned movement.

10.8.2. Evidence for self-talk interventions

Hatzigeorgiadis et al. (2011) conducted a meta-analysis examining the effects of self-talk interventions on sport performance. Their findings indicated an overall positive effect, with differences according to task characteristics and intervention features.

The findings support self-talk as a potentially useful psychological skill, but the effect should not be assumed to be identical across all tasks. The content, timing, and amount of practice matter.

An athlete learning a new movement may benefit from instructional cues that clarify a technical requirement. An experienced athlete performing an automatic movement may need a brief cue rather than extensive verbal analysis. The intervention should match the task's cognitive demands.

10.8.3. Developing a functional self-talk routine

A self-talk routine can be developed through four steps.

Step 1: Identify recurring thoughts. The athlete records common thoughts before, during, and after demanding situations.

Step 2: Evaluate their function. The athlete considers whether a thought supports attention and action or increases distraction and self-criticism.

Step 3: Develop concise alternatives. The athlete creates short, credible, task-relevant statements.

Step 4: Practise under realistic conditions. The selected cues are used during training, and their usefulness is evaluated.

For example, after a missed shot, an athlete might habitually think, "I always fail under pressure." A more functional response could be, "Reset, check the target, and follow through." The alternative does not deny the error; it directs attention toward the next controllable action.

Self-talk should remain realistic. Statements that feel implausible may not be useful, and excessively positive language can become another source of pressure. The objective is functional thinking rather than compulsory optimism.

10.9. Attentional Control and Concentration

10.9.1. Attention in sport performance

Attention involves selecting, maintaining, and shifting focus among relevant sources of information. Sport tasks differ in the amount and type of information that must be processed. A gymnast performing a complex routine, a goalkeeper responding to a penalty, and a marathon runner regulating pace face different attentional demands.

Attentional errors can occur when athletes focus on irrelevant stimuli, become preoccupied with possible consequences, or monitor movements excessively. However, attention should not be reduced to a simple contrast between internal and external focus. The optimal attentional strategy depends on the task, the athlete's learning stage, and the situation.

10.9.2. Internal and external attentional focus

An internal focus directs attention toward the body's movement or a specific bodily action. An external focus directs attention toward the intended effect of the movement or relevant features of the environment.

For example, an athlete may focus internally on the movement of the arm or externally on the trajectory of the ball. In many motor-learning contexts, an external focus can facilitate movement efficiency, although task and individual differences remain important.

Practitioners should therefore avoid imposing a universal attentional instruction. They should test different cues during training and evaluate their effect on movement quality, consistency, and the athlete's understanding of the task.

10.9.3. Refocusing after distraction

Distraction is inevitable in many competitive settings. Athletes may be affected by crowd noise, an opponent's behaviour, officiating decisions, errors, or thoughts about the consequences of the result.

A refocusing routine provides a repeatable method for returning attention to task-relevant information. It may involve:

1. Recognising that attention has shifted.
2. Briefly acknowledging the distraction without prolonged judgment.
3. Using a cue word, breath, or movement to reset.
4. Directing attention toward the next relevant action.

The routine should be practised before competition. Under pressure, complex strategies may be difficult to execute, so cues should be concise and consistent with the task.

10.10. Relaxation, Breathing, and Activation Regulation

10.10.1. Why activation regulation matters

Athletes differ in their preferred levels of activation, and the demands of a task may influence the most useful level. Excessive activation may contribute to muscular tension, rushed decisions, or disrupted coordination in some situations. Insufficient activation may be associated with reduced alertness or engagement in others.

The objective is not to reduce activation in every circumstance. Instead, athletes should learn to recognise their own patterns and identify strategies that help them prepare for the task.

10.10.2. Breathing techniques

Controlled breathing can be used as one component of emotional regulation. Slow, comfortable breathing may help some athletes manage perceived tension and return attention to the present task.

A simple practice routine involves sitting or standing comfortably, breathing without strain, and allowing the exhalation to be slow and controlled. The athlete can then assess whether the exercise changes subjective tension or attentional readiness.

Breathing techniques should not be presented as a universal treatment for anxiety or as a guarantee of improved performance. Some athletes may experience discomfort when focusing closely on breathing, particularly if they have relevant medical or psychological concerns. Practice should be adapted to the individual, and persistent symptoms may require professional assessment.

10.10.3. Progressive muscle relaxation

Progressive muscle relaxation involves systematically tensing and releasing selected muscle groups to increase awareness of muscular tension and practise relaxation. It may be useful for athletes who experience unnecessary tension before competition or during recovery.

The technique should be adapted to the sport and the athlete's physical condition. Tensing muscles may be inappropriate when an athlete has an injury or a

condition that makes the exercise uncomfortable. In such cases, a non-tensing relaxation approach may be preferable.

10.10.4. Activation strategies

Some athletes benefit from strategies designed to increase readiness rather than reduce activation. These may include a dynamic warm-up, energising music where appropriate, brief motivational self-talk, or a task-specific movement routine.

Activation strategies should be individualised and tested during training. An intervention that helps one athlete feel prepared may increase distraction or excessive arousal in another.

The central principle is functional readiness: the athlete should be able to engage with the task's demands, rather than simply achieve a predetermined level of calmness or excitement.

10.11. Mindfulness and Acceptance-Based Approaches

10.11.1. Mindfulness in sport

Mindfulness generally involves purposeful attention to present-moment experience with an attitude of openness and reduced automatic judgment. In sport, mindfulness practices may help athletes notice thoughts, emotions, and bodily sensations without becoming completely absorbed by them.

For example, an athlete who notices anxiety before a competition can acknowledge it and return attention to a relevant cue. The aim is not necessarily to eliminate anxiety but to prevent it from dominating behaviour.

Mindfulness-based interventions vary in their content, duration, delivery, and intended outcomes. Some programmes focus on attention and awareness, while others incorporate acceptance, values, and psychological flexibility. These interventions should not be treated as identical.

10.11.2. Acceptance and Commitment Therapy-informed approaches

Acceptance and Commitment Therapy (ACT) emphasises psychological flexibility, including acceptance of internal experiences, present-moment awareness, values clarification, and committed action.

In sport, an ACT-informed approach may help athletes distinguish between the presence of an uncomfortable emotion and the decision about how to act. An athlete can feel uncertain while still following a well-practised routine. An athlete

can experience disappointment while communicating constructively with teammates.

This approach is not a demand to tolerate every sporting environment. Acceptance of internal experience does not mean accepting abuse, unsafe training, or inappropriate treatment. Athletes should still take action to address harmful external conditions and seek support when necessary.

10.11.3. Evidence and limitations

Reinebo et al. (2024) reported favourable findings for mindfulness- and acceptance-based approaches in some of the meta-analyses included in their review. However, the authors also highlighted limitations relating to methodological quality and the stability of estimated effects.

These findings support further use and evaluation of such approaches, while cautioning against claims that mindfulness universally improves competitive performance. Outcomes may depend on the intervention, athlete characteristics, implementation, and the measure used to evaluate effectiveness.

Mindfulness should therefore be selected according to a clear rationale and evaluated as part of a broader psychological preparation plan.

10.12. Pre-Performance Routines and Integrated Psychological Preparation

10.12.1. The purpose of a pre-performance routine

A pre-performance routine is a sequence of thoughts and actions that an athlete uses before executing a specific skill or beginning a competitive task. It may include posture, breathing, visual attention, a cue word, and a final task-related action.

The routine can help organise attention and create consistency between practice and competition. Its value lies not in its ritualistic appearance but in its functional relationship with the task.

Examples include a basketball player's routine before a free throw, a golfer's preparation before a putt, or a weightlifter's sequence before an attempt.

10.12.2. Characteristics of an effective routine

An effective routine should be:

- **Task-specific:** directly connected to the performance requirement.
- **Concise:** short enough to use under competitive conditions.
- **Rehearsed:** practised consistently during training.

- **Flexible:** adaptable when the competitive situation changes.
- **Functionally evaluated:** assessed according to its contribution to preparation and execution.

A routine that becomes excessively elaborate may create problems if the athlete begins to believe that performance is impossible without completing every element. The routine should support attentional control rather than become a source of superstition or additional anxiety.

10.12.3. Integrating psychological skills

Psychological skills are often most useful when combined in a coherent sequence. A pre-performance routine might include a brief breathing exercise, an external attentional cue, a realistic self-talk statement, and imagery of the intended movement.

However, combining multiple techniques is not automatically superior to using one technique. Each component adds demands, and excessive complexity may distract the athlete.

Practitioners should identify the central performance challenge and select the minimum set of skills needed to address it. The resulting routine can then be practised, evaluated, and refined.

10.13. An Applied Psychological Skills Training Protocol

The following protocol provides a practical framework for implementing psychological skills training within an individual or team sport setting. It is a proposed applied framework rather than a universally validated intervention.

Phase 1: Needs assessment

The practitioner and athlete identify the specific problem to be addressed. Relevant questions include:

- In which situations does the difficulty occur?
- What thoughts, emotions, and behaviours are involved?
- How does the difficulty affect task execution or well-being?
- What strategies has the athlete already tried?
- What resources and constraints influence implementation?

Assessment should consider whether the issue is primarily attentional, emotional, motivational, interpersonal, or environmental. Where persistent psychological

symptoms or clinical concerns are present, appropriate professional assessment should be considered.

Phase 2: Establishing measurable objectives

The athlete and practitioner define realistic objectives that reflect the intended outcome. Objectives might concern more consistent use of a routine, improved recognition of emotional changes, or greater ability to return attention to the task after an error.

The objective should be observable where possible. A vague aim such as "be mentally stronger" is difficult to evaluate, whereas a goal such as "use the agreed refocusing cue after each identified attentional lapse during practice" provides a clearer basis for review.

Phase 3: Selecting the intervention

The selected technique should match the problem.

Primary challenge	Possible psychological skill	Example of application
Repetitive negative thinking	Functional self-talk and cognitive reappraisal	Replace global self-criticism with a task-specific instruction
Excessive muscular tension	Relaxation or comfortable controlled breathing	Practise a brief routine before a precision task
Distraction after an error	Attentional refocusing	Use a cue word and return attention to the next action
Uncertainty about task execution	Imagery and technical cues	Rehearse the movement sequence mentally before physical practice
Inconsistent preparation	Pre-performance routine	Establish a repeatable sequence before a specific skill
Difficulty accepting competitive emotions	Mindfulness or acceptance-based practice	Acknowledge the emotion and redirect attention to task demands
Unclear development priorities	Structured goal setting	Translate broad objectives into process and performance goals

These are starting points rather than fixed prescriptions. More than one technique may be appropriate, and the athlete's response should guide further refinement.

Phase 4: Skill acquisition

The athlete learns the selected technique in a controlled setting. The practitioner explains the rationale, demonstrates the procedure where appropriate, and provides opportunities for questions and feedback.

Early practice should prioritise correct understanding and consistent execution rather than immediate competitive gains. Athletes should be encouraged to report when a technique feels unnatural, distracting, or uncomfortable.

Phase 5: Integration into training

The skill is introduced into regular sport practice. Difficulty can be increased gradually through more demanding tasks, time constraints, competitive simulations, or realistic distractions.

The aim is to help the athlete use the skill when it is needed, rather than only during isolated psychological training sessions.

Phase 6: Evaluation and adaptation

The practitioner and athlete review the intervention using relevant indicators. These may include the frequency of skill use, perceived usefulness, attentional consistency, task execution, or broader well-being.

Evaluation should not rely exclusively on immediate competition results because performance is influenced by numerous factors. A technique may be implemented correctly without producing an immediate improvement in a particular result.

If the intervention is not useful, the practitioner should reconsider the formulation, technique, implementation, or underlying problem rather than assuming that the athlete lacks commitment.

Phase 7: Maintenance and transfer

Once the skill is established, the athlete practises it across relevant situations and reviews it periodically. The goal is not rigid adherence to a fixed procedure but the development of flexible psychological competence.

Skills may need to be adapted when the athlete changes sport, competitive level, role, or training environment. Maintenance should therefore include reflection and adjustment.

Table 10.1. Illustrative four-week psychological skills training schedule

Week	Primary focus	Practice activities	Review questions
1	Awareness and baseline assessment	Identify common emotional triggers, attentional lapses, and existing coping strategies	What happens before, during, and after the target difficulty?
2	Skill acquisition	Practise one or two selected techniques in controlled training conditions	Can the athlete perform the technique consistently and comfortably?
3	Integration	Apply the technique during more demanding drills and realistic simulations	Does the technique remain usable when pressure or distraction increases?
4	Evaluation and refinement	Review implementation, perceived usefulness, and task-related outcomes	What should be retained, modified, or discontinued?

Note. The schedule is an illustrative starting point. The duration, intensity, and content of psychological skills training should be individualised according to the athlete's needs, experience, and sport-specific demands.

10.14. Ethical and Professional Considerations

10.14.1. Competence and scope of practice

Psychological skills training should be delivered by individuals with appropriate knowledge and competence. Coaches may integrate basic psychological principles into training, but clinical concerns require assessment and care from appropriately qualified professionals.

The distinction between performance support and mental health treatment should remain clear. A self-talk intervention intended to improve task focus is not equivalent to psychological therapy for a mental disorder.

10.14.2. Informed participation and autonomy

Athletes should understand the purpose of an intervention, its intended outcomes, and any relevant limitations. Participation should respect autonomy and applicable ethical standards.

Psychological techniques should not be imposed as a test of commitment or used to blame athletes for performance difficulties. An athlete's decision not to use a particular technique should prompt discussion about suitability and alternatives rather than automatic judgment.

10.14.3. Confidentiality and data protection

Psychological assessments and training records may contain sensitive information. Practitioners should clarify how information will be stored, who may access it, and when disclosure may be required for safety or legal reasons.

Coaches and administrators generally do not need unrestricted access to an athlete's personal psychological information. Information sharing should be proportionate, appropriately authorised, and consistent with professional and legal obligations.

10.14.4. Avoiding the individualisation of organisational problems

Psychological techniques can help athletes manage some performance demands, but they cannot compensate fully for harmful organisational conditions. Relaxation training does not resolve abusive coaching, and self-talk cannot make an unsafe workload appropriate.

Practitioners should therefore consider whether a reported difficulty reflects an individual skill deficit, an environmental problem, or a combination of both. Where organisational factors contribute substantially, intervention should include appropriate environmental changes and accountability.

10.15. Research Evidence, Methodological Limitations, and Future Directions

10.15.1. Interpreting the intervention evidence

Psychological skills training is widely used in sport, but its evidence base includes diverse interventions, populations, outcomes, and research designs. Reinebo et al. (2024) identified positive effects in several intervention categories, including multimodal psychological skills training, mindfulness- and acceptance-based approaches, and imagery. However, some findings were no longer statistically significant when analyses excluded non-randomised studies or subjective performance outcomes.

This finding illustrates a central principle of evidence-based practice: a favourable average estimate does not establish that an intervention is effective in every context. Confidence in an intervention depends on study quality, sample size, measurement, comparison conditions, implementation, and the consistency of results.

The recent imagery meta-analysis by Liu et al. (2025) provides further evidence of potential benefits while highlighting variation in study characteristics and intervention procedures. Practitioners should therefore avoid presenting a

specific imagery schedule or psychological routine as universally optimal without considering the athlete's needs and the quality of evidence supporting that prescription.

10.15.2. Challenges in measuring performance

Sport performance is difficult to measure consistently across studies. Some investigations use objective outcomes, such as time, distance, accuracy, or strength. Others use coach ratings, self-reported performance, or task-specific indicators. These outcomes may differ in reliability and susceptibility to bias.

An athlete may also experience improved emotional regulation without producing an immediate improvement in competition results. Conversely, performance may improve because of physical training, tactical adjustments, or changes in the competitive environment rather than the psychological intervention.

Future studies should clearly distinguish performance outcomes from psychological outcomes and report both when appropriate.

10.15.3. Individual differences and intervention fit

Athletes differ in their experience, personality, attentional preferences, cultural background, and response to psychological techniques. An intervention may be helpful for one athlete but ineffective or uncomfortable for another.

Research should examine which intervention characteristics are associated with beneficial outcomes for particular athletes and tasks. This includes investigating the role of prior experience, intervention adherence, practitioner competence, and the athlete's understanding of the technique.

The objective should be to identify conditions under which interventions are useful rather than to establish a single universally superior technique.

10.15.4. Team and interpersonal processes

Psychological skills are often studied at the individual level, but sport performance also depends on communication, coordination, and shared responses to pressure. Emotional experiences can spread through teams, and one athlete's coping strategy may influence teammates.

Tamminen et al. (2024) reviewed interpersonal experiences, expressions, and regulation of emotions in sport, highlighting the importance of examining emotion within social relationships rather than treating it exclusively as an individual process.

Future research should investigate how coaches and athletes regulate emotions together, how interpersonal communication influences recovery after errors, and how team norms shape the acceptability of emotional disclosure.

10.15.5. Technology and digital psychological training

Digital platforms, mobile applications, and wearable devices may support the delivery of psychological skills training, particularly when access to specialist practitioners is limited. They may also facilitate structured practice and feedback.

However, technology should be evaluated according to its effectiveness, accessibility, privacy safeguards, and suitability for the sporting context. Digital engagement does not necessarily indicate meaningful learning, and algorithmic recommendations should not be treated as substitutes for professional judgment when clinical or safeguarding concerns arise.

Future studies should compare digital and practitioner-supported delivery, examine long-term adherence, and evaluate whether technology improves access without creating additional monitoring pressures.

10.16. Conclusion

Emotion regulation, emotional intelligence, and psychological skills training are important components of contemporary sport psychology. Together, they provide a framework for understanding how athletes recognise emotional information, respond to competitive demands, direct attention, and develop consistent preparation routines.

Emotion regulation involves influencing emotional experiences and responses rather than eliminating all uncomfortable feelings. Emotional intelligence concerns the perception, understanding, use, and management of emotional information. Psychological skills training translates relevant principles into structured practice through techniques such as goal setting, imagery, self-talk, attentional control, relaxation, mindfulness, and pre-performance routines.

These techniques should be selected according to the demands of the sport, the athlete's needs, and the intended outcome. Their effectiveness depends on more than the choice of a technique: assessment, practice, integration, feedback, and evaluation are essential. The available research indicates that several psychological interventions may be beneficial, while also demonstrating that the certainty and stability of estimated effects vary.

Psychological preparation should therefore be systematic, individualised, and evidence-informed. Athletes should learn to recognise their emotional patterns,

practise relevant skills, evaluate their usefulness, and adapt their strategies across different situations. Coaches and sport organisations should support this process through appropriate communication, realistic expectations, and environments that protect health and dignity.

Finally, psychological skills should not be treated as a substitute for adequate physical preparation, professional mental health care, or organisational reform. Their greatest value lies in helping athletes respond more effectively to the demands of sport while preserving the capacity for learning, sustainable participation, and personal development.

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CHAPTER 11: Attention, Concentration, and Decision-Making in Sport

11.1. Introduction

Sport performance requires athletes to perceive relevant information, interpret changing situations, select appropriate actions, and execute those actions under varying physical, cognitive, and emotional demands. These processes are especially important in environments where the available information changes rapidly, decisions must be made within limited time, and errors may have immediate consequences. Although physical conditioning and technical proficiency are essential components of athletic development, they do not fully explain why athletes with comparable physical and technical abilities sometimes perform differently when confronted with the same competitive situation.

Attention, concentration, perception, anticipation, working memory, and decision-making contribute to the cognitive foundations of sport performance. Their roles vary according to the task. A golfer preparing to putt must maintain a stable attentional focus and regulate distractions. A football midfielder must continuously monitor teammates, opponents, available space, and the movement of the ball. A goalkeeper must identify informative cues from an opponent's movement and anticipate the likely direction of a shot. A marathon runner must regulate attention over an extended period while monitoring pace, fatigue, and environmental conditions.

These examples demonstrate that attention is not simply the ability to concentrate for a long time. Effective attention involves selecting relevant information, ignoring or managing competing information, maintaining focus when required, and shifting attention when the task changes. Likewise, decision-making in sport is not always a deliberate sequence of conscious calculations. Experienced athletes may recognise familiar patterns and respond rapidly, whereas unfamiliar or complex situations may require more explicit evaluation.

Research on perceptual-cognitive expertise has consistently examined how experienced athletes differ from less experienced performers in identifying relevant cues, anticipating events, and organising visual attention. Mann et al. (2007), in a meta-analysis of 42 studies, found that experts generally demonstrated advantages in response accuracy and response time, alongside systematic differences in visual search behaviour. These differences varied according to sport type and research method, suggesting that expertise is partly

specific to the demands of the task rather than a universal advantage across all cognitive activities.

More recent work has also examined the relationships among working memory, attentional control, and sport expertise (Furley & Wood, 2016), as well as the processes involved in decision-making in team sports (Ashford et al., 2021). The evidence indicates that sport-related decisions emerge from interactions among environmental information, prior experience, task demands, and the athlete's capacity to regulate attention. No single cognitive model fully explains performance across every sporting context.

The purpose of this chapter is to examine the theoretical foundations and applied significance of attention, concentration, perceptual-cognitive expertise, anticipation, and decision-making in sport. It also considers the effects of pressure and mental fatigue, reviews methods for developing and assessing these skills, and presents a practical framework for incorporating cognitive training into sport preparation.

The central argument is that effective cognitive performance depends not simply on processing more information or concentrating harder, but on identifying the information that matters, interpreting it in context, and selecting an appropriate response within the constraints of the task.

11.2. Conceptual Foundations of Attention and Concentration

11.2.1. Defining attention

Attention refers to the processes through which individuals select, prioritise, and maintain access to information relevant to current goals. Because the environment contains more information than can be processed in detail at any given moment, effective performance requires selective allocation of cognitive resources.

In sport, attention may be directed toward external information, such as the movement of an opponent, the trajectory of a ball, or the position of a target. It may also be directed toward internal information, including bodily sensations, tactical instructions, movement intentions, or thoughts about performance.

Attention is dynamic. Athletes must sometimes maintain a stable focus, but they must also shift attention as relevant information changes. A tennis player may initially focus on the opponent's serving movement, then track the ball, and subsequently direct attention toward positioning and shot selection. Effective performance depends on the timing and appropriateness of these shifts.

Attention should not be understood as a single, fixed capacity that operates identically in every situation. Its demands vary with task complexity, environmental uncertainty, fatigue, experience, and the availability of relevant cues.

11.2.2. Concentration

Concentration is commonly used to describe the ability to maintain or direct attention toward task-relevant information. In applied sport psychology, concentration includes sustaining focus, resisting irrelevant distractions, and returning attention to the task after an interruption.

A concentrated athlete is not necessarily one who ignores everything except a single stimulus. In many sports, such a strategy would be ineffective. A football player must remain responsive to several changing sources of information, while a gymnast may need to maintain a more narrowly defined focus during a specific movement sequence.

The appropriate form of concentration is therefore task-dependent. Concentration in an endurance event may involve maintaining a useful focus over an extended period, whereas concentration in an open-skill team sport may involve repeatedly selecting and shifting attention among changing stimuli.

A useful distinction can be made between **attentional stability** and **attentional flexibility**. Attentional stability involves maintaining focus when the task requires consistency. Attentional flexibility involves shifting focus when new information becomes relevant. Skilled performance often requires both.

11.2.3. Selective, sustained, and divided attention

Three broad forms of attention are particularly relevant to sport.

Selective attention involves prioritising relevant information while limiting interference from competing stimuli. A basketball player may focus on a teammate's movement while disregarding crowd noise.

Sustained attention involves maintaining task-relevant processing over time. This may be important during endurance events, prolonged matches, and repeated performance sequences.

Divided attention concerns the management of multiple information sources or task demands. In sport, this may involve monitoring opponents while controlling movement and anticipating tactical developments. However, the term should be used carefully: athletes may alternate attention rapidly rather than process all information equally and simultaneously.

These forms of attention overlap in real performance. A goalkeeper must selectively attend to informative movement cues, sustain readiness throughout the match, and manage several sources of information during an attack.

11.2.4. Attention and working memory

Working memory refers to the limited-capacity processes used to maintain and manipulate information temporarily. It supports tasks such as remembering tactical instructions, comparing alternatives, and updating information as a situation changes.

Furley and Wood (2016) reviewed the relationship between working memory and attentional control in sport. Their analysis highlighted how the contents of working memory can influence the focus of attention and how individual differences in working memory may relate to the management of distraction.

In practice, an athlete who is preoccupied with a previous error may have fewer cognitive resources available for processing current information. Similarly, an athlete attempting to remember too many verbal instructions during a rapid movement may experience unnecessary cognitive demands.

This does not mean that working memory capacity alone determines sporting expertise. Performance also depends on acquired knowledge, task familiarity, perceptual skill, physical capabilities, and the organisation of action. Experts may process familiar situations efficiently because they recognise meaningful patterns and draw on well-developed sport-specific knowledge.

11.3. Attentional Focus: Internal and External Information

11.3.1. Internal attentional focus

An internal attentional focus directs attention toward the body's movement or a particular component of motor execution. Examples include focusing on elbow position during a throw, shoulder rotation during a stroke, or foot placement during a change of direction.

Internal cues can be useful when athletes are learning a movement, correcting a technical error, or attempting to understand a specific mechanical feature. Coaches often use such cues to communicate technical requirements.

However, extensive internal monitoring can sometimes interfere with the execution of well-learned movements, particularly when athletes attempt to consciously control processes that are normally performed with limited conscious attention.

The value of an internal cue therefore depends on the athlete's learning stage, the task, and the intended outcome. A cue that helps a novice understand movement mechanics may not be the best cue for an experienced athlete performing a rapid, automated action.

11.3.2. External attentional focus

An external attentional focus directs attention toward the intended effect of movement or relevant information in the environment. Examples include focusing on the trajectory of a ball, the target area of a throw, or the space into which a pass should be delivered.

Research on motor performance and learning has frequently examined the benefits of external focus instructions. Wulf (2013) reviewed evidence suggesting that directing attention toward movement effects can support effective motor performance and learning in many contexts.

The proposed explanation is that an external focus may allow movement to be organised more efficiently, reducing unnecessary conscious control of movement components. Nevertheless, external focus should not be treated as a universal rule that overrides task demands or individual differences.

For example, a rehabilitation setting may require specific attention to a movement component, while a technical learning task may benefit from a combination of internal explanation and external performance cues.

11.3.3. Matching attentional cues to the task

Attentional cues should be selected according to the objective of the session.

Training objective	Possible attentional cue	Intended focus
Learning a new throwing technique	“Keep your elbow aligned with the movement path”	Movement mechanics
Improving shot accuracy	“Send the ball toward the far target zone”	Movement effect
Improving anticipation	“Watch the opponent's hip and trunk movement”	Informative opponent cues
Improving defensive positioning	“Maintain the space between the attacker and the goal”	Tactical relationships
Recovering after an error	“Identify the next controllable action”	Immediate task demands
Managing endurance pace	“Maintain the target rhythm”	Pace and movement consistency

These examples are illustrative rather than universal prescriptions. Coaches should observe how athletes respond to different cues and adjust instructions when a strategy appears to increase confusion or unnecessary effort.

11.4. Theoretical Models of Attention in Sport

11.4.1. Broad and narrow attentional focus

Traditional sport psychology models have described attention in terms of its breadth and direction. A broad focus allows the athlete to process several information sources, whereas a narrow focus concentrates on a limited set of cues. Attention may also be directed internally or externally.

This framework can help coaches discuss attentional demands, but it should not be interpreted as a complete account of cognitive processing. Real sporting situations often require rapid changes in both breadth and direction, and different athletes may achieve effective performance through different attentional patterns.

For example, a team-sport player may need broad external attention to identify tactical opportunities, followed by a narrower external focus when executing a pass. A precision athlete may use a narrow focus during a specific skill while retaining sufficient awareness of the wider situation.

The model is most useful when it helps describe the attentional requirements of a task rather than when it is used to assign athletes a fixed attentional type.

11.4.2. Attentional control theory

Attentional control theory proposes that anxiety can affect the balance between goal-directed attention and stimulus-driven attention. Anxiety may increase sensitivity to threatening or distracting stimuli and reduce the efficiency with which individuals maintain attention on task-relevant goals (Eysenck et al., 2007).

In sport, an anxious athlete may become preoccupied with the consequences of failure, the possibility of losing selection, or the reactions of spectators. Such concerns may compete with the information required for effective performance.

Anxiety does not inevitably produce poor performance. Experienced athletes may maintain task execution despite anxiety, and some may interpret arousal as a useful signal of readiness. The key issue is whether emotional responses interfere with the selection and processing of relevant information.

Practical interventions can therefore focus on task-relevant cues, brief refocusing routines, realistic appraisals, and practice under representative pressure conditions. The objective is not necessarily to eliminate anxiety but to protect the athlete's ability to direct attention appropriately.

11.4.3. Quiet eye and gaze control

The quiet eye concept concerns the final fixation or tracking gaze period on a relevant target or location before the initiation of a critical movement. Researchers have examined quiet eye behaviour in tasks such as aiming, putting, and other precision actions.

Vickers (1996) provided foundational research on gaze behaviour and visual control in sport. Subsequent research has examined how gaze characteristics vary with expertise and performance. Brams et al. (2019), in a systematic review, found that the relationship between gaze behaviour, expertise, and performance is complex and that the evidence does not support a single explanation for all expert performance.

Quiet eye training may be useful for some precision tasks, but the concept should not be reduced to a universal instruction to look at a target for a fixed duration. Gaze behaviour depends on task structure, the location of relevant information, the athlete's experience, and the demands of the movement.

Coaches should therefore use gaze-related interventions when they have a clear task-specific rationale and should evaluate whether the intervention improves relevant outcomes.

11.5. Perceptual-Cognitive Expertise in Sport

11.5.1. What is perceptual-cognitive expertise?

Perceptual-cognitive expertise refers to the capacity to identify meaningful information in the environment, interpret it in relation to prior knowledge, anticipate likely developments, and select an appropriate response.

This form of expertise differs from general visual acuity or simple reaction speed. Two athletes may have comparable eyesight but differ substantially in their ability to recognise tactical patterns or identify early cues that predict an opponent's action.

Mann et al. (2007) found that expert performers generally showed advantages in response accuracy and response time, alongside differences in visual search. These findings support the importance of sport-specific perceptual and cognitive development, while also showing that the size and form of expertise differences vary by sport and task.

11.5.2. Pattern recognition and knowledge structures

Experienced athletes develop knowledge structures that help them interpret familiar situations. Rather than processing every element of a situation independently, they may recognise meaningful combinations of players, movement patterns, spatial relationships, and tactical cues.

For example, an experienced football midfielder may recognise a developing passing opportunity from the relative positions of defenders, the movement of a teammate, and the orientation of the opponent's body. The decision may appear instantaneous, but it reflects accumulated experience and the ability to detect meaningful relationships.

Pattern recognition does not mean that experts always make correct decisions. Familiar patterns can be misleading when the opponent deliberately changes tactics or when the current situation differs from previously encountered situations. Expertise must therefore include the capacity to update interpretations when new information contradicts expectations.

11.5.3. Visual search strategies

Visual search concerns how athletes allocate gaze and extract information from the environment. Research has examined fixation number, fixation duration, gaze location, and the sequence in which visual information is sampled.

Experts may use more selective visual search strategies, directing attention toward cues that are informative for the task. However, fewer fixations or longer fixations are not automatically signs of superior performance. Their meaning depends on what information is being sought and whether the relevant cues are available through central or peripheral vision.

Brams et al. (2019) concluded that selectively allocating attention to task-relevant information is important for expertise, while also noting that no single theoretical account explains gaze behaviour across all domains.

Consequently, gaze-training interventions should be based on the specific information requirements of the sport rather than on a universal model of ideal eye movement.

11.5.4. Anticipation

Anticipation involves using available information to predict likely events before they fully unfold. In sport, it may help athletes prepare a response to an opponent's movement, a ball trajectory, or a developing tactical pattern.

Anticipation is especially important when the time between identifying an event and responding to it is limited. A goalkeeper cannot always wait until a ball is fully airborne before beginning to organise a response. Similarly, a tennis player may need to interpret an opponent's body orientation and racket movement before the ball crosses the net.

Anticipation relies on informative cues and prior knowledge. It can be disrupted by deceptive actions, unfamiliar opponents, and situations in which previous patterns no longer apply. Athletes should therefore develop both cue recognition and the ability to update their predictions.

11.6. Decision-Making in Sport

11.6.1. Defining sport decision-making

Decision-making refers to the process of selecting an action from available alternatives. In sport, decisions may involve tactical choices, technical execution, risk management, pacing, communication, and responses to opponents.

Some decisions are made under relatively stable conditions, such as selecting a shot in golf. Others occur in rapidly changing environments, such as choosing whether to pass, dribble, or shoot during a football attack.

The quality of a decision depends on more than the final outcome. A sound decision can produce an unsuccessful result because of execution error or an unexpected event. Conversely, a poor decision can occasionally produce a favourable outcome. Decision quality should therefore be evaluated in relation to the information available at the time the decision was made, the athlete's objectives, and the relevant constraints.

11.6.2. Information-processing perspectives

Information-processing approaches describe decision-making as a sequence of cognitive operations involving information detection, interpretation, response selection, and execution.

Within sport, such models can help researchers identify where a decision process may be disrupted. An athlete may fail to detect a relevant cue, misinterpret the situation, select an inappropriate response, or execute an otherwise suitable action inaccurately.

However, the stages are not always clearly separated in real performance. Perception, action, and decision-making can interact continuously, particularly in fast and dynamic sporting environments.

Information-processing models remain useful for analysing specific tasks and developing targeted interventions, but they should not be assumed to describe every decision as a slow, consciously controlled sequence.

11.6.3. Recognition-primed decision-making

Recognition-primed decision-making emphasises how experienced individuals may use previous knowledge to recognise a situation and generate a plausible course of action. Rather than comparing every available alternative, an experienced performer may identify a familiar pattern and assess whether the associated response is appropriate.

This approach is relevant to sports in which experienced athletes face repeated but variable situations. A defender may recognise an attacking pattern and position themselves before the opponent completes the movement. A goalkeeper may recognise a familiar shooting situation and prepare an appropriate response.

Recognition-primed decision-making does not imply that intuition is always accurate. Its effectiveness depends on the quality and relevance of prior experience. In unfamiliar or deceptive situations, an athlete may need to slow down, seek additional information, or reconsider the initial interpretation.

11.6.4. Ecological dynamics and perception-action coupling

Ecological dynamics approaches emphasise the relationship between an athlete and the performance environment. From this perspective, decisions emerge through ongoing interaction with available information, task constraints, and opportunities for action.

Perception and action are closely linked. Athletes do not simply observe a situation, complete an isolated mental calculation, and then move. Their movements change the information available, while new information shapes subsequent actions.

For example, a basketball defender's positioning can influence the attacking player's options. The attacker perceives the available space, adjusts movement, and changes the defender's next response. Decision-making develops through this continuous interaction.

This perspective supports training methods that preserve representative information and action opportunities. Exercises should allow athletes to perceive relevant cues and act on them rather than relying exclusively on decontextualised drills.

11.6.5. Comparing decision-making perspectives

Ashford et al. (2021) reviewed empirical evidence on decision-making in team sports and identified three broad perspectives: information processing, recognition-primed decision-making, and ecological dynamics. Their review highlighted that decision processes vary according to task complexity, familiarity, available time, and contextual information.

Perspective	Main emphasis	Potential contribution	Important limitation
Information processing	Detection, interpretation, response selection, and execution	Helps identify specific stages at which errors occur	May oversimplify continuous perception-action interactions
Recognition-primed decision-making	Experience-based recognition and plausible action selection	Explains rapid decisions in familiar, demanding situations	Effectiveness depends on relevant experience and cue validity
Ecological dynamics	Interaction among perception, action, and environmental constraints	Supports representative practice and adaptable behaviour	Can be difficult to operationalise consistently across research designs

These perspectives should not necessarily be treated as mutually exclusive explanations. Different sporting situations may place different demands on decision-making, and researchers can select models that best address the task under investigation.

11.7. Decision-Making Under Pressure

11.7.1. Competitive pressure and attentional disruption

Pressure may arise when an athlete perceives that a performance outcome has important consequences. These consequences may include selection, reputation, financial security, team success, or personal expectations.

Pressure can affect decision-making by increasing self-monitoring, intensifying concern about errors, or shifting attention toward irrelevant information. An athlete may begin to consciously control a well-learned movement that is normally executed more automatically. Alternatively, the athlete may rush a decision to escape an uncomfortable situation.

The effects are not uniform. Some athletes maintain or improve performance under pressure, while others experience substantial disruption. Outcomes depend on the task, the athlete's experience, the nature of the pressure, and the strategies available.

11.7.2. Choking under pressure

Choking under pressure describes a marked performance decline in a situation where an athlete has the ability to perform the task but fails to demonstrate that ability under demanding conditions.

Two broad explanations have received considerable attention.

Distraction-based accounts suggest that pressure increases intrusive thoughts and worries, which compete with task-relevant processing for limited cognitive resources.

Explicit-monitoring accounts suggest that pressure can lead athletes to consciously monitor and control components of well-learned movements, disrupting their normally efficient execution.

These mechanisms are not necessarily mutually exclusive. Their relative importance may depend on whether the task requires substantial working memory, whether movement is highly automated, and how the athlete interprets the pressure situation.

Choking should also be distinguished from ordinary mistakes. A single error does not demonstrate a choking response. Assessment requires consideration of the athlete's usual performance, the competitive context, and the pattern of disruption.

11.7.3. Evidence-informed countermeasures

Possible strategies for managing performance disruption under pressure include:

- Practising task-specific routines.
- Using concise attentional cues.
- Rehearsing realistic pressure conditions.
- Developing refocusing strategies after errors.
- Practising relevant skills under representative competitive constraints.
- Reducing unnecessary technical instructions during well-learned movements.
- Reviewing pressure-related thoughts and expectations.

A recent meta-analysis of interventions designed to counter performance decline under pressure reported beneficial effects across several performance outcomes, although effects differed by task type and the robustness of some findings varied

after adjustments for publication bias (see *Counteracting choking under pressure in sport: A meta-analysis of interventions*, 2026).

The evidence supports the potential value of structured interventions but does not justify assuming that any single technique will prevent choking in every athlete. Interventions should be selected according to the task and evaluated during practice before being relied upon in important competitions.

11.8. Mental Fatigue and Cognitive Performance

11.8.1. Defining mental fatigue

Mental fatigue is a psychophysiological state associated with prolonged or demanding cognitive activity. Athletes may experience it after extended concentration, repetitive decision-making, academic demands, travel, or other cognitively demanding activities.

Mental fatigue differs from physical fatigue, although the two may occur together. An athlete may be physically capable of continuing but experience reduced attentional efficiency, greater perceived effort, or difficulty maintaining decision quality.

The effects of mental fatigue depend on the nature and duration of the preceding cognitive activity, the task used to assess performance, and the athlete's individual characteristics.

11.8.2. Effects on sport-related performance

Lu et al. (2026) conducted a systematic review and meta-analysis examining mental fatigue and sport-related reaction time, technical performance, and decision-making. Their findings indicated that experimentally induced mental fatigue was associated with poorer performance across these domains, although the certainty and consistency of evidence differed by outcome.

The authors reported a relatively consistent pattern for decision-making, substantial heterogeneity for technical performance, and a smaller evidence base for sport-specific reaction-time outcomes.

These findings suggest that cognitive demands outside physical training may be relevant to sport preparation. However, they should not be interpreted as proof that all mentally demanding activities inevitably impair athletic performance or that the same effect occurs in every sport.

11.8.3. Practical implications

Coaches and practitioners can consider cognitive demands when planning training and competition preparation. Relevant questions include:

- Has the athlete completed substantial academic or occupational work before training?
- Does the session require repeated high-speed decisions?
- Are athletes experiencing difficulties maintaining attention late in practice?
- Is the schedule allowing adequate recovery between cognitively demanding activities?
- Are technical and tactical tasks being evaluated under comparable conditions?

The objective is not to eliminate cognitive challenge. Decision-making practice necessarily requires information processing and effort. Instead, practitioners should distinguish between productive learning demands and unnecessary cognitive fatigue that may interfere with the intended training objective.

11.9. Developing Attention and Decision-Making Skills

11.9.1. Representative learning design

Representative learning design involves structuring practice so that the information and action opportunities available during training reflect important features of the competitive environment.

In team sports, this may involve small-sided games, constrained tactical scenarios, or exercises that require athletes to respond to opponent movements. Such practice can encourage athletes to detect relevant cues and adapt decisions in changing situations.

By contrast, isolated drills may be useful for learning a technical action but may not fully develop the perception-action relationships required in competition.

Both approaches can have a role. Technical repetition may support the acquisition of a movement, while representative practice helps athletes integrate that movement with perception, decision-making, and tactical context.

11.9.2. Small-sided games and constraint manipulation

Small-sided games can increase the frequency of particular decisions by changing the number of players, playing area, rules, or scoring conditions. For example,

reducing the playing area may increase the frequency of close-range interactions, while changing the number of permitted touches may influence passing decisions.

Constraint manipulation should be purposeful. A drill may increase the number of decisions but also change the tactical problem so substantially that transfer to competition becomes uncertain.

Coaches should identify the behaviour they intend to develop, manipulate the relevant constraint, and observe whether the targeted behaviour changes. They should also consider whether the drill preserves the essential information needed for appropriate decisions.

11.9.3. Video-based anticipation training

Video-based training can expose athletes to realistic sporting situations and allow repeated examination of relevant cues. A practitioner may pause a video before an outcome occurs and ask the athlete to predict the next action.

The method can be useful for investigating cue recognition, tactical understanding, and anticipation. However, video-based performance may not transfer automatically to live play because the athlete does not necessarily need to coordinate perception with physical movement in the same way.

Where feasible, video training should be combined with on-field or court-based practice that requires athletes to respond to the same information under realistic time and movement constraints.

11.9.4. Virtual reality and immersive technologies

Virtual reality and other immersive technologies offer opportunities to simulate sporting environments, manipulate visual information, and repeat decision scenarios. They may be particularly useful when certain situations are difficult to reproduce consistently in ordinary training.

However, immersive training should be evaluated according to its validity, accessibility, and transfer to actual sport performance. A virtual task may improve performance within the simulation without producing equivalent improvements in competition.

Technical limitations, visual realism, movement constraints, equipment cost, and individual tolerance should also be considered. Immersive technologies are best treated as potential additions to a broader training programme rather than automatic replacements for field-based practice.

11.9.5. Perceptual-cognitive training and transfer

Perceptual-cognitive training aims to improve the identification and interpretation of relevant information, anticipation, and response selection. Transfer refers to the extent to which improvements in the training task generalise to other tasks or actual competition.

Transfer should not be assumed merely because an athlete improves on a computer-based or video-based exercise. Stronger evidence requires assessment of performance in tasks that preserve important characteristics of the competitive environment.

Practitioners should distinguish among:

1. **Acquisition:** improvement during the training task.
2. **Retention:** maintenance of the improvement after a period without practice.
3. **Near transfer:** improvement in a similar task.
4. **Far transfer:** improvement in a substantially different task or broader performance domain.
5. **Competitive transfer:** demonstrable improvement in relevant competition behaviour or performance.

This distinction is particularly important when evaluating commercial cognitive-training systems or technologies that make broad claims about improving general sporting intelligence.

11.10. Assessment of Attention and Decision-Making

11.10.1. Principles of assessment

Assessment should be aligned with the construct of interest and the demands of the sport. A general attention test may provide information about performance on a laboratory task, but it may not capture the perceptual and tactical demands of a competitive environment.

A useful assessment strategy should consider reliability, validity, ecological relevance, and the consequences of measurement error. Researchers and practitioners should also distinguish between cognitive capacity, sport-specific skill, and actual competitive performance.

11.10.2. Common assessment approaches

Laboratory cognitive tasks. These may assess reaction time, selective attention, inhibitory control, working memory, or task switching. They can provide controlled measurements but may have limited ecological validity.

Video-based anticipation tasks. Athletes observe sport-specific situations and predict the next action. These tasks can assess the identification of cues and response selection, although they do not fully reproduce live movement and environmental interaction.

Gaze tracking. Eye-tracking systems can measure fixation location, fixation duration, and aspects of visual search. Interpretation requires knowledge of the task and the information available to the athlete.

Sport-specific decision tasks. These tasks present athletes with representative situations requiring tactical or technical choices. They can provide more contextually relevant information but may be difficult to standardise.

Performance observation. Coaches and analysts may code decisions during training or competition, including decision appropriateness, response timing, and execution outcomes. Coding systems should be clearly defined and, where possible, assessed for inter-rater reliability.

Self-report and reflective methods. Athletes may describe attentional difficulties, perceived pressure, and decision-making experiences. These reports provide valuable contextual information but should not be treated as objective evidence of cognitive performance on their own.

11.10.3. Distinguishing decision quality from outcome

A critical methodological issue is the distinction between the quality of a decision and the result that follows.

A football player may select an appropriate passing option, but the pass may fail because of poor execution or an unexpected defensive movement. Another player may make a tactically weak decision that succeeds because of an opponent's mistake.

Decision evaluation should therefore consider the information available at the time, the relevant tactical objectives, and the available alternatives. Outcome data remain important, but they should not be the sole criterion used to judge decision quality.

11.10.4. Combining methods

A comprehensive assessment may combine laboratory tasks, video-based measures, field observations, and athlete interviews. This approach can help distinguish a general cognitive difficulty from a sport-specific problem.

For example, an athlete may perform well on a general reaction-time task but struggle to anticipate opponent behaviour. This pattern would suggest that the primary limitation may involve sport-specific information processing rather than simple response speed.

The assessment should inform training decisions and be reviewed periodically. Measures should not be used to label athletes as inherently intelligent or unintelligent, nor should a single test determine selection or deselection without adequate evidence of validity for that purpose.

11.11. An Applied Framework for Cognitive Skill Development

The following framework offers a structured approach to developing attention and decision-making in sport.

Stage 1: Identify the performance problem

The practitioner and coach define the specific difficulty. Examples include late recognition of tactical cues, attentional lapses after errors, inconsistent visual search, or poor decisions under time pressure.

The problem should be described behaviourally rather than through vague labels such as "low concentration" or "poor sporting intelligence."

Stage 2: Analyse task demands

The practitioner identifies the information required for successful performance, the available time, relevant environmental constraints, and the decisions the athlete must make.

This analysis should distinguish perceptual, cognitive, emotional, and execution-related demands.

Stage 3: Establish a baseline

Baseline information may include video analysis, observation, response accuracy, decision quality, attentional behaviour, or the frequency of specific errors.

The baseline should be collected under conditions that are sufficiently representative of the target task.

Stage 4: Select an intervention

The intervention should target the identified difficulty. Options may include attentional cues, representative practice, video-based anticipation, task-specific routines, or modifications to training constraints.

The intervention should have a clear rationale and should not introduce unnecessary complexity.

Stage 5: Practise progressively

Athletes begin in manageable conditions and progress toward more demanding tasks. Practice may include increasing time pressure, adding opponents, changing tactical constraints, or introducing realistic distractions.

Progression should be based on learning and task requirements rather than on the assumption that more pressure is always better.

Stage 6: Evaluate transfer

The practitioner examines whether improvements are retained and whether they generalise to relevant sport tasks. Where possible, assessment should include live practice and competitive performance.

Improvements on a training exercise should not be interpreted as proof of competitive transfer without appropriate evidence.

Stage 7: Refine and maintain

The intervention is adapted according to the athlete's response, changing competitive demands, and new performance information. Skills should be revisited periodically to support retention and continued development.

Table 11.1. Examples of cognitive performance problems and intervention strategies

Performance problem	Potential contributing process	Possible intervention	Evaluation indicator
Late recognition of opponent movement	Limited cue recognition or inefficient visual search	Video-based anticipation and representative practice	Accuracy and timing of predictions
Distraction after an error	Intrusive thoughts or attentional capture	Refocusing routine and concise task cue	Time required to return to task-relevant behaviour
Inconsistent execution of a precision skill	Unstable attentional routine or unnecessary self-monitoring	Task-specific pre-performance routine	Accuracy and consistency across repeated trials

Performance problem	Potential contributing process	Possible intervention	Evaluation indicator
Poor tactical decisions in changing situations	Limited pattern recognition or inadequate contextual practice	Small-sided games and constraint manipulation	Decision appropriateness under representative conditions
Reduced decision quality late in training	Mental fatigue or excessive cognitive demands	Review workload, recovery, and task sequencing	Performance trends across the session
Difficulty responding under pressure	Attentional disruption or altered movement control	Representative pressure practice and task-specific routines	Performance stability under graded pressure

Note. The proposed interventions are illustrative. Assessment is necessary to determine whether the hypothesised process is actually contributing to the observed difficulty.

11.12. Ethical and Practical Considerations

11.12.1. Individual differences

Athletes differ in experience, sensory capacities, attentional preferences, and responses to training. A strategy that is effective for one athlete may be less suitable for another.

Practitioners should avoid assigning fixed cognitive profiles based on limited testing. Assessment results should be interpreted within the context of the sport, the athlete's training history, and the task being measured.

11.12.2. Avoiding excessive cognitive load

More instructions do not necessarily produce better learning. Athletes may struggle when coaches provide several technical cues during a fast and complex movement.

Instruction should prioritise the most important information for the task. Where appropriate, coaches can introduce one cue at a time and evaluate whether it supports execution before adding further demands.

11.12.3. Responsible use of cognitive technologies

Cognitive-training applications, eye-tracking systems, and immersive simulations can provide useful information, but their claims should be evaluated critically.

Organisations should consider data privacy, informed participation, measurement validity, accessibility, and the extent to which performance improvements

transfer to real sport. Technology should support professional judgment rather than replace it.

11.12.4. Mental health and cognitive performance

Persistent attentional difficulties may sometimes be associated with sleep problems, psychological distress, medication effects, medical conditions, or excessive workload. Such difficulties should not automatically be interpreted as insufficient effort or a lack of discipline.

When concerns are persistent or significantly impair functioning, appropriate professional assessment may be necessary. Coaches should remain within their scope of practice and avoid diagnosing medical or psychological conditions.

11.13. Methodological Limitations and Future Research

11.13.1. Ecological validity

A recurring challenge in sport cognition research is the gap between controlled laboratory tasks and actual competitive performance. Laboratory tasks permit precise measurement but may remove the contextual information and action constraints that shape sport decisions.

Future research should combine controlled experimentation with representative field tasks. This would help clarify which cognitive processes are important in competition and how laboratory findings translate into practical training.

11.13.2. Generalisation and transfer

Improvements on a specific cognitive task do not necessarily generalise to broader sporting performance. Research should distinguish between task acquisition, retention, near transfer, and competitive transfer.

Studies should also investigate whether interventions remain effective when athletes encounter unfamiliar opponents, changing tactics, fatigue, and other real-world demands.

11.13.3. Mental fatigue and performance domains

The 2026 meta-analysis by Lu et al. illustrates the importance of analysing different performance domains separately. Reaction time, technical execution, and decision-making are related but distinct outcomes, and they may respond differently to mental fatigue.

Future studies should use clearly defined primary outcomes, report relevant statistical information, and investigate how cognitive fatigue interacts with physical fatigue, training load, sleep, and competitive context.

11.13.4. Individual and sport-specific differences

Sport types vary in the amount of time available for decisions, the predictability of environmental information, and the relationship between perception and action. Research findings from one sport should therefore not be transferred automatically to another.

Studies should examine how expertise develops in different sports and whether the same training approach has different effects in open-skill and closed-skill contexts.

11.13.5. Technology and measurement

Eye tracking, immersive technologies, and computational approaches may help researchers investigate attention and decision-making in increasingly realistic settings. However, these tools require careful validation and transparent reporting.

Future research should examine whether new technologies measure the intended construct, whether findings replicate across settings, and whether technological training produces meaningful improvements in real sporting behaviour.

11.14. Conclusion

Attention, concentration, perceptual-cognitive expertise, and decision-making are central components of effective sport performance. Athletes must select relevant information, manage distraction, anticipate changing situations, and choose actions that fit the demands of the task.

The research literature indicates that expert performers often differ from less experienced athletes in their ability to recognise meaningful cues, organise visual attention, and respond accurately under time constraints. These differences are sport-specific and shaped by experience, task structure, and environmental information rather than by a single general cognitive capacity.

Decision-making in sport can be understood through complementary perspectives. Information-processing models help identify stages of cognitive performance, recognition-primed approaches explain rapid decisions based on experience, and ecological dynamics highlights the continuous interaction between perception, action, and environmental constraints.

Performance pressure and mental fatigue may disrupt attention and decision-making, although their effects vary across athletes and tasks. Evidence-informed approaches include representative practice, attentional cueing, video-based anticipation, structured pre-performance routines, and carefully evaluated perceptual-cognitive training.

Effective development requires a systematic process: identify the performance problem, analyse task demands, establish a baseline, select an appropriate intervention, practise progressively, evaluate transfer, and refine the approach. Assessment should distinguish decision quality from the outcome of a particular action and should not rely on a single cognitive test to determine an athlete's potential.

Ultimately, cognitive expertise in sport is not simply a matter of concentrating harder or reacting faster. It involves learning what information matters, recognising patterns, adapting to changing constraints, and selecting appropriate actions under realistic conditions. Integrating these capacities into everyday training can support more informed decision-making and a more comprehensive understanding of athletic expertise.

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CHAPTER 12: Confidence, Self-Efficacy, and Competitive Performance in Sport

12.1. Introduction

Confidence is one of the most frequently discussed psychological characteristics in competitive sport. Coaches often encourage athletes to believe in their abilities, athletes describe confidence as a prerequisite for successful performance, and sport psychology practitioners commonly include confidence-related strategies in psychological skills training. However, confidence is more complex than a general feeling of positivity. It involves beliefs about capability, expectations regarding performance, interpretations of previous experiences, and judgments about whether the resources required for a particular task are available.

Athletes may demonstrate high confidence during training but experience uncertainty before an important competition. Others may remain confident after a defeat because they interpret the result as a temporary setback rather than evidence of inadequate ability. Some athletes perform successfully despite low subjective confidence, while others report strong confidence without achieving their intended results. These patterns illustrate why confidence should be examined in relation to task demands, preparation, experience, and the competitive environment.

An important distinction exists between general self-confidence, sport confidence, and self-efficacy. Self-confidence is a broad term referring to perceived capability or assurance. Sport confidence concerns an athlete's beliefs about their capacity to succeed in sporting situations. Self-efficacy refers more specifically to beliefs about one's capability to organise and execute the actions required to attain a particular performance or outcome (Bandura, 1997). These constructs overlap, but they are not interchangeable.

Self-efficacy theory provides a particularly useful framework for understanding how beliefs about capability influence effort, persistence, emotional responses, and behaviour. According to Bandura (1997), efficacy beliefs are informed by mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states. In sport, these sources may include previous successful performances, observing skilled athletes, receiving credible feedback, and interpreting bodily responses before competition.

Research generally supports a positive association between confidence-related beliefs and sport performance. Moritz et al. (2000) reported an average correlation of .38 between self-efficacy and sport performance across 45 studies.

More recent evidence suggests a smaller average relationship for pre-competition self-confidence, illustrating that estimates depend on the construct measured and the studies included. Lochbaum et al. (2023), for example, synthesised evidence on pre-event self-efficacy and sport performance, while Jekauc et al. (2025) reported an overall correlation of approximately .30 between self-confidence and subsequent performance, with substantial variation across studies. These findings support the relevance of confidence without establishing that confidence alone determines performance.

Confidence should therefore be understood as a psychological resource that interacts with preparation, skill, motivation, attention, emotional regulation, and environmental conditions. Excessively low confidence may discourage athletes from attempting difficult tasks or persisting after setbacks. Conversely, confidence that is poorly calibrated to actual capability may encourage unrealistic expectations, inadequate preparation, or inappropriate risk-taking.

This chapter examines the conceptual foundations of confidence and self-efficacy, their theoretical explanations, the sources through which they develop, and their relationships with competitive performance. It also addresses confidence fluctuations, the consequences of setbacks, collective efficacy, coaching practices, assessment, and evidence-informed interventions.

The central argument is that effective confidence is not simply the belief that success is inevitable. It is a realistic, task-relevant, and adaptable belief in one's capacity to respond effectively to the demands of sport.

12.2. Conceptualising Confidence and Self-Efficacy

12.2.1. General self-confidence

Self-confidence is commonly understood as an individual's belief or assurance regarding their ability to perform effectively. In sport, it may refer to confidence in technical skills, tactical judgment, physical readiness, emotional control, or the ability to respond to competitive pressure.

Confidence can vary across situations. An athlete may feel confident in familiar training exercises but less certain when competing against a highly experienced opponent. A player may trust their technical ability while doubting their capacity to recover emotionally after making an error.

Consequently, confidence should not be treated as a completely stable personal characteristic. Although athletes may differ in their general tendencies to feel confident, their confidence can fluctuate according to recent performance,

preparation, social feedback, injury, selection decisions, and perceived competitive demands.

A useful distinction is between **trait confidence** and **state confidence**. Trait confidence refers to a relatively stable tendency to believe in one's capabilities across situations. State confidence refers to confidence experienced at a particular time, such as immediately before a competition. Both may be relevant, but they answer different questions.

Trait confidence may help describe an athlete's general psychological orientation, whereas state confidence can provide information about readiness for a specific event. An assessment of state confidence should therefore be interpreted in relation to the timing and circumstances of the measurement.

12.2.2. Self-efficacy

Self-efficacy is a central construct in Bandura's social cognitive theory. It concerns beliefs about one's capability to organise and execute the actions required to manage prospective situations (Bandura, 1997).

Self-efficacy is task-specific and should be distinguished from general optimism, self-esteem, and broad personality confidence. An athlete may have high self-efficacy for executing a familiar technical skill but low self-efficacy for competing successfully under unfamiliar conditions.

Bandura (1997) identified three important dimensions of efficacy beliefs:

Magnitude or level. The difficulty of tasks that an individual believes they can perform. For example, a runner may believe they can maintain a particular pace over a moderate distance but be uncertain about sustaining it over a longer event.

Strength. The degree of certainty attached to the belief. An athlete may believe that a skill is possible but remain easily discouraged by setbacks, whereas another may hold the belief more firmly.

Generality. The extent to which efficacy beliefs extend across tasks or situations. Confidence in one sporting skill does not automatically transfer to every other skill or competitive circumstance.

These dimensions demonstrate why broad statements such as "the athlete is confident" may provide insufficient information for applied decision-making. A more useful assessment asks what the athlete believes they can do, under which conditions, and with what degree of certainty.

12.2.3. Sport confidence

Vealey's (1986) model of sport confidence was developed specifically to examine confidence in sporting contexts. It distinguishes sport-confidence orientation from sport-confidence state and considers how situational factors, individual characteristics, and competitive outcomes relate to confidence.

The model provides a useful conceptual basis for examining why athletes differ in their confidence before competition and how confidence may be influenced by their sporting experiences.

Sport confidence can involve beliefs about technical competence, physical readiness, psychological skills, tactical understanding, and the ability to perform under pressure. These beliefs may be informed by training history, previous competition, coaching feedback, social comparison, and perceptions of the competitive environment.

Confidence can also differ across domains within the same athlete. A player may trust their technical ability but lack confidence in leadership, while an endurance athlete may believe in their physical preparation but feel uncertain about pacing decisions. Such differences have practical implications because an intervention should address the particular source of uncertainty rather than attempt to increase confidence indiscriminately.

12.2.4. Distinguishing self-efficacy, confidence, self-esteem, and outcome expectations

Several psychological constructs are often used interchangeably in everyday sport discussions, although they refer to different processes.

Self-efficacy concerns perceived capability to perform the actions required by a task.

Sport confidence concerns beliefs about one's capacity to succeed in sport and may incorporate several sources of perceived competence.

Self-esteem concerns evaluations of personal worth. An athlete may experience high self-efficacy for a particular task while maintaining low self-esteem, or may have high self-esteem while feeling uncertain about a specific sporting challenge.

Outcome expectations concern beliefs about the likely consequences of a behaviour. An athlete may believe they can execute a skill successfully but remain uncertain whether doing so will lead to victory because the opponent is also highly capable.

These constructs can influence one another, but they should not be assumed to represent the same variable. For example, an athlete who doubts that a particular action will produce the desired outcome may still possess strong confidence in their ability to execute it.

The distinction is important for assessment and intervention. If an athlete believes they lack the ability to perform a task, skill development and mastery experiences may be required. If the athlete believes they can perform the task but expects the result to be unfavourable for reasons outside their control, the intervention may need to address outcome expectations, tactical planning, or realistic appraisal.

12.3. Theoretical Foundations of Self-Efficacy in Sport

12.3.1. Social cognitive theory

Bandura's social cognitive theory proposes that human functioning emerges through reciprocal interactions among personal factors, behaviour, and environmental influences (Bandura, 1986, 1997). This perspective challenges explanations that attribute athletic performance exclusively to personal characteristics or external conditions.

Within sport, an athlete's beliefs may influence effort, persistence, and emotional responses. Their behaviour subsequently affects performance experiences, while the social environment shapes feedback, opportunities for learning, and interpretations of success or failure.

For example, an athlete who believes they can improve a technical skill may practise more consistently, seek feedback, and persist through initial errors. These behaviours may create opportunities for mastery experiences that further strengthen self-efficacy. Conversely, an athlete who interprets early difficulties as evidence of permanent inability may reduce practice or avoid demanding tasks, limiting opportunities for improvement.

These processes are not automatic. High self-efficacy cannot compensate fully for inadequate skill, insufficient preparation, injury, or environmental constraints. The theory is most useful when confidence is understood as one component of a wider system of personal, behavioural, and environmental influences.

12.3.2. Efficacy beliefs and task selection

Self-efficacy can influence the challenges individuals are willing to undertake. Athletes who believe they can manage a task may be more willing to attempt it, while those who doubt their capability may avoid it or choose less demanding alternatives.

In training, this relationship can influence participation in challenging drills, willingness to compete, and persistence when a skill becomes difficult. However, avoidance should not automatically be interpreted as a confidence deficit. An athlete may reasonably avoid a task because of injury, inadequate preparation, safety concerns, or a strategic decision.

Effective assessment must therefore distinguish unhelpful avoidance from appropriate risk management.

12.3.3. Self-efficacy, effort, and persistence

Self-efficacy may influence the effort athletes invest and the duration for which they persist when encountering difficulty. Athletes who believe they can improve may interpret setbacks as temporary obstacles that can be addressed through practice.

However, persistence is not always beneficial. Continuing an ineffective strategy without considering new information can waste resources or increase injury risk. High-quality self-regulation requires athletes to persist when appropriate and modify their approach when evidence indicates that change is necessary.

Self-efficacy should therefore support informed persistence rather than unconditional persistence.

12.3.4. Self-efficacy and emotional responses

Beliefs about capability can influence how athletes interpret demanding situations. A challenge perceived as manageable may elicit determination or excitement, whereas the same challenge may produce anxiety when interpreted as exceeding available resources.

These relationships are reciprocal. Emotional states may influence efficacy judgments, while efficacy beliefs may influence emotional responses. An athlete who experiences anxiety may interpret the feeling as evidence of inadequate preparation, or may recognise it as a normal response to a meaningful competition.

The relationship between self-efficacy and emotion should not be reduced to a simple claim that confidence eliminates anxiety. Athletes can experience strong anxiety while maintaining task-specific efficacy beliefs, and confidence may coexist with realistic recognition of uncertainty.

12.4. Sources of Self-Efficacy

Bandura (1997) identified four principal sources of self-efficacy: mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states. These sources provide a useful framework for understanding how sport confidence develops.

12.4.1. Mastery experiences

Mastery experiences involve direct experience of performing a task successfully. They are generally considered a particularly influential source of self-efficacy because they provide personal evidence about capability.

In sport, mastery experiences may include executing a technical skill consistently, improving a performance measure, completing a challenging training session, or implementing a tactical plan successfully.

The interpretation of an experience matters. An athlete may perform successfully but attribute the result entirely to luck, unusually favourable conditions, or an opponent's mistake. In such circumstances, the experience may contribute less to efficacy beliefs than an athlete's objective performance would suggest.

Conversely, an athlete may experience a disappointing result but recognise evidence of improvement in technical execution, decision-making, or effort. Such an interpretation can preserve task-specific self-efficacy despite an unfavourable competitive outcome.

Coaches can support mastery experiences by designing progressive challenges, providing specific feedback, and helping athletes identify the behaviours that contributed to improvement.

12.4.2. Vicarious experiences

Vicarious experiences occur when individuals observe others performing a task and use that information to evaluate their own capability.

Athletes may learn by watching teammates, experienced performers, or athletes with similar backgrounds and abilities. Observing a peer overcome a difficulty can make a challenging task appear more attainable.

The effectiveness of modelling depends partly on perceived similarity. An athlete may find a model more informative when the model's initial ability, training history, or constraints resemble their own. Observing an elite performer can still be valuable, but the observer may struggle to translate the performance into realistic expectations if the differences in experience are substantial.

Modelling should therefore emphasise relevant processes, such as preparation, technical adjustment, persistence, and response to errors, rather than presenting successful outcomes as effortless achievements.

12.4.3. Verbal persuasion

Verbal persuasion includes feedback, encouragement, instruction, and other messages intended to influence beliefs about capability.

Coaches often use verbal persuasion to support confidence before competition or after setbacks. However, encouragement is most useful when it is credible, specific, and connected to evidence.

Statements such as "you can do anything" may sound supportive but provide little information about task requirements or the athlete's actual preparation. More useful feedback identifies demonstrated strengths and the actions that can support successful performance.

For example, a coach might explain that the athlete has executed the relevant movement consistently in recent training and identify the key cue to maintain during competition. This message connects confidence to observable preparation rather than relying on unsupported reassurance.

Verbal persuasion cannot replace skill development. If an athlete repeatedly struggles with a task, the appropriate response may involve additional instruction, practice, or modification of the challenge rather than increasingly emphatic encouragement.

12.4.4. Physiological and affective states

Athletes use bodily sensations and emotional experiences when evaluating their readiness. Increased heart rate, muscular tension, sweating, and changes in breathing may be interpreted as signs of anxiety, excitement, or preparation.

The same physiological response can be interpreted differently by different athletes. One athlete may view an elevated heart rate as evidence of losing control, while another may interpret it as a normal sign of competitive readiness.

Psychological preparation can help athletes develop more balanced interpretations of these experiences. Breathing strategies, routines, and realistic appraisals may support this process, although they should not be expected to eliminate every uncomfortable sensation.

The goal is not to convince athletes that all physiological states are beneficial. Pain, unusual symptoms, injury concerns, or signs of illness should not be

dismissed as ordinary competition anxiety. Accurate interpretation includes recognising when professional medical assessment is necessary.

Table 12.1. Sources of self-efficacy and their applications in sport

Source	Description	Sporting example	Practical implication
Mastery experiences	Direct evidence of successful performance	Completing a progressively more difficult technical task	Design achievable but meaningful challenges and review progress
Vicarious experiences	Learning through observation of others	Watching a teammate use an effective response to pressure	Select relevant models and discuss the processes underlying success
Verbal persuasion	Feedback and encouragement from others	Receiving specific, evidence-based feedback from a coach	Provide credible messages linked to preparation and observable behaviour
Physiological and affective states	Interpretation of bodily sensations and emotions	Reframing pre-competition arousal as a manageable response	Develop realistic appraisal and appropriate regulation strategies

Note. These sources interact. Their relative influence depends on the athlete, the task, previous experience, and the credibility of the information received.

12.5. Confidence and Competitive Performance

12.5.1. Evidence from meta-analyses

The relationship between confidence and sport performance has been examined in several meta-analyses. These studies provide stronger evidence than isolated findings because they synthesise results across multiple investigations, while also allowing researchers to examine variation between studies.

Moritz et al. (2000) analysed 45 studies comprising 102 correlations and reported an average relationship of approximately .38 between self-efficacy and sport performance. Their findings also indicated that the relationship was moderated by the correspondence between the self-efficacy measure and the performance criterion.

Lochbaum et al. (2023) conducted a systematic review and meta-analysis of pre-event self-efficacy and sport performance. Their work provides a more focused examination of beliefs assessed before sporting performance and the subsequent outcomes used to evaluate performance.

Jekauc et al. (2025) examined the relationship between self-confidence and sport performance through a meta-analysis and narrative review. Across 31 studies involving 52 samples, the overall correlation was approximately .30, although substantial heterogeneity was present.

These estimates should not be interpreted as directly interchangeable. The studies differed in the constructs measured, timing of assessment, sporting contexts, and performance indicators. Self-efficacy and general sport confidence are related but distinct, and a correlation obtained for one construct should not automatically be applied to the other.

12.5.2. Interpreting correlation coefficients

A correlation coefficient indicates the direction and strength of an association between two variables. A positive correlation between confidence and performance means that higher confidence tends to occur alongside better performance within the data analysed.

Correlation does not establish that confidence directly causes improved performance. Several alternative explanations are possible.

First, confidence may influence effort, attention, or persistence, which may contribute to performance. Second, previous success may increase confidence, meaning that performance also influences subsequent confidence. Third, both variables may be influenced by preparation, skill, experience, or other factors.

These processes can occur simultaneously. Consequently, the relationship between confidence and performance is best understood as potentially reciprocal and context-dependent.

12.5.3. Confidence as a performance resource

Confidence may support performance through several mechanisms.

Effort regulation. Athletes who believe they can succeed may be more willing to invest effort in demanding tasks.

Persistence. Efficacy beliefs may support continued engagement when athletes encounter difficulty, provided that persistence remains appropriate to the task.

Attentional regulation. Confidence may reduce the tendency to become preoccupied with doubts, allowing athletes to direct attention toward relevant cues.

Coping. Athletes who believe they can manage competitive demands may be more willing to use coping strategies and respond constructively to setbacks.

Decision-making. Task-specific confidence may help athletes commit to a prepared action rather than hesitate unnecessarily. However, confidence must remain calibrated to the situation and should not discourage reconsideration when new information becomes available.

These mechanisms are plausible explanations for the confidence-performance relationship, but they should not be assumed to operate identically in every athlete or sport.

12.5.4. Confidence and performance are not equivalent

An athlete can perform well without reporting high confidence, and a confident athlete can perform poorly. This distinction is important for coaches because visible confidence should not be treated as definitive evidence of readiness.

An athlete may experience uncertainty while following an effective preparation routine and executing a technically sound performance. Another athlete may express strong confidence while displaying inadequate preparation or poor tactical judgment.

Confidence should therefore be evaluated alongside observable indicators of preparation, skill, decision quality, recovery, and performance. It is a psychological resource, not a substitute for competence.

12.6. The Relationship Between Confidence, Anxiety, and Pressure

12.6.1. Confidence and competitive anxiety

Competitive anxiety may involve cognitive concerns, such as fear of failure, and physiological responses, such as increased heart rate or muscular tension. Confidence and anxiety can influence one another, but they are not opposite ends of a single continuum.

An athlete can be anxious and confident simultaneously. For example, a competitor may recognise the importance of a final and experience substantial arousal while remaining confident in their preparation.

The interpretation of anxiety is particularly important. An athlete who interprets arousal as evidence of inadequate ability may experience additional uncertainty, whereas an athlete who views it as a manageable response may remain more task-focused.

However, encouraging athletes to interpret every anxiety response positively would be simplistic. Anxiety may sometimes indicate that an athlete perceives a genuine lack of preparation, excessive pressure, or inadequate support. The appropriate response may require changes to preparation or the environment rather than reinterpretation alone.

12.6.2. Confidence and choking under pressure

Performance pressure can disrupt the execution of well-learned skills, and confidence may influence how athletes respond to these demands.

Athletes with task-specific confidence may be better positioned to follow established routines and direct attention toward relevant information. However, high confidence does not guarantee protection against performance disruption.

The mechanisms of choking may include distraction, excessive conscious control of automated movement, and concerns about the consequences of failure. Confidence-related interventions should therefore be integrated with attentional control, routine development, and representative pressure practice.

12.6.3. Calibrated confidence

Calibrated confidence refers to the degree to which an athlete's belief in their capability corresponds to relevant evidence about their actual performance and preparation.

Underconfidence may lead athletes to avoid appropriate challenges, hesitate unnecessarily, or underestimate their ability to execute a task. Overconfidence may lead to inadequate preparation, failure to consider risks, or dismissal of useful feedback.

Calibration does not require athletes to predict every result accurately. Sport contains uncertainty, and even well-prepared athletes cannot control all competitive outcomes. Instead, calibration involves maintaining beliefs that are responsive to evidence and appropriately sensitive to task demands.

Coaches can support calibration by providing accurate feedback, encouraging reflection, and distinguishing between performance outcomes and the quality of preparation or execution.

12.7. Confidence Across Different Sporting Contexts

12.7.1. Individual sports

In individual sports, athletes may experience direct responsibility for performance outcomes and limited opportunities to share competitive demands with teammates during the event. Confidence may therefore be particularly salient in relation to task execution, self-regulation, and responses to errors.

However, individual sports still involve social influences. Coaches, training partners, family members, and competitors may shape confidence through feedback, comparison, and expectations.

The relevant confidence target should be specific. A swimmer may have confidence in their start but uncertainty about pacing, while a gymnast may trust their physical preparation but doubt a particular skill under competition conditions.

12.7.2. Team sports

In team sports, individual confidence interacts with collective expectations, tactical roles, communication, and beliefs about teammates. A player may have high confidence in personal skill but limited confidence in the team's ability to coordinate effectively.

Confidence in team settings can also influence communication and participation. Players who believe in their capacity to contribute may be more willing to request the ball, attempt a pass, or communicate tactical information. However, these behaviours should remain consistent with the team's tactical objectives.

Coaches should avoid treating visible assertiveness as a direct measure of competence. Quiet athletes may possess strong task-specific efficacy, while highly vocal athletes may overestimate their capability in particular situations.

12.7.3. Precision sports

Precision sports often involve repeated execution of highly specific movements under conditions in which small errors can influence outcomes. Confidence may be relevant to pre-performance routines, attentional consistency, and the interpretation of minor technical variations.

In these sports, confidence-building should be integrated with technical preparation and objective performance feedback. Excessive reassurance cannot replace reliable execution, and repeated technical changes based on temporary fluctuations may undermine consistency.

12.7.4. Endurance sports

Endurance athletes must regulate effort over extended periods and respond to fatigue, discomfort, and changing environmental conditions. Self-efficacy may influence beliefs about maintaining pace, completing a planned distance, and managing difficult phases of an event.

However, confidence should not encourage athletes to ignore injury symptoms, heat illness, or other safety concerns. Appropriate performance decisions require a balance between confidence, physiological information, and realistic evaluation of conditions.

12.7.5. Youth and developing athletes

Confidence development in youth sport should account for developmental stage, learning opportunities, and the influence of adult feedback. Young athletes may be especially sensitive to public evaluation and social comparison.

A supportive environment should emphasise learning, improvement, effort, and appropriate challenge rather than communicating that ability is fixed or that mistakes indicate a lack of talent.

Confidence should be developed through meaningful participation and skill acquisition, not solely through praise. Feedback that recognises specific behaviours can help young athletes understand how improvement occurs and how they can contribute to their own development.

12.8. Collective Efficacy and Team Confidence

12.8.1. Defining collective efficacy

Collective efficacy refers to a group's shared belief in its capacity to organise and execute the actions required to achieve a particular goal. In sport, it concerns a team's belief in its collective capability rather than the sum of individual athletes' confidence ratings.

A team may contain highly confident individuals but lack confidence in its ability to coordinate defence, maintain tactical discipline, or recover from an unfavourable score. Conversely, individual athletes may have some doubts about their own ability while trusting the team's collective capacity.

Collective efficacy is therefore a distinct construct. It should be measured and interpreted in relation to the group's tasks, shared goals, and interactions.

12.8.2. Sources of collective efficacy

Collective efficacy may be informed by previous team success, shared preparation, observation of effective teamwork, leadership, communication, and beliefs about teammates' capabilities.

Successful collective experiences can provide evidence that team members are capable of coordinating their actions. However, a favourable result does not necessarily demonstrate that the team has developed reliable processes. A team may win despite tactical weaknesses or favourable circumstances.

Coaches can support collective efficacy by helping athletes identify the behaviours that contributed to effective performance, reinforcing role clarity, and creating opportunities to practise coordinated responses under pressure.

12.8.3. Collective efficacy and team performance

Collective efficacy may influence the effort teams invest, their persistence after setbacks, and their confidence in executing shared plans. It may also be influenced by performance outcomes and the quality of team relationships.

The relationship is likely to be reciprocal. Successful coordination can strengthen collective efficacy, while shared confidence may encourage sustained effort and commitment to team objectives.

However, collective efficacy should not be confused with group optimism. A team that believes strongly in its ability but fails to recognise tactical weaknesses may be less prepared than a team that combines confidence with realistic analysis.

Effective team confidence therefore includes belief in collective capability alongside openness to feedback and adaptation.

12.9. Coaching Practices That Support Confidence

12.9.1. Mastery-oriented training

Coaches can support confidence by designing training tasks that allow athletes to experience progress while maintaining meaningful challenge.

If a task is consistently too difficult, athletes may interpret repeated failure as evidence of inability. If it is consistently too easy, successful performance may provide limited evidence of readiness for competition.

Progressive training should therefore adjust task difficulty as skills develop. Athletes should have opportunities to demonstrate competence, identify areas for improvement, and apply feedback under increasingly demanding conditions.

12.9.2. Constructive feedback

Feedback can influence confidence through the information it provides about capability, progress, and the requirements of future performance.

Useful feedback is specific, credible, and linked to observable behaviour. It identifies what the athlete did effectively, what requires adjustment, and what action should follow.

General praise may provide temporary reassurance but does not necessarily help athletes understand how to improve. Similarly, harsh criticism may undermine confidence without providing actionable information.

A balanced feedback approach recognises both successful behaviour and areas requiring development. It also allows athletes to ask questions and contribute to the interpretation of performance.

12.9.3. Autonomy-supportive coaching

Autonomy-supportive coaching involves recognising athletes' perspectives, explaining the rationale for expectations, and providing appropriate opportunities for choice and participation in decision-making.

Such practices may help athletes develop a stronger sense of ownership over their preparation. When athletes understand why a training task matters and how their actions contribute to improvement, they may be better positioned to regulate effort and evaluate progress.

Autonomy support does not mean eliminating structure or accountability. Coaches can establish clear standards while encouraging athletes to understand and engage with the process.

12.9.4. Avoiding social comparison as the primary motivational tool

Social comparison is common in sport, but its effects depend on how it is used and interpreted. Observing a skilled athlete may provide a useful model, while repeated comparison with teammates may undermine confidence when differences in experience or preparation are ignored.

Coaches should avoid using public rankings or humiliating comparisons as the primary means of motivating athletes. Such practices can shift attention from skill development toward status and fear of failure.

Individual progress, task-specific competence, and relevant performance indicators can provide more informative criteria for evaluating development.

12.9.5. Building confidence without creating dependency

Athletes benefit from encouragement and feedback, but confidence should not depend entirely on constant external reassurance.

Coaches can help athletes develop independent evaluation skills by asking them to identify evidence of preparation, recognise successful actions, and determine what adjustments are needed. Over time, this process may help athletes develop more stable and evidence-based efficacy beliefs.

The objective is not to eliminate the role of coaches. Rather, it is to help athletes internalise useful evaluation strategies and become increasingly capable of regulating their own preparation.

12.10. Confidence After Failure, Injury, and Setbacks

12.10.1. Interpreting failure

Competitive setbacks can challenge confidence, especially when athletes attribute the outcome to stable personal limitations. However, failure does not necessarily reduce self-efficacy.

The effect depends partly on how the athlete interprets the experience. An athlete may identify a specific technical problem and use the result to guide practice. Another may interpret the same result as evidence that improvement is impossible.

Coaches can support constructive interpretation by distinguishing between the outcome of an event and the processes that contributed to it. This requires honest evaluation rather than automatic reassurance.

12.10.2. Attribution and confidence

Attribution concerns how individuals explain the causes of events. Athletes may attribute success or failure to ability, effort, preparation, strategy, environmental conditions, or chance.

Attributions influence future expectations and emotional responses. Repeatedly attributing failure to an unchangeable lack of ability may undermine willingness to persist. Conversely, attributing every failure to external factors may prevent meaningful learning.

A constructive approach identifies causes that are supported by evidence and clarifies which factors can be influenced. It also recognises that some outcomes are partly determined by opponents, officiating, or environmental uncertainty.

12.10.3. Confidence during injury rehabilitation

Injury can affect confidence in physical capability, movement safety, and the ability to return to previous performance levels. An athlete may recover physically while remaining uncertain about performing a demanding movement under competitive conditions.

Rehabilitation should therefore address psychological readiness alongside physical criteria. Gradual exposure to relevant tasks, realistic feedback, and opportunities to observe progress may help athletes develop more accurate beliefs about their capabilities.

Confidence should not be used to pressure an athlete into returning before appropriate medical and rehabilitation criteria have been met. Psychological

readiness is one component of return-to-sport decision-making, not a substitute for clinical assessment.

12.10.4. Returning after a prolonged absence

Athletes returning after injury, illness, deselection, or a prolonged break may need to rebuild confidence across several performance domains.

A structured approach can begin with manageable tasks and gradually introduce more demanding conditions. Athletes can review objective evidence of progress, identify specific concerns, and practise responses to situations they previously found difficult.

The process should be individualised. Some athletes may regain confidence rapidly, while others may require additional time and support. The goal is not to impose a fixed timetable but to support a safe and evidence-informed return.

12.11. Assessing Confidence and Self-Efficacy

12.11.1. Principles of assessment

Assessment should begin by identifying the construct and purpose of measurement. A questionnaire designed to measure general sport confidence may not be appropriate for assessing self-efficacy for a particular technical task.

The measure should also correspond to the level at which performance is being evaluated. If the intended outcome concerns a specific action, the efficacy measure should ask about capability to perform that action under relevant conditions.

Moritz et al. (2000) identified correspondence between the self-efficacy measure and the performance criterion as an important moderator of the confidence-performance relationship. This finding highlights the importance of aligning measurement with the task.

12.11.2. Common assessment approaches

Sport-confidence questionnaires. These assess athletes' confidence in relation to sporting contexts. Researchers should review the construct, reliability, validity, and suitability of the instrument for the target population.

Task-specific self-efficacy ratings. Athletes report their perceived capability to perform defined actions under specified conditions. These measures can be useful when linked to a clear performance task.

Repeated state-confidence assessment. Confidence may be measured at different points, such as before training, before competition, or after performance. Repeated measurement can help identify changes associated with preparation and experience.

Performance records. Objective indicators such as accuracy, time, distance, or technical consistency can provide relevant evidence about capability. These records should be interpreted in relation to the task and conditions.

Structured interviews. Interviews can explore what athletes believe they can do, what informs their confidence, and how they interpret recent experiences. Such methods provide contextual information but require careful analysis.

Behavioural observation. Observations of task selection, effort, and response to setbacks may complement self-report measures. However, behaviour should not be used as a simple proxy for confidence because similar actions can arise from different motivations.

12.11.3. Measurement limitations

Self-report measures are influenced by memory, interpretation, social desirability, and the timing of assessment. Athletes may report high confidence because they wish to appear mentally strong, or they may understate confidence because they are cautious about predicting success.

Performance measures also have limitations. A successful result may reflect favourable conditions, while a poor result may occur despite appropriate preparation and decision-making.

A robust assessment therefore combines relevant information sources and avoids treating any single score as a definitive measure of an athlete's capability.

12.11.4. Avoiding misuse of confidence measures

Confidence scores should not be used as stand-alone criteria for athlete selection, contract decisions, or judgments about psychological suitability.

Such uses require strong evidence that the measure is valid for the specific decision and that its use is fair and appropriate. Otherwise, the assessment may disadvantage athletes who express uncertainty despite possessing strong skills or who come from different cultural backgrounds in which confidence is communicated differently.

Assessment should support athlete development and informed intervention rather than create additional pressure to display confidence.

12.12. An Applied Framework for Developing Realistic Sport Confidence

The following framework translates the theoretical and empirical literature into a practical process for athletes, coaches, and sport psychology practitioners. It is an applied framework rather than a universally validated intervention protocol.

Stage 1: Identify the confidence concern

The athlete and practitioner clarify the situation in which confidence is low, unstable, or poorly calibrated.

Questions may include:

- Which task or competitive situation generates uncertainty?
- What does the athlete believe they can or cannot do?
- What evidence informs this belief?
- Does the concern relate to skill, preparation, pressure, injury, or social evaluation?
- Is the perceived difficulty consistent with observable performance?

The aim is to identify the relevant issue rather than treating low confidence as a general personal weakness.

Stage 2: Establish a task-specific baseline

The practitioner identifies relevant performance indicators and, where appropriate, measures confidence before the task.

For example, a basketball player may rate confidence in free-throw execution before practice while the coach records shooting accuracy across repeated trials. The purpose is not to assume that confidence and accuracy should correspond perfectly, but to examine their relationship over time.

Stage 3: Select an appropriate source of efficacy information

The intervention should match the likely source of uncertainty.

- If the athlete lacks evidence of capability, progressive mastery experiences may be useful.
- If the athlete has limited understanding of how a task is performed, demonstration and modelling may help.
- If the athlete receives inconsistent or unclear feedback, more specific and credible communication may be needed.

- If physiological arousal is interpreted as evidence of failure, realistic appraisal and appropriate regulation strategies may help.
- If the athlete lacks relevant skill, technical instruction and practice should take priority over confidence-building language.

Several sources may be relevant simultaneously.

Stage 4: Develop a progressive practice plan

The athlete practises the target task under manageable conditions and progresses toward more demanding situations.

The progression should preserve safety and appropriate technical standards. Difficulty should increase according to demonstrated readiness rather than an assumption that exposure to failure is always beneficial.

Stage 5: Integrate confidence with performance routines

Confidence-building strategies should be connected to the actual demands of competition. Athletes may use task-specific cues, pre-performance routines, constructive self-talk, and realistic preparation reviews.

The objective is not to produce a fixed emotional state before every competition. It is to help athletes respond effectively even when confidence fluctuates.

Stage 6: Evaluate confidence and performance together

The practitioner reviews confidence ratings, relevant performance data, and the athlete's interpretation of the experience.

A positive change in confidence may be valuable even when performance does not improve immediately, but the reasons for the change should be examined. Likewise, a performance improvement without increased confidence may indicate that the athlete is developing competence while their subjective interpretation has yet to change.

Stage 7: Refine the intervention

If confidence remains low, the practitioner should reconsider the underlying problem. Additional encouragement may be insufficient if the athlete lacks technical preparation, is experiencing excessive workload, or has legitimate concerns about safety or the competitive environment.

The intervention should be revised according to evidence rather than attributing limited progress automatically to a lack of commitment.

Table 12.2. Confidence-development framework for sport

Identified issue	Potential mechanism	Appropriate response	Possible indicator
Doubt about a technical skill	Limited mastery evidence	Progressive skill practice and task-specific feedback	Accuracy and consistency across trials
Uncertainty in unfamiliar situations	Limited relevant experience	Modelling, scenario practice, and gradual exposure	Performance in representative scenarios
Confidence declines after mistakes	Negative interpretation of setbacks	Structured performance review and refocusing strategies	Ability to identify constructive next actions
Excessive confidence with inadequate preparation	Poor calibration	Objective feedback and realistic task analysis	Correspondence between perceived and demonstrated capability
Confidence fluctuates before competition	Changing appraisal of readiness	Preparation review and a consistent pre-performance routine	State-confidence patterns and routine adherence
Reduced confidence after injury	Uncertainty about physical capability	Clinically appropriate progressive rehabilitation	Relevant physical criteria and psychological readiness
Team doubts collective capability	Limited shared confidence or coordination	Role clarity, representative team practice, and review of collective processes	Coordinated execution and shared efficacy ratings

Note. The framework should be adapted to the athlete's needs, the nature of the task, and the evidence available. The indicators are illustrative and should not be treated as validated thresholds.

12.13. Methodological Limitations and Future Research

12.13.1. Conceptual and measurement heterogeneity

Research on confidence and self-efficacy includes different constructs, measurement instruments, assessment timings, and performance outcomes. These differences make it difficult to compare findings directly.

Future studies should define the construct clearly and justify the choice of measure. Researchers should also report whether confidence was assessed as a general tendency, a sport-specific belief, or a task-specific judgment.

12.13.2. Directionality and causal inference

Many studies use correlational designs, which limit conclusions about causality. Confidence may influence performance, performance may influence confidence, and both may be influenced by preparation or other variables.

Longitudinal and experimental studies can help clarify these relationships. Repeated assessments across training and competition may reveal how efficacy beliefs change following successful performance, setbacks, and changes in preparation.

12.13.3. Nonlinear relationships

The relationship between confidence and performance may not be strictly linear. A moderate level of confidence may be sufficient for some tasks, while additional confidence may provide limited benefit or encourage unrealistic judgments.

The substantial heterogeneity reported in confidence-performance meta-analyses supports further investigation of potential nonlinear relationships, although such possibilities should be tested empirically rather than assumed.

Future research should examine whether confidence calibration, rather than confidence level alone, better predicts performance under particular conditions.

12.13.4. Cultural and contextual differences

Athletes differ in how they express confidence, interpret feedback, and respond to social comparison. These differences may be influenced by culture, age, gender, disability, sport type, and the organisation of the sporting environment.

Researchers should investigate whether existing confidence measures function equivalently across populations and whether intervention strategies require adaptation to different cultural or organisational contexts.

12.13.5. Collective efficacy and team processes

More research is needed to clarify how individual self-efficacy and collective efficacy interact during team performance. Studies should consider shared goals, role clarity, communication, leadership, and the ways teams respond to setbacks.

Researchers should also distinguish between collective efficacy and general team morale. These constructs may overlap, but they do not necessarily represent the same psychological process.

12.13.6. Intervention effectiveness

Interventions intended to improve confidence should be evaluated according to clear outcomes and appropriate comparison conditions. Studies should examine whether

improvements are sustained, whether they transfer to competition, and whether they have unintended consequences.

Confidence interventions should not be considered successful solely because athletes report feeling more confident. The relationship between confidence, skill development, decision-making, well-being, and performance should be examined where relevant.

12.14. Conclusion

Confidence and self-efficacy are important psychological resources in sport, but they are best understood as task-relevant beliefs that interact with skill, preparation, experience, emotion, and environmental conditions.

Self-efficacy theory explains how beliefs about capability may influence effort, persistence, emotional responses, and task engagement. Bandura's four sources of efficacy information—mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states—provide a practical framework for understanding how these beliefs develop.

Meta-analytic evidence generally indicates a positive association between confidence-related beliefs and sport performance. However, the magnitude of this relationship varies according to the construct measured, the performance criterion, and the sporting context. Confidence does not guarantee success, and low confidence does not establish that an athlete lacks the ability to perform effectively.

The most useful approach is to develop confidence that is realistic, specific, and responsive to evidence. Coaches can support this process through progressive practice, credible feedback, appropriate modelling, constructive performance reviews, and environments that encourage learning rather than fear of failure.

Confidence development should also account for injury, competitive setbacks, pressure, and the social conditions of sport. Athletes may require different forms of support depending on whether uncertainty arises from limited experience, insufficient preparation, emotional responses, or legitimate environmental concerns.

Ultimately, confidence is most valuable when it supports informed action rather than unrealistic certainty. Athletes benefit from believing that they can develop and execute the actions required by a task, while remaining open to feedback, recognising limitations, and adapting to changing circumstances. Integrating confidence development into systematic training can contribute to more effective self-regulation, sustainable learning, and a more comprehensive understanding of competitive performance.

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CHAPTER 13: Stress, Competitive Anxiety, and Performance Under Pressure in Sport

13.1. Introduction

Competitive sport places athletes in environments characterized by uncertainty, evaluation, physical demands, social expectations, and consequences attached to performance outcomes. Athletes may compete for team selection, professional contracts, scholarships, medals, personal records, recognition, or continued participation. These demands can create psychological pressure, particularly when athletes perceive that the outcome is important and that their ability to influence it is limited. Although pressure is often discussed as an unavoidable feature of competition, its psychological consequences vary considerably across athletes, sports, situations, and stages of development.

Some athletes respond to high-pressure situations with increased concentration, determination, and effective decision-making. Others experience excessive worry, muscular tension, attentional disruption, indecision, or a temporary decline in technical execution. The same athlete may perform confidently in one competition and experience substantial anxiety in another. Therefore, the relationship between psychological pressure and performance cannot be explained through a simple assumption that stress invariably impairs performance or that anxiety must always be eliminated.

Stress, competitive anxiety, and performance under pressure are related but distinct constructs. Stress concerns the relationship between perceived demands and available coping resources. Competitive anxiety refers to an unpleasant emotional state associated with apprehension and perceived threat in competitive situations. Performance under pressure concerns the athlete's capacity to execute relevant skills and make effective decisions when the consequences of performance are perceived to be particularly important.

These distinctions have important practical implications. An athlete who experiences pre-competition anxiety does not necessarily lack confidence or possess inadequate psychological skills. Anxiety may reflect the perceived importance of the event, uncertainty about the opponent, insufficient preparation, fear of evaluation, or previous experiences of failure. Similarly, a high physiological arousal level does not necessarily indicate harmful anxiety. Increased heart rate and activation may be interpreted as readiness by one athlete and as evidence of impending failure by another.

Contemporary sport psychology consequently emphasizes the interaction among environmental demands, cognitive appraisal, emotional responses, attentional processes, coping strategies, and task-specific performance requirements. A recent position statement on performance under pressure similarly emphasizes that pressure can have both facilitative and debilitative consequences and that strategies should be selected according to the sources of pressure, the athlete's responses, and the requirements of the task (Schweickle et al., 2026).

This chapter examines the theoretical foundations of stress and competitive anxiety, explains the mechanisms through which pressure may influence performance, evaluates evidence-based psychological interventions, and develops an applied framework for athletes, coaches, and sport psychology practitioners.

The principal objectives are to:

1. Define stress, competitive anxiety, and pressure-related performance disruption.
2. Explain the major theoretical models of stress and competitive anxiety in sport.
3. Distinguish cognitive anxiety, somatic anxiety, and self-confidence.
4. Examine the mechanisms through which pressure may facilitate or impair performance.
5. Identify individual, interpersonal, and organizational sources of competitive stress.
6. Evaluate evidence-based interventions for managing anxiety and improving performance under pressure.
7. Develop practical recommendations for training, competition preparation, and post-competition evaluation.

13.2. Conceptualizing Stress in Sport

13.2.1. Definition of Stress

Stress is not simply an external demand or an unpleasant feeling. From a transactional perspective, stress emerges from the relationship between an individual and the environment when a situation is appraised as relevant to well-being and potentially taxing or exceeding available resources (Lazarus & Folkman, 1984).

This definition places cognitive appraisal at the center of the stress process. Two athletes exposed to the same competitive circumstances may experience different levels of stress because they interpret the situation differently, possess different coping resources, or attach different meanings to the outcome.

For example, a final penalty in a championship match may be interpreted by one athlete as an opportunity to demonstrate competence. Another athlete may interpret the same situation as a threat to personal reputation, team membership, or future selection. Although the external circumstances are similar, the athletes' appraisals and emotional responses may differ.

In sport, stressors can be categorized according to their source, duration, and relationship to performance.

Competitive stressors include opponent strength, uncertainty about the result, selection decisions, refereeing decisions, public evaluation, and expectations associated with major competitions.

Training-related stressors include workload, fatigue, performance plateaus, injury rehabilitation, demanding schedules, and conflicts between training and other responsibilities.

Interpersonal stressors include disagreements with coaches, team conflict, perceived unfairness, inadequate communication, and concerns about acceptance by teammates.

Organizational stressors include unclear roles, unstable competition schedules, administrative problems, financial uncertainty, inadequate facilities, and organizational cultures that attach excessive consequences to individual results.

Personal stressors include academic or occupational responsibilities, family difficulties, financial concerns, sleep disruption, and health-related uncertainty.

These categories can interact. An athlete experiencing a minor injury may become increasingly concerned about selection, interpret a coach's feedback as threatening, and subsequently experience greater anxiety during training. The resulting difficulty in training may reinforce the original concern.

Consequently, stress management should not be restricted to the athlete's immediate emotional response. It should also examine the environmental and organizational conditions that generate or maintain stress.

13.2.2. Primary and Secondary Appraisal

Lazarus and Folkman's (1984) transactional model distinguishes between primary and secondary appraisal.

Primary appraisal concerns the significance of a situation for the individual. An athlete may interpret an event as irrelevant, beneficial, challenging, or threatening.

Secondary appraisal concerns the perceived availability of resources and possible responses. The athlete evaluates whether they have the skills, time, support, information, and control necessary to manage the situation.

Consider an athlete who has been informed that a major competition will determine team selection. During primary appraisal, the athlete recognizes that the event is highly important and potentially threatening. During secondary appraisal, the athlete evaluates their technical preparation, physical condition, previous experience, relationship with the coach, and ability to execute the required performance.

When perceived resources appear sufficient, the situation may be experienced primarily as a challenge. When perceived demands exceed available resources, the situation may be experienced as threatening.

Challenge and threat appraisals are not necessarily permanent characteristics of an athlete. They may change as preparation progresses, new information becomes available, or the athlete receives effective support.

The practical implication is that coaches and sport psychologists should assess not only the objective difficulty of a competitive situation but also how the athlete interprets that difficulty.

13.2.3. Challenge and Threat in Competitive Environments

Challenge and threat perspectives distinguish between situations in which athletes perceive their resources as adequate for meeting demands and situations in which those resources appear insufficient.

A challenge appraisal may be associated with approach-oriented behavior, engagement, and a willingness to confront difficult tasks. A threat appraisal may be associated with concerns about failure, avoidance, defensive decision-making, and heightened self-protection.

However, challenge should not be equated with an absence of anxiety, nor should threat automatically be interpreted as a predictor of poor performance. Athletes

may experience considerable anxiety while continuing to perform effectively. Likewise, feeling confident before a competition does not guarantee successful execution.

The distinction is most useful when treated as a description of the athlete's appraisal rather than as a rigid classification of individuals.

Applied example: A basketball player preparing to take a decisive free throw may recognize the importance of the situation while focusing on familiar technical cues, breathing rhythm, and the target. The athlete remains aware of the pressure but approaches the task as manageable. Another player may focus on the possibility of disappointing teammates and begin monitoring the consequences of failure rather than the execution of the shot.

The difference is not necessarily the amount of pressure present. It may lie in how the pressure is interpreted and where attention is directed.

13.3. Competitive Anxiety: Definition and Dimensions

13.3.1. What Is Competitive Anxiety?

Competitive anxiety is an emotional response involving apprehension, worry, or tension associated with the anticipation or experience of competitive evaluation. It may occur before, during, or after competition.

Competitive anxiety is influenced by perceived importance, uncertainty, evaluation, perceived competence, and the potential consequences of the outcome. It may also be shaped by personality, previous experiences, coaching practices, cultural expectations, and the athlete's developmental stage.

A useful distinction is between **trait anxiety** and **state anxiety**.

Trait anxiety refers to a relatively enduring tendency to interpret situations as threatening and respond with anxiety. In sport, a person with higher competitive trait anxiety may be more likely to experience anxiety across a range of competitive situations.

State anxiety refers to a temporary emotional condition that changes in response to immediate circumstances. An athlete with relatively low trait anxiety may nevertheless experience substantial state anxiety before an unusually important event.

These constructs should not be confused. A single episode of pre-competition anxiety does not establish that an athlete has a stable anxiety-related disposition.

Similarly, relatively low anxiety in one competition does not demonstrate that an athlete is generally free from competitive anxiety.

13.3.2. Cognitive Anxiety

Cognitive anxiety concerns the mental components of apprehension, particularly worry, negative expectations, doubts, and concerns about performance consequences.

Examples include:

- “What if I make a mistake?”
- “The coach may replace me if I perform poorly.”
- “I am not prepared enough to beat this opponent.”
- “Everyone expects me to win.”
- “If I fail today, my career may be affected.”

Such thoughts can consume working-memory resources, interfere with decision-making, and direct attention toward information that is not relevant to the immediate task.

Cognitive anxiety may also influence behavior before competition. An athlete may repeatedly check equipment, seek excessive reassurance, avoid discussing tactical plans, or engage in prolonged analysis that delays preparation.

The significance of cognitive anxiety depends partly on its intensity, timing, and relationship to task requirements. A limited degree of concern may encourage preparation and strategic planning. Persistent, uncontrollable worry may become disruptive when it dominates attention or reduces the athlete's capacity to act on established routines.

13.3.3. Somatic Anxiety

Somatic anxiety refers to the perceived physiological and bodily manifestations of competitive arousal. These may include:

- Increased heart rate.
- Rapid or shallow breathing.
- Sweating.
- Muscle tension.
- Gastrointestinal discomfort.

- Trembling.
- Dry mouth.
- A sensation of restlessness or excessive energy.

These responses are not inherently pathological. Many reflect normal physiological activation associated with preparing for a demanding task.

Their psychological meaning is important. An athlete may interpret a rapidly beating heart as evidence of readiness, while another may interpret it as proof that they are losing control. The same bodily sensation can therefore contribute to different emotional experiences.

The goal of psychological preparation is not necessarily to eliminate physiological activation. Instead, athletes should learn to recognize their individual responses, evaluate whether those responses interfere with performance, and use appropriate strategies to regulate them.

13.3.4. Self-Confidence as a Related but Distinct Construct

Self-confidence refers to an athlete's belief in their capacity to perform successfully. In competitive anxiety research, confidence is often examined alongside cognitive and somatic anxiety.

Confidence is not simply the absence of anxiety. An athlete can feel confident while experiencing considerable physiological arousal. Conversely, an athlete may report low anxiety but still doubt their ability to perform effectively.

Self-confidence may influence how athletes interpret pressure, approach difficult situations, respond to mistakes, and persist when performance becomes challenging. Nevertheless, confidence should be grounded in preparation, task-specific competence, and realistic expectations rather than unsupported assurances of success.

The three components are therefore best examined separately.

Construct	Primary content	Example	Potential implication
Cognitive anxiety	Worry and negative expectations	“I will disappoint the team.”	May divert attention from task-relevant information
Somatic anxiety	Perceived bodily activation	Increased heart rate or muscle tension	May be interpreted as readiness or threat
Self-confidence	Perceived ability to perform	“I can execute my preparation under pressure.”	May support approach-oriented behavior and persistence

The Competitive State Anxiety Inventory-2 and its revised version have been used extensively to assess competitive anxiety and self-confidence in sport research. Nevertheless, practitioners should select assessment instruments according to the purpose of the evaluation, the athlete population, and the available evidence for the instrument's validity and reliability.

13.4. Major Theoretical Models of Competitive Anxiety and Performance

13.4.1. Drive Theory and Arousal

Early approaches to performance often proposed a relatively direct relationship between arousal and performance. Drive theory, associated with Hull's learning framework and later sport-related interpretations, suggested that increased arousal could strengthen dominant responses.

This perspective is useful for understanding why increased activation may benefit well-learned, relatively automatic responses under certain circumstances. However, it is insufficient as a universal explanation of sport performance.

An increase in arousal may facilitate a familiar, straightforward action but interfere with a complex task requiring fine motor control, flexible decision-making, or precise timing. The effect also depends on the athlete's expertise and the nature of the task.

Drive-based explanations should therefore be treated as historically influential but incomplete accounts of the relationship between arousal and performance.

13.4.2. The Inverted-U Hypothesis

The inverted-U hypothesis proposes that performance improves as arousal increases up to a certain point, after which further increases are associated with declining performance.

The model suggests that very low activation may be associated with insufficient readiness, moderate activation may support effective performance, and excessive activation may interfere with execution.

Although intuitively appealing, the inverted-U hypothesis should not be interpreted as a universal law. It does not specify a single optimal arousal level applicable to all athletes, sports, or tasks. It also offers limited explanation of why two athletes with similar physiological activation may perform differently.

The relationship between arousal and performance is more plausibly understood as conditional on task demands, skill level, appraisal, attentional control, fatigue, and individual differences.

For example, a power athlete may benefit from a relatively high activation level during explosive efforts, whereas an athlete performing a precision task may require a more stable attentional and muscular state. Even within the same sport, optimal preparation may differ between tactical anticipation, maximal acceleration, and fine technical execution.

The practical value of the inverted-U hypothesis lies in encouraging individualized assessment rather than imposing a single preferred arousal level.

13.4.3. Multidimensional Anxiety Theory

Multidimensional anxiety theory distinguishes cognitive anxiety from somatic anxiety and proposes that their relationships with performance may differ.

Cognitive anxiety is generally expected to have a negative relationship with performance when worry interferes with concentration, confidence, or decision-making. Somatic anxiety may show a more curvilinear relationship with performance, depending on the task and the athlete's ability to interpret and regulate physiological activation.

The theory also recognizes that cognitive and somatic anxiety may change differently over time. Cognitive worry may remain elevated even after physiological activation begins to decline, or bodily symptoms may increase as the competition approaches.

This distinction has practical importance because different symptoms require different interventions. Cognitive worry may respond to cognitive restructuring, attentional redirection, and realistic performance planning. Excessive muscular tension may require relaxation, breathing regulation, or task-specific warm-up adjustments.

However, multidimensional anxiety theory does not imply that all athletes will demonstrate identical patterns. Empirical findings vary across sports, measurement instruments, competition levels, and research designs. The theory should guide assessment rather than be used to predict an individual athlete's performance without considering contextual information.

13.4.4. The Catastrophe Model of Anxiety and Performance

Hardy's catastrophe model proposed that the interaction between physiological arousal and cognitive anxiety can produce complex performance patterns.

Rather than assuming a smooth decline in performance after an optimal arousal point, the model suggests that under certain conditions, increasing arousal in the

presence of high cognitive anxiety may be associated with a sudden and substantial performance deterioration.

This framework is particularly relevant to situations in which an athlete appears to be performing adequately before experiencing an abrupt breakdown in execution.

For example, a tennis player may serve effectively early in a match but experience a sudden loss of accuracy after becoming preoccupied with the possibility of losing a decisive game. A gymnast may execute a familiar routine successfully in training but struggle when evaluation pressure becomes overwhelming.

The model emphasizes the interaction between cognitive and physiological processes. It also implies that recovery following a major performance disruption may not occur simply by reducing arousal slightly; the athlete may need to restore attentional control, confidence, and a sense of manageability.

Nevertheless, a sudden performance decline does not prove that a catastrophe process has occurred. Technical errors, fatigue, tactical changes, injury, environmental conditions, and chance can also contribute. The model is best understood as one possible explanation for particular patterns of performance disruption.

13.4.5. Attentional Control Theory

Attentional control theory explains how anxiety may influence the balance between goal-directed attention and stimulus-driven attention.

Goal-directed attention is guided by the athlete's intentions and task requirements. Stimulus-driven attention is captured by salient events, including unexpected sounds, opponent movements, crowd reactions, bodily sensations, and intrusive thoughts.

Anxiety may increase the influence of stimulus-driven attention and reduce the efficiency of attentional control. Athletes may therefore find it harder to maintain focus on relevant information, inhibit distractions, or shift attention appropriately between competing demands.

Eysenck et al. (2007) developed attentional control theory primarily in the broader anxiety literature. Its principles have subsequently informed explanations of anxiety-related performance disruption in sport.

Consider a football midfielder who must identify an opponent's movement, evaluate passing options, and execute a decision within seconds. If the player becomes preoccupied with a previous mistake, attention may be diverted from

the evolving tactical situation. The problem is not necessarily a lack of technical knowledge; it may be a failure to allocate attention efficiently under pressure.

This distinction also explains why an athlete may appear to expend greater effort while producing a less effective result. Anxiety may reduce processing efficiency, requiring additional mental effort to maintain performance.

The practical implication is to train attention under realistic conditions, establish task-relevant cues, and develop routines that help athletes return to the immediate performance demand after distraction.

13.4.6. Self-Focus, Explicit Monitoring, and Reinvestment

A second major explanation of pressure-related performance breakdown concerns excessive self-focused attention.

Highly practiced movements are often performed through integrated motor-control processes that do not require conscious monitoring of every component. Under pressure, however, athletes may begin consciously controlling movement elements that normally operate with limited deliberate attention.

This process is associated with explicit monitoring and reinvestment perspectives on performance disruption.

For example, a skilled golfer may ordinarily execute a putt through a stable routine and an integrated movement pattern. When the putt becomes decisive, the golfer may begin consciously monitoring wrist position, elbow movement, grip pressure, and body alignment. Excessive monitoring can disrupt a previously effective action.

The same process may affect penalty kicks, free throws, serves, gymnastics routines, and other highly practiced skills.

However, conscious attention to technique is not always harmful. It may be beneficial when learning a new skill, correcting a technical error, or responding to a specific tactical problem. The potential difficulty arises when an athlete attempts to consciously regulate too many components of a well-learned movement during a high-pressure execution.

Interventions should therefore distinguish between learning-related technical feedback and competition-related attentional strategies. Athletes may benefit from external attentional cues, consistent pre-performance routines, and practice under conditions that reproduce relevant competitive demands.

13.4.7. Integrating the Models

The theoretical models discussed above address different aspects of the stress-performance relationship. They should not be treated as mutually exclusive explanations.

Model	Primary mechanism	Practical implication	Important limitation
Inverted-U hypothesis	Curvilinear relationship between arousal and performance	Individualize activation levels	Does not specify a universal optimum
Multidimensional anxiety theory	Distinct relationships between cognitive anxiety, somatic anxiety, confidence, and performance	Assess symptoms separately	Relationships vary across contexts
Catastrophe model	Interaction between cognitive anxiety and physiological arousal	Monitor combinations of worry and activation	Not every sudden decline reflects a catastrophe process
Attentional control theory	Anxiety-related disruption of goal-directed attention	Train task-relevant attention and distraction management	Originated in broader anxiety research
Explicit monitoring and reinvestment	Excessive conscious control of well-learned skills	Use stable routines and appropriate attentional focus	Conscious control may be useful during learning
Transactional stress model	Appraisal of demands and coping resources	Modify appraisal and strengthen coping resources	Appraisals can be difficult to assess through a single measure

Taken together, these perspectives suggest that performance under pressure is best explained through interactions among the demands of the situation, the athlete's interpretation, the intensity and meaning of anxiety, the allocation of attention, and the effectiveness of coping responses.

13.5. How Pressure Influences Sport Performance

13.5.1. Pressure Is Not Equivalent to Poor Performance

Pressure refers to a situation in which an individual perceives that performance is important and subject to meaningful consequences. It may be generated by internal expectations, external evaluation, competition structure, or a combination of these factors.

Pressure does not automatically produce anxiety, and anxiety does not automatically produce failure. Athletes may interpret pressure as an opportunity

to demonstrate preparation, whereas others may experience it as a threat to self-worth or future opportunities.

Schweickle et al. (2026) emphasize that pressure may have both facilitative and debilitative effects. The practical question is therefore not simply whether pressure exists, but how athletes respond to it and which aspects of the performance process are affected.

13.5.2. Attentional Disruption

One of the most important mechanisms through which pressure may impair performance is attentional disruption.

Athletes must identify relevant information, ignore distractions, update expectations, and respond to rapidly changing conditions. Anxiety can make these processes less efficient by increasing the salience of threat-related information and intrusive thoughts.

The effects depend on the sport. In an open-skill environment, an athlete may miss an opponent's movement or fail to recognize a passing opportunity. In a closed-skill task, the athlete may become distracted during a familiar technical sequence.

Effective preparation should therefore include attentional skills that are specific to the demands of the sport rather than relying solely on general concentration exercises.

13.5.3. Working Memory and Decision-Making

Working memory supports the temporary maintenance and manipulation of information needed for complex decisions. Worry and intrusive thoughts may compete with these processes, particularly when an athlete must evaluate multiple options under time pressure.

For example, a basketball player who is preoccupied with the consequences of a previous turnover may have fewer cognitive resources available for evaluating defensive positioning and identifying a passing lane.

Pressure may also encourage overly cautious decisions. Athletes may avoid reasonable risks, delay action, or choose familiar but less effective options because they are attempting to prevent mistakes rather than execute an appropriate strategy.

The goal is not to eliminate thought but to ensure that cognitive resources remain available for task-relevant information.

13.5.4. Motor Control and Technical Execution

Pressure can affect movement through muscular tension, altered timing, disrupted rhythm, and excessive conscious control.

Fine-motor and precision tasks may be particularly vulnerable when increased tension changes the coordination required for successful execution. However, the effects vary according to the movement, the athlete's experience, and the nature of the pressure.

A skilled athlete who has automated a technical sequence may benefit from maintaining the familiar execution pattern instead of consciously controlling each movement component. In contrast, an athlete who is still learning the skill may require deliberate technical attention.

The relevant principle is to match attentional demands to the stage of skill acquisition and the requirements of the competitive task.

13.5.5. Tactical Decision-Making

In team sports, performance depends not only on individual technical execution but also on perception, anticipation, communication, and coordinated decision-making.

Pressure may encourage athletes to become overly focused on individual outcomes. A player may attempt an unnecessarily difficult action to demonstrate competence, avoid passing to a teammate after making a mistake, or prioritize personal statistics over the team's tactical requirements.

Coaches can reduce these risks by emphasizing role clarity, shared objectives, decision-making principles, and constructive responses to mistakes.

A psychologically effective team environment does not eliminate accountability. Instead, it distinguishes between deliberate non-compliance, poor preparation, and errors that occur during reasonable attempts to execute the team's strategy.

13.5.6. Physiological and Recovery-Related Consequences

Stress responses may be accompanied by changes in heart rate, breathing, muscular tension, perceived effort, and gastrointestinal functioning. Persistent stress may also interfere with sleep, recovery, and the athlete's ability to maintain training quality.

These responses should be interpreted in context. An increased heart rate before competition may be expected, while persistent sleep disruption, marked distress,

or anxiety that interferes with everyday functioning may require more comprehensive assessment.

Coaches and practitioners should avoid interpreting every physiological response as evidence of inadequate psychological preparation. Instead, they should examine whether the response is expected, whether it interferes with performance, and whether it persists beyond the competitive context.

13.6. Individual Differences in Stress and Anxiety

13.6.1. Experience and Expertise

Experienced athletes may have developed more effective routines, a broader repertoire of coping strategies, and greater familiarity with competitive uncertainty. These resources can support more efficient responses to pressure.

However, experience does not guarantee psychological stability. Experienced athletes may face stronger expectations, greater public scrutiny, or concerns about protecting an established reputation.

Novice athletes may be especially vulnerable when competitive situations are unfamiliar, but they may also benefit from lower external expectations or a more developmental interpretation of mistakes.

Psychological preparation should therefore be based on the athlete's actual needs rather than assumptions about experience or competitive level.

13.6.2. Perceived Competence and Self-Efficacy

Self-efficacy refers to beliefs about one's capacity to organize and execute actions required to achieve specific outcomes (Bandura, 1997). Athletes with stronger task-specific self-efficacy may be more willing to approach demanding situations, persist after errors, and interpret difficulties as manageable.

Nevertheless, self-efficacy should not be treated as a guarantee of performance. Confidence can be poorly calibrated, and high self-efficacy cannot compensate for inadequate preparation, injury, or major technical limitations.

Effective psychological preparation should strengthen confidence through mastery experiences, realistic goal-setting, appropriate feedback, and opportunities to practice relevant skills under progressively demanding conditions.

13.6.3. Perfectionism and Fear of Failure

Perfectionistic concerns may become problematic when athletes interpret mistakes as evidence of personal inadequacy, anticipate harsh evaluation, or believe that acceptance depends on consistently flawless performance.

In such circumstances, a single error may trigger disproportionate worry and self-criticism. The athlete may become more concerned with avoiding failure than with executing the next task effectively.

It is important to distinguish demanding performance standards from maladaptive perfectionistic concerns. High standards may support preparation and persistence, whereas rigid self-evaluation and excessive fear of mistakes may undermine adaptation.

Coaches should communicate that effort, preparation, learning, and responsible decision-making matter alongside results. This does not mean that performance standards should be lowered; it means that errors should be evaluated constructively.

13.6.4. Developmental and Social Context

Young athletes may experience competitive pressure differently from adults because their coping skills, emotional regulation, and understanding of evaluation are still developing.

Parental expectations, peer comparison, social media, selection procedures, and coach-athlete relationships can intensify perceived pressure.

A developmental approach should prioritize age-appropriate communication, skill acquisition, autonomy support, and a balanced interpretation of competitive outcomes. Young athletes should not be expected to manage high-stakes situations using strategies that have never been taught or practiced.

13.6.5. Gender, Culture, and Social Expectations

Gendered expectations and cultural norms may influence how athletes interpret anxiety, express distress, seek support, and respond to evaluation. However, these influences should not be reduced to simplistic assumptions that all athletes from a particular demographic group respond in the same way.

Practitioners should consider individual experiences, social environments, access to resources, and the meaning attached to competitive success.

Confidentiality and culturally responsive communication are particularly important when athletes fear that acknowledging anxiety may affect selection, playing time, reputation, or professional opportunities.

13.7. Sources of Competitive Pressure

13.7.1. Outcome Pressure

Outcome pressure occurs when the athlete attaches substantial significance to winning, losing, ranking, selection, or qualification.

Outcome goals can provide direction, but they also involve factors outside the athlete's complete control, including opponent performance, officiating decisions, weather, and chance.

Athletes may therefore benefit from distinguishing outcome goals from performance and process goals.

An outcome goal might be to win a match. A performance goal might concern achieving a specified level of technical accuracy. A process goal might involve maintaining a particular tactical focus or following a consistent pre-performance routine.

Process goals are especially useful during competition because they direct attention toward actions the athlete can implement immediately.

13.7.2. Evaluation and Social Pressure

Athletes may feel pressure when they believe that coaches, teammates, family members, spectators, sponsors, or media representatives are evaluating their performance.

The psychological impact depends not only on the presence of observers but also on the athlete's interpretation of their expectations.

Supportive observation may increase confidence, whereas perceived conditional acceptance may intensify anxiety. Coaches should therefore communicate expectations clearly and avoid using humiliation, unpredictable punishment, or public comparison as routine motivational strategies.

13.7.3. Selection and Career Pressure

Selection decisions can create pressure because they may affect playing time, scholarships, professional contracts, national-team opportunities, or long-term career development.

Unclear selection criteria may increase uncertainty. Athletes may become preoccupied with trying to infer what coaches value rather than focusing on their roles and preparation.

Transparent criteria, timely feedback, and clear communication about performance expectations can reduce avoidable uncertainty.

13.7.4. Injury and Return-to-Play Pressure

Injured athletes may experience anxiety related to pain, reinjury, lost fitness, selection, or the possibility of losing their position. Pressure to return quickly can conflict with appropriate rehabilitation.

Return-to-play decisions should be based on appropriate medical and performance criteria rather than psychological pressure alone. Sport psychology can support confidence, coping, and adherence, but it should not replace medical assessment or override rehabilitation recommendations.

13.7.5. Organizational Pressure

Organizational conditions may generate stress even when the immediate competitive task is manageable. Poor communication, inadequate facilities, financial uncertainty, excessive travel, role ambiguity, and inconsistent management can accumulate over time.

Fletcher and colleagues' work on organizational stressors in elite sport highlights the importance of considering the broader environment rather than attributing all stress-related difficulties to individual weakness.

A comprehensive stress-management approach should therefore include organizational interventions, such as workload planning, role clarification, accessible support, and fair communication practices.

13.8. Evidence-Based Interventions for Managing Competitive Anxiety

13.8.1. Principles of Intervention Selection

Psychological interventions should be selected according to the athlete's symptoms, goals, sport, developmental level, preferences, and performance demands.

A strategy that is useful for one athlete may be ineffective or impractical for another. An intervention that reduces anxiety does not necessarily improve every performance outcome, and an intervention that improves performance may do so without eliminating anxiety.

A systematic review and Bayesian network meta-analysis by Li et al. (2026) examined 46 trials involving 2,049 participants and compared different psychological interventions for competitive anxiety. Mindfulness-Acceptance-Commitment approaches showed relatively large estimated effects, but the authors also reported substantial uncertainty in several comparisons and wide credible intervals for multiple interventions. The findings support individualized intervention selection rather than the assumption that one technique is universally superior.

The general principles are to:

1. Identify the specific problem before selecting a technique.
2. Establish a baseline assessment.
3. Practice the intervention during training.
4. Introduce the strategy progressively under realistic pressure.
5. Evaluate both psychological responses and task-specific performance.
6. Modify the intervention according to the athlete's experience and observed outcomes.

13.8.2. Cognitive-Behavioral Strategies

Cognitive-behavioral approaches examine the relationships among interpretations, emotional responses, physiological activation, and behavior.

In sport, these approaches may involve identifying unhelpful predictions, evaluating evidence, developing more balanced appraisals, and practicing behaviors that support effective performance.

For example, an athlete who repeatedly thinks, “If I make one mistake, the competition is over,” can be guided to examine the accuracy and usefulness of this prediction. A more functional alternative might be, “Mistakes are possible, but I can return to the next task using my routine.”

The objective is not to replace every negative thought with an unrealistically positive statement. It is to develop realistic, flexible thinking that supports effective action.

Common cognitive-behavioral techniques include:

- Identifying recurring worry patterns.
- Examining evidence for catastrophic predictions.

- Developing alternative interpretations.
- Separating controllable and uncontrollable factors.
- Rehearsing coping responses to difficult situations.
- Using graded exposure to practice under pressure.
- Reviewing performance through structured reflection.

A cognitive-behavioral intervention should be adapted to the athlete's needs. Persistent anxiety, panic symptoms, or clinically significant distress may require assessment and treatment by a qualified mental health professional.

13.8.3. Breathing and Arousal Regulation

Breathing strategies are commonly used to support physiological regulation and attentional stability. Slow, comfortable breathing may help some athletes manage excessive activation, especially when breathing has become rapid or irregular.

A practical exercise is to breathe gently through the nose when comfortable, allow the abdomen to move naturally, and use a slightly longer exhalation without forcing the breath. The athlete can practice for one to three minutes during training and evaluate whether the exercise improves subjective calmness and attentional readiness.

The technique should be practiced before it is used in an important competition. Some athletes become more aware of bodily sensations when they focus on breathing, so the strategy should be modified if it increases discomfort or distraction.

Breathing regulation is not intended to suppress all activation. The goal is to reach a state compatible with the demands of the task.

For explosive or high-intensity events, excessive relaxation immediately before performance may be counterproductive. The timing and duration of breathing exercises should therefore be individualized.

13.8.4. Progressive Muscle Relaxation

Progressive muscle relaxation involves systematically tensing and releasing selected muscle groups to improve awareness of muscular tension and support relaxation.

In sport, it may be useful for athletes who report excessive tension, difficulty settling before competition, or persistent activation after training.

The method can be adapted to the sport and the athlete's preferences. Athletes should learn to recognize unnecessary tension without compromising the muscle activation required for performance.

A short pre-competition version may involve scanning the shoulders, jaw, hands, and breathing pattern and releasing unnecessary tension. A longer session can be conducted during regular training periods.

Progressive muscle relaxation is not necessarily appropriate immediately before every event. Athletes whose sports require rapid activation may prefer a brief tension-release exercise rather than a prolonged relaxation session.

13.8.5. Mindfulness and Acceptance-Based Approaches

Mindfulness involves attending to present-moment experience with an attitude of openness and reduced automatic judgment. Acceptance-based approaches emphasize the ability to experience uncomfortable thoughts and feelings without allowing them to dictate behavior.

In competitive sport, these approaches do not require athletes to eliminate anxiety before performing. Instead, they help athletes notice anxiety, acknowledge its presence, and return attention to the task.

An athlete might recognize the thought, “I am afraid of missing this shot,” without treating it as a prediction that failure is inevitable. The athlete can then direct attention to the established routine and execute the next action.

Myall et al. (2023) conducted a systematic review and meta-analysis of mindfulness-based programmes in elite athletes. Their analysis included 12 randomized controlled trials involving 614 athletes and reported improvements in anxiety symptoms, stress, and psychological well-being. However, the authors also identified substantial heterogeneity and emphasized the need for higher-quality trials.

These findings support mindfulness-based approaches as promising options, but they do not establish that every mindfulness programme will produce equivalent effects in every sport.

Mindfulness and acceptance-based training may be especially relevant when athletes struggle with persistent worry, excessive self-judgment, or attempts to suppress thoughts that repeatedly return during competition.

13.8.6. Imagery and Mental Rehearsal

Imagery involves mentally representing relevant actions, situations, or experiences. Athletes may use imagery to rehearse technical skills, tactical decisions, coping responses, and competitive routines.

Effective imagery should be specific to the sport and the performance objective. An athlete may imagine the visual environment, movement sensations, timing, decision-making sequence, and the process of recovering after an error.

Imagery can also be used to rehearse difficult situations. For example, a volleyball player may mentally practice responding to a missed serve by returning attention to the next rally rather than remaining focused on the error.

Imagery should not be limited to imagining successful outcomes. Athletes may benefit from rehearsing the actions required to manage uncertainty, respond to disruption, and continue performing when conditions are not ideal.

Mental rehearsal is most useful when integrated with physical practice, realistic feedback, and a consistent performance plan.

13.8.7. Self-Talk

Self-talk refers to the internal or spoken statements athletes use to guide attention, regulate emotion, and support performance.

Two broad forms are commonly distinguished.

Instructional self-talk directs attention toward a technical or tactical cue, such as “follow through,” “scan early,” or “move to the target.”

Motivational self-talk supports effort, persistence, and confidence, using phrases such as “stay committed,” “one action at a time,” or “trust the preparation.”

The distinction is functional rather than absolute. A phrase may be motivational in one context and instructional in another.

Effective self-talk should be brief, credible, and compatible with the task. Long internal speeches may be difficult to use during fast-moving competition.

Athletes should also avoid replacing useful task-relevant cues with rigid commands that increase conscious monitoring. A well-learned skill may benefit from a simple external cue rather than a detailed verbal description of each movement component.

13.8.8. Pre-Performance Routines

A pre-performance routine is a repeatable sequence of physical and psychological actions performed before a specific skill or performance.

Examples include routines used before a free throw, penalty kick, golf putt, tennis serve, or gymnastics apparatus sequence.

A routine may include:

1. A consistent preparatory position.
2. One or two comfortable breaths.
3. A brief attentional cue.
4. Visual orientation toward the target.
5. Execution of the skill.

The routine should be sufficiently stable to provide familiarity but flexible enough to accommodate changing circumstances.

Its purpose is not to guarantee success or eliminate uncertainty. Rather, it helps organize preparation, direct attention toward task-relevant information, and reduce unnecessary decision-making immediately before execution.

Routines should be developed through practice and evaluated according to their effect on performance. Excessively elaborate routines may become impractical or create additional anxiety if the athlete feels unable to complete every component.

13.8.9. Goal-Setting and Process Focus

Goal-setting can help athletes translate broad ambitions into manageable actions. However, the type of goal matters.

Outcome goals focus on results, such as winning a competition or achieving a particular ranking. Performance goals concern personal standards or measurable outputs. Process goals focus on actions that can be implemented during execution.

For example:

- Outcome goal: Win the match.
- Performance goal: Maintain a specified level of passing accuracy.
- Process goal: Scan the playing area before receiving the ball and select the appropriate passing option.

Outcome goals can provide motivation, but they are often influenced by factors outside the athlete's control. Process goals are more directly actionable during performance.

A useful approach is to establish a limited number of process goals before competition and review them afterward. This helps prevent the athlete from evaluating performance exclusively according to the final result.

13.8.10. Biofeedback

Biofeedback provides information about physiological processes that are not always easily perceived. Depending on the equipment and purpose, it may involve heart rate, heart-rate variability, muscle activity, or other physiological signals.

When appropriately designed, biofeedback can help athletes recognize physiological responses and practice regulation strategies.

However, physiological measures should not be interpreted simplistically. Heart-rate variability, for example, is influenced by measurement conditions, breathing, posture, physical load, and other factors. A single reading cannot independently determine whether an athlete is psychologically ready to compete.

Biofeedback is most useful when the measurement has a clear purpose, the athlete receives appropriate instruction, and changes are interpreted alongside subjective experience and performance data.

13.8.11. Intervention Evidence and Its Limitations

The evidence for psychological interventions is encouraging, but it requires careful interpretation.

Li et al. (2026) compared different psychological interventions for competitive anxiety using a Bayesian network meta-analysis of 46 trials involving 2,049 participants. The analysis identified promising approaches, including mindfulness-acceptance-commitment, relaxation, and biofeedback for particular anxiety dimensions. However, many intervention comparisons had wide credible intervals, and the quantity of evidence differed across intervention types.

Myall et al. (2023) found that mindfulness-based programmes were associated with improvements in anxiety, stress, and psychological well-being among elite athletes. Yet the included studies demonstrated considerable heterogeneity, which limits confidence in assuming identical effects across programmes and populations.

These findings suggest three important conclusions.

First, psychological interventions can be useful components of athlete preparation.

Second, intervention effects depend on the athlete, context, programme design, implementation, and outcome measure.

Third, intervention rankings should not be interpreted as definitive proof that one technique is universally superior.

Practitioners should prioritize individualized assessment, intervention fidelity, and repeated evaluation.

13.9. Performing Under Pressure: An Applied Framework

13.9.1. A Four-Stage Preparation Model

A practical framework can organize pressure-management strategies into four stages: preparation, recognition, regulation, and execution.

Stage 1: Preparation

Athletes develop technical competence, tactical understanding, physical readiness, and psychological skills during training. Pressure-management techniques should be introduced before the major competition rather than used for the first time immediately before performance.

Stage 2: Recognition

Athletes learn to recognize their personal signs of excessive anxiety. These may include recurring negative thoughts, unnecessary muscular tension, changes in breathing, distraction, or avoidance behavior.

Stage 3: Regulation

Athletes select an appropriate response according to the problem. Cognitive worry may require a realistic coping statement or attentional redirection. Excessive tension may call for brief breathing or tension-release strategies. Distraction may require a task-relevant cue.

Stage 4: Execution

The athlete returns attention to the immediate task and implements the established performance plan. After execution, the athlete evaluates the process rather than making broad judgments about personal worth or future potential.

This framework should be integrated into sport-specific training. Its purpose is not to create a rigid psychological ritual but to develop flexible, repeatable responses to pressure.

13.9.2. A Practical Decision Matrix

Observed difficulty	Possible mechanism	Initial strategy	Evaluation question
Repeated thoughts about failure	Cognitive worry	Realistic coping statement; process goal	Does attention return to the task?
Excessive muscular tension	Physiological activation	Brief breathing or tension-release exercise	Does movement feel more controlled?
Distraction by spectators or opponents	Attentional capture	Task-relevant attentional cue	Does the athlete identify relevant information?
Overthinking a familiar skill	Excessive conscious monitoring	Simplified routine; external cue	Does execution become more consistent?
Panic after an error	Threat appraisal and negative self-evaluation	Reset routine; next-action focus	Does the athlete recover more quickly?
Uncertainty about role or selection	Environmental ambiguity	Clear communication and feedback	Has avoidable uncertainty been reduced?
Persistent anxiety across settings	Potential broader psychological difficulty	Assessment by a qualified professional	Does the athlete need support beyond performance coaching?

The matrix is a practical starting point, not a diagnostic instrument. Similar behaviors may have different causes, and strategies should be modified when they do not help.

13.9.3. Designing Pressure-Inoculation Training

Pressure-inoculation training involves progressively exposing athletes to relevant performance demands while teaching them to apply coping strategies.

The aim is not to create unnecessary distress. It is to help athletes practice performance skills under conditions that resemble the demands they may encounter in competition.

A progressive sequence may include:

Level 1: Routine execution. Athletes perform the task under familiar training conditions and establish a reliable technical routine.

Level 2: Mild evaluation. Athletes perform while receiving structured feedback or being observed by teammates.

Level 3: Time or score constraints. The task is completed under realistic time limits, score conditions, or competitive objectives.

Level 4: Consequential simulation. Athletes participate in simulated situations that reproduce relevant selection, competition, or match conditions without imposing inappropriate personal consequences.

Level 5: Competition transfer. Athletes use the same coping and attentional strategies during actual competition and evaluate their effectiveness afterward.

The simulation should reproduce relevant demands without creating a misleading or excessively stressful environment. For example, pressure training for a penalty kick may involve realistic fatigue, goalkeeper behavior, score conditions, and a consistent routine rather than simply shouting at the athlete or threatening punishment.

Coaches should monitor whether pressure simulations improve adaptation or create excessive distress. Training intensity should be adjusted according to the athlete's developmental stage, experience, and psychological readiness.

13.9.4. The Importance of Post-Error Recovery

Errors are inevitable in sport. Performance under pressure depends partly on the athlete's ability to recover from them.

After a mistake, an athlete may become preoccupied with the preceding action, anticipate criticism, or attempt to compensate through unnecessarily risky behavior. These responses can increase the probability of further errors.

A post-error routine can help interrupt this cycle.

A practical sequence includes:

1. Recognize the error without exaggerating its meaning.
2. Identify any immediate tactical or safety implication.
3. Release unnecessary tension.
4. Direct attention to the next relevant task.
5. Apply a simple cue associated with the required action.

The routine should be brief and compatible with the sport. A football player may have only seconds to reorganize attention, whereas a tennis player may have a longer interval between points.

The aim is not to ignore accountability or avoid learning from mistakes. Detailed analysis is often better conducted after the immediate performance demand has passed.

13.10. The Role of Coaches and the Psychosocial Climate

13.10.1. Coach Communication

Coaches influence how athletes interpret pressure through the language they use, the consistency of their feedback, and their responses to mistakes.

Communication that emphasizes controllable actions, preparation, learning, and role clarity may help athletes maintain a task-focused orientation.

By contrast, unpredictable criticism, public humiliation, threats, and excessive emphasis on the consequences of failure may intensify perceived threat.

This does not mean that coaches should avoid demanding standards. Effective coaching can be challenging and supportive simultaneously. The important distinction is between constructive accountability and communication that undermines confidence or creates unnecessary uncertainty.

13.10.2. Psychological Safety and Error Management

Psychological safety refers to the perception that individuals can ask questions, acknowledge difficulties, and communicate concerns without disproportionate interpersonal punishment.

In sport, a psychologically safer environment may support communication about tactical confusion, injury symptoms, emotional difficulties, and mistakes that require correction.

Psychological safety should not be confused with an absence of standards. Athletes remain responsible for preparation, effort, conduct, and adherence to team agreements.

The goal is to create an environment in which mistakes can be examined accurately and corrected effectively rather than concealed because athletes fear humiliation.

13.10.3. Autonomy Support and Athlete Involvement

Athletes may respond more constructively to pressure when they understand the purpose of training, receive meaningful feedback, and have appropriate opportunities to participate in decisions.

Autonomy-supportive coaching does not mean allowing athletes to disregard tactical requirements. It involves communicating the rationale for expectations, providing choices where appropriate, and recognizing athletes' perspectives.

Such practices may support engagement and the internalization of performance goals. They may also help athletes develop independent coping skills rather than relying exclusively on external reassurance.

13.10.4. Team Responses to Pressure

In team sports, pressure is not experienced only at the individual level. Teammates influence one another through communication, emotional expression, tactical behavior, and shared interpretations of competition.

A teammate who responds constructively after a mistake may help restore collective focus. Conversely, blaming, visible frustration, and negative communication may amplify anxiety throughout the team.

Teams can prepare for pressure by agreeing on communication standards, clarifying roles, and developing shared routines for responding to setbacks.

Collective efficacy—the team's shared belief in its capacity to organize and execute actions—may be supported by successful preparation, coordinated performance, and constructive responses to difficulty. However, collective confidence should remain grounded in realistic assessments of competence and preparation.

13.11. Measuring Stress, Anxiety, and Performance

13.11.1. Why Assessment Matters

Intervention decisions should be based on evidence rather than assumptions about an athlete's internal state.

An athlete who appears nervous may be experiencing normal activation, uncertainty about a tactical instruction, physical fatigue, or clinically significant anxiety. These possibilities require different responses.

Assessment should therefore combine appropriate psychological measures with contextual information and performance observations.

13.11.2. Self-Report Measures

Several instruments have been used in sport psychology research to assess anxiety and related constructs.

The Competitive State Anxiety Inventory-2 (CSAI-2) was developed to assess cognitive anxiety, somatic anxiety, and self-confidence in competitive settings (Martens et al., 1990). The revised version, CSAI-2R, has also been used in sport research.

The Sport Anxiety Scale-2 (SAS-2) assesses sport performance anxiety as a relatively enduring tendency and is particularly relevant when the objective is to examine individual differences rather than a temporary pre-competition state (Smith et al., 2006).

The selection of a measure should depend on whether the practitioner wishes to assess a temporary competitive response, a more stable anxiety tendency, or a broader psychological concern.

Measures should be used according to their documented psychometric properties and relevant population evidence. Translation and cross-cultural use require attention to linguistic equivalence and validity rather than direct assumption that a measure functions identically in every context.

13.11.3. Behavioral and Performance Indicators

Self-report measures do not provide a complete account of performance under pressure. They can be combined with task-specific indicators such as:

- Technical accuracy.
- Decision-making quality.
- Reaction time.
- Error frequency.
- Tactical adherence.
- Movement consistency.
- Recovery after mistakes.
- Consistency between training and competition.

The choice of indicator should reflect the sport and the performance objective. For example, shooting accuracy may be relevant in basketball, while decision quality and tactical positioning may be more informative in a team-sport scenario.

A single outcome measure should not be used to infer the athlete's entire psychological state. Performance is influenced by numerous physical, technical, tactical, and environmental factors.

13.11.4. Physiological Measures

Physiological indicators may provide additional information about activation and recovery. Depending on the context, these may include heart rate, heart-rate variability, breathing patterns, or muscular activity.

However, physiological measures are not direct measures of anxiety. The same physiological response may reflect physical exertion, excitement, anticipation, environmental conditions, or other influences.

Practitioners should therefore interpret physiological data alongside subjective reports, contextual observations, and task-specific outcomes.

13.11.5. A Repeated-Assessment Approach

A useful assessment plan includes measurements at multiple points:

1. During routine training.
2. During a simulated pressure condition.
3. Before or during an actual competition, where feasible and appropriate.
4. Immediately after performance.
5. During follow-up, when examining persistent stress or intervention effects.

Repeated measurement can help distinguish a stable pattern from a temporary response. It can also indicate whether an intervention is helping the athlete regulate anxiety, maintain task focus, or recover more effectively after errors.

The purpose is to improve decision-making, not to monitor athletes excessively or create additional pressure through constant psychological evaluation.

13.12. Mental Health Boundaries and Referral

Competitive anxiety exists on a continuum. Some anxiety is a normal response to important competition. In other cases, anxiety becomes persistent, severe, or disruptive enough to warrant professional assessment.

Potential warning signs include:

- Persistent distress that extends beyond competitive situations.
- Repeated panic-like episodes.
- Significant sleep disruption.
- Avoidance of training or competition because of overwhelming fear.

- Marked changes in mood or daily functioning.
- Distress that interferes with relationships, education, employment, or recovery.
- Reliance on harmful coping behaviors.

These signs do not establish a diagnosis. They indicate that a more comprehensive assessment may be appropriate.

Coaches should not attempt to diagnose mental health disorders solely from observed behavior. When symptoms are persistent, severe, or functionally impairing, referral to a qualified mental health professional is appropriate. Urgent concerns about safety require immediate access to appropriate professional or emergency support.

Confidentiality is essential. Athletes should understand what information will remain private, what may need to be shared for safety reasons, and how psychological support relates to team selection or performance evaluation.

A responsible sport environment treats mental health as part of athlete welfare rather than as evidence of weakness or lack of commitment.

13.13. An Applied Four-Week Programme for Pressure Management

The following programme provides a structured starting point for integrating psychological skills into regular training. It is an applied framework rather than a universally validated treatment protocol. Its duration and components should be adapted to the sport, athlete population, and available professional support.

Week 1: Assessment and Awareness

Objectives

- Identify common competitive stressors.
- Establish baseline anxiety and performance indicators.
- Recognize individual cognitive, somatic, and behavioral responses.

Activities

1. Complete an appropriate baseline assessment.
2. Record the situations in which anxiety is most likely to occur.
3. Identify recurring worry patterns and physical sensations.
4. Review recent performances to identify common pressure-related difficulties.
5. Establish one or two specific process goals.

Evaluation

The athlete should be able to identify personal signs of excessive anxiety and distinguish them from normal competitive activation.

Week 2: Regulation and Attentional Skills

Objectives

- Develop practical responses to anxiety.
- Improve the ability to return attention to task-relevant information.
- Establish an initial pre-performance routine.

Activities

1. Practice comfortable breathing regulation.
2. Introduce a brief relaxation exercise where appropriate.
3. Develop one credible coping statement.
4. Select a task-relevant attentional cue.
5. Create a short pre-performance routine.
6. Practice these skills during regular training.

Evaluation

The athlete should be able to select and use an appropriate strategy without requiring extensive external instruction.

Week 3: Pressure Simulation

Objectives

- Apply psychological skills under progressively demanding conditions.
- Improve recovery after errors.
- Evaluate whether the routine remains practical under pressure.

Activities

1. Introduce realistic time or score constraints.
2. Conduct sport-specific competitive simulations.
3. Include structured evaluation or observation where appropriate.
4. Practice post-error recovery routines.

5. Record perceived pressure, strategy use, and performance outcomes.

Evaluation

The practitioner should examine whether the athlete can maintain task focus and recover after disruption. Reduced anxiety is not the only relevant indicator of improvement.

Week 4: Competition Transfer and Review

Objectives

- Integrate psychological strategies into competition preparation.
- Evaluate the usefulness of the intervention.
- Develop a plan for continued practice.

Activities

1. Rehearse the established routine under realistic conditions.
2. Identify likely pressure points in the next competition.
3. Prepare responses to predictable difficulties.
4. Review psychological and performance indicators.
5. Agree on a plan for maintaining the skills.

Evaluation

The athlete and practitioner should determine which strategies were useful, which require modification, and whether further psychological or clinical support is indicated.

Summary of the Programme

Week	Primary focus	Main activities	Evidence of progress
1	Assessment and awareness	Baseline measures, stressor identification, reflection	Clearer recognition of anxiety patterns
2	Regulation and attention	Breathing, coping statements, attentional cues, routines	Appropriate strategy selection and use
3	Pressure simulation	Competitive drills, time constraints, post-error recovery	Improved task focus and recovery
4	Transfer and evaluation	Competition preparation, repeated assessment, review	More consistent implementation of coping strategies

The programme should be evaluated according to its objectives and the athlete's needs. It should not be interpreted as a substitute for individualized psychological treatment when clinically significant difficulties are present.

13.14. Future Directions in Research

Despite substantial progress in sport psychology, several issues require further investigation.

13.14.1. Ecological Validity

Many studies assess anxiety or performance in controlled settings that do not fully reproduce the consequences, uncertainty, and social context of real competition.

Future research should combine controlled experiments with field-based designs that examine actual competitive situations while maintaining appropriate ethical standards.

13.14.2. Individualized Intervention Design

Intervention studies often compare broad categories of psychological techniques. However, athletes differ in their symptoms, preferences, task requirements, and responses to intervention.

Research should examine how individual characteristics and contextual conditions influence the effectiveness of particular strategies. Repeated within-athlete assessment may help identify which approaches are useful for specific individuals.

13.14.3. Longitudinal Effects

Short-term reductions in anxiety do not necessarily demonstrate lasting improvements in psychological functioning or competitive performance.

Longitudinal studies should investigate whether intervention effects persist across seasons, transfer to different competitive environments, and remain useful when athletes encounter new forms of pressure.

13.14.4. Measurement and Methodological Quality

Research would benefit from consistent reporting of intervention content, duration, adherence, adverse effects, and implementation quality.

Investigators should distinguish statistical significance from practical importance and report uncertainty transparently. When meta-analyses rank multiple interventions, the ranking should be interpreted alongside the width of

uncertainty intervals and the quantity and quality of evidence available for each comparison.

13.14.5. Organizational and Social Interventions

Research should investigate not only individual psychological skills but also changes to the environments that generate pressure.

Potential areas include coach education, transparent selection procedures, supportive communication, workload management, psychological safety, and access to confidential mental health services.

These approaches may be particularly important when stress arises from organizational uncertainty or harmful interpersonal dynamics rather than from the athlete's individual coping capacity alone.

13.14.6. Digital Tools and Ethical Considerations

Wearable devices, mobile applications, and digital psychological training platforms may help athletes monitor selected responses and practice coping strategies.

However, technological convenience should not be confused with clinical validity. Digital measures may be affected by measurement error, and physiological signals cannot independently determine an athlete's psychological state.

Data privacy, informed consent, appropriate interpretation, and protection from misuse in selection or performance evaluation are essential considerations.

13.15. Conclusion

Stress, competitive anxiety, and performance under pressure are interconnected but distinct aspects of the psychological demands of sport. Stress emerges through the relationship between environmental demands and perceived coping resources. Competitive anxiety includes cognitive and somatic responses to anticipated evaluation and potential consequences. Performance under pressure concerns the athlete's ability to maintain effective execution when the importance of the outcome becomes particularly salient.

The theoretical models reviewed in this chapter explain different mechanisms through which pressure may influence performance. Arousal-based approaches emphasize activation; multidimensional anxiety theory distinguishes cognitive and somatic components; the catastrophe model considers interactions between anxiety and physiological arousal; attentional control theory examines anxiety-

related attentional disruption; and explicit-monitoring perspectives explain how excessive conscious control may interfere with well-learned skills.

Together, these approaches suggest that there is no single optimal response to pressure for all athletes. The effects of anxiety depend on the task, the athlete's experience, the interpretation of bodily and cognitive responses, and the effectiveness of the strategies available.

Evidence supports the use of psychological approaches such as cognitive-behavioral strategies, breathing and arousal regulation, mindfulness and acceptance-based training, imagery, self-talk, goal-setting, and pre-performance routines. However, intervention effects vary, and comparative evidence remains uncertain for several techniques. Practitioners should therefore select strategies according to individual needs and evaluate their effects rather than assume that one method is universally superior.

Coaches also have an important responsibility. Clear communication, realistic expectations, role clarity, constructive responses to mistakes, and appropriate access to support can reduce avoidable stress and help athletes develop effective coping skills.

Finally, psychological preparation should not be limited to reducing anxiety. Athletes need to learn how to recognize pressure, interpret their responses realistically, direct attention toward controllable actions, and recover after mistakes. The central objective is not to guarantee a stress-free competitive experience but to support effective, adaptable, and psychologically responsible performance when demands are high.

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CHAPTER 14: Burnout, Overtraining, and Athlete Well-Being: Psychological Mechanisms, Early Identification, and Prevention

14.1. Introduction

Athletic development requires sustained commitment, structured training, repeated exposure to demanding situations, and the ability to tolerate temporary discomfort. Athletes must balance physical preparation with technical development, tactical learning, competition, recovery, and responsibilities outside sport. Although these demands can promote adaptation and achievement, prolonged exposure to excessive demands without adequate recovery may contribute to fatigue, declining motivation, reduced performance, and psychological distress.

In contemporary sport, high performance is frequently associated with discipline, persistence, sacrifice, and the willingness to continue despite discomfort. These qualities can support athletic development when they are accompanied by appropriate training design and recovery. However, the same cultural expectations may become problematic when athletes are encouraged to ignore persistent fatigue, conceal psychological difficulties, or interpret the need for rest as evidence of weakness.

Athlete burnout and overtraining are important concerns because they can affect performance, motivation, physical health, relationships, and continued participation in sport. Nevertheless, these concepts describe different, although sometimes overlapping, processes. Athlete burnout is principally a psychological construct characterized by physical and emotional exhaustion, a reduced sense of accomplishment, and sport devaluation. Overtraining syndrome is a more complex condition involving prolonged performance impairment and disturbances that require a broader medical and physiological assessment.

The distinction matters because the appropriate response depends on the nature of the problem. An athlete experiencing sport-related exhaustion and declining motivation may require changes to the psychosocial environment, training expectations, and perceived autonomy. An athlete with persistent performance impairment following excessive training may require a structured reduction in training load and comprehensive clinical assessment. Some athletes may experience both psychological burnout symptoms and physical maladaptation.

Athlete well-being must therefore be understood as an outcome of interactions among training load, recovery, psychological resources, interpersonal

relationships, organizational conditions, nutrition, sleep, and broader life circumstances. It cannot be reduced to the athlete's ability to tolerate demanding training.

Recent research reinforces the importance of this multidimensional perspective. A 2026 meta-analysis of burnout in sport-related occupations examined 113 independent studies, including 35,059 athletes, coaches, and referees across 29 countries. The authors reported considerable heterogeneity across studies and differences according to the measurement instruments used, highlighting the need for careful interpretation of burnout estimates and improved measurement practices (Viego et al., 2026).

The International Olympic Committee's 2026 consensus statement on mental health in elite athletes also emphasizes that burnout, overtraining syndrome, depression, sleep difficulties, and other mental health concerns may share symptoms but require appropriate differentiation. It recommends evidence-based assessment and management that address both individual needs and the environments in which athletes train and compete.

This chapter examines the conceptual foundations of athlete burnout and overtraining, explains their psychological and physiological mechanisms, considers the contribution of training and non-training stressors, and presents practical strategies for early identification, prevention, and recovery.

The chapter has six principal objectives:

1. Define athlete burnout, overtraining, and athlete well-being.
2. Differentiate psychological burnout from training maladaptation and clinical mental health conditions.
3. Explain the psychological, physiological, social, and organizational factors associated with athlete burnout.
4. Examine the roles of training load, recovery, sleep, and nutrition.
5. Identify evidence-informed approaches to monitoring, prevention, and intervention.
6. Develop practical recommendations for athletes, coaches, sport psychologists, medical professionals, and sport organizations.

14.2. Understanding Athlete Burnout

14.2.1. Definition and Conceptual Foundations

Athlete burnout refers to a psychological syndrome associated with prolonged sport-related demands and an experience of diminished psychological engagement with athletic participation.

Raedeke (1997) contributed to the conceptualization of athlete burnout by examining the construct through a self-determination perspective. Subsequent research has commonly described burnout through three dimensions:

- Physical and emotional exhaustion.
- Reduced sense of accomplishment.
- Sport devaluation.

These dimensions capture different aspects of the athlete's experience and should not be assumed to develop at the same rate or in an identical sequence.

Physical and emotional exhaustion refers to a sustained experience of depletion associated with sport participation. Athletes may feel that training requires increasing effort, that recovery is insufficient, or that the emotional demands of competition have become difficult to manage.

Reduced sense of accomplishment refers to the perception that one's athletic progress, competence, or achievements are inadequate. An athlete may continue to improve objectively while feeling increasingly unsuccessful because expectations have risen faster than perceived achievement.

Sport devaluation refers to a diminished sense of the value or personal significance of sport. Athletes may lose interest in activities that previously provided satisfaction, view training primarily as an obligation, or become increasingly detached from competitive goals.

The three dimensions are related but distinct. An athlete may initially experience exhaustion while retaining strong commitment to sport. Another may become increasingly detached from sport despite continuing to train intensively. A third may feel unsuccessful even when external performance indicators remain relatively strong.

Consequently, burnout should not be identified solely through reduced performance or visible tiredness. A meaningful assessment should consider motivation, emotional experience, perceived competence, attitudes toward sport, training conditions, and functioning outside competition.

14.2.2. Athlete Burnout and Professional Burnout

The term burnout is used in multiple occupational and performance contexts. Professional burnout generally concerns prolonged work-related stress and may involve exhaustion, detachment or cynicism, and reduced professional efficacy.

Athlete burnout shares some conceptual similarities with occupational burnout, but the context is different. Athletic participation combines physical loading, competitive evaluation, performance uncertainty, bodily risk, and often a strong personal identification with sport.

Athletes may also depend on coaches or organizations for selection, scholarships, contracts, travel opportunities, and career progression. This dependence can make it difficult to express dissatisfaction or request changes to training conditions.

The 2026 meta-analysis by Viego et al. extends the discussion beyond athletes to coaches and referees, emphasizing that burnout is also relevant to the wider sport workforce. Nevertheless, findings from different occupational groups should not automatically be treated as interchangeable because their demands and assessment contexts differ.

14.2.3. The Role of Motivation

Motivation is central to understanding athlete burnout because sustained participation depends partly on how athletes interpret their goals, choices, competence, and relationships.

Self-determination theory distinguishes among different forms of motivation according to the degree to which behavior is experienced as autonomous or controlled (Deci & Ryan, 2000).

Autonomous motivation occurs when athletes experience participation as personally meaningful or consistent with their interests and values.

Controlled motivation occurs when behavior is driven primarily by external demands, pressure, guilt, fear of punishment, or the need to secure approval.

Both forms may support participation in the short term. However, an environment characterized by persistent pressure, low autonomy, conditional acceptance, and limited opportunities for meaningful decision-making may undermine the athlete's experience of sport.

For example, an athlete may continue training because they genuinely value improvement and enjoy the process. Another may attend every session because they

fear losing their position if they request recovery time. Both athletes may demonstrate high attendance, but their psychological experiences differ substantially.

Attendance and compliance should therefore not be treated as sufficient indicators of well-being.

14.2.4. Burnout Is Not Simply a Lack of Motivation

An athlete experiencing burnout may continue to train and compete at a high level. This persistence can make the problem difficult to recognize, particularly in environments that reward visible commitment.

Some athletes continue because they fear deselection, disappointing teammates, losing financial support, or damaging their professional reputation. Others remain committed to their long-term goals while experiencing substantial exhaustion and reduced enjoyment.

Burnout should therefore not be interpreted as laziness, insufficient discipline, or an unwillingness to work hard.

A more useful approach examines whether the athlete can sustain participation without persistent psychological depletion and whether the sport environment supports meaningful recovery, competence, and healthy motivation.

14.3. Dimensions and Manifestations of Athlete Burnout

14.3.1. Physical and Emotional Exhaustion

Exhaustion may be experienced as a combination of physical fatigue and emotional depletion.

An athlete may report that training feels increasingly difficult, that ordinary demands require greater effort, or that competitive preparation has become psychologically draining.

However, exhaustion is nonspecific. It can result from a demanding training block, inadequate sleep, infection, injury, low energy availability, psychological distress, or other medical conditions. Its presence alone does not establish athlete burnout.

Practitioners should therefore examine the duration, severity, context, and associated symptoms before determining the appropriate response.

14.3.2. Reduced Sense of Accomplishment

A reduced sense of accomplishment concerns the athlete's evaluation of personal competence and progress.

This dimension may be particularly relevant in highly competitive environments where performance standards continually increase. An athlete who achieves a personal best may still feel unsuccessful if the result falls short of a coach's expectations or a desired ranking.

Unrealistic comparisons can intensify this problem. Athletes may compare their performance with elite competitors, teammates with different developmental trajectories, or carefully selected social media representations of success.

A constructive performance culture distinguishes between objective progress, the quality of preparation, and the final outcome. It recognizes that development is rarely linear and that short-term performance fluctuations do not necessarily indicate a lack of competence.

14.3.3. Sport Devaluation

Sport devaluation involves a reduction in the personal significance or perceived value of participation.

An athlete may become less interested in training, experience declining enjoyment, or view competition as an obligation rather than a meaningful activity.

Sport devaluation should not be confused with temporary boredom, a planned break, or a reasonable decision to reconsider competitive priorities. Athletes can change goals or decide to leave sport without necessarily experiencing burnout.

The relevant concern is a sustained pattern of detachment associated with distress, exhaustion, or perceived inability to manage the demands of participation.

14.3.4. Behavioral and Interpersonal Signs

Potential behavioral signs include:

- Increasing reluctance to attend training.
- Reduced engagement during practice.
- Withdrawal from teammates.
- Irritability or unusual emotional reactions.
- Reduced willingness to participate in previously valued activities.
- Persistent concern about performance.
- Concealment of fatigue or distress.
- Repeated requests to avoid competition without a clear explanation.

- Difficulty maintaining usual training routines.

These behaviors are not diagnostic in isolation. A change in attendance, mood, or engagement may have many explanations, including injury, illness, family difficulties, academic demands, conflict, or other mental health concerns.

The purpose of early identification is to open a supportive assessment process rather than assign a label prematurely.

14.4. Overtraining, Overreaching, and Inadequate Recovery

14.4.1. The Purpose of Training Overload

Training adaptation requires an appropriate relationship between workload and recovery. Training provides a stimulus that challenges the athlete's current capacities. With sufficient recovery, the body can adapt and improve.

An overload stimulus is not inherently harmful. Without an appropriate training challenge, performance improvements may be limited.

Problems arise when the training stimulus, competition demands, and other stressors exceed the athlete's capacity to recover and adapt.

The joint consensus statement of the European College of Sport Science and the American College of Sports Medicine distinguishes functional overreaching, non-functional overreaching, and overtraining syndrome (Meeusen et al., 2013).

These concepts should be differentiated because they have different implications for training design, monitoring, and clinical management.

14.4.2. Functional Overreaching

Functional overreaching is a planned or temporary state in which training produces a short-term reduction in performance, followed by recovery and potentially improved performance.

It may occur during demanding training phases when athletes are preparing for important competitions or attempting to develop specific physical capacities.

The defining feature is that the temporary decline is followed by appropriate recovery and adaptation.

Functional overreaching is not synonymous with burnout. An athlete may experience substantial physical fatigue during a well-designed training phase without developing persistent psychological detachment or sport devaluation.

14.4.3. Non-Functional Overreaching

Non-functional overreaching involves a more prolonged performance decrement and inadequate adaptation following an imbalance between training demands and recovery.

Recovery may take longer than expected, and athletes may experience mood disturbances, persistent fatigue, sleep difficulties, or reduced motivation.

The distinction between functional and non-functional overreaching cannot be established reliably through a single symptom or biomarker. The athlete's training history, performance trajectory, recovery pattern, health status, and other possible causes must be considered.

An important practical implication is that a persistent decline in performance should not automatically be addressed by increasing training volume or intensity. Additional loading may worsen the underlying problem if inadequate recovery is already present.

14.4.4. Overtraining Syndrome

Overtraining syndrome (OTS) is characterized by prolonged maladaptation involving sustained performance impairment and associated symptoms, including disturbances in mood and recovery.

The ECSS–ACSM consensus statement emphasizes that distinguishing non-functional overreaching from overtraining syndrome is difficult and requires consideration of clinical outcomes and exclusion of other explanations (Meeusen et al., 2013).

There is no single validated test that independently establishes overtraining syndrome. Assessment may require a detailed training history, examination of performance changes, evaluation of sleep and nutritional status, and medical investigation when indicated.

Potential alternative explanations include:

- Acute or chronic illness.
- Iron deficiency or anemia.
- Inadequate energy availability.
- Sleep disorders.
- Injury or persistent pain.
- Medication effects.

- Endocrine or other medical conditions.
- Depression, anxiety, or other psychological difficulties.

The assessment should be conducted by appropriately qualified professionals. Coaches can identify concerning patterns and facilitate referral, but should not independently diagnose a medical syndrome.

14.4.5. Comparing Functional Overreaching, Non-Functional Overreaching, and Overtraining Syndrome

Feature	Functional overreaching	Non-functional overreaching	Overtraining syndrome
Performance response	Temporary decline	More prolonged decline	Sustained and substantial impairment
Recovery pattern	Recovery occurs within the planned period	Recovery takes longer than expected	Recovery may require a prolonged period
Training context	Often planned	May reflect inadequate load-recovery balance	Often associated with sustained maladaptation
Psychological features	Temporary fatigue may occur	Mood and motivation disturbances may occur	Persistent fatigue and psychological symptoms may occur
Clinical assessment	Usually routine monitoring	Assessment may be needed	Comprehensive clinical assessment is important
Appropriate response	Planned recovery and monitoring	Training adjustment and investigation of contributing factors	Individualized management, substantial recovery, and exclusion of alternative diagnoses

Note. The table summarizes conceptual distinctions from Meeusen et al. (2013). These states cannot be reliably differentiated through one symptom, questionnaire, laboratory result, or performance measure alone.

14.5. How Burnout and Overtraining Interact

Athlete burnout and overtraining syndrome are not identical conditions, but they may coexist.

An athlete who experiences sustained performance impairment may become increasingly frustrated, doubt personal competence, and lose confidence in the training process. These experiences may contribute to reduced accomplishment and sport devaluation.

Conversely, an athlete exposed to persistent interpersonal conflict, pressure, or psychological exhaustion may experience poorer sleep, reduced recovery behaviors, and difficulties maintaining appropriate training routines.

The relationship is therefore potentially reciprocal, but it should not be assumed that one condition inevitably causes the other.

Three broad patterns illustrate the distinction.

Pattern 1: Primarily psychological burnout. An athlete continues to demonstrate relatively stable physical performance but experiences increasing emotional exhaustion, declining enjoyment, and a sense of detachment from sport.

Pattern 2: Primarily physical maladaptation. An athlete experiences persistent performance impairment, fatigue, and recovery difficulties following demanding training, while retaining a strong desire to compete.

Pattern 3: Combined difficulties. An athlete experiences declining performance alongside exhaustion, negative self-evaluation, loss of enjoyment, and increasing distress about continued participation.

These patterns are illustrative rather than diagnostic categories. Real cases may be more complex, and symptoms can overlap with medical and mental health conditions.

The central practical principle is to assess the whole athlete rather than treating psychological and physiological functioning as independent systems.

14.6. Stressors and Risk Factors Associated With Burnout

14.6.1. Excessive or Poorly Managed Training Demands

Training volume is only one aspect of workload. Intensity, frequency, competition density, travel, environmental conditions, and the athlete's previous preparation all influence the demands imposed.

A training load that is manageable for one athlete may be excessive for another because of differences in experience, injury history, fitness, recovery capacity, and non-sport responsibilities.

The International Olympic Committee's consensus statement on load and injury risk emphasizes that training and competition load should be prescribed and monitored in an individualized and flexible manner (Soligard et al., 2016).

Although this consensus primarily addresses load and injury risk, its broader message is relevant to athlete well-being: load management should account for the athlete's overall circumstances rather than treating training volume as an isolated variable.

14.6.2. Inadequate Recovery

Recovery includes the physiological and psychological processes through which athletes adapt to training and manage accumulated demands.

Important components include sleep, nutrition, hydration, appropriate rest, injury management, and opportunities for psychological detachment from performance demands.

Recovery may be compromised when athletes have congested competition schedules, extensive travel, academic or occupational responsibilities, or limited control over their daily routines.

An athlete may also avoid recovery because they believe that resting will reduce fitness or demonstrate insufficient commitment. Coaches should therefore communicate the role of recovery in performance development and provide explicit opportunities for appropriate rest.

14.6.3. Perfectionism and Fear of Failure

Perfectionistic concerns may contribute to burnout when athletes interpret mistakes as evidence of personal inadequacy or believe that acceptance depends on flawless performance.

Such athletes may continue training despite fatigue, avoid acknowledging difficulties, or experience disproportionate distress following ordinary performance fluctuations.

High standards are not inherently harmful. Athletes can pursue excellence while maintaining flexible expectations and responding constructively to setbacks.

The critical distinction concerns whether standards support learning and development or become rigid demands that undermine psychological functioning.

14.6.4. Low Autonomy and Controlling Coaching

Coaching environments can influence burnout through the degree to which athletes experience choice, competence, and meaningful interpersonal support.

Highly controlling environments may rely on threats, humiliation, excessive surveillance, or conditional approval. Such practices can intensify pressure and reduce the athlete's sense of ownership over participation.

Autonomy-supportive coaching communicates expectations clearly, explains the rationale for training decisions, provides meaningful feedback, and allows appropriate athlete input.

This approach does not remove accountability. Rather, it combines clear performance standards with respectful communication and opportunities for athlete development.

14.6.5. Role Ambiguity and Selection Uncertainty

Unclear roles and unpredictable selection decisions can create persistent psychological demands.

Athletes may be uncertain about what they need to improve, how their performance will be evaluated, or whether training effort will lead to meaningful opportunities.

Transparent selection criteria, consistent communication, and specific feedback may reduce avoidable uncertainty.

Where decisions cannot be guaranteed, coaches should communicate the factors involved and avoid creating unrealistic expectations.

14.6.6. Social Isolation and Limited Support

Supportive relationships can help athletes manage difficult periods and maintain a broader perspective on performance setbacks.

Isolation may increase the difficulty of coping with injury, selection uncertainty, academic pressure, or interpersonal conflict.

Support can be emotional, informational, practical, or instrumental. For example, a teammate may provide encouragement, a coach may clarify tactical expectations, a family member may assist with practical responsibilities, and a sport psychologist may help the athlete develop coping strategies.

The value of support depends partly on its quality. Unsolicited advice, dismissive reassurance, and pressure to conceal distress may be less helpful than attentive listening and appropriate assistance.

14.6.7. Athletic Identity and Life Balance

Athletic identity refers to the degree to which an individual identifies with the athlete role.

A strong athletic identity can support commitment and persistence. However, when self-worth depends almost entirely on sport performance, injury, deselection, or declining results may threaten the individual's broader sense of identity.

Athletes may benefit from maintaining meaningful relationships, educational or occupational interests, and personal goals beyond competition.

This does not imply reduced commitment to sport. A broader identity may provide additional psychological resources during difficult periods and support adjustment when athletic circumstances change.

14.6.8. Organizational and Environmental Factors

Burnout cannot be explained exclusively through individual characteristics.

Organizational conditions may include excessive competition schedules, inadequate facilities, financial insecurity, poor communication, discriminatory practices, harassment, and limited access to confidential support.

The IOC's 2026 consensus statement on mental health in elite athletes emphasizes that athlete well-being requires attention to leadership behavior, safeguarding, organizational culture, and environmental conditions, in addition to individual assessment and treatment.

A prevention strategy that focuses only on teaching athletes to tolerate pressure may therefore be insufficient if the underlying environment remains harmful.

14.7. Recovery, Sleep, and Nutrition

14.7.1. Recovery as an Active Process

Recovery is not simply the absence of training. It involves the restoration and adaptation processes required to sustain performance over time.

A comprehensive recovery strategy may include appropriate training distribution, sleep, nutrition, hydration, injury management, relaxation, social support, and periods of reduced psychological demand.

The optimal combination varies by sport, competition schedule, training phase, and individual needs.

Recovery should be integrated into programme design rather than treated as an optional activity after training has been completed.

14.7.2. Sleep and Athlete Well-Being

Sleep contributes to physical recovery, attention, emotional regulation, learning, and general health.

Insufficient or disrupted sleep may increase perceived effort, reduce concentration, and interfere with mood regulation. It can also make training demands feel more difficult to manage.

Potential causes of sleep disruption include late competitions, travel, irregular schedules, pain, anxiety, electronic media use, and environmental conditions.

Practical measures may include maintaining a reasonably consistent sleep schedule, allowing sufficient time for sleep, managing evening stimulation, and adjusting travel plans when possible.

Persistent insomnia, excessive daytime sleepiness, or other significant sleep concerns may require professional assessment.

Sleep should not be evaluated exclusively through wearable-device scores. Subjective experience, functional impairment, and the broader clinical context are also important.

14.7.3. Energy Availability and Nutrition

Athletes require adequate energy and nutrient intake to support training, recovery, health, and adaptation.

Low energy availability occurs when dietary energy remaining after exercise expenditure is insufficient to support normal physiological functioning. When problematic and sustained, low energy availability can contribute to Relative Energy Deficiency in Sport (REDs).

The IOC consensus statement on REDs describes health and performance consequences associated with problematic low energy availability in female and male athletes (Mountjoy et al., 2023).

Potential consequences may include impaired recovery, disturbances in reproductive or endocrine function, bone health problems, and changes in performance. The specific presentation varies according to the individual and the severity and duration of the problem.

REDs is not synonymous with burnout or overtraining syndrome. However, fatigue, mood changes, performance decline, and other overlapping symptoms can make differential assessment important.

Assessment should involve qualified sports medicine and nutrition professionals when REDs is suspected. Screening tools can assist identification, but they should not be used independently to establish a diagnosis or determine unrestricted participation.

14.7.4. Psychological Recovery

Psychological recovery involves opportunities to disengage from continuous performance evaluation and restore emotional resources.

Athletes may benefit from activities that provide enjoyment, social connection, relaxation, and a sense of identity beyond competitive outcomes.

Psychological detachment does not require complete disengagement from athletic goals. It means that the athlete can participate in meaningful non-sport activities without experiencing persistent guilt about not training or thinking about performance.

Coaches can support this process by respecting planned recovery periods, avoiding unnecessary communication outside agreed training hours, and not treating every non-training activity as a threat to commitment.

14.8. Early Identification and Monitoring

14.8.1. Why Early Identification Matters

Burnout and overtraining may develop gradually. Athletes may initially interpret changes as temporary fatigue or believe that increasing effort will resolve the problem.

Early identification can help practitioners recognize emerging difficulties before they become more severe or interfere substantially with participation.

However, monitoring should not create additional pressure. Excessive data collection, intrusive questioning, or the use of well-being scores in selection decisions may discourage honest reporting.

The aim is to identify meaningful changes and provide appropriate support.

14.8.2. Subjective Monitoring

Subjective monitoring involves asking athletes to report their perceived state through brief questionnaires, structured check-ins, or conversations.

Potential domains include:

- Perceived fatigue.
- Sleep quality.
- Muscle soreness.
- Mood.
- Motivation.
- Stress outside sport.
- Perceived recovery.
- Training enjoyment.
- Sense of accomplishment.
- Confidence in managing current demands.

Subjective measures are useful because athletes can report experiences that may not be visible through external performance data.

Nevertheless, responses should be interpreted longitudinally and in context. A single low well-being score does not establish burnout or overtraining syndrome.

14.8.3. Performance and Training Indicators

Performance monitoring may include changes in task-specific output, technical consistency, training completion, perceived exertion, and recovery patterns.

The most informative indicators depend on the sport. An endurance athlete may be monitored through relevant physiological and performance measures, whereas a technical athlete may require measures of movement quality, execution consistency, or error patterns.

No single indicator can reliably identify every form of maladaptation. Performance changes should be interpreted alongside health status, training history, psychological reports, and other relevant information.

14.8.4. The Role and Limitations of Biomarkers

Biochemical, hormonal, immunological, and other physiological markers have been investigated in relation to fatigue and overtraining.

However, individual responses vary, and no single laboratory value provides a universally valid diagnosis of overtraining syndrome.

Biomarkers may be useful when selected and interpreted by qualified clinicians as part of a broader assessment. They should not replace clinical reasoning or be used to label athletes without sufficient evidence.

14.8.5. The Athlete Burnout Questionnaire

The Athlete Burnout Questionnaire (ABQ) was developed to assess the major dimensions of athlete burnout. It has been widely used in research and is associated with the conceptual framework involving exhaustion, reduced accomplishment, and sport devaluation.

The questionnaire may assist research and structured monitoring, but its results should not be interpreted as a stand-alone clinical diagnosis.

Practitioners should consider the instrument's validity for the population, language, and context in which it is used. They should also assess the athlete's broader circumstances and investigate alternative explanations for reported symptoms.

14.8.6. A Multidimensional Monitoring Framework

Domain	Example indicators	Potential response
Training load	Volume, intensity, frequency, competition density	Adjust the programme according to individual readiness
Performance	Persistent decline in relevant performance indicators	Investigate recovery, health, and technical factors
Psychological well-being	Exhaustion, motivation, mood, perceived accomplishment	Conduct a supportive conversation and consider further assessment
Sleep	Insufficient duration, poor quality, daytime impairment	Review schedule and consider professional evaluation
Nutrition	Inadequate intake, concerning weight or health changes	Refer to qualified sports nutrition and medical professionals
Social environment	Conflict, isolation, role ambiguity	Improve communication and access to support
Medical status	Persistent fatigue, illness, pain, other concerning symptoms	Arrange appropriate clinical assessment

This framework is intended to support early identification and decision-making. It is not a diagnostic algorithm, and the presence of an indicator does not automatically establish a specific condition.

14.9. Prevention and Intervention Strategies

14.9.1. Individualized Training Design

Training programmes should reflect the athlete's current capacity, objectives, experience, health status, and recovery resources.

Progression should be appropriate to the athlete's preparation and the demands of the sport. Sudden increases in training or competition demands should be evaluated carefully, especially when combined with inadequate recovery or other stressors.

Individualization also requires flexibility. Athletes may respond differently to the same programme, and their needs may change during a season.

The goal is not to eliminate demanding training. It is to ensure that the demands are appropriate and that the athlete has sufficient opportunity to adapt.

14.9.2. Planned Recovery and Periodization

Periodization organizes training demands over time to support adaptation and performance at appropriate moments.

Planned recovery may involve changes in training volume, intensity, competition exposure, or the distribution of demanding sessions.

Recovery should be considered alongside the competition calendar and the athlete's non-sport responsibilities.

When an athlete shows persistent signs of maladaptation, the training plan should be reassessed rather than continued unchanged because it was originally scheduled.

14.9.3. Autonomy-Supportive Coaching

Autonomy-supportive coaching may help athletes experience participation as meaningful and personally endorsed.

Practical behaviors include:

- Explaining the purpose of training tasks.
- Providing clear and constructive feedback.
- Listening to athlete concerns.
- Offering appropriate choices.
- Encouraging athletes to take responsibility for preparation.
- Distinguishing effort and learning from outcome alone.
- Avoiding humiliation and unnecessary threats.

These practices can be combined with high standards and clear expectations.

14.9.4. Goal Adjustment and Meaningful Progress

Athletes may benefit from reviewing goals when circumstances change.

An injury, selection decision, academic demand, or performance plateau may require adjustments to short-term expectations. Goal adjustment should not automatically be interpreted as giving up.

A useful approach is to distinguish between the athlete's broader values and the immediate strategies used to pursue them.

For example, an athlete who cannot compete because of injury may temporarily shift attention toward rehabilitation quality, physical preparation, or technical analysis. Such adjustments can preserve a sense of agency while respecting current limitations.

14.9.5. Psychological Skills and Coping

Psychological skills can support athletes experiencing demanding training and competitive environments.

Relevant approaches include:

- Stress appraisal and coping strategies.
- Realistic goal-setting.
- Cognitive restructuring.
- Mindfulness and acceptance-based techniques.
- Self-compassion.
- Communication and help-seeking skills.
- Structured reflection after setbacks.

These approaches should complement, not replace, appropriate changes to training and organizational conditions.

For example, teaching an athlete to tolerate stress is unlikely to be sufficient if the underlying problem is an excessive workload, repeated humiliation, or inadequate recovery opportunities.

14.9.6. Peer and Social Support

Supportive relationships can provide emotional reassurance, practical assistance, and alternative perspectives during difficult periods.

Teams can encourage constructive peer support by establishing expectations for respectful communication and reducing the stigma associated with discussing fatigue or psychological difficulties.

Athletes should also have access to confidential support outside the immediate selection structure when appropriate.

Support should not become pressure to disclose private information or continue participating despite clinically significant concerns.

14.9.7. Organizational Responsibility

Sport organizations influence athlete well-being through policies, leadership, schedules, safeguarding systems, and access to services.

Organizational prevention may involve:

1. Reviewing competition schedules and travel demands.
2. Establishing clear training and recovery expectations.
3. Providing confidential access to qualified professionals.
4. Developing transparent selection procedures.
5. Educating coaches about burnout and overtraining.
6. Establishing procedures for responding to harassment and abuse.
7. Protecting athletes from retaliation when they raise legitimate health concerns.
8. Evaluating whether well-being monitoring is used constructively.

The IOC's 2026 mental health consensus supports an approach that addresses both individual clinical needs and environmental contributors to mental health difficulties.

14.10. Differentiating Burnout From Depression and Other Mental Health Concerns

14.10.1. Why Differential Assessment Is Necessary

Burnout, overtraining syndrome, depression, anxiety, sleep disorders, and REDs may share symptoms such as fatigue, reduced motivation, sleep disruption, or diminished enjoyment.

These similarities can complicate identification. An athlete who reports exhaustion and loss of interest should not automatically be classified as burned out without examining the broader pattern of symptoms and functioning.

The 2026 IOC consensus statement emphasizes the importance of differentiating sport-related burnout and overtraining from major depressive disorder. Burnout and overtraining may be more closely linked to the sport context, whereas depressive symptoms may affect multiple areas of life. However, this distinction is not absolute, and the conditions may coexist.

14.10.2. Sport-Specific Versus Pervasive Symptoms

An athlete experiencing sport-related burnout may report that exhaustion and loss of enjoyment are most pronounced during training or competition.

A person experiencing major depressive disorder may demonstrate persistent symptoms across multiple areas of life, including relationships, education, work, and previously enjoyable activities.

These patterns are not sufficient to diagnose either condition. A qualified mental health professional must consider symptom duration, severity, functional impairment, clinical criteria, and alternative explanations.

14.10.3. Warning Signs Requiring Professional Support

Further assessment may be appropriate when an athlete experiences:

- Persistent low mood or loss of interest across multiple settings.
- Severe or prolonged sleep disturbance.
- Marked changes in appetite or energy.
- Significant impairment in daily functioning.
- Persistent fatigue that does not improve as expected.
- Recurrent unexplained illness or injury.
- Significant weight or nutritional concerns.
- Increasing social withdrawal.
- Severe anxiety or panic symptoms.
- Thoughts of self-harm or suicide.

These signs should be treated seriously without assuming that they all indicate the same condition.

Urgent concerns about self-harm or suicide require immediate professional or emergency support.

14.10.4. Referral and Confidentiality

Coaches should recognize the limits of their role. They can observe changes, listen to concerns, adjust training when appropriate, and facilitate referral. They should not diagnose medical or psychiatric conditions unless they possess the relevant professional qualifications and are acting within their scope of practice.

Athletes should be informed about confidentiality, the limits of privacy where safety is concerned, and how support relates to team decisions.

A culture in which athletes fear deselection or humiliation for seeking help can delay identification and worsen outcomes.

14.11. An Applied Four-Week Athlete Well-Being Programme

The following programme provides a structured starting point for athlete well-being monitoring and burnout prevention. It is an applied framework rather than a universally validated treatment protocol. It should be adapted to the sport, the athlete's circumstances, and professional guidance.

Week 1: Baseline Assessment

Objectives

- Establish a baseline understanding of training demands and well-being.
- Identify major stressors inside and outside sport.
- Review recent changes in performance, motivation, sleep, and recovery.

Activities

1. Record training and competition demands.
2. Use an appropriate brief well-being assessment.
3. Discuss sleep, nutrition, injury, and non-sport responsibilities.
4. Identify sources of avoidable uncertainty or interpersonal stress.
5. Agree on a confidential process for reporting concerns.

Evaluation

The athlete and practitioner should have a clearer understanding of current demands, recovery opportunities, and possible areas requiring further assessment.

Week 2: Recovery and Workload Review

Objectives

- Identify potential imbalances between training and recovery.
- Improve the athlete's understanding of recovery.
- Address practical barriers to adequate rest.

Activities

1. Review the distribution of demanding training sessions.
2. Examine competition density and travel.
3. Review sleep opportunities and recovery routines.
4. Discuss nutrition and hydration with appropriate professionals when needed.
5. Modify the programme if the available evidence supports adjustment.

Evaluation

The athlete should have a practical recovery plan that reflects their current circumstances.

Week 3: Psychological and Social Resources

Objectives

- Strengthen coping and communication.
- Reduce avoidable interpersonal stress.
- Improve the athlete's sense of agency.

Activities

1. Identify common sources of pressure.
2. Practice constructive communication about training concerns.
3. Review goal expectations and perceived competence.
4. Identify supportive relationships.
5. Establish appropriate referral pathways when concerns exceed routine coaching support.

Evaluation

The athlete should know how to communicate concerns and access relevant support.

Week 4: Review and Long-Term Planning

Objectives

- Evaluate changes in well-being and performance.
- Identify which adjustments were useful.
- Establish a sustainable monitoring and recovery plan.

Activities

1. Repeat the selected well-being measures.
2. Review performance and training trends.
3. Discuss the athlete's experience of the intervention.
4. Retain effective strategies and modify ineffective ones.
5. Establish follow-up dates and referral plans where indicated.

Evaluation

The practitioner should determine whether the current plan is appropriate, whether further assessment is required, and which preventive measures should continue.

Programme Summary

Week	Focus	Main activities	Intended outcome
1	Baseline assessment	Review workload, well-being, stressors, and health	Identify potential concerns
2	Recovery	Examine training distribution, sleep, and nutrition	Improve load-recovery balance
3	Psychological and social resources	Communication, goal review, support planning	Strengthen coping and agency
4	Evaluation	Repeat assessment and review adjustments	Establish a sustainable plan

The programme is not a substitute for medical evaluation or mental health treatment. Persistent performance decline, severe fatigue, significant mood symptoms, or other concerning changes require appropriate professional assessment.

14.12. Practical Recommendations for Key Stakeholders

14.12.1. For Athletes

Athletes can contribute to prevention by developing awareness of their individual recovery patterns and communicating meaningful changes.

Recommended practices include:

- Reporting persistent fatigue rather than concealing it.
- Maintaining realistic performance and process goals.
- Protecting appropriate sleep and recovery opportunities.
- Seeking professional advice when symptoms persist.
- Maintaining meaningful interests and relationships outside sport.
- Avoiding the assumption that every performance decline requires additional training.
- Recognizing that requesting support is compatible with commitment to sport.

Athletes should not be expected to manage systemic problems entirely through individual coping strategies.

14.12.2. For Coaches

Coaches influence both training demands and the psychological environment.

Recommended practices include:

- Individualizing training where possible.
- Monitoring trends rather than reacting to isolated observations.
- Communicating selection and performance expectations clearly.
- Supporting recovery as part of training design.
- Responding constructively to reports of fatigue or distress.
- Avoiding humiliation, threats, and unnecessary pressure.
- Referring athletes for appropriate professional assessment when indicated.

Coaches should also recognize that athletes may underreport symptoms when they fear losing selection or playing time.

14.12.3. For Sport Psychologists

Sport psychologists can assess motivational patterns, perceived stressors, coping resources, and the psychosocial environment.

Their role may include:

- Conducting appropriate psychological assessments.
- Helping athletes identify and modify unhelpful patterns of self-evaluation.
- Supporting communication and coping.
- Working with coaches to improve the psychosocial climate.
- Assisting athletes during injury, performance decline, or transitions.
- Facilitating referral when clinical concerns exceed their scope of practice.

Sport psychologists should distinguish performance-related support from clinical treatment and collaborate with medical and mental health professionals when necessary.

14.12.4. For Medical and Sports Science Professionals

Medical and sports science professionals should consider training history, recovery, nutrition, sleep, injury, illness, and psychological functioning when evaluating persistent performance decline.

They should avoid relying on a single biomarker or questionnaire to identify overtraining syndrome.

When indicated, assessment should investigate alternative explanations such as infection, anemia, low energy availability, sleep disorders, and mental health conditions.

14.12.5. For Sport Organizations

Sport organizations should establish systems that support both performance and well-being.

These systems may include:

- Clear policies for athlete welfare and safeguarding.
- Appropriate access to medical and psychological services.
- Training and competition schedules that consider recovery.
- Confidential procedures for reporting concerns.

- Coach education on burnout and overtraining.
- Transparent selection criteria.
- Periodic evaluation of organizational culture.
- Protection against retaliation for legitimate health-related concerns.

The long-term objective is to develop an environment in which performance and well-being are treated as complementary responsibilities.

14.13. Future Research Directions

14.13.1. Improving Measurement Consistency

The 2026 meta-analysis by Viego et al. reported substantial heterogeneity across burnout estimates and differences associated with the instruments used.

Future research should improve consistency in definitions, assessment procedures, reporting, and interpretation. Researchers should clearly distinguish burnout symptoms from clinical diagnoses and specify the population and context in which measures are used.

14.13.2. Longitudinal Research

Cross-sectional studies can identify associations but cannot fully explain how burnout develops over time.

Longitudinal research should examine the temporal relationships among workload, recovery, motivation, social support, performance changes, and psychological well-being.

Such research may help identify early indicators that are useful for prevention without treating every temporary fluctuation as a pathological condition.

14.13.3. Intervention Effectiveness

More rigorous research is needed to determine which interventions are most effective for particular athlete populations and organizational conditions.

Potential approaches include changes in coaching behavior, workload management, recovery planning, psychological skills training, and access to confidential mental health support.

Researchers should evaluate not only symptom reduction but also adherence, athlete satisfaction, performance, continued participation, and unintended consequences.

14.13.4. Youth and Developmental Sport

Young athletes may experience distinct risks associated with parental expectations, early specialization, selection pressure, educational demands, and limited control over training schedules.

Research should investigate age-appropriate approaches to recovery, autonomy support, healthy motivation, and the prevention of excessive performance pressure.

14.13.5. Organizational and Cultural Contexts

Burnout is shaped partly by the environment in which athletes train and compete. Future research should examine how leadership, selection procedures, financial conditions, safeguarding, gendered expectations, and cultural norms influence athlete well-being.

Comparative studies across sports, countries, and competitive levels may help identify both general mechanisms and context-specific risks.

14.13.6. Integrating Physical and Psychological Monitoring

Future research should examine how subjective well-being reports, training-load indicators, performance data, sleep information, and clinical assessments can be combined responsibly.

The objective should be to improve decision-making while minimizing unnecessary monitoring, privacy risks, and false-positive interpretations.

Digital tools should be evaluated for validity and practical utility rather than assumed to provide reliable conclusions merely because they produce frequent measurements.

14.14. Conclusion

Athlete burnout, overtraining, and well-being are interconnected issues that require an integrated understanding of psychological, physiological, interpersonal, and organizational processes.

Athlete burnout is commonly characterized by exhaustion, reduced accomplishment, and sport devaluation. Functional overreaching, non-functional overreaching, and overtraining syndrome describe different patterns of training-related adaptation and maladaptation. Although these conditions may share symptoms and occasionally coexist, they should not be treated as interchangeable.

The development of burnout and overtraining cannot be explained solely through an athlete's personal characteristics or willingness to work hard. Training demands, recovery, sleep, nutrition, autonomy, perceived competence, social support, coaching practices, and organizational conditions may all contribute.

Evidence-informed prevention requires individualized training design, appropriate recovery, supportive communication, responsible monitoring, and access to qualified professionals. Persistent performance decline or psychological distress should prompt assessment rather than an automatic increase in training intensity.

The distinction between athlete burnout, overtraining syndrome, depression, and other health conditions is particularly important. Shared symptoms do not establish a shared diagnosis, and no single questionnaire, biomarker, or performance indicator can independently resolve every case.

Ultimately, sustainable athletic performance depends on more than the capacity to tolerate demanding conditions. It also requires the ability to adapt, recover, maintain meaningful motivation, and access appropriate support. Sport environments that protect athlete well-being are better positioned to support long-term development, responsible participation, and consistent performance.

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CHAPTER 15: Injury Psychology, Rehabilitation, and Return to Sport: Psychological Responses, Recovery, and Evidence-Based Practice

15.1. Introduction

Sport injuries are among the most challenging experiences athletes may encounter during their sporting careers. Beyond pain, tissue damage, functional limitations, and interruptions to training, injury can disrupt an athlete's identity, social relationships, perceived competence, competitive ambitions, and sense of control over the future. For athletes whose daily lives are organized around training and competition, an injury may represent not only a physical setback but also a major psychological and social transition.

The psychological consequences of injury vary considerably. Some athletes respond with determination, patience, and constructive engagement in rehabilitation. Others experience frustration, anxiety, sadness, reduced motivation, fear of reinjury, or uncertainty about whether they will regain their previous performance level. The same athlete may experience several of these reactions at different stages of recovery.

An injury can also change the athlete's relationship with sport. Training routines may be interrupted, team membership may become less visible, selection opportunities may be lost, and the athlete may begin questioning their athletic future. When sport constitutes a major source of identity, social belonging, and personal accomplishment, these changes can be particularly difficult to manage.

Injury rehabilitation is therefore best understood as a multidimensional process involving biological healing, functional restoration, psychological adaptation, and progressive re-engagement with sport. Physical rehabilitation remains essential, but psychological responses can influence participation in rehabilitation, tolerance of uncertainty, confidence in movement, and readiness to resume demanding activities.

The distinction between physical recovery and psychological readiness is particularly important. An athlete may meet certain physical criteria while continuing to experience substantial fear of reinjury. Conversely, an athlete may feel psychologically confident before achieving the strength, movement quality, or functional capacity required for safe participation. Neither situation should be managed through psychological confidence or physical testing alone.

Research on anterior cruciate ligament (ACL) reconstruction illustrates this distinction. Xiao et al. (2023) conducted a systematic review and meta-analysis involving 3,744 patients and found that athletes who returned to sport had higher psychological readiness and self-efficacy, as well as lower kinesiophobia, than those who did not return. These findings support the inclusion of psychological assessment alongside physical and clinical measures, although they do not establish that psychological readiness alone causes successful return to sport.

The International Olympic Committee's 2026 consensus statement on mental health in elite athletes also emphasizes the need to assess psychological responses to injury and to consider mental health when planning return to sport. It identifies concerns such as fear of reinjury, reduced self-efficacy, changes in athletic identity, anxiety, and emotional distress as relevant considerations during rehabilitation.

This chapter examines the psychological processes associated with sport injury, the factors that influence rehabilitation, the development of confidence and psychological readiness, and the practical implications for return-to-sport decisions. It also considers the responsibilities of coaches, sport psychologists, medical professionals, rehabilitation specialists, and sport organizations.

The chapter has seven principal objectives:

1. Explain the psychological and social dimensions of sport injury.
2. Examine major theoretical models of psychological responses to injury.
3. Identify cognitive, emotional, and behavioral responses that may influence rehabilitation.
4. Evaluate the roles of motivation, self-efficacy, social support, and fear of reinjury.
5. Examine psychological assessment and intervention during rehabilitation.
6. Explain how psychological readiness should be integrated into return-to-sport decisions.
7. Develop evidence-informed recommendations for athletes and multidisciplinary sport teams.

15.2. Sport Injury as a Biopsychosocial Experience

15.2.1. Beyond the Physical Injury

A sport injury involves more than damage to a muscle, tendon, ligament, bone, or other body structure. Its consequences depend partly on the nature of the injury, the athlete's interpretation of the event, the anticipated recovery period, the demands of the sport, and the social environment in which rehabilitation takes place.

For example, two athletes with similar knee injuries may experience different psychological responses. One may have strong social support, a clear rehabilitation plan, and confidence in the medical team. The other may face selection uncertainty, limited access to rehabilitation, financial concerns, and fear of losing a professional contract.

Although the physical diagnosis may be similar, the meaning of the injury and the resources available to manage it differ.

A biopsychosocial perspective considers three interconnected domains:

Biological factors include tissue damage, pain, swelling, strength deficits, mobility limitations, healing processes, and functional capacity.

Psychological factors include appraisal, emotional responses, confidence, motivation, fear, coping strategies, expectations, and athletic identity.

Social factors include coach behavior, teammate relationships, family support, access to health services, selection policies, financial security, and organizational culture.

These domains influence one another. Persistent pain may increase worry, worry may contribute to avoidance of movement, avoidance may reduce opportunities to develop confidence in functional tasks, and reduced participation may further affect mood and social connection.

Such a sequence is not inevitable, and pain or avoidance should not automatically be interpreted as psychological weakness. The purpose of a biopsychosocial approach is to identify potentially modifiable factors and coordinate appropriate care.

15.2.2. The Meaning of Injury

The psychological impact of injury depends partly on how the athlete interprets the event.

An athlete may appraise an injury as:

- A temporary interruption that can be managed through rehabilitation.
- A threat to selection or professional opportunities.
- Evidence of personal vulnerability.
- A loss of control over athletic development.
- An opportunity to learn about preparation and recovery.
- A challenge that requires adaptation and revised goals.

These interpretations can change during rehabilitation. Early uncertainty may give way to confidence as progress becomes visible. Alternatively, a setback or unexpected delay may increase concern and undermine confidence.

The athlete's interpretation is influenced by previous injury experiences, knowledge about the condition, expectations about recovery, confidence in medical advice, and the perceived consequences of not returning to the previous performance level.

Effective communication is therefore essential. Athletes should receive understandable information about their injury, treatment options, rehabilitation milestones, and the uncertainty associated with recovery.

15.2.3. Injury and the Loss of Routine

Training provides structure, social contact, feedback, and a sense of progress. An injury may disrupt all these functions simultaneously.

Athletes who are unable to participate fully may feel disconnected from teammates or believe that they are no longer contributing to the team. They may also lose the daily routines that previously helped organize sleep, nutrition, education, work, and social activity.

Rehabilitation can introduce a different routine characterized by repeated appointments, exercises, progress assessments, and periods of uncertainty.

Maintaining appropriate involvement in team activities, when medically feasible, may help preserve social connection. However, participation should be adapted to the injury and should not create pressure to perform activities that exceed clinical recommendations.

15.3. Theoretical Models of Psychological Responses to Injury

15.3.1. The Integrated Model of Psychological Response to Sport Injury

Wiese-Bjornstal et al. (1998) proposed an integrated model of psychological response to sport injury that combines personal factors, situational influences, cognitive appraisal, emotional responses, and behavioral responses.

The model emphasizes that injury-related psychological responses are dynamic rather than fixed. An athlete's interpretation of an injury can change as rehabilitation progresses and new information becomes available.

Personal factors may include previous injury experience, personality, coping resources, athletic identity, and beliefs about pain and recovery. Situational factors may include injury severity, treatment procedures, social support, coaching behavior, and the perceived consequences of missing competition.

These factors influence how the athlete appraises the injury. Appraisal then interacts with emotional and behavioral responses, which may affect rehabilitation participation and subsequent experiences.

For example, an athlete who interprets a rehabilitation setback as evidence that recovery is impossible may experience discouragement and reduce engagement. Another athlete may interpret the same setback as a signal that the programme requires adjustment and remain actively involved in rehabilitation.

The model does not suggest that positive thinking can overcome every physical limitation. Rather, it explains why similar injuries may be accompanied by different psychological experiences and why individualized support is important.

15.3.2. Cognitive Appraisal and Coping

Cognitive appraisal concerns how an athlete evaluates the significance of the injury and the resources available to manage it.

Primary appraisal concerns whether the injury is interpreted as a threat, loss, challenge, or manageable event. Secondary appraisal concerns the perceived availability of resources, including medical support, rehabilitation knowledge, time, social support, and personal coping skills.

Coping responses can be broadly classified into problem-focused and emotion-focused strategies, although actual responses often combine elements of both.

Problem-focused coping involves actions directed toward managing the demands of the situation. In rehabilitation, this may include following an agreed

exercise plan, asking questions about treatment, setting manageable goals, and organizing time for recovery.

Emotion-focused coping involves managing the emotional consequences of the injury. Examples include seeking emotional support, practicing relaxation, accepting uncertainty, and using cognitive strategies to manage distress.

Neither category is universally superior. Problem-focused coping is useful when the athlete can take meaningful action, whereas emotion-focused strategies may be particularly relevant when immediate control over the injury or recovery timeline is limited.

Effective rehabilitation often requires both approaches.

15.3.3. Self-Determination Theory and Rehabilitation Motivation

Self-determination theory proposes that autonomy, competence, and relatedness are important psychological needs associated with motivation and well-being (Deci & Ryan, 2000).

These needs are relevant to injury rehabilitation.

Autonomy concerns the athlete's experience of having meaningful involvement in decisions and understanding the rationale for rehabilitation tasks.

Competence concerns the athlete's belief that they can perform relevant activities and make progress.

Relatedness concerns the experience of connection, respect, and support from coaches, clinicians, teammates, and family members.

Injury can threaten all three needs. Athletes may feel that they have lost control over their bodies, doubt their ability to recover, or become disconnected from their team.

Rehabilitation professionals can support these needs by explaining treatment decisions, setting achievable goals, acknowledging progress, inviting appropriate questions, and maintaining respectful relationships.

Supporting autonomy does not mean allowing an athlete to disregard medical restrictions. It means involving the athlete meaningfully within the boundaries of safe and appropriate care.

15.3.4. Fear-Avoidance Models

Fear-avoidance perspectives explain how fear of pain, movement, or reinjury may influence activity and rehabilitation behavior.

When an athlete interprets movement as dangerous, they may avoid activities even when those activities have been appropriately prescribed as part of rehabilitation. Avoidance may reduce opportunities to develop confidence in movement and can contribute to persistent functional limitations.

However, fear can also be protective. Pain or apprehension may indicate that a task requires modification, that the athlete needs further instruction, or that medical reassessment is necessary.

The distinction between appropriate caution and excessive fear should therefore be made through clinical and functional assessment rather than assumptions.

A graded approach may help athletes progressively engage with appropriate movements and sport-specific tasks as their physical capacity improves. The progression should be planned by qualified rehabilitation professionals and should respect tissue healing, clinical restrictions, and the athlete's individual response.

15.3.5. Self-Efficacy and Rehabilitation Behavior

Self-efficacy refers to an individual's belief in their capacity to organize and execute the actions required to achieve a specific goal (Bandura, 1997).

During rehabilitation, self-efficacy may influence how athletes approach challenging exercises, respond to setbacks, and persist with an appropriate programme.

Athletes may develop confidence through mastery experiences, credible feedback, observation of others, and supportive communication. For example, completing a functional exercise successfully may provide evidence that the athlete can perform a previously difficult movement.

However, confidence should remain calibrated to actual capacity. High self-efficacy cannot replace tissue healing, strength restoration, neuromuscular control, or clinical clearance.

Rehabilitation should therefore provide progressive opportunities for mastery while maintaining appropriate physical and medical criteria.

15.4. Cognitive, Emotional, and Behavioral Responses to Injury

15.4.1. Cognitive Responses

Cognitive responses include thoughts, beliefs, expectations, and interpretations associated with the injury.

Common examples include:

- Uncertainty about the recovery timeline.
- Concerns about losing a position or contract.
- Doubts about the competence of the injured body part.
- Negative predictions about future performance.
- Beliefs that rehabilitation progress is too slow.
- Concerns about disappointing teammates or coaches.
- Fear that the injury will permanently change the athlete's career.

Some concerns are realistic and require practical planning. Others may become exaggerated or persistent and interfere with rehabilitation.

Practitioners should avoid dismissing all negative thoughts as irrational. An athlete may have legitimate reasons to worry about selection, finances, or career uncertainty.

A useful intervention distinguishes between problems that can be addressed directly and concerns that require coping with uncertainty.

15.4.2. Emotional Responses

Emotional responses may include sadness, frustration, anger, anxiety, disappointment, relief, and hope.

These emotions may fluctuate throughout rehabilitation. An athlete may initially feel determined to return, experience frustration when progress slows, and later regain confidence as functional capacity improves.

Such variation is not necessarily evidence of a mental health disorder.

Concern is greater when distress becomes persistent, worsens over time, is disproportionate to the circumstances, or substantially interferes with sleep, relationships, daily functioning, or rehabilitation participation.

The 2026 IOC consensus statement recommends that psychological responses to injury be assessed and managed as part of athlete care rather than treated as secondary considerations.

15.4.3. Behavioral Responses

Behavioral responses can influence recovery directly.

Potential patterns include:

- Consistent participation in prescribed rehabilitation.
- Avoidance of movements because of fear.
- Excessive activity beyond agreed restrictions.
- Withdrawal from teammates.
- Concealment of symptoms.
- Repeated reassurance-seeking.
- Reduced adherence to rehabilitation exercises.
- Premature attempts to resume sport.
- Engagement in activities that interfere with recovery.

These behaviors should be interpreted in context. Poor adherence may reflect pain, misunderstanding, financial or transportation barriers, scheduling problems, or lack of confidence in the programme rather than low motivation.

Similarly, excessive training may reflect fear of losing fitness, pressure from the team, or difficulty accepting temporary limitations.

A supportive assessment should identify the reasons for the behavior before selecting an intervention.

15.4.4. When Psychological Responses Require Further Assessment

Not every emotional reaction to injury requires psychological treatment. Nevertheless, persistent or severe symptoms should not be dismissed as a normal part of sport.

Potential warning signs include:

- Persistent low mood or loss of interest.
- Severe anxiety or panic symptoms.
- Marked social withdrawal.
- Major sleep disturbances.
- Significant changes in appetite or behavior.
- Persistent distress that interferes with rehabilitation.
- Harmful substance use.
- Thoughts of self-harm or suicide.

These signs do not establish a diagnosis, but they indicate that professional assessment may be necessary.

Coaches and rehabilitation staff should understand the limits of their roles and facilitate referral to qualified mental health professionals when indicated.

15.5. Fear of Reinjury and Kinesiophobia

15.5.1. Understanding Fear of Reinjury

Fear of reinjury is a concern that the athlete may sustain another injury when returning to training or competition.

It may involve fear of pain, distrust of the injured body part, concern about another long rehabilitation period, or anxiety about the consequences of a second injury.

Fear of reinjury is particularly relevant in sports involving rapid acceleration, deceleration, cutting, jumping, landing, contact, or unpredictable opponent movements.

For example, a football player recovering from an ACL injury may be able to perform controlled strength exercises but hesitate when changing direction at high speed. The difference reflects the additional demands and perceived uncertainty associated with sport-specific movement.

Fear may also persist when the athlete has regained substantial physical capacity. In these cases, psychological readiness and progressive exposure to appropriate sport-specific tasks may require additional attention.

15.5.2. Kinesiophobia

Kinesiophobia refers to an excessive or debilitating fear of movement because of perceived vulnerability to injury or reinjury.

It is distinct from reasonable caution during early rehabilitation. Athletes should not be encouraged to ignore pain, disregard medical advice, or perform tasks before they are physically prepared.

The objective is to identify when fear becomes a barrier to appropriate rehabilitation and to address it through a safe, progressive, and individualized plan.

The Tampa Scale for Kinesiophobia and its short forms have been used to assess movement-related fear in clinical and rehabilitation research. Their interpretation should be appropriate to the population and condition being assessed.

15.5.3. Evidence Linking Psychological Readiness and Return to Sport

Ardern et al. (2013) found that psychological responses were relevant to returning to the preinjury level of sport following ACL reconstruction.

Nwachukwu et al. (2019) reviewed psychological factors associated with failure to return to play after ACL reconstruction and identified fear of reinjury as a frequently reported barrier.

More recently, Xiao et al. (2023) synthesized evidence from 16 studies involving 3,744 patients. Athletes who returned to sport demonstrated higher ACL-Return to Sport after Injury (ACL-RSI) scores, higher knee self-efficacy, and lower kinesiophobia than those who did not return.

A 2025 systematic review and network meta-analysis by Lo et al. also examined the integration of psychological and physical assessments after ACL reconstruction. The findings supported a multidimensional approach, with psychological readiness contributing useful information for return-to-sport decisions alongside physical measures.

These studies provide evidence that psychological readiness is relevant to return-to-sport outcomes. However, the findings should not be interpreted as proof that fear alone determines recovery. Injury severity, physical function, rehabilitation quality, sport demands, access to care, and personal circumstances also influence the outcome.

15.5.4. Addressing Fear Through Progressive Exposure

Progressive exposure involves introducing increasingly demanding tasks in a structured manner as the athlete's physical capacity and clinical status permit.

For example, rehabilitation after a knee injury may progress from controlled strength exercises to balance tasks, planned changes of direction, sport-specific movement patterns, reactive drills, and modified training participation.

The exact progression depends on the injury, treatment, healing stage, and professional assessment. It should not be prescribed solely according to the athlete's confidence or desire to return.

Psychological support can help the athlete understand the purpose of each stage, identify fears, recognize evidence of progress, and develop confidence through successful performance of appropriate tasks.

The goal is not to eliminate all fear before activity. It is to develop a level of confidence and behavioral readiness that is compatible with the physical demands and risks of the next stage.

15.6. Athletic Identity and the Experience of Loss

15.6.1. Athletic Identity

Athletic identity refers to the extent to which an individual defines themselves through the athlete role.

A strong athletic identity can support commitment, discipline, and long-term engagement. However, when sport becomes the dominant or exclusive source of self-worth, injury may threaten the athlete's sense of identity.

An injured athlete may struggle with questions such as:

- “Who am I if I cannot compete?”
- “Will my teammates still see me as part of the team?”
- “What will happen to my career?”
- “Will I ever perform at the same level again?”

These concerns may be particularly salient among elite athletes whose education, employment, finances, social networks, and future opportunities are closely connected to sport.

15.6.2. Loss of Role and Social Belonging

Injury may alter an athlete's role within a team. The athlete may be unable to participate in training, travel, or competition in the usual way.

This can create feelings of exclusion even when teammates and coaches remain supportive.

Maintaining appropriate team involvement may help preserve social belonging. Examples include attending team meetings, contributing to tactical discussions, participating in modified activities where appropriate, or remaining connected through regular communication.

Such involvement should be guided by the athlete's preferences and clinical restrictions. It should not become an obligation that prevents rest or creates pressure to conceal distress.

15.6.3. Supporting a Broader Sense of Identity

A broader sense of identity may help athletes cope with temporary or permanent changes in sporting participation.

Education, relationships, hobbies, community activities, and personal values can provide sources of meaning beyond performance outcomes.

This does not mean that athletes should reduce their commitment to sport. Rather, a more balanced identity may protect psychological well-being when injury disrupts the athlete's usual role.

For athletes whose injuries require retirement or a substantial change in participation, identity-related support may become an important part of longer-term adjustment.

15.7. Motivation and Adherence to Rehabilitation

15.7.1. Rehabilitation as a Long-Term Behavioral Task

Rehabilitation frequently requires repeated exercises, gradual progression, symptom monitoring, and tolerance of uncertainty.

Progress may be slow or uneven. Athletes may experience periods when improvement is visible and others when changes are difficult to detect.

These conditions can challenge motivation, particularly when the athlete is accustomed to immediate feedback from competition.

Rehabilitation professionals should explain the purpose of exercises and provide realistic expectations about progress. Athletes should understand that temporary fluctuations do not necessarily indicate failure, while persistent deterioration requires appropriate reassessment.

15.7.2. Goal-Setting

Goal-setting can help athletes organize rehabilitation and recognize progress.

Goals may be classified as process, performance, and outcome goals.

Process goals focus on actions, such as completing prescribed exercises with appropriate technique.

Performance goals focus on measurable functional changes, such as improvements in strength, range of motion, balance, or movement quality.

Outcome goals concern broader results, such as returning to full training or competition.

Process and performance goals are often particularly useful during rehabilitation because they direct attention toward controllable actions and measurable progress.

Goals should be realistic, flexible, and coordinated with the rehabilitation team. Athletes should not be encouraged to meet a deadline by ignoring symptoms or exceeding clinical restrictions.

15.7.3. Self-Efficacy and Mastery Experiences

Successful completion of appropriate rehabilitation tasks can strengthen self-efficacy.

Early mastery experiences may involve controlled movements or basic functional tasks. Later experiences may involve more complex movements, sport-specific drills, and progressively demanding training environments.

Feedback should emphasize what the athlete can do safely and how the next stage builds on previous progress.

Confidence should be linked to demonstrated capacity rather than general reassurance. Statements such as “You are completely fine” may be unhelpful when uncertainty remains or physical criteria have not been met.

A more constructive approach is to identify specific progress, explain remaining requirements, and clarify how the next stage will be evaluated.

15.7.4. Rehabilitation Adherence and Barriers

Adherence can be influenced by multiple factors, including pain, treatment complexity, access to facilities, financial constraints, travel, competing responsibilities, and the athlete's confidence in the programme.

A failure to complete exercises should therefore prompt inquiry rather than immediate criticism.

Useful questions include:

- Does the athlete understand the purpose of the exercises?
- Are the exercises manageable within the athlete's daily routine?
- Is pain preventing appropriate participation?
- Are transportation or financial barriers present?
- Does the athlete feel comfortable communicating concerns?
- Is the programme progressing at an appropriate rate?

Addressing these barriers may improve engagement more effectively than relying on pressure or punishment.

15.8. Psychological Assessment During Rehabilitation

15.8.1. Principles of Assessment

Psychological assessment should be proportionate to the athlete's needs and integrated into the rehabilitation process.

The purpose is to identify relevant concerns, understand barriers to recovery, support decision-making, and determine whether additional professional input is needed.

Assessment should not be used to label athletes as mentally weak or to justify selection decisions without appropriate clinical and ethical safeguards.

A comprehensive assessment may include the athlete's injury history, emotional responses, beliefs about recovery, fear of reinjury, confidence, motivation, social support, and current functioning.

15.8.2. The ACL-Return to Sport After Injury Scale

The ACL-Return to Sport after Injury scale (ACL-RSI) was developed to assess psychological factors associated with returning to sport after ACL injury and reconstruction.

The scale examines relevant psychological dimensions, including emotions, confidence, and risk appraisal.

It can provide useful information when considering psychological readiness following ACL injury. However, it should not be treated as a stand-alone clearance instrument or universal threshold for safe return.

Scores must be interpreted in context, including the athlete's physical capacity, rehabilitation stage, sport demands, and other clinical information.

15.8.3. Injury-Psychological Readiness to Return to Sport Questionnaire

The Injury-Psychological Readiness to Return to Sport questionnaire (I-PRRS) is another measure used to examine psychological readiness in injured athletes.

It may assist practitioners in identifying concerns about confidence and readiness to resume participation.

As with other self-report instruments, results depend on the athlete's understanding of the questions, willingness to report concerns, and the relevance of the instrument to the population.

15.8.4. Measures of Movement Fear and Self-Efficacy

The Tampa Scale for Kinesiophobia can help assess fear related to movement or reinjury. The Knee Self-Efficacy Scale and pain self-efficacy measures may provide additional information about confidence in performing activities.

The selection of instruments should reflect the injury and rehabilitation objectives. A measure developed for knee rehabilitation may not be directly applicable to every shoulder, ankle, spinal, or upper-limb injury.

Psychological measures should complement, rather than replace, interviews, clinical observations, and functional assessment.

15.8.5. Combining Psychological and Physical Assessment

Return-to-sport decisions require a multidimensional assessment.

Assessment domain	Examples	Purpose
Clinical status	Injury healing, pain, swelling, medical restrictions	Determine whether progression is clinically appropriate
Physical function	Strength, mobility, balance, power, relevant functional tests	Assess capacity for sport-specific demands
Movement quality	Landing, cutting, acceleration, deceleration, technical execution	Examine movement control under relevant conditions
Psychological readiness	Confidence, fear of reinjury, perceived control	Identify psychological barriers to participation
Training tolerance	Response to progressively demanding sessions	Evaluate adaptation to sport-specific loading
Contextual readiness	Competition demands, support, selection pressures	Identify relevant environmental risks

No single measure should determine the entire decision. A favorable psychological score cannot compensate for inadequate physical capacity, and strong physical test results do not automatically resolve psychological concerns.

15.9. Evidence-Informed Psychological Interventions

15.9.1. Establishing a Collaborative Rehabilitation Relationship

A supportive relationship between the athlete and rehabilitation team is foundational.

Athletes should be able to ask questions, communicate concerns, and discuss uncertainty without fear of ridicule or disproportionate consequences.

Practitioners should explain the rationale for exercises, clarify restrictions, and provide realistic information about progression.

The relationship should encourage shared decision-making while respecting the professional responsibilities of clinicians and the athlete's need for safe rehabilitation.

15.9.2. Cognitive-Behavioral Strategies

Cognitive-behavioral strategies can help athletes identify and evaluate unhelpful interpretations of injury and recovery.

For example, an athlete may interpret a temporary increase in discomfort as proof that the injury has been permanently aggravated. Another may believe that missing a competition means their career is over.

The practitioner can help distinguish available evidence from catastrophic predictions and identify practical actions that can be taken.

Cognitive restructuring should not dismiss genuine pain or medical concerns. Physical symptoms require appropriate assessment, and psychological strategies should be integrated with clinical management.

15.9.3. Imagery and Mental Rehearsal

Imagery can help athletes mentally rehearse relevant movements, rehabilitation tasks, and future sport participation.

It may be used to represent successful execution, appropriate movement patterns, coping with uncertainty, and responding constructively to setbacks.

Imagery should complement physical rehabilitation rather than replace it. The athlete should not be encouraged to imagine readiness as evidence that physical healing is complete.

The content of imagery should be adapted to the rehabilitation stage. Early imagery may focus on confidence and controlled movement, whereas later imagery may include more demanding sport-specific scenarios when clinically appropriate.

15.9.4. Relaxation and Mindfulness

Relaxation strategies may help athletes manage excessive tension, frustration, and anxiety during rehabilitation.

Mindfulness-based approaches may support awareness of thoughts and sensations without automatically interpreting them as evidence of failure or danger.

For example, an athlete may learn to notice fear before a prescribed movement, acknowledge the emotion, and discuss the concern with the rehabilitation professional rather than avoiding the task without explanation.

These techniques should not be used to suppress legitimate warning signs. The aim is to improve awareness and coping, not to persuade athletes to ignore pain or medical restrictions.

15.9.5. Graded Exposure

Graded exposure involves progressive engagement with feared activities when the activity is clinically appropriate.

For example, a rehabilitation programme may progress from predictable, controlled movement to more complex sport-specific demands as the athlete's capacity improves.

The process should be coordinated with the clinical rehabilitation plan. Exposure should not advance solely because the athlete reports reduced fear, and it should not be used to override medical advice.

A successful progression can provide both functional evidence and psychological mastery experiences.

15.9.6. Social Support

Social support may include emotional reassurance, practical assistance, informational guidance, and continued connection with teammates.

Supportive coaches can help athletes maintain a valued role while respecting the limitations associated with injury.

Family members may assist with transport or daily responsibilities. Teammates may provide encouragement and preserve social connection. Clinicians can provide accurate information and help athletes understand the rehabilitation process.

Support should be responsive to the athlete's preferences. Some athletes may welcome frequent communication, whereas others may need more privacy or time to process the injury.

15.9.7. Self-Compassion and Adaptive Goal Adjustment

Self-compassion involves responding to difficulties with understanding rather than excessive self-criticism.

During rehabilitation, athletes may benefit from recognizing that injury is a difficult experience without interpreting it as evidence of personal failure.

Adaptive goal adjustment is also important. When an athlete cannot immediately pursue the original performance objective, goals may be revised to reflect the current stage of recovery.

This process should preserve long-term ambition where appropriate while recognizing the importance of safety, realistic progression, and the possibility of uncertainty.

15.9.8. What the Evidence Supports

Ardern et al. (2013) and subsequent reviews indicate that psychological factors are associated with return-to-sport outcomes following injury. Xiao et al. (2023) found higher psychological readiness and self-efficacy, and lower kinesiophobia, among athletes who returned to sport after ACL reconstruction.

Nedder et al. (2025) reviewed psychological factors following ACL reconstruction and emphasized that fear of reinjury and psychological readiness are relevant to rehabilitation. The review also highlighted the need to incorporate psychological assessment more consistently into clinical rehabilitation practice.

These findings support the inclusion of psychological assessment and targeted interventions. They do not demonstrate that a single psychological technique is effective for every injury or athlete.

Intervention choice should be based on the athlete's needs, the injury, rehabilitation stage, available evidence, and professional judgment.

15.10. Return to Sport: Beyond Medical Clearance

15.10.1. Defining Return to Sport

Return to sport is often treated as a single event, but it is more accurately understood as a process involving progressive participation.

A useful conceptual distinction separates:

Return to participation: The athlete resumes modified or limited sport-related activity.

Return to sport: The athlete returns to training or competition in the relevant sport, although the level of performance may differ from the preinjury level.

Return to performance: The athlete regains or approaches their previous level of competitive performance.

These stages are related but not interchangeable. An athlete may return to training without being ready for full competition, and return to competition without immediately regaining previous performance.

The process should be individualized according to injury characteristics, physical demands, psychological readiness, and clinical guidance.

15.10.2. Medical and Functional Requirements

Return-to-sport decisions should consider clinical status and relevant functional criteria.

Depending on the injury, these may include pain and swelling, range of motion, strength, power, balance, movement quality, sport-specific skills, and tolerance of training demands.

The appropriate criteria differ across injuries and sports. An athlete returning after ACL reconstruction requires a different assessment from an athlete recovering from a shoulder injury or ankle sprain.

Medical and rehabilitation professionals should determine which criteria are appropriate and how they should be interpreted.

15.10.3. Psychological Readiness

Psychological readiness includes confidence, emotional stability, perceived control, willingness to participate, and the ability to manage concerns about reinjury.

An athlete may demonstrate adequate physical function but remain reluctant to perform high-speed cutting, jumping, contact, or other sport-specific movements.

Such concerns should be explored rather than dismissed. They may reflect a need for further graded exposure, additional information, improved confidence, or reassessment of the rehabilitation plan.

Conversely, an athlete who is highly motivated to return may underestimate the risks associated with incomplete recovery. Motivation and confidence should therefore be considered alongside objective criteria.

15.10.4. The Risk of Premature Return

Pressure from selection, contracts, important competitions, or personal expectations may encourage athletes to return before they are adequately prepared.

Premature return can expose the athlete to avoidable physical and psychological risks. It may also reinforce fear if the athlete experiences a setback after returning under pressure.

Decisions should be based on relevant clinical and functional evidence rather than the competitive calendar alone.

Where participation is not yet appropriate, coaches should communicate the rationale clearly and identify realistic alternatives for maintaining team connection and supporting recovery.

15.10.5. Shared Decision-Making

Return-to-sport decisions should involve appropriate medical and rehabilitation professionals, the athlete, and relevant members of the sport environment.

The athlete's preferences and concerns are important, but they should be considered alongside clinical responsibilities and safety requirements.

Shared decision-making can help clarify the available options, the uncertainty associated with each option, and the conditions required for progression.

The process should avoid two extremes: allowing the athlete's desire to return to override clinical criteria, or excluding the athlete from decisions that directly affect their participation.

15.10.6. Return to Sport and Mental Health

The 2026 IOC consensus statement emphasizes that return-to-sport decisions should also consider significant mental health symptoms when these affect safety, stability, or functioning.

This is particularly important when injury is accompanied by persistent depression, severe anxiety, disordered eating, substance-related concerns, or other clinically significant difficulties.

The decision to resume participation should be individualized and may require collaboration among medical professionals, mental health clinicians, and the sport organization.

Mental health concerns should not automatically exclude an athlete from sport. Appropriate treatment and support may allow continued participation. However, when symptoms compromise safety or functioning, modifications or temporary interruption may be necessary.

15.11. A Practical Framework for Rehabilitation and Return to Sport

15.11.1. Stage 1: Initial Assessment and Psychological Support

The initial stage involves understanding the injury, the athlete's concerns, and the resources available for recovery.

Key actions include:

1. Explain the diagnosis and rehabilitation plan in accessible language.
2. Identify the athlete's main concerns and expectations.
3. Assess relevant emotional and psychological responses.
4. Clarify medical restrictions and the anticipated process of progression.
5. Identify social, financial, or organizational barriers.
6. Establish an appropriate communication plan.

The purpose is to create a foundation for informed participation and realistic expectations.

15.11.2. Stage 2: Early Rehabilitation and Goal Development

During early rehabilitation, the athlete may experience uncertainty, frustration, pain, and changes in routine.

The rehabilitation team can support engagement by establishing manageable goals, explaining the purpose of exercises, and recognizing progress.

Psychological strategies may include realistic self-talk, relaxation, structured reflection, and problem-solving.

The physical programme should remain consistent with clinical recommendations.

15.11.3. Stage 3: Progressive Functional Rehabilitation

As physical capacity improves, rehabilitation may involve increasingly demanding functional activities.

The athlete may begin to encounter movement patterns associated with the original injury or with perceived vulnerability.

Progressive exposure, appropriate feedback, and mastery experiences can help develop confidence.

The team should monitor both physical responses and psychological reactions. Significant pain, unexpected deterioration, or other concerning symptoms require reassessment.

15.11.4. Stage 4: Sport-Specific Preparation

Sport-specific preparation introduces demands that more closely resemble the athlete's normal environment.

Depending on the sport and injury, these may include acceleration, deceleration, changes of direction, jumping, landing, technical execution, contact, decision-making, or reactive tasks.

The progression should be guided by physical readiness and clinical assessment.

Psychological preparation may include imagery, attentional cues, confidence-building exercises, and planned exposure to increasingly complex scenarios.

15.11.5. Stage 5: Return to Training and Competition

The athlete progressively resumes training and, when appropriate, competition.

The team should evaluate the athlete's response to the increased demands, including physical tolerance, confidence, movement quality, and recovery.

Participation may initially be modified according to the sport and injury. The athlete should understand the purpose of any restrictions and the criteria for progression.

15.11.6. Stage 6: Return to Performance and Follow-Up

Returning to sport does not necessarily mean that rehabilitation is complete.

The athlete may require continued strength development, conditioning, technical refinement, confidence-building, and monitoring of physical and psychological responses.

Follow-up can help identify persistent concerns, changes in training tolerance, or difficulties associated with returning to the previous competitive role.

The team should remain attentive to the possibility that fear, pain, or reduced confidence may emerge again when competition demands increase.

Summary of the Framework

Stage	Primary objective	Psychological priorities	Physical and clinical priorities
1. Initial assessment	Understand injury and concerns	Information, reassurance, realistic expectations	Diagnosis and treatment planning
2. Early rehabilitation	Establish engagement	Goal-setting, coping, motivation	Safe early-stage rehabilitation
3. Functional rehabilitation	Restore relevant capacity	Confidence, graded exposure	Strength, mobility, control
4. Sport-specific preparation	Prepare for sport demands	Fear management, self-efficacy	Sport-specific functional testing
5. Return to sport	Resume participation safely	Readiness, confidence, ongoing monitoring	Clinical and functional criteria
6. Return to performance	Rebuild competitive capacity	Adaptation, confidence, adjustment	Progressive training and performance development

This framework is a practical organizational model rather than a universal clinical protocol. The sequence, timing, and criteria must be adapted to the injury, sport, and individual circumstances.

15.12. Case-Based Applications

15.12.1. Case 1: An Athlete Who Avoids Cutting Movements

A football player recovering from ACL reconstruction has progressed through strength rehabilitation and can perform controlled exercises. However, the player remains apprehensive about rapid changes of direction.

Potential explanation: The athlete may have adequate capacity for controlled tasks but limited confidence in more demanding, unpredictable movements.

Recommended response: The rehabilitation team should assess physical readiness, explore the specific fear, and determine whether the next stage of sport-specific exposure is clinically appropriate. Progression may involve planned changes of direction before more reactive drills, depending on the rehabilitation protocol.

Evaluation: The team should assess physical function, movement quality, the athlete's confidence, and their response to progressively demanding tasks.

The aim is not to persuade the athlete to ignore fear but to understand and address it within a safe rehabilitation plan.

15.12.2. Case 2: An Athlete Who Wants to Return Too Early

A professional athlete is approaching an important competition and feels pressure to return despite incomplete functional recovery.

Potential explanation: Selection pressure, fear of losing a position, financial concerns, and strong athletic identity may influence the athlete's judgment.

Recommended response: The medical and rehabilitation team should explain the relevant criteria and risks, clarify the athlete's options, and communicate with the coaching staff about appropriate participation.

Evaluation: The decision should be based on clinical status, functional capacity, sport demands, and appropriate professional judgment—not on the importance of the upcoming competition alone.

15.12.3. Case 3: An Athlete Experiencing Persistent Emotional Distress

An athlete with a relatively straightforward injury reports persistent low mood, social withdrawal, poor sleep, and a loss of interest in activities outside sport.

Potential explanation: The response may extend beyond expected injury-related frustration and could indicate a broader mental health concern.

Recommended response: The athlete should receive a supportive conversation and, when indicated, referral to a qualified mental health professional. Medical and rehabilitation staff should continue to coordinate care.

Evaluation: Assessment should consider symptom duration, severity, functioning, safety, and alternative explanations.

The athlete should not be labeled as burned out or depressed solely on the basis of these observations.

15.13. Ethical and Organizational Considerations

15.13.1. Avoiding Stigma

Athletes may be reluctant to acknowledge fear, anxiety, or emotional distress because they believe that doing so will undermine their reputation.

Organizations should communicate that psychological support is a normal component of athlete care rather than evidence of weakness.

Coaches and support staff should avoid ridicule, public disclosure of private information, or punitive responses to legitimate health concerns.

15.13.2. Confidentiality

Psychological and medical information should be handled according to applicable professional, legal, and ethical requirements.

Athletes should understand who has access to their information, what information may be shared for safety reasons, and how decisions about participation are made.

Confidentiality concerns can reduce willingness to report symptoms. Clear procedures may help establish trust and support appropriate disclosure.

15.13.3. Selection Pressure and Conflicts of Interest

The individuals responsible for selection may not always be the same individuals responsible for medical care.

This can create potential conflicts when an athlete fears that reporting symptoms will affect playing time, contracts, or future opportunities.

Sport organizations should establish processes that protect appropriate clinical decision-making and reduce pressure on athletes to return prematurely.

15.13.4. Equity and Access to Rehabilitation

Access to high-quality rehabilitation may differ according to financial resources, geographic location, disability, competitive level, and organizational support.

Athletes without adequate resources may face delays in assessment or difficulty completing prescribed rehabilitation.

These contextual factors should be recognized when interpreting rehabilitation adherence and return-to-sport outcomes.

A fair approach seeks to reduce avoidable barriers and provide appropriate support rather than attributing unequal outcomes exclusively to individual motivation.

15.14. Future Research Directions

15.14.1. Longitudinal Psychological Assessment

Research should investigate how psychological readiness, fear of reinjury, confidence, and emotional well-being change throughout rehabilitation.

Repeated assessment may help identify when support is most useful and how psychological responses interact with physical recovery.

15.14.2. Intervention Effectiveness

Further controlled research is needed to determine which psychological interventions are most effective for specific injuries and athlete populations.

Potential approaches include graded exposure, imagery, cognitive-behavioral strategies, mindfulness, self-efficacy interventions, and structured social support.

Studies should evaluate not only self-reported anxiety but also functional outcomes, adherence, participation, return to performance, and adverse effects.

15.14.3. Diverse Athlete Populations

Much of the evidence concerning psychological readiness comes from ACL rehabilitation and other well-studied musculoskeletal conditions.

Further research should examine psychological responses across different injuries, sports, age groups, disability groups, and competitive levels.

Findings from elite adult athletes should not automatically be generalized to children, recreational participants, or athletes with different medical circumstances.

15.14.4. Integrating Psychological and Physical Criteria

Research should continue examining how psychological measures can be combined with clinical examination, functional testing, and training tolerance.

The objective is to improve decisions without creating simplistic thresholds that treat a single score as a universal predictor of safe return.

15.14.5. Organizational Context

Future studies should investigate how coach communication, selection procedures, financial pressure, team inclusion, and access to confidential support influence injury recovery.

Such research may help shift attention from individual coping alone toward the environmental conditions that support or hinder rehabilitation.

15.14.6. Technology and Digital Rehabilitation

Digital tools may support communication, rehabilitation monitoring, and psychological interventions.

However, their effectiveness, accessibility, privacy implications, and clinical validity require careful evaluation.

Technology should supplement professional judgment and athlete-centered care rather than replace appropriate clinical assessment.

15.15. Conclusion

Sport injury is a multidimensional experience involving physical damage, psychological responses, social relationships, and the athlete's broader environment. Recovery requires more than tissue healing: it also involves adaptation to uncertainty, maintaining motivation, rebuilding confidence, and preparing to meet the demands of sport.

The integrated model of psychological response to injury emphasizes that personal characteristics and situational factors influence cognitive appraisal, emotional responses, and behavior. Self-determination theory highlights the importance of autonomy, competence, and relatedness, while self-efficacy and fear-avoidance perspectives help explain differences in rehabilitation engagement and readiness.

Research consistently identifies psychological readiness as a relevant consideration in return-to-sport decisions, particularly following ACL reconstruction. However, psychological confidence does not replace medical assessment, physical testing, or appropriate rehabilitation progression. Likewise, physical recovery does not automatically eliminate fear or establish that the athlete is psychologically prepared for competition.

Evidence-informed rehabilitation should therefore integrate clinical assessment, functional progression, psychological support, clear communication, and appropriate social resources. Psychological interventions should be selected according to the athlete's needs and coordinated with the rehabilitation plan.

Coaches and sport organizations also have important responsibilities. They can support recovery by maintaining appropriate team inclusion, communicating realistic expectations, protecting confidentiality, and avoiding pressure that encourages premature return.

Ultimately, successful rehabilitation should not be defined solely by the date on which an athlete resumes participation. It should be understood as a process of restoring appropriate physical capacity, psychological readiness, confidence, and sustainable engagement with sport. A comprehensive approach increases the likelihood that return-to-sport decisions will be informed, individualized, and consistent with athlete welfare.

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CHAPTER 16: Aggression, Violence, and Ethical Behavior in Sport: Psychological Mechanisms, Social Influences, and Prevention

16.1. Introduction

Sport is often associated with discipline, respect, teamwork, fair play, and the development of social responsibility. Participation in sport can provide opportunities to learn cooperation, manage disagreement, respect rules, and recognize the needs of others. However, sport also involves competition, physical confrontation, status differences, emotional arousal, and situations in which individuals may believe that success justifies behavior that would otherwise be unacceptable.

Aggression, violence, intimidation, cheating, verbal abuse, and other forms of antisocial conduct can occur across competitive levels and sporting contexts. Such behavior may be directed toward opponents, teammates, coaches, officials, spectators, or other participants. It may also occur outside competition, including during training, selection processes, rehabilitation, and organizational interactions.

The existence of aggressive behavior in sport creates an important conceptual challenge. Physical contact and forceful action are integral to some sports, while deliberate attempts to injure or intimidate another person may violate sporting rules, ethical standards, or legal requirements. Consequently, not every forceful action is aggression, and not every aggressive act constitutes the same form of violence or carries the same consequences.

Understanding these distinctions is essential for effective prevention. A tactical foul intended to interrupt an opponent's attack, a verbal insult intended to humiliate an official, a deliberate attempt to injure an opponent, and repeated psychological abuse by a coach are different behaviors. They may share some psychological mechanisms, but their purposes, contexts, consequences, and appropriate responses differ.

The psychological study of aggression in sport therefore examines the interaction between individual characteristics, emotional states, social norms, competitive incentives, moral reasoning, and environmental conditions. The sociological perspective adds the influence of power relationships, organizational culture, spectator behavior, group identity, and institutional responses.

A particularly important concept is **moral disengagement**: the process through which individuals justify harmful conduct or reduce the psychological discomfort that would otherwise arise from violating their moral standards. Athletes may excuse harmful actions by claiming that the opponent deserved them, that everyone behaves similarly, or that winning is more important than ordinary moral expectations.

A 2025 systematic review and meta-analysis by Zhu et al. found that moral disengagement was positively associated with antisocial behavior in sport and negatively associated with prosocial behavior. The relationship with antisocial behavior was substantially stronger than the relationship with prosocial behavior, suggesting that moral disengagement is especially relevant when examining the justification of harmful conduct (Zhu et al., 2025).

The International Olympic Committee's 2024 consensus statement on interpersonal violence and safeguarding in sport further emphasizes that harmful behavior must be considered within its interpersonal and organizational context. Safeguarding requires more than responding to individual incidents; it also involves recognizing power imbalances, establishing appropriate procedures, and creating environments in which participants can report concerns and access support (Tuakli-Wosornu et al., 2024).

This chapter examines the psychological mechanisms of aggression, the distinction between legitimate competitive behavior and harmful conduct, the development of moral reasoning and sportspersonship, and the influence of coaches, teammates, spectators, and sport organizations. It also presents evidence-informed strategies for prevention, reporting, and ethical leadership.

The principal objectives are to:

1. Define aggression, violence, prosocial behavior, and antisocial behavior in sport.
2. Distinguish instrumental and hostile aggression and explain the limitations of these categories.
3. Examine psychological theories that explain aggressive behavior.
4. Analyze moral disengagement, social norms, and competitive climate.
5. Explain how coaches, teammates, spectators, and organizations influence ethical behavior.

6. Differentiate aggression from harassment, abuse, discrimination, and other safeguarding concerns.
7. Develop practical strategies for prevention, intervention, and ethical sport leadership.

16.2. Defining Aggression and Violence in Sport

16.2.1. What Is Aggression?

Aggression is commonly conceptualized as behavior directed toward another individual with the intention of causing harm when the target is motivated to avoid that harm.

This definition emphasizes intention, behavior, and the recipient's wish to avoid harm. It also helps distinguish aggression from accidental injury, ordinary physical contact, or an action that produces an unintended negative consequence.

For example, a collision between two football players during a legitimate challenge may cause injury without either player intending to harm the other. In contrast, deliberately striking an opponent after play has stopped may constitute an aggressive act because the behavior is directed toward causing harm outside the legitimate requirements of play.

Intent is not always easy to determine. Athletes may deny harmful intentions, observers may interpret the same action differently, and the competitive context may make some behaviors appear more acceptable than they would in everyday interactions.

Therefore, aggression should be evaluated using available evidence, including the action itself, its context, relevant rules, previous behavior, communication, and the circumstances surrounding the incident. Intent should not be inferred solely from the fact that an opponent was injured.

16.2.2. Aggression, Physical Contact, and Rule Violations

Sport involves different levels and types of physical contact. The acceptability of an action depends partly on the sport's rules, the nature of the movement, the competitive context, and the relevant safety standards.

A forceful but legal tackle, a technical foul, an unsporting action, and a deliberate attempt to injure an opponent should not automatically be placed in the same category.

It is also important to recognize that rule compliance and ethical conduct are related but not identical. Some behaviors may violate the spirit of fair play

without clearly violating a rule, while other forms of harmful conduct may occur outside the formal competition environment.

An athlete may exploit an officiating limitation, deliberately humiliate an opponent, or use intimidating language while attempting to remain technically within the rules. Such behavior requires ethical evaluation even when formal sanctions are uncertain.

Conversely, a rule violation does not automatically establish a deliberate intention to harm. Referees, coaches, and disciplinary bodies must consider the specific circumstances and applicable regulations.

16.2.3. Hostile and Instrumental Aggression

A commonly used distinction separates hostile aggression from instrumental aggression.

Hostile aggression is primarily motivated by the intention to harm another person. Anger may be prominent, and the harmful outcome is itself an important objective.

Instrumental aggression is behavior in which harm is intended or accepted as a means of achieving another objective, such as gaining a competitive advantage, intimidating an opponent, or disrupting performance.

For example, an athlete who deliberately strikes an opponent out of anger may display hostile aggression. An athlete who deliberately injures an opponent to remove a key competitor may display an instrumental pattern.

These categories are useful for conceptual analysis, but actual behavior may involve mixed motives. An athlete may be angry and simultaneously believe that aggressive behavior will improve the likelihood of winning.

The distinction should therefore guide assessment rather than serve as a rigid classification system.

16.2.4. Verbal and Relational Aggression

Aggression is not restricted to physical behavior. Verbal aggression may involve threats, insults, humiliation, or abusive language directed toward another person.

Relational aggression involves attempts to damage social relationships, belonging, or reputation. In sport, this may include deliberate exclusion, coordinated humiliation, spreading harmful rumors, or undermining a teammate's position through interpersonal manipulation.

Such behavior may be overlooked when attention focuses exclusively on physical incidents during competition.

However, repeated verbal or relational aggression can undermine psychological safety, confidence, team cohesion, and willingness to participate.

The absence of physical injury does not mean that a behavior is harmless.

16.2.5. Aggression and Violence Are Related but Distinct

Violence generally refers to more serious forms of harmful conduct, often involving physical force, coercion, or other substantial violations of personal safety and dignity. The exact definition depends on the legal, clinical, disciplinary, or safeguarding framework being used.

Not all aggression meets every formal definition of violence, and violence may include acts that are not adequately captured by narrow models of competitive aggression.

For example, harassment, abuse, coercion, and neglect may occur within sport organizations without resembling an aggressive act during a match. These behaviors require assessment through safeguarding and other appropriate frameworks.

The practical implication is that aggression research should not replace broader systems for identifying and responding to interpersonal violence.

16.3. Prosocial and Antisocial Behavior in Sport

16.3.1. Prosocial Behavior

Prosocial behavior refers to intentional behavior intended to help or benefit another person.

In sport, examples include:

- Encouraging a teammate after a mistake.
- Assisting an injured opponent when play permits.
- Offering constructive feedback.
- Helping a less experienced athlete learn a skill.
- Respecting an official's legitimate role.
- Supporting teammates without humiliating competitors.
- Sharing relevant information that improves collective performance.

Prosocial behavior can occur within a team and between opponents. It is not limited to friendly interactions; athletes can compete intensely while treating opponents with respect.

Prosocial conduct also has practical value. Supportive communication can facilitate learning, improve relationships, and help athletes recover after mistakes.

However, prosocial behavior should not be confused with avoiding all disagreement. Athletes may challenge a decision, question an instruction, or assert their rights without behaving aggressively.

16.3.2. Antisocial Behavior

Antisocial behavior in sport refers to intentional conduct that harms or disadvantages others.

Examples include:

- Intentionally injuring an opponent.
- Threatening or humiliating another athlete.
- Deliberately sabotaging a teammate.
- Verbally abusing officials.
- Encouraging teammates to retaliate.
- Using intimidation to suppress legitimate complaints.
- Excluding an athlete through discriminatory or coercive behavior.

Antisocial behavior may occur before, during, or after competition. It can also emerge within training environments and organizational relationships.

The distinction between prosocial and antisocial behavior concerns the intended consequences for other people, rather than whether the action contributes to winning.

An athlete can be highly effective competitively while behaving ethically, and an athlete can obtain a short-term advantage through conduct that harms others.

16.3.3. Why Sport Does Not Automatically Produce Good Character

Sport is frequently described as a context for teaching discipline, respect, and moral responsibility. These outcomes are possible, but they are not automatic.

The social and moral climate of the sporting environment influences which behaviors are rewarded, tolerated, or challenged.

A meta-analysis by Spruit et al. (2019) included 27 studies, 117 effect sizes, and 7,726 young athletes. It found an overall association of r = .40 between sport moral climate and moral behavior. A prosocial moral climate was associated with more prosocial and less antisocial behavior, whereas an antisocial moral climate was associated with the opposite pattern.

These findings suggest that sport can support positive moral development when the surrounding environment reinforces appropriate conduct. They also show why the mere presence of competition, teamwork, or physical activity cannot be assumed to produce ethical behavior.

A youth sport programme that rewards intimidation and treats deliberate rule-breaking as evidence of competitive commitment may communicate very different moral lessons from a programme that combines demanding performance standards with respect, accountability, and fair play.

16.3.4. Moral Climate

Moral climate refers to the shared norms and expectations that shape judgments about acceptable and unacceptable behavior within a sport environment.

It may be influenced by coaches, teammates, parents, spectators, officials, administrators, and governing organizations.

A prosocial moral climate communicates that:

- Opponents deserve respect.
- Winning does not justify deliberate harm.
- Mistakes can be corrected without humiliation.
- Officials and teammates should be treated appropriately.
- Athletes can report misconduct without retaliation.
- Ethical conduct is part of performance excellence.

An antisocial climate may communicate that intimidation is acceptable, harmful conduct is excusable when it produces results, or athletes should remain silent about mistreatment.

Moral climate is not established only through formal rules. It is also communicated through everyday behavior, including what leaders praise, what they ignore, and how they respond when influential athletes violate expectations.

16.4. Theoretical Explanations of Aggression in Sport

16.4.1. Social Learning Theory

Social learning theory proposes that behavior can be acquired and maintained through observation, modeling, reinforcement, and social expectations.

In sport, athletes observe how coaches, teammates, opponents, and prominent professionals respond to conflict. They may learn that intimidation is effective, that retaliatory behavior is rewarded, or that aggression increases status within a group.

A young athlete who repeatedly observes a coach humiliating opponents or celebrating dangerous challenges may begin to interpret such behavior as normal or desirable.

Learning does not require direct instruction. Athletes may adopt behaviors simply because they observe respected individuals using them successfully.

Reinforcement also matters. If aggressive behavior produces competitive advantages and is not challenged, the athlete may become more likely to repeat it. If harmful behavior leads to consistent, proportionate consequences and constructive alternatives are taught, the social conditions supporting aggression may weaken.

Bandura's social cognitive approach is particularly relevant because it connects observational learning with beliefs about personal agency, social expectations, and moral self-regulation.

16.4.2. The General Aggression Model

The General Aggression Model provides a broader framework for understanding how personal and situational factors can influence aggressive behavior (Anderson & Bushman, 2002).

The model proposes that inputs such as individual characteristics and situational conditions influence internal states involving cognition, affect, and physiological arousal. These internal states affect appraisal and decision-making, which can lead to an aggressive or non-aggressive response.

In sport, relevant situational inputs may include provocation, perceived unfairness, intense competition, fatigue, crowd hostility, or a belief that an opponent has deliberately violated a norm.

Personal inputs may include aggressive attitudes, previous learning, hostile attribution tendencies, or beliefs that intimidation is an acceptable competitive strategy.

The interaction among these factors can influence whether an athlete responds impulsively or evaluates the situation before acting.

For example, a player who believes that an opponent has deliberately fouled them may experience anger and interpret subsequent actions as further provocation. If the player immediately retaliates, the response may escalate the conflict. If the player pauses, seeks clarification, or redirects attention toward the next phase of play, escalation may be avoided.

The model does not imply that anger inevitably causes aggression. Cognitive appraisal, social norms, learned coping strategies, and the anticipated consequences of behavior can influence the final response.

16.4.3. Frustration and Aggression

Frustration may arise when an individual is prevented from achieving a goal or perceives that an expected outcome has been unfairly blocked.

In sport, frustration may follow an unfavorable decision, repeated mistakes, an unexpected loss, or perceived provocation by an opponent.

However, frustration does not automatically produce aggression. Athletes may respond through problem-solving, persistence, withdrawal, humor, communication, or acceptance.

Aggression becomes more likely when frustration is accompanied by hostile interpretations, weak behavioral regulation, supportive social norms for retaliation, or a belief that harmful conduct is justified.

Coaches can help athletes develop alternative responses to frustration by rehearsing conflict-management strategies, clarifying rules, and emphasizing the distinction between competitive disappointment and permission to harm others.

16.4.4. Social Identity and Group Processes

Social identity theory explains how group membership can influence perception, attitudes, and behavior.

In sport, athletes and supporters may develop strong identification with teams, clubs, schools, or national groups. Such identification can promote belonging, cooperation, and collective commitment.

However, intense in-group identification can also contribute to hostile attitudes toward out-groups when opponents are viewed as threats to group status or identity.

For example, supporters may interpret a contested officiating decision as an attack on their team rather than as an uncertain event requiring further information. Group discussions may reinforce this interpretation, increasing hostility toward officials or opposing supporters.

Strong identification does not inherently produce aggression. The outcome depends on group norms, leadership, intergroup relationships, and how competitive rivalry is framed.

Sport organizations can preserve the emotional intensity of rivalry while emphasizing respect, shared rules, and the legitimacy of opposing participants.

16.4.5. Moral Disengagement

Moral disengagement describes psychological mechanisms through which individuals justify harmful behavior or reduce the self-condemnation that would otherwise follow a moral transgression.

Boardley and Kavussanu (2011) reviewed moral disengagement in sport and identified its relevance to antisocial behavior and other morally problematic conduct.

Common mechanisms include:

Moral justification: Harmful conduct is presented as necessary for a worthy goal, such as winning or protecting the team.

Euphemistic labeling: Aggressive behavior is described using language that makes it appear less harmful, such as calling deliberate intimidation “sending a message.”

Advantageous comparison: A harmful action is justified by claiming that it is less serious than something another person has done.

Displacement of responsibility: The athlete claims that a coach, teammate, or authority figure required the behavior.

Diffusion of responsibility: Responsibility is spread across the group, allowing individuals to feel less personally accountable.

Minimizing consequences: The athlete denies or downplays the harm caused to the recipient.

Dehumanization: The opponent is treated as undeserving of normal moral consideration.

Blaming the victim: Responsibility for the harmful action is shifted to the person who experienced it.

These mechanisms are important because harmful behavior may occur without the individual openly rejecting moral standards. Instead, the athlete interprets the situation in a way that makes the behavior seem acceptable.

The 2025 meta-analysis by Zhu et al. found a substantial positive association between moral disengagement and antisocial behavior in sport. The association was stronger for antisocial behavior directed toward opponents than for some other behavioral categories, although the findings should be interpreted within the limits of the included evidence.

16.4.6. Self-Regulation and Emotional Control

Aggression may also be influenced by the athlete's ability to regulate emotional and behavioral responses.

Competitive environments can involve rapid changes in score, physical discomfort, perceived injustice, and social evaluation. Athletes may need to regulate anger and frustration while making decisions under time pressure.

Emotional regulation does not require eliminating anger. Anger may communicate that a boundary has been violated or that an important goal has been blocked. The relevant question is how the athlete responds to that emotion.

Adaptive responses may include pausing before acting, evaluating the situation, using a pre-established reset routine, seeking appropriate communication, and returning attention to the competitive task.

A sport environment that teaches emotional regulation as a performance skill may help athletes respond to provocation without relying on retaliation.

16.5. Aggression, Anger, and Competitive Arousal

16.5.1. Anger Is Not the Same as Aggression

Anger is an emotional state, whereas aggression is behavior directed toward harming another person.

An athlete may feel angry without behaving aggressively. Conversely, an athlete may use calculated intimidation without experiencing intense anger.

This distinction has important implications for intervention. Anger-management strategies may be useful when aggression follows emotional escalation, but they may be insufficient when harmful behavior is deliberately used to obtain a competitive advantage.

In the latter case, interventions may need to address beliefs about winning, moral disengagement, social reinforcement, and organizational tolerance of misconduct.

16.5.2. Arousal and Impulsive Behavior

High physiological arousal can narrow attention and make it more difficult to consider alternative responses in some circumstances. However, arousal alone does not determine whether aggression occurs.

Athletes differ in their learned responses, appraisal patterns, emotional regulation skills, and expectations about consequences.

A player who experiences intense arousal may channel it into rapid but controlled movement. Another may interpret the same arousal as a signal to confront an opponent.

Training should therefore focus on recognizing early signs of escalation and rehearsing responses appropriate to the sport.

16.5.3. Fatigue and Decision-Making

Fatigue may affect attention, emotional regulation, and decision-making. Under demanding conditions, athletes may have less capacity to pause and evaluate the consequences of a response.

Nevertheless, fatigue should not be treated as an excuse for harmful behavior. It is a contextual factor that may inform prevention.

Coaches can reduce avoidable risk by managing training demands, clarifying behavioral expectations, and preparing athletes for high-intensity competitive situations.

16.6. Coaching Behavior and Aggression

16.6.1. The Coach as a Moral Model

Coaches influence behavior through direct instruction, modeling, reinforcement, and the norms they establish.

A coach who emphasizes winning at any cost may unintentionally legitimize intimidation, retaliation, or deliberate rule exploitation. A coach who consistently

reinforces fair play, accountability, and respect can establish different expectations.

The coach's behavior is especially influential when athletes depend on the coach for selection, feedback, or career opportunities.

This power relationship creates an ethical responsibility to communicate expectations without humiliation, threats, or coercion.

16.6.2. Punitive and Humiliating Practices

Public humiliation, threats, discriminatory comments, and repeated verbal abuse should not be treated as ordinary motivational tools.

Such practices may create fear and silence rather than constructive accountability. They can also normalize the idea that people with authority are entitled to harm or demean those under their control.

A demanding training environment can maintain high standards while respecting athlete dignity. Constructive accountability focuses on behavior, expectations, consequences, and opportunities for correction rather than personal degradation.

16.6.3. Coach-Created Moral Climate

Coaches shape moral climate through both explicit rules and daily practices.

A coach may formally prohibit aggression but still reward players who intimidate opponents. This inconsistency communicates that the formal rule is less important than competitive success.

A credible moral climate requires consistency between stated values and actual reinforcement.

Practical actions include:

- Defining acceptable and unacceptable behavior.
- Applying rules consistently across athletes.
- Avoiding praise for deliberate harm.
- Responding to complaints seriously.
- Modeling respectful disagreement.
- Explaining why ethical conduct matters.
- Recognizing constructive behavior as part of team performance.

16.6.4. Team Norms and Peer Reinforcement

Teammates can either discourage or reinforce aggressive behavior.

Laughter, approval, celebration, or silence following harmful conduct may communicate acceptance. Conversely, teammates can establish a norm that intimidation and deliberate harm are incompatible with team identity.

Peer intervention may be particularly valuable when it is supported by clear organizational expectations. Athletes should not be expected to confront dangerous individuals alone or place themselves at risk.

Teams should have clear procedures for reporting concerns and accessing support.

16.7. Spectators, Rivalry, and Collective Aggression

16.7.1. Spectator Aggression

Spectator aggression may include verbal abuse, threats, discriminatory chants, harassment, physical confrontation, property damage, and attempts to intimidate participants.

The behavior may be influenced by emotional arousal, group identity, perceived injustice, alcohol consumption, crowd dynamics, and expectations about acceptable supporter conduct.

However, crowd membership does not automatically produce aggression. Many highly identified supporters behave respectfully and may actively discourage harmful conduct.

16.7.2. Social Identity and Deindividuation

Crowd settings can change how individuals perceive responsibility and social expectations.

When individuals feel anonymous or believe that aggressive behavior is accepted by the group, personal restraint may weaken. At the same time, group norms can also support cooperation, solidarity, and peaceful collective action.

The relevant issue is not simply whether spectators are part of a crowd, but which norms are communicated and reinforced within that crowd.

16.7.3. Rivalry Without Hostility

Competitive rivalry can provide emotional intensity, tradition, and collective identity. It does not require dehumanization or threats.

Clubs, schools, and sport organizations can preserve rivalry while promoting respect through supporter education, clear conduct policies, consistent enforcement, and opportunities for positive intergroup contact.

16.7.4. Event Management and Prevention

Event organizers should consider crowd safety, access control, communication, reporting systems, staff training, and procedures for responding to discriminatory or violent incidents.

The design of prevention measures should be proportionate to the event and based on appropriate risk assessment.

When incidents occur, responses should prioritize safety, preserve relevant evidence, follow applicable procedures, and avoid escalating conflict unnecessarily.

16.8. Harassment, Abuse, and Safeguarding in Sport

16.8.1. Understanding Safeguarding

Safeguarding refers to systems, policies, and practices intended to protect athletes and other sport participants from harassment, abuse, exploitation, and other forms of interpersonal harm.

It extends beyond the prevention of aggression during competition. Harmful behavior may occur within coaching relationships, medical interactions, team environments, selection processes, travel, residential training, and digital communication.

The 2024 IOC consensus statement on interpersonal violence and safeguarding emphasizes that violence in sport is complex and must be understood through individual, interpersonal, organizational, and societal factors (Tuakli-Wosornu et al., 2024).

16.8.2. Forms of Interpersonal Harm

Relevant categories may include:

Psychological violence: Repeated humiliation, intimidation, threats, degrading communication, or other behavior that harms psychological well-being.

Physical violence: Deliberate physical harm or inappropriate use of force.

Sexual harassment and abuse: Unwanted sexual conduct, coercion, exploitation, or other behavior that violates applicable ethical or legal standards.

Neglect: Failure to provide appropriate care, protection, or essential support when there is a relevant duty to do so.

Discrimination and identity-based harassment: Harmful treatment related to characteristics such as sex, disability, ethnicity, religion, sexual orientation, or other protected or socially significant identities.

Online harassment: Threats, humiliation, stalking, discriminatory abuse, or the non-consensual sharing of private material through digital platforms.

The exact classification and legal implications depend on the circumstances and applicable regulations. Organizations should not attempt to resolve serious safeguarding concerns through informal mediation alone.

16.8.3. Power Imbalances

Power imbalances can increase the risk of harm and make reporting difficult.

Coaches, selectors, administrators, medical professionals, and other authority figures may influence playing time, selection, contracts, scholarships, access to training, or career progression.

Athletes may fear that reporting misconduct will result in retaliation, reduced opportunities, or damage to their reputation.

Safeguarding systems should therefore provide accessible reporting routes, clear confidentiality procedures, and appropriate protection against retaliation.

16.8.4. Why Safeguarding Requires More Than Individual Resilience

Teaching athletes to cope with stress or regulate emotion cannot replace action against abusive behavior.

If an athlete is subjected to intimidation or coercion, the primary responsibility is to address the harmful conduct and protect the person at risk.

Psychological support may be appropriate, but it should not be used to imply that the athlete is responsible for preventing abuse through better coping skills.

Organizations must examine their policies, leadership, reporting mechanisms, and responses to allegations.

16.8.5. Responding to Disclosures

When an athlete reports harassment or abuse, the initial response should be respectful, calm, and nonjudgmental.

Appropriate principles include:

1. Listen without blaming or humiliating the person.
2. Take the concern seriously.
3. Avoid promising absolute confidentiality when safety or reporting obligations may require action.
4. Explain the available support and reporting options.
5. Follow applicable safeguarding procedures.
6. Refer to qualified professionals and appropriate authorities when required.
7. Protect the person from retaliation and unnecessary exposure.
8. Document and share information only in accordance with applicable procedures.

Staff should not conduct investigations beyond their competence or attempt to determine credibility through informal confrontation. Serious allegations should be handled through appropriate independent and professional processes.

16.9. Moral Development and Ethical Decision-Making

16.9.1. Moral Reasoning in Competitive Situations

Athletes regularly encounter situations in which competitive objectives may conflict with ethical expectations.

Examples include deciding whether to exploit an injured opponent, whether to challenge a questionable decision respectfully, or whether to report a teammate's deliberate harmful behavior.

Moral reasoning concerns how individuals evaluate these situations and justify their decisions.

However, moral reasoning does not always predict behavior. Athletes may understand an ethical principle but fail to follow it when group pressure, fear, incentives, or personal interests become salient.

Ethical development therefore requires more than explaining rules. It also requires practicing decision-making under realistic conditions and creating an environment that supports responsible behavior.

16.9.2. Fair Play and Sportspersonship

Fair play involves respect for rules, opponents, officials, and the broader purposes of competition.

Sportspersonship includes respectful conduct, appropriate responses to victory and defeat, acceptance of legitimate decisions, and recognition of opponents as participants who deserve fair treatment.

These values should be operationalized through observable behavior rather than presented only as abstract ideals.

For example, a team may define expectations for communication with officials, responses to injuries, behavior after mistakes, and appropriate conduct on social media.

Clear behavioral expectations make it easier for athletes and coaches to recognize when a boundary has been crossed.

16.9.3. Teaching Moral Reasoning Through Practice

Ethical education can include structured discussion of realistic dilemmas.

Athletes may examine scenarios involving retaliation, deception, dangerous play, pressure from teammates, or conflict between winning and safety.

A useful process asks athletes to:

1. Identify the relevant facts.
2. Recognize who may be affected.
3. Consider the applicable rules and ethical principles.
4. Evaluate alternative responses.
5. Anticipate likely consequences.
6. Explain and review the decision.

The objective is not to remove competitive judgment but to help athletes make decisions that remain consistent with ethical standards under pressure.

16.9.4. Moral Climate and Youth Development

Youth sport provides opportunities to develop social skills and ethical understanding, but young athletes are also sensitive to adult expectations and peer norms.

Spruit et al. (2019) found that moral climate was associated with moral behavior among young athletes, with stronger associations for antisocial than prosocial moral climate.

This finding highlights the importance of consistent adult behavior and clear group norms.

Coaches and parents should avoid communicating that deliberate harm, humiliation, or deception is acceptable when it produces a victory. Young athletes should learn that competitive success and ethical conduct are compatible goals.

16.10. Evidence-Informed Prevention Strategies

16.10.1. Establish Clear Behavioral Standards

Sport organizations should define expected conduct and unacceptable behavior in accessible language.

Policies should address competition, training, travel, online communication, interpersonal relationships, and reporting procedures.

Standards should be applied consistently across athletes, coaches, officials, and administrators.

A policy that is enforced only against less influential individuals is unlikely to establish a credible ethical climate.

16.10.2. Develop Coach Education

Coach education should include aggression prevention, moral disengagement, emotional regulation, respectful communication, safeguarding, and appropriate responses to disclosures.

Training should emphasize observable behaviors and practical scenarios rather than rely exclusively on general statements about sportsmanship.

Coaches should learn how to respond to conflict, communicate consequences, and maintain high standards without humiliation or coercion.

16.10.3. Reduce Reinforcement of Harmful Behavior

Aggressive behavior may persist when it is rewarded with status, selection, praise, or competitive advantage.

Organizations should examine whether their practices unintentionally reinforce harmful conduct.

For example, a coach who praises an athlete for intimidating an opponent may communicate that such behavior is valued even when it violates formal rules.

Recognizing ethical conduct, constructive communication, and responsible responses to conflict can help establish alternative expectations.

16.10.4. Teach Emotional Regulation and Conflict Management

Athletes can practice identifying early signs of emotional escalation and selecting appropriate responses.

Useful strategies include:

- Brief pauses before responding to provocation.
- Controlled breathing when appropriate.
- Task-focused self-talk.
- Reframing ambiguous events before assuming hostile intent.
- Using established communication channels.
- Seeking assistance from officials or responsible staff.
- Redirecting attention toward the next task.

These techniques are most useful when practiced in training and supported by consistent team norms.

They should not be used to place responsibility on an athlete who is experiencing harassment or abuse.

16.10.5. Use Restorative Approaches Carefully

Some lower-level interpersonal conflicts may benefit from structured reflection, acknowledgement of harm, and efforts to repair relationships.

However, restorative approaches should be voluntary, appropriate to the circumstances, and guided by trained professionals when needed.

They should not replace formal procedures for serious violence, coercion, harassment, or safeguarding concerns.

In particular, a person who has experienced abuse should not be pressured to confront the person responsible or participate in reconciliation.

16.10.6. Create Safe Reporting Systems

Reporting systems should be accessible, understandable, and designed to reduce fear of retaliation.

Depending on the organization, options may include a designated safeguarding officer, an independent reporting channel, a confidential professional service, or an external authority.

Participants should know how to report concerns, what happens after a report, and which protections are available.

Organizations should monitor whether reports are handled consistently and whether participants experience barriers to using the system.

16.10.7. Evaluate Prevention Programmes

Prevention programmes should be evaluated through appropriate indicators, such as:

- Knowledge of conduct standards.
- Athlete perceptions of moral climate.
- Confidence in reporting systems.
- Responses to hypothetical ethical dilemmas.
- Observed behavior during training and competition.
- Timeliness and consistency of incident response.
- Reports of retaliation or barriers to support.

A reduction in formal complaints does not automatically demonstrate improved safety. It may also indicate that participants are reluctant to report concerns.

Evaluation should therefore combine multiple sources of information and protect the confidentiality of participants.

16.11. An Applied Four-Week Programme for Ethical Sport Behavior

The following programme provides a practical framework for teams, schools, clubs, and sport organizations. It is an applied educational model rather than a universally validated treatment protocol. Its content should be adapted to the age group, sport, organizational context, and safeguarding requirements.

Week 1: Awareness and Behavioral Standards

Objectives

- Establish shared definitions of aggression, fair play, and harmful conduct.
- Identify common situations involving conflict.
- Clarify behavioral expectations.

Activities

1. Discuss examples of acceptable competitive behavior and harmful conduct.

2. Identify the difference between physical contact, aggression, and violence.
3. Review team rules and relevant sport regulations.
4. Establish expectations for communication with teammates, opponents, and officials.
5. Explain available reporting and support procedures.

Evaluation

Participants should be able to identify examples of acceptable and unacceptable conduct and understand how to seek assistance.

Week 2: Moral Reasoning and Social Norms

Objectives

- Recognize moral disengagement.
- Examine how group norms influence behavior.
- Develop ethical decision-making skills.

Activities

1. Analyze realistic sport-related ethical dilemmas.
2. Identify common justifications for harmful behavior.
3. Discuss the consequences of intimidation and retaliation.
4. Examine the influence of coaches, teammates, and spectators.
5. Develop shared responses to common situations.

Evaluation

Participants should be able to recognize at least several forms of moral disengagement and explain alternative responses.

Week 3: Emotional Regulation and Conflict Management

Objectives

- Improve responses to provocation and frustration.
- Practice non-aggressive communication.
- Develop strategies for de-escalation.

Activities

1. Identify early signs of emotional escalation.
2. Practice brief reset routines.
3. Rehearse respectful disagreement with officials.
4. Develop communication strategies for teammate conflict.
5. Clarify when a conflict requires intervention by responsible staff.

Evaluation

Participants should demonstrate appropriate responses in structured scenarios and understand the limits of individual responsibility.

Week 4: Safeguarding and Accountability

Objectives

- Strengthen understanding of reporting and protection.
- Clarify responsibilities following an incident.
- Establish a plan for ongoing evaluation.

Activities

1. Review safeguarding procedures.
2. Explain confidentiality and its limits.
3. Identify the designated reporting routes.
4. Discuss how retaliation should be prevented.
5. Agree on a process for reviewing team climate and conduct.

Evaluation

Participants should know how to report a concern, where to access support, and how behavioral standards will be applied.

P

rogramme Summary

Week	Main focus	Activities	Intended outcome
1	Awareness	Definitions, standards, rules	Clear understanding of expected conduct
2	Moral reasoning	Ethical dilemmas, moral disengagement	Improved recognition of harmful justifications
3	Conflict management	Emotional regulation, communication	More constructive responses to provocation
4	Safeguarding	Reporting, accountability, protection	Clearer access to support and safer procedures

The programme should be accompanied by consistent leadership behavior and appropriate organizational procedures. Education alone cannot prevent misconduct if harmful behavior continues to be rewarded or serious concerns are ignored.

16.12. Practical Recommendations for Key Stakeholders

16.12.1. For Athletes

Athletes can contribute to ethical sport by:

- Respecting opponents, teammates, officials, and other participants.
- Avoiding retaliation and deliberate harm.
- Recognizing when competitive frustration is affecting behavior.
- Challenging harmful conduct through appropriate channels.
- Supporting teammates who report legitimate concerns.
- Refusing to justify harmful behavior solely because it benefits the team.
- Seeking assistance when conflict or emotional escalation becomes difficult to manage.

Athletes should not be expected to confront dangerous behavior alone. Organizational support and clear reporting systems are essential.

16.12.2. For Coaches

Coaches should:

- Model respectful behavior during training and competition.
- Define clear behavioral expectations.
- Avoid humiliating or coercive communication.

- Respond consistently to aggression and intimidation.
- Reinforce ethical conduct alongside performance.
- Teach emotional regulation and conflict-management skills.
- Take safeguarding concerns seriously.
- Avoid pressuring athletes to remain silent about misconduct.

16.12.3. For Parents and Guardians

Parents and guardians can support ethical development by emphasizing learning, effort, respect, and responsible conduct.

They should avoid communicating that winning is more important than safety or dignity. They should also understand the appropriate procedures for raising concerns about coaching behavior, selection, harassment, or athlete welfare.

16.12.4. For Officials

Officials contribute to the moral climate through consistent application of rules, clear communication, and appropriate management of conflict.

Their role should be supported through relevant training, clear organizational procedures, and protection from harassment and intimidation.

16.12.5. For Sport Organizations

Organizations should establish policies, reporting procedures, safeguarding systems, and accountability mechanisms that apply consistently.

They should examine whether leadership practices, selection incentives, or organizational norms unintentionally reward harmful conduct.

Independent reporting routes and appropriate professional support may be particularly important when concerns involve individuals with significant authority.

16.12.6. For Researchers

Researchers should distinguish between aggression, violence, harassment, abuse, and other forms of antisocial behavior.

Studies should define the behaviors being measured, use appropriate validated instruments, and distinguish association from causation.

Research should also examine organizational and social conditions rather than focusing exclusively on individual characteristics.

16.13. Future Research Directions

16.13.1. Improving Conceptual and Measurement Consistency

Research on aggression in sport uses different definitions, instruments, and behavioral categories.

Future studies should clearly specify whether they assess hostile aggression, instrumental aggression, verbal aggression, physical aggression, moral disengagement, harassment, or other forms of misconduct.

More consistent measurement would improve comparisons across sports and populations.

16.13.2. Longitudinal and Experimental Research

Many studies examine associations between moral climate, moral disengagement, and behavior at a single point in time.

Longitudinal research could clarify how these relationships develop and whether changes in coaching behavior or team norms precede changes in athlete conduct.

Experimental and intervention studies could also help evaluate the effectiveness of ethical education, conflict-management training, and organizational prevention strategies.

16.13.3. Understanding the Role of Bystanders

Bystanders may reinforce harmful behavior through approval or silence, but they may also interrupt escalation and support people who experience harm.

Research should examine how athletes, coaches, officials, and spectators decide whether to intervene, what barriers they experience, and which forms of intervention are safe and effective.

Bystander intervention should not replace organizational responsibility or require individuals to place themselves at risk.

16.13.4. Digital and Online Aggression

Social media and digital communication create additional opportunities for harassment, threats, public humiliation, and coordinated abuse.

Future research should examine the relationship between online and offline aggression, the role of group identity, and the effectiveness of reporting and moderation systems.

16.13.5. Safeguarding and Organizational Accountability

Further research is needed on the implementation and evaluation of safeguarding systems.

Important questions include whether reporting routes are accessible, whether organizations respond consistently, how retaliation is prevented, and whether affected individuals receive appropriate support.

Research should also examine how power relationships and organizational incentives influence the recognition and handling of misconduct.

16.13.6. Cultural and Contextual Differences

The meaning and acceptability of particular behaviors may differ across sports, countries, and organizational contexts.

Cross-cultural research should examine these differences without assuming that cultural variation makes harmful conduct acceptable.

International research can help identify general mechanisms while recognizing the need for context-sensitive implementation.

16.14. Conclusion

Aggression, violence, and ethical behavior in sport are shaped by interactions among individual characteristics, emotional processes, moral reasoning, social norms, group identity, and organizational conditions.

Aggression is not synonymous with physical contact, anger, or every rule violation. The distinction between hostile and instrumental aggression helps explain different motivations, while the concepts of prosocial and antisocial behavior clarify the intended consequences of actions for others.

Theoretical approaches such as social learning theory, the General Aggression Model, social identity theory, and moral disengagement provide complementary explanations of how harmful behavior may develop and persist. These frameworks emphasize that aggression is influenced not only by individual tendencies but also by the norms, rewards, and power relationships present in sport environments.

Research supports the importance of moral climate and moral disengagement. The meta-analysis by Spruit et al. (2019) associated moral climate with moral behavior among young athletes, while Zhu et al. (2025) found a substantial relationship between moral disengagement and antisocial behavior in sport.

Prevention should therefore combine individual education with consistent coaching behavior, ethical leadership, appropriate disciplinary procedures, accessible reporting systems, and effective safeguarding. Teaching athletes to regulate anger is valuable, but it cannot substitute for addressing harassment, abuse, coercion, or organizational practices that reward harmful conduct.

Sport can provide opportunities for moral learning, cooperation, and respect. These outcomes are more likely when ethical principles are reflected in everyday behavior and organizational decisions rather than communicated only through formal statements.

Ultimately, high-performance sport and ethical conduct should be treated as compatible objectives. A responsible sporting environment seeks competitive excellence without sacrificing the safety, dignity, and rights of participants.

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CHAPTER 17: Personality, Individual Differences, and Sport Performance: Psychological Traits, Situational Influences, and Athlete Development

17.1. Introduction

Athletes who train under similar conditions and possess comparable physical capabilities may respond differently to competition, coaching, setbacks, and performance pressure. One athlete may interpret a demanding training session as an opportunity for development, whereas another may perceive it as a threat. Some athletes seek social interaction and external feedback, while others prefer independent preparation and a relatively quiet environment. Differences in emotional reactivity, self-regulation, interpersonal behavior, and achievement striving can influence how athletes experience and respond to the demands of sport.

Personality provides one framework for understanding these individual differences. In sport and exercise psychology, personality refers to relatively enduring patterns of thinking, feeling, motivation, and behavior that contribute to the ways individuals respond to their environments. Personality is not synonymous with ability, motivation, temperament, or psychological skill. Rather, it represents a set of characteristics that may interact with these factors to shape participation, adaptation, interpersonal relationships, and performance.

The relationship between personality and sport performance has attracted considerable research interest. Allen et al. (2013) reviewed personality research in organized sport and highlighted its relevance to athletic success, sport participation, social interaction, and team effectiveness. More recent reviews and meta-analyses have continued to examine the association between personality traits and performance, although the magnitude and consistency of these relationships vary across studies (Yang et al., 2024; Xu & Hao, 2025).

An important distinction is that **personality does not determine sporting success**. Physical capacities, technical expertise, tactical knowledge, training quality, motivation, psychological skills, social support, and environmental conditions also contribute to performance. Personality may influence how athletes use available resources, respond to challenges, and engage with training, but its effects are neither uniform nor necessarily causal.

This chapter examines the major theoretical approaches to personality, the Five-Factor Model, personality–performance relationships, perfectionism, individual differences across sporting contexts, and the practical implications of personality-

informed coaching. It also considers ethical concerns associated with psychological assessment and athlete selection.

The central argument is that personality should be understood through an interactionist framework: athletic behavior emerges from the dynamic relationship between individual characteristics and the situations in which athletes train, compete, recover, and develop.

17.2. Conceptualizing Personality in Sport Psychology

17.2.1. What is personality?

Personality is commonly understood as a relatively stable pattern of psychological characteristics that differentiates individuals from one another. These characteristics influence, but do not rigidly determine, how people interpret events, regulate emotions, establish relationships, and pursue goals.

In sport psychology, personality research can address several questions:

- Why do athletes respond differently to competitive pressure?
- Why do some athletes consistently maintain training routines while others struggle with adherence?
- How do individual characteristics influence coach–athlete relationships?
- Why do athletes differ in their preferred communication and feedback styles?
- How might personality relate to leadership, cooperation, resilience, and performance?
- How do sport environments contribute to the expression or development of personality-related behaviors?

These questions concern different outcomes and should not be treated as interchangeable. A personality characteristic associated with training adherence may not predict performance in a decisive competition. Similarly, a trait that facilitates social interaction in a team may not provide a direct advantage in an individual precision sport.

Personality research therefore requires a clear distinction between the construct being measured and the outcome being explained.

17.2.2. Traits, states, and behaviors

A useful starting point is to distinguish traits, psychological states, and observable behaviors.

Personality traits describe relatively enduring tendencies. For example, an athlete may generally be organized, socially outgoing, emotionally reactive, or curious about new experiences.

Psychological states are temporary conditions that vary according to circumstances. Competitive anxiety, momentary confidence, frustration, and excitement may fluctuate substantially within a single training session or competition.

Behaviors are observable actions, such as following a recovery plan, communicating with teammates, complying with tactical instructions, or reacting to a referee's decision.

These categories interact, but they are not equivalent. An athlete with a tendency toward emotional instability may nevertheless regulate anxiety effectively before competition. An athlete who is generally introverted may communicate assertively when tactical circumstances require it. A highly conscientious athlete may occasionally miss training because of illness, family responsibilities, or inadequate recovery.

Consequently, personality assessment should not be used to infer an athlete's behavior in every situation. A probabilistic interpretation is more defensible: traits may increase or decrease the likelihood of certain responses, but context and psychological skills influence what actually occurs.

17.2.3. Personality as a dynamic person–environment relationship

Personality research has traditionally emphasized stable individual differences. However, contemporary approaches also recognize the importance of situations, developmental experiences, and reciprocal interactions between people and their environments.

An athlete's behavior may reflect:

1. **Individual characteristics:** personality traits, values, goals, previous experiences, and psychological skills.
2. **Situational demands:** competition importance, opponent quality, selection decisions, time pressure, and uncertainty.
3. **Social influences:** coaching behavior, teammate relationships, family expectations, and organizational climate.
4. **Developmental processes:** maturation, accumulated experience, changing responsibilities, and transitions between competitive levels.

5. **Available resources:** physical preparation, recovery opportunities, access to psychological support, and perceived control.

For example, a competitive environment emphasizing punishment and public criticism may encourage some athletes to conceal mistakes. A learning-oriented environment may make it easier for the same athletes to acknowledge difficulties and seek feedback.

This does not necessarily mean that the athlete's underlying personality has changed. Instead, the environment may influence which characteristics are expressed and how they translate into behavior.

Allen et al. (2013) emphasized the importance of considering personality in relation to sport participation, social interaction, and performance rather than treating personality as an isolated explanatory variable.

17.3. Theoretical Approaches to Personality

17.3.1. Trait approaches

Trait theories explain individual differences through relatively enduring psychological characteristics. They are particularly useful when researchers want to describe differences between athletes or examine whether certain characteristics are associated with particular outcomes.

The Five-Factor Model is the most widely recognized broad trait framework. It organizes personality into openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism, with emotional stability often used as the inverse of neuroticism.

Trait approaches offer several advantages. They provide a common vocabulary, support standardized measurement, and allow researchers to examine associations between personality and outcomes such as adherence, leadership, or performance.

However, traits have limitations as predictors. A broad characteristic such as extraversion does not specify how an athlete will behave in a particular tactical situation. In addition, a statistically significant association does not establish that a trait causes a performance outcome.

Trait assessment is therefore most informative when combined with contextual information and direct observations of behavior.

17.3.2. Social-cognitive approaches

Social-cognitive perspectives emphasize the interaction between personal characteristics, behavior, and environmental influences. Bandura's (1986) social-cognitive theory provides a useful framework for understanding how beliefs, learning experiences, behavioral patterns, and social conditions influence one another.

Within sport, two athletes with similar personality profiles may respond differently because they hold different beliefs about their capabilities. One may interpret an error as evidence that additional practice is needed, whereas another may interpret the same error as confirmation of inadequacy.

Self-efficacy, outcome expectations, perceived control, and learned coping strategies may help explain these differences. These constructs are related to personality but should not be confused with personality traits themselves.

Social-cognitive approaches also emphasize learning through observation. Athletes may acquire behavioral patterns by observing coaches, teammates, opponents, and influential sporting figures. A young athlete repeatedly exposed to constructive responses to mistakes may develop different coping behaviors from an athlete who observes humiliation or retaliation being normalized.

The practical implication is that behavior can be influenced through learning opportunities and environmental changes, even when an athlete's broad personality profile remains relatively stable.

17.3.3. Interactionist approaches

Interactionist approaches propose that behavior results from the relationship between personal characteristics and situational demands.

An athlete's conscientiousness, for example, may support systematic preparation. Nevertheless, the relationship between conscientiousness and performance may depend on whether the training environment provides clear goals, adequate resources, and realistic recovery opportunities.

Similarly, an athlete who is highly sensitive to evaluation may experience considerable anxiety in a punitive environment but function effectively under a supportive coach who provides predictable feedback.

The interactionist perspective can be expressed as:

Behavior = f(person, situation, person–situation interaction).

This expression is conceptual rather than a complete statistical model. It emphasizes that behavior cannot be adequately explained by personality or situational factors alone.

For sport practitioners, the interactionist approach shifts the question from "What is wrong with this athlete?" to "How do this athlete's characteristics interact with the current demands and conditions?"

This change in perspective can improve coaching decisions, reduce inappropriate labeling, and encourage more individualized support.

17.4. The Five-Factor Model of Personality

The Five-Factor Model provides a broad framework for describing personality differences. The five dimensions are openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.

These dimensions should be interpreted as continuous characteristics rather than categories. Athletes do not belong to fixed personality types simply because they score relatively high or low on one dimension.

17.4.1. Openness to experience

Openness to experience concerns curiosity, imagination, intellectual exploration, and receptiveness to new ideas.

In sport, openness may be relevant to:

- Experimenting with alternative technical solutions.
- Adapting to tactical changes.
- Learning unfamiliar skills.
- Reflecting on performance feedback.
- Exploring different approaches to psychological preparation.

For example, a technically experienced athlete who remains open to alternative movement strategies may be more willing to experiment during training. Such experimentation may be useful when the athlete has sufficient time to learn and evaluate new approaches.

However, openness does not automatically improve performance. In highly standardized situations, frequent experimentation may be unnecessary or

counterproductive. The value of openness depends on the task, the athlete's expertise, and the demands of the sport.

17.4.2. Conscientiousness

Conscientiousness includes organization, dependability, persistence, planning, and self-discipline.

Potentially relevant behaviors include:

- Following structured training plans.
- Completing prescribed rehabilitation exercises.
- Maintaining preparation routines.
- Monitoring progress.
- Managing equipment and competition logistics.
- Following recovery and sleep recommendations.

Conscientiousness is often considered relevant to sustained preparation because long-term athletic development requires repeated engagement in demanding and sometimes monotonous tasks.

Yang et al. (2024) conducted a meta-analysis of 18 studies comprising 180 effect sizes. They reported a small positive overall association between personality and athletic performance, with conscientiousness showing a positive association of approximately $r = .178$. The authors also identified substantial heterogeneity across the included studies, indicating that the relationship varied across samples and performance measures.

These findings support the relevance of conscientiousness but do not justify assuming that every highly conscientious athlete will perform well. Performance also depends on training quality, physical capacity, technical proficiency, recovery, and competition-specific demands.

Furthermore, excessive rigidity can become problematic. Athletes may continue training despite fatigue, struggle to adjust plans, or interpret necessary changes as personal failures. Conscientiousness is most useful when paired with flexibility and appropriate recovery.

17.4.3. Extraversion

Extraversion concerns sociability, assertiveness, positive emotional expression, and the tendency to seek stimulation.

In sport, extraversion may be associated with:

- Willingness to communicate with teammates.
- Comfort with public attention.
- Active participation in group activities.
- Assertive leadership behaviors.
- Enjoyment of socially stimulating training environments.

Extraversion may be useful in some team roles, particularly where frequent communication and interpersonal engagement are important. Nevertheless, its value should not be generalized across sports or positions.

An introverted athlete may excel at tactical observation, independent preparation, and focused practice. An extraverted athlete may benefit from social stimulation but may also need strategies for maintaining concentration in distracting environments.

Yang et al. (2024) reported a small positive association between extraversion and athletic performance, approximately $r = .145$. These results indicate a relationship at the group level rather than a universal advantage for extraverted athletes.

Coaches should therefore assess communication effectiveness and role performance directly rather than assuming that socially outgoing athletes are inherently better leaders or performers.

17.4.4. Agreeableness

Agreeableness reflects tendencies toward cooperation, consideration, trust, and concern for interpersonal harmony.

Potential strengths in sport include:

- Cooperative behavior.
- Constructive conflict resolution.
- Respect for teammates and opponents.
- Willingness to support shared goals.
- Responsiveness to collaborative feedback.

In team environments, agreeableness may support interpersonal functioning. However, excessive concern about interpersonal harmony could make it difficult for an athlete to challenge poor decisions or communicate disagreement.

Conversely, lower agreeableness does not automatically imply antisocial behavior. Assertiveness, competitiveness, and disagreement can be constructive when expressed respectfully and directed toward legitimate performance objectives.

The important distinction is between the personality dimension and the athlete's actual conduct. Respectful disagreement and tactical assertiveness should not be confused with hostility, intimidation, or unsporting behavior.

17.4.5. Neuroticism and emotional stability

Neuroticism concerns tendencies toward negative emotional reactivity, including worry, emotional volatility, and sensitivity to perceived threats. Emotional stability refers to the relative absence of these tendencies.

In sport, higher neuroticism may be associated with increased sensitivity to mistakes, selection uncertainty, negative evaluation, or competitive pressure. However, the expression of these tendencies varies across athletes and situations.

An athlete who experiences strong worry may benefit from structured preparation, cognitive restructuring, breathing techniques, or strategies for directing attention toward controllable aspects of performance.

Emotional stability should not be equated with an absence of emotion. Successful athletes can experience fear, anger, disappointment, and excitement. Effective performance often depends less on eliminating emotions than on understanding and regulating their effects.

The practical goal is therefore not to make all athletes emotionally similar. It is to help each athlete recognize individual response patterns and develop appropriate regulation strategies.

Table 17.1. The Five-Factor Model and its potential relevance to sport

Personality dimension	Potential strengths in sport	Possible challenges	Practical coaching response
Openness	Adaptability, curiosity, willingness to learn	Excessive experimentation when consistency is required	Provide structured opportunities for exploration
Conscientiousness	Preparation, persistence, routine adherence	Rigidity, excessive self-demand, difficulty adapting	Balance structure with flexibility and recovery
Extraversion	Communication, social engagement, assertiveness	Possible distractibility or excessive stimulation seeking	Match communication and preparation conditions to task demands

Personality dimension	Potential strengths in sport	Possible challenges	Practical coaching response
Agreeableness	Cooperation, respect, interpersonal harmony	Reluctance to express disagreement when necessary	Encourage respectful assertiveness and open communication
Neuroticism	Heightened awareness of possible threats in some contexts	Worry, emotional reactivity, difficulty recovering from mistakes	Develop individualized coping and emotion-regulation strategies

Note. These are potential patterns, not diagnostic rules or universal predictions of behavior.

17.5. What Does the Evidence Say About Personality and Athletic Performance?

17.5.1. The magnitude of the relationship

Personality is often discussed as though it were a powerful determinant of sporting success. The empirical evidence supports a more cautious interpretation.

Yang et al. (2024) synthesized 18 studies and reported an overall personality–performance association of approximately $r = .124$. Conscientiousness and extraversion showed statistically significant positive associations, but the effects were small. The analysis also identified heterogeneity across sports, athlete characteristics, and performance measurement approaches.

The broader performance literature demonstrates a similar pattern. Zell and Lesick (2022), synthesizing more than 50 meta-analyses across several performance domains, found that conscientiousness generally had the strongest association among the Big Five dimensions. However, their analysis was not specific to sport, so its findings should be used as broader contextual evidence rather than as a direct estimate of athletic performance.

Xu and Hao (2025) reviewed 22 cross-sectional studies involving 4,181 athletes across 18 sports. Their review identified conscientiousness and extraversion as potentially relevant predictors, while also emphasizing variation by sport type, competitive level, and cultural background. Because the included studies were cross-sectional, these results cannot establish that personality traits cause superior athletic performance.

The evidence therefore supports three conclusions.

First, personality may contribute to performance, but its effects are generally not large enough to explain athletic success independently.

Second, different personality dimensions may relate to different performance outcomes. Training adherence, coach-rated performance, objective competition results, and perceived performance are distinct constructs.

Third, personality–performance relationships may be conditional. The same trait can be beneficial in one environment and less useful in another.

17.5.2. Why results differ across studies

Differences in research findings may reflect several methodological and contextual factors.

Performance measurement. A study measuring objective competition results may produce different findings from a study relying on self-reported performance or coach ratings.

Sport type. Team sports, individual sports, endurance events, combat sports, and precision sports place different demands on athletes.

Competitive level. The characteristics associated with entering sport may differ from those associated with maintaining elite performance.

Age and development. Personality expression, emotional regulation, and competitive experience may change throughout adolescence and adulthood.

Cultural context. Expectations concerning assertiveness, cooperation, authority, and emotional expression vary across sporting and cultural environments.

Study design. Cross-sectional associations cannot establish temporal order or causation. Longitudinal research is needed to determine whether personality predicts subsequent performance and whether sporting experiences contribute to personality development.

These considerations make it inappropriate to use a single personality profile as a universal model of the successful athlete.

17.6. Perfectionism: High Standards, Performance, and Psychological Cost

Perfectionism is particularly relevant to sport because athletes are often evaluated against demanding standards, precise performance targets, and highly visible outcomes.

However, perfectionism is multidimensional. It should not be reduced to the simple desire to perform well.

17.6.1. Perfectionistic strivings and perfectionistic concerns

Perfectionistic strivings refer to the pursuit of exceptionally high standards. Perfectionistic concerns involve excessive concern about mistakes, perceived failure, discrepancy between actual and desired performance, and negative evaluation.

These dimensions can coexist, but they do not have identical implications.

An athlete with high strivings and relatively low concerns may pursue ambitious goals while treating mistakes as information for improvement. An athlete with high concerns may interpret minor errors as evidence of inadequacy, even when objective performance is strong.

This distinction is important because demanding goals are not inherently maladaptive. The psychological risk emerges when high standards become inseparable from fear of failure, self-criticism, or conditional self-worth.

17.6.2. Perfectionism and objective performance

Kim et al. (2025) conducted a systematic review and meta-analysis involving 31 studies, 46 samples, and 6,102 participants. Perfectionistic strivings showed a positive association with objective sport performance of approximately $r = .21$, whereas perfectionistic concerns were not significantly associated with performance overall ($r = .03$).

The authors also reported that the relationship between strivings and performance depended partly on the level of perfectionistic concerns. The results suggest that ambitious standards may be more beneficial when accompanied by lower levels of maladaptive concern.

These findings should not be interpreted as evidence that perfectionism is universally desirable. A positive association with objective performance does not establish that perfectionism improves mental health, recovery, enjoyment, or long-term participation.

An athlete may achieve strong results while experiencing substantial distress. Consequently, performance outcomes and psychological well-being should be evaluated separately.

17.6.3. Coaching athletes with perfectionistic tendencies

Coaches can support high standards while reducing unnecessary psychological costs by:

1. Setting clear, realistic, and controllable process goals.

2. Separating performance evaluation from personal worth.
3. Treating errors as information rather than moral failures.
4. Encouraging flexible responses to changing circumstances.
5. Reinforcing recovery and appropriate training modification.
6. Recognizing effort, learning, and adaptive problem-solving alongside results.
7. Referring athletes for qualified psychological support when persistent distress or functional impairment is present.

The objective is not to remove ambition. It is to preserve constructive striving while reducing debilitating fear of mistakes and excessive self-criticism.

17.7. Personality, Motivation, and Self-Regulation

Personality may influence how athletes approach goals, organize behavior, and respond to feedback. Nevertheless, motivation and self-regulation are distinct constructs that should be examined alongside personality rather than treated as direct expressions of it.

17.7.1. Goal pursuit

Conscientiousness may support planning and persistence, but sustained goal pursuit also depends on whether athletes value their goals, believe them to be attainable, and receive appropriate support.

For example, a highly conscientious athlete may follow a training program consistently. If the program is poorly designed, however, adherence alone will not guarantee improvement. In some circumstances, rigid adherence may even contribute to excessive fatigue or injury risk.

Effective goal pursuit requires both consistency and adjustment.

17.7.2. Feedback and self-regulation

Athletes differ in how they interpret performance feedback. Some readily identify specific changes to make; others may interpret criticism as a broader judgment of their ability or identity.

Coaches can improve feedback processes by making comments:

- Specific rather than global.
- Focused on controllable behavior.

- Proportionate to the importance of the error.
- Clear about the next action.
- Consistent with the athlete's developmental stage.

For example, “Your decision was late because you checked the opponent too late; next repetition, scan before receiving the ball” provides more actionable information than “You are not decisive enough.”

This approach focuses on behavior and learning rather than assigning a fixed personality label.

17.7.3. Motivation should not be inferred from personality

A quiet athlete should not automatically be considered unmotivated. Similarly, an outgoing athlete should not be assumed to be committed simply because they appear enthusiastic.

Motivation is better assessed through multiple indicators, including goal commitment, attendance, effort, engagement, communication, and the athlete's own account of their experience.

The same principle applies to leadership. Visibility and assertiveness may be useful in some roles, but leadership also involves judgment, reliability, listening, and the ability to support others.

17.8. Personality and Team Functioning

Team performance depends partly on how individuals interact. Personality may influence communication preferences, conflict responses, leadership behavior, and the distribution of social roles.

However, effective teams do not necessarily consist of athletes with similar personalities. Differences can provide complementary strengths when roles are clear and interpersonal relationships are constructive.

17.8.1. Complementarity rather than uniformity

A team may benefit from athletes who differ in their communication style, emotional expression, and approach to problem-solving.

For example, one athlete may readily initiate discussion, while another may contribute through careful observation and concise tactical feedback. Both can be valuable if the team has norms that allow different forms of participation.

Problems arise when coaches assume that one behavioral style represents commitment or leadership while other styles indicate weakness.

An athlete who speaks less during team meetings may still be highly engaged. Coaches should examine the quality of contributions and actual behavior rather than equating verbal frequency with leadership potential.

17.8.2. Personality and conflict

Conflict is not always harmful. Disagreement about tactics, training loads, or role allocation can improve decisions when it is expressed respectfully and addressed constructively.

Personality may influence how individuals approach disagreement, but the team climate also matters. Clear communication norms and fair decision-making procedures can reduce the likelihood that differences become persistent interpersonal hostility.

Useful team practices include:

- Establishing explicit expectations for respectful communication.
- Providing structured opportunities for athletes to express concerns.
- Clarifying roles and responsibilities.
- Addressing conflict before it escalates.
- Distinguishing disagreement about ideas from personal attacks.
- Ensuring that coaches model the standards they expect from athletes.

These practices are relevant across a range of personality profiles and do not require athletes to change their fundamental disposition.

17.9. Personality, Leadership, and Coach–Athlete Relationships

Personality is relevant not only to athletes but also to coaches, sport psychologists, officials, and administrators.

A coach's communication style may influence how athletes interpret feedback, perceive autonomy, and respond to mistakes. However, no single personality profile guarantees effective coaching.

17.9.1. Coach characteristics and behavioral flexibility

An assertive coach may communicate effectively during time-sensitive competitive situations but may need to create additional opportunities for athlete input during planning and review.

A highly agreeable coach may establish warm interpersonal relationships but may also need to address underperformance directly and consistently.

A highly conscientious coach may provide excellent organization while needing to remain flexible when an athlete experiences fatigue, illness, or unexpected personal difficulties.

These examples illustrate potential interactions rather than deterministic predictions. Actual coaching effectiveness should be evaluated through behavior, athlete responses, performance demands, and ethical standards.

17.9.2. Matching communication to the athlete

Individualized communication does not mean reinforcing every preference. Instead, it means delivering clear and appropriate information in a way that supports understanding and effective action.

A coach may ask an athlete:

- Would you prefer immediate technical feedback or a brief review after the drill?
- Do you find written performance notes useful?
- What type of feedback helps you respond constructively after an error?
- What preparation conditions help you maintain concentration?
- How would you prefer to discuss a difficult selection decision?

These questions provide direct information rather than relying on assumptions derived from personality scores.

17.10. Personality Development Across the Sporting Career

Personality is relatively stable compared with momentary psychological states, but stability does not mean immutability. Individual characteristics may change over time, and the expression of those characteristics may shift with development and experience.

Sport can provide repeated opportunities to practice persistence, cooperation, emotional regulation, responsibility, and leadership. Whether these experiences produce lasting changes in personality depends on many factors, including the quality of the environment, the athlete's interpretation of experiences, and the extent to which learned behaviors generalize beyond sport.

17.10.1. Youth sport

Youth sport environments should support both skill development and healthy psychosocial growth.

Coaches should avoid assigning fixed identities to children, such as “the aggressive one,” “the shy one,” or “the natural leader.” These labels can narrow expectations and influence how young athletes understand themselves.

Instead, adults can reinforce specific behaviors:

- “You listened carefully to your teammate.”
- “You recovered well after making a mistake.”
- “You asked for feedback when you were uncertain.”
- “You changed your approach after the first attempt.”

Behavior-focused feedback gives young athletes opportunities to develop skills without treating temporary behavior as an unchangeable personal characteristic.

17.10.2. Adolescence and identity development

Adolescence often involves increasing concern about peer evaluation, competitive status, and identity. Selection decisions and public comparisons can become particularly influential.

A psychologically supportive environment allows athletes to pursue ambitious goals while maintaining a broader sense of identity. Sport participation should not become the sole basis of self-worth.

Coaches and parents can help by recognizing effort and development, respecting non-sport interests, and communicating that selection decisions reflect current judgments rather than permanent assessments of personal value.

17.10.3. Elite sport and career transitions

Elite athletes face sustained evaluation, selection uncertainty, public scrutiny, and changing physical demands. These pressures may interact with individual characteristics and coping resources.

Personality assessment may help practitioners understand preferences and response patterns, but it should not replace direct evaluation of current psychological needs.

Transitions such as entering an elite program, changing teams, recovering from injury, losing selection, or retiring from competition require individualized support. The same athlete may need different resources at different stages of a career.

17.11. Personality Assessment in Sport: Methods and Limitations

Personality assessment can contribute to research and applied practice when the purpose is clear, the instrument is appropriate, and the results are interpreted cautiously.

17.11.1. Self-report questionnaires

Self-report questionnaires are commonly used because they are relatively efficient and allow standardized measurement. However, responses may be influenced by social desirability, self-awareness, current mood, interpretation of questionnaire items, and the perceived consequences of the assessment.

In a selection context, an athlete may answer in ways they believe coaches prefer. Such responses do not necessarily represent deliberate deception; they may reflect the pressure of being evaluated.

Self-report results should therefore be interpreted alongside other relevant information and should not be treated as objective descriptions of an athlete's entire personality.

17.11.2. Interviews and behavioral observations

Structured interviews can provide contextual information about how athletes respond to training demands, feedback, conflict, and setbacks.

Behavioral observations may also help practitioners understand whether an athlete consistently demonstrates the actions relevant to a specific role.

However, observations are vulnerable to observer bias and situational limitations. A single training session cannot establish a stable personality characteristic. Multiple observations across relevant contexts are more informative.

17.11.3. Multi-method assessment

A multi-method approach may combine:

1. A validated personality questionnaire.
2. A structured interview.
3. Relevant behavioral observations.
4. Athlete self-reflection.
5. Contextual information about the training and competitive environment.
6. Performance data appropriate to the question being investigated.

These sources should not be mechanically combined into a single score. Their purpose is to provide complementary perspectives and identify areas requiring further exploration.

Table 17.2. Choosing a personality assessment approach

Method	Main contribution	Important limitation	Appropriate use
Validated self-report	Standardized measurement of reported traits	Response bias and limited contextual information	Research and structured psychological assessment
Structured interview	Contextual understanding of experiences and preferences	Interviewer effects and retrospective bias	Individual development planning
Behavioral observation	Information about actions in relevant situations	Behavior may be situation-specific	Coaching feedback and role development
Athlete self-reflection	Insight into perceived strengths and challenges	May be influenced by current mood or self-concept	Collaborative goal setting
Multi-method assessment	Triangulation across sources	Requires time and qualified interpretation	Complex development or research questions

17.11.4. Psychometric quality

A personality instrument should be selected according to its theoretical basis, reliability, validity, language, and suitability for the intended population.

Translation alone does not establish that an instrument is valid for use in another cultural or linguistic context. Appropriate adaptation and evidence of measurement quality are necessary.

Practitioners should also distinguish between reliability and validity. A questionnaire may produce consistent scores without measuring the intended construct adequately.

When comparisons are made across age groups, genders, languages, or cultures, measurement equivalence should be considered where relevant.

17.11.5. Ethical considerations

Personality data are sensitive because they can influence selection decisions, coach expectations, and an athlete's self-concept.

Ethical assessment requires:

- Informed consent and a clear explanation of the assessment purpose.
- Confidentiality and appropriate data protection.

- Use of instruments suitable for the intended purpose.
- Interpretation by appropriately qualified professionals.
- Avoidance of stigmatizing or deterministic labels.
- Transparency about how results may influence decisions.
- Fairness in selection and development procedures.
- Recognition that personality scores are not diagnoses.

Athletes should not be excluded from participation solely because they do not fit a preferred personality profile unless a specific, defensible, and ethically appropriate requirement has been established. Even then, decisions should rely on relevant evidence rather than broad trait assumptions.

17.12. Practical Framework: Translating Personality Information into Athlete Development

The practical value of personality research lies not in labeling athletes but in improving the quality of support they receive.

The following framework provides a structured approach.

Step 1: Define the practical question

Begin with a specific issue rather than a general desire to classify the athlete.

Examples include:

- Why is the athlete struggling to follow a recovery routine?
- What communication approach supports effective feedback?
- How does the athlete typically respond to selection uncertainty?
- What preparation conditions help the athlete concentrate?
- Which behaviors would improve the athlete's contribution to the team?

A clearly defined question reduces the risk of collecting unnecessary personal information.

Step 2: Gather relevant information

Use appropriate assessment methods and include the athlete's perspective. If a personality questionnaire is used, select a validated measure and explain its purpose.

Do not assume that a score alone explains a performance problem. Training load, sleep, injury, interpersonal conflict, role ambiguity, and external stressors may be more directly relevant.

Step 3: Identify strengths and possible challenges

Describe characteristics in neutral, behaviorally meaningful language.

Instead of stating that an athlete is “too neurotic,” a practitioner might explore whether the athlete experiences persistent worry before selection decisions and whether this interferes with concentration.

Instead of calling an athlete “unmotivated,” the practitioner might investigate whether the training goals are clear, meaningful, and achievable.

Step 4: Develop an individualized plan

The plan should focus on modifiable behavior and relevant environmental conditions.

For example, an athlete who struggles to recover emotionally after mistakes might use a brief reset routine consisting of:

1. Recognizing the error without exaggerating its significance.
2. Identifying one controllable corrective action.
3. Redirecting attention to the next task.
4. Reviewing the incident after the session rather than repeatedly during performance.

This intervention targets a functional difficulty rather than attempting to change the athlete's entire personality.

Step 5: Monitor outcomes

Evaluation should use indicators linked to the original question.

Possible indicators include:

- Training adherence.
- Recovery-plan completion.
- Frequency of constructive communication.
- Self-reported distress.
- Quality of attention after mistakes.

- Coach–athlete agreement about role expectations.
- Relevant performance measures.

Where possible, practitioners should gather repeated observations rather than relying on a single post-intervention impression.

Step 6: Review and adapt

An intervention should be revised if it is ineffective or creates unintended consequences. The athlete should be involved in the review process.

This approach treats personality information as one component of individualized support rather than a fixed prescription.

Table 17.3. Example of a personality-informed development plan

Practical issue	Information to explore	Possible strategy	Outcome to monitor
Inconsistent preparation	Planning habits, goal clarity, competing demands	Short written routine and implementation intentions	Completion of preparation tasks
Excessive worry before competition	Triggers, appraisal, coping resources	Pre-performance routine and cognitive coping	Self-reported worry and task focus
Difficulty communicating with teammates	Communication preferences and team norms	Structured communication roles and feedback practice	Quality of tactical communication
Rigid response to mistakes	Standards, self-criticism, perceived consequences	Error-review routine and flexible process goals	Recovery of attention after errors
Difficulty adjusting to feedback	Feedback preferences, prior experiences, trust	Specific behavioral feedback and collaborative review	Understanding and implementation of feedback

Note. The examples are illustrative. They are not diagnoses or guaranteed interventions.

17.13. Future Directions in Personality and Sport Research

Although personality research in sport has developed substantially, several questions remain important.

17.13.1. Longitudinal research

Many studies use cross-sectional designs. Longitudinal research is needed to clarify whether personality characteristics predict subsequent performance, whether sporting experiences contribute to personality development, and how these relationships change across a career.

Repeated measurements can also help distinguish relatively stable traits from temporary responses to particular circumstances.

17.13.2. Context-specific prediction

Broad traits may provide limited information when the outcome is highly specific. Future research should investigate which characteristics are relevant to particular tasks, roles, and environments.

For example, the predictors of successful communication in a team may differ from those associated with sustained adherence to an individual endurance-training program.

Such research should define outcomes precisely and avoid generalizing findings beyond the populations and contexts studied.

17.13.3. Cultural and developmental diversity

Research should include athletes from diverse cultural backgrounds, competitive levels, age groups, and sporting systems.

Personality instruments developed in one population may not function equivalently in another. Researchers should test the validity of measures before interpreting group differences.

Developmental research is particularly important because adult findings cannot automatically be applied to children and adolescents.

17.13.4. Integrating personality with other psychological variables

Personality should be studied alongside motivation, self-efficacy, emotion regulation, attentional control, coping, and social support.

These constructs may explain different parts of the performance process. For example, conscientiousness may be associated with preparation routines, while self-efficacy may be more directly related to an athlete's belief that a particular task can be completed successfully.

Integrative models may therefore provide more useful explanations than personality-only approaches.

17.13.5. Ethical and responsible use of assessment

As athlete monitoring and digital psychological assessment become more common, researchers and practitioners must consider privacy, consent, data security, and the potential misuse of psychological information.

Personality data should not be used to create unsupported predictions of future success or to automate high-stakes selection decisions without appropriate validation and human oversight.

The purpose of assessment should be to improve understanding and support development, not to reduce athletes to scores.

17.14. Conclusion

Personality provides a valuable framework for understanding individual differences in sport, but its contribution must be interpreted within a broader psychological and environmental context.

The Five-Factor Model offers a structured way to describe broad personality characteristics. Research suggests that conscientiousness and extraversion may show positive associations with athletic performance, but the overall relationships are generally modest and vary across studies, sports, and performance measures. These findings do not support a universal personality profile for sporting success.

Perfectionism illustrates the importance of examining specific dimensions rather than treating a broad construct as uniformly beneficial or harmful. High personal standards may be associated with better objective performance, while excessive concern about mistakes may create psychological costs. Performance, well-being, and long-term development must therefore be considered together.

The interactionist perspective is particularly important for applied practice. Athletes' characteristics interact with coaching behavior, team climate, competitive demands, training opportunities, and personal circumstances. Effective support requires understanding these interactions rather than assigning fixed labels.

Personality assessment can contribute to athlete development when it is valid, ethical, context-sensitive, and combined with direct behavioral evidence. Its most defensible purpose is to support communication, self-awareness, individualized preparation, and healthy development—not to determine who is inherently capable of success.

Ultimately, the question is not whether an athlete possesses the “right” personality. It is how the athlete's individual characteristics can be understood and supported within an environment that promotes performance, learning, psychological well-being, and sustained participation.

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CHAPTER 18: Exercise Adherence and Behavior Change: Psychological Determinants, Theoretical Models, and Evidence-Based Strategies

18.1. Introduction

Regular physical activity is widely recognized as an important component of physical health, psychological well-being, and healthy aging. Nevertheless, encouraging people to become physically active does not necessarily ensure that they will remain active. Many individuals initiate exercise programs with enthusiasm but discontinue participation when they encounter time constraints, fatigue, limited progress, discomfort, competing responsibilities, or declining motivation. Others repeatedly attempt to establish an exercise routine without developing a stable pattern of participation.

These observations highlight a central challenge in exercise psychology: **the distinction between initiating exercise and maintaining exercise behavior**.

Exercise initiation concerns the processes through which an individual decides to begin participating in structured physical activity. Exercise adherence refers to the extent to which the individual continues to participate in an agreed or intended exercise program. Maintenance concerns the longer-term continuation of physical activity, while relapse describes a return to inactivity or a substantial reduction in participation after a period of engagement.

These processes are related but not identical. An intervention that successfully encourages someone to attend an initial exercise session may not provide the support necessary to maintain participation over several months. Similarly, an individual may value physical activity but struggle to translate this belief into consistent behavior.

Exercise behavior is influenced by a complex combination of psychological, social, behavioral, environmental, and organizational factors. Motivation, self-efficacy, perceived competence, habit formation, social support, access to facilities, time availability, and previous exercise experiences can all contribute to participation. Their relative importance varies across individuals and circumstances.

Research grounded in self-determination theory suggests that autonomous motivation and perceived competence are important considerations in understanding physical activity. A recent review of systematic reviews identified competence, intrinsic motivation, and identified regulation as relevant correlates

of physical activity across different age groups (Xu et al., 2025). Research on behavior change also emphasizes that motivation must be considered alongside capability and opportunity rather than treated as a sufficient condition for action (Michie et al., 2011; Yang et al., 2024).

The purpose of this chapter is to examine the psychological foundations of exercise adherence, explain major theoretical approaches to behavior change, identify common barriers and facilitators, and translate the available evidence into practical intervention strategies.

The chapter advances five central propositions:

1. Exercise adherence is a dynamic behavioral process rather than a single decision.
2. Motivation is more likely to support long-term participation when individuals experience autonomy, competence, and meaningful reasons for exercising.
3. Exercise behavior depends on the interaction of personal motivation, practical capability, and environmental opportunity.
4. Repetition in stable contexts can support habit development, but habit formation varies substantially across individuals and behaviors.
5. Effective interventions should be individualized, monitored, and adjusted in response to changing circumstances.

These propositions provide a foundation for designing exercise programs that are psychologically informed, feasible, inclusive, and sustainable.

18.2. Defining Exercise Behavior, Adherence, and Maintenance

18.2.1. Physical activity, exercise, and structured participation

Physical activity refers broadly to bodily movement produced by skeletal muscles that increases energy expenditure. It includes activities such as walking for transportation, household tasks, active recreation, occupational movement, and structured exercise.

Exercise is a more specific category of physical activity that is generally planned, structured, and repeated with the purpose of maintaining or improving physical fitness or health.

The distinction matters because an individual may increase daily movement without joining a formal exercise program. Conversely, someone may attend a

gym several times a week while remaining sedentary during much of the rest of the day.

Exercise adherence research should therefore specify the behavior being studied. Relevant outcomes may include attendance at scheduled sessions, completion of prescribed exercise, frequency of physical activity, duration, intensity, or maintenance over a defined period.

18.2.2. Exercise initiation

Initiation involves translating a behavioral intention into the first actions required to begin exercising.

An individual may decide to become more active because of health concerns, enjoyment, social encouragement, medical advice, or a desire to improve fitness. However, intention does not automatically produce behavior.

The individual may lack access to a suitable facility, feel uncertain about exercise technique, anticipate embarrassment, or struggle to identify an appropriate time.

Consequently, initiation requires more than a favorable attitude. It also requires an actionable plan and sufficient resources to implement it.

18.2.3. Exercise adherence

Exercise adherence concerns continued participation in a program or behavior over a specified period.

In supervised rehabilitation, adherence may involve attending appointments and completing prescribed exercises. In community fitness programs, it may involve maintaining planned attendance. In independent exercise, adherence may be reflected in the consistency with which an individual follows a self-selected routine.

These forms of adherence should not be treated as identical. Attendance does not necessarily establish that the intended exercise was completed, and self-reported participation may differ from objectively recorded behavior.

A rigorous evaluation should therefore define adherence in advance and select measures appropriate to the intervention.

18.2.4. Maintenance and relapse

Maintenance refers to the continued performance of a behavior over time. It is often characterized by increasing familiarity, improved self-regulation, and reduced dependence on immediate external prompting.

Relapse occurs when a previously established pattern of participation is disrupted. It may follow illness, injury, work demands, caregiving responsibilities, financial difficulties, environmental changes, or a decline in perceived benefits.

Relapse should not automatically be interpreted as a lack of commitment. It may indicate that the original plan was insufficiently flexible or that the circumstances supporting the behavior have changed.

A sustainable exercise program anticipates interruptions and provides strategies for returning to activity without unnecessary guilt or self-criticism.

Table 18.1. Key stages of exercise behavior

Stage	Central question	Typical psychological challenge	Useful intervention focus
Awareness	Why might physical activity matter to me?	Limited understanding or perceived relevance	Meaningful, accurate information
Intention	Do I want to become more active?	Ambivalence or competing priorities	Values clarification and motivational discussion
Initiation	How will I begin?	Uncertainty, access barriers, fear of discomfort	Small starting goals and practical planning
Early adherence	Can I continue this routine?	Fatigue, low confidence, competing demands	Feedback, manageable progression, social support
Maintenance	How can activity become sustainable?	Routine disruption and declining novelty	Habit-supportive routines and flexible planning
Recovery after interruption	How do I restart?	Disappointment, guilt, all-or-nothing thinking	Relapse planning and graded re-entry

Note. The stages are an applied organizational framework, not a claim that every individual progresses through a fixed sequence.

18.3. Psychological Determinants of Exercise Adherence

18.3.1. Motivation

Motivation concerns the processes that energize and direct behavior. In exercise settings, it includes why individuals begin exercising, what outcomes they expect, how much effort they invest, and whether they continue when participation becomes difficult.

Motives can include enjoyment, health improvement, social connection, stress management, appearance, competition, functional independence, or medical recommendations.

The presence of motivation, however, does not guarantee sustained participation. Someone may strongly value physical health while struggling to organize exercise around work and family responsibilities. Another person may initially exercise because of external pressure but gradually develop a personally meaningful reason to continue.

Motivation should therefore be understood in terms of both its strength and its quality.

18.3.2. Self-efficacy

Self-efficacy refers to an individual's belief in their capability to perform the actions necessary to achieve a particular outcome (Bandura, 1997).

In exercise contexts, self-efficacy may concern whether an individual believes they can:

- Complete a planned session.
- Exercise despite mild discomfort or low motivation.
- Maintain participation during a busy week.
- Return to activity after an interruption.
- Perform exercises safely and correctly.
- Continue exercising in unfamiliar environments.

Self-efficacy is task- and context-specific. An individual may feel confident walking for 20 minutes but uncertain about resistance training or group exercise.

This distinction has practical implications. General encouragement may be less useful than helping the individual succeed at a clearly defined, manageable task.

For example, a previously inactive adult may begin with short walking sessions and gradually increase duration as confidence and physical capacity improve. Successful experiences provide evidence that the behavior is achievable.

However, self-efficacy should not be treated as a substitute for actual capability. A person may feel confident but lack the physical preparation or medical clearance required for a particular exercise. Appropriate assessment and safe progression remain essential.

18.3.3. Perceived competence

Perceived competence concerns whether individuals feel capable of performing an activity effectively.

It overlaps with self-efficacy but is conceptually distinct. Self-efficacy typically refers to confidence in performing specific actions, whereas competence within self-determination theory concerns the experience of effectiveness and capability.

People may discontinue exercise when sessions repeatedly produce feelings of failure, embarrassment, or inadequacy.

A beginner who cannot complete a demanding class may conclude that exercise is not for them. By contrast, a program that provides achievable challenges and visible progress can support a stronger sense of competence.

Appropriate exercise prescription should therefore balance challenge and feasibility. Tasks that are too difficult may undermine confidence, while tasks that are consistently too easy may fail to maintain engagement.

18.3.4. Outcome expectations

Outcome expectations concern the anticipated consequences of behavior.

People may exercise because they expect improvements in fitness, energy, sleep, mood, mobility, social relationships, or long-term health. They may also expect discomfort, embarrassment, financial cost, or excessive time demands.

Behavior becomes more feasible when individuals perceive meaningful benefits and believe that these benefits are realistically attainable.

However, expected outcomes can differ from actual experiences. An individual who expects rapid weight loss may become discouraged when progress is gradual. A person who anticipates immediate mood improvement may conclude that exercise is ineffective after a difficult session.

Practitioners should establish realistic expectations and emphasize multiple indicators of progress rather than a single outcome.

18.3.5. Emotional experiences

Emotional responses can influence both immediate exercise decisions and long-term adherence.

Enjoyment, satisfaction, pride, and social connection may reinforce participation. Anxiety, boredom, embarrassment, frustration, and anticipated discomfort may reduce willingness to return.

Not every exercise session will be enjoyable. Physical exertion can be demanding, and some individuals may initially experience discomfort while adapting to new activities. Nevertheless, persistent negative experiences may

indicate that the program is inappropriate, excessively demanding, socially uncomfortable, or poorly matched to the participant's preferences.

Practitioners should explore the meaning of these experiences rather than assuming that discomfort always reflects inadequate motivation.

18.4. Self-Determination Theory and Autonomous Motivation

Self-determination theory (SDT) provides one of the most influential frameworks for understanding motivation and sustained behavior. The theory distinguishes forms of motivation according to the degree to which behavior is experienced as autonomous or controlled (Deci & Ryan, 2000; Ryan & Deci, 2017).

18.4.1. Intrinsic motivation

Intrinsic motivation occurs when an activity is performed because it is inherently interesting or enjoyable.

In exercise, examples include walking because it feels pleasant, swimming for enjoyment, dancing for its own sake, or participating in recreational sport because the activity is satisfying.

Intrinsic motivation may support participation because the behavior provides an immediate source of satisfaction rather than depending entirely on distant outcomes.

Nevertheless, enjoyment is not a necessary condition for all sustainable physical activity. Some individuals maintain exercise because they value its consequences even when particular sessions are not especially enjoyable.

18.4.2. Extrinsic motivation and internalization

Extrinsic motivation refers to behavior undertaken for outcomes separable from the activity itself. However, extrinsic motivation includes different regulatory forms.

External regulation occurs when behavior is primarily controlled by external rewards, demands, or consequences.

Introjected regulation involves internal pressure, such as guilt, shame, or the need to demonstrate personal worth.

Identified regulation occurs when the individual recognizes the importance of the behavior and personally values its outcomes.

Integrated regulation occurs when the behavior is consistent with broader personal values and identity.

For example, a person may initially exercise because a clinician recommends it. Over time, the individual may recognize that regular activity supports independence and quality of life. The behavior may then become more personally meaningful even if exercise is not always enjoyable.

The distinction is important because externally initiated behavior is not necessarily unsustainable. External prompts can help establish participation, but long-term maintenance may be more feasible when individuals understand and personally endorse the behavior.

18.4.3. The three basic psychological needs

SDT proposes three basic psychological needs: autonomy, competence, and relatedness.

Autonomy concerns experiencing a sense of volition and personal endorsement. It does not mean exercising without guidance or refusing professional advice.

Competence concerns feeling effective and capable of meeting appropriate challenges.

Relatedness concerns feeling connected to, accepted by, and respected by other people.

Exercise environments can support these needs through specific practices.

Autonomy support may involve offering meaningful choices, explaining the rationale for activities, and acknowledging participants' preferences.

Competence support may involve graded tasks, clear instructions, achievable goals, and constructive feedback.

Relatedness support may involve respectful communication, inclusive group activities, and opportunities to develop supportive relationships.

Xu et al. (2025) reviewed seven systematic reviews or meta-analyses examining SDT and physical activity. Their synthesis identified competence, intrinsic regulation, and identified regulation as important determinants of physical activity across age groups. The authors recommended emphasizing competence and autonomous motivation rather than relying primarily on external pressure.

Ntoumanis and Moller (2025) similarly concluded that SDT-informed interventions can support physical activity and related health behaviors, although reported effects are generally small to moderate and depend on the intervention and context.

These findings support the application of SDT while also indicating that motivational interventions should not be expected to overcome every practical barrier.

Table 18.2. Applying self-determination theory to exercise programs

Psychological need	Supportive practice	Potentially unsupportive practice
Autonomy	Offer meaningful choices within safe limits	Demand compliance without explanation
Competence	Set achievable progressive goals and provide constructive feedback	Compare beginners publicly with experienced participants
Relatedness	Create respectful, inclusive, socially supportive environments	Use humiliation, exclusion, or interpersonal pressure
Internalization	Explain how activity connects to participants' own goals	Rely exclusively on rewards, threats, or guilt

Note. Supportive practices should be adapted to the participant's needs, health status, and exercise setting.

18.5. The COM-B Model and the Behaviour Change Wheel

The COM-B model proposes that behavior results from interactions among three broad components: capability, opportunity, and motivation (Michie et al., 2011).

The model is useful because it prevents practitioners from interpreting every failure to exercise as a motivational problem.

18.5.1. Capability

Capability includes the physical and psychological resources required to perform a behavior.

Physical capability may involve mobility, strength, endurance, and the ability to complete prescribed exercises safely.

Psychological capability may involve knowledge, planning skills, attention, and understanding of exercise instructions.

A person who does not know how to use resistance-training equipment may avoid the gym despite wanting to become stronger. The appropriate response is instruction and supervised practice, not simply motivational encouragement.

Similarly, an individual recovering from injury may require a modified program because the original exercise prescription exceeds current physical capacity.

18.5.2. Opportunity

Opportunity includes external conditions that enable or constrain behavior.

Physical opportunity includes access to facilities, equipment, safe walking routes, transportation, time, and financial resources.

Social opportunity includes support from family members, peers, colleagues, instructors, and community organizations.

Opportunity is particularly important because individual motivation cannot independently resolve structural barriers. A person may be highly motivated but lack affordable facilities, safe public spaces, childcare, or sufficient time.

Effective interventions should therefore consider the environment in which exercise occurs.

18.5.3. Motivation

Motivation includes reflective processes, such as intentions and evaluations, as well as automatic processes, such as habits and learned emotional responses.

Reflective motivation may involve deciding that exercise is important for health. Automatic motivation may involve beginning a familiar walking routine when arriving home from work.

These processes can support or undermine each other. A person may consciously value exercise but automatically choose a familiar sedentary activity after a stressful day.

Interventions can address reflective motivation through goal setting and motivational discussion while supporting automatic processes through repetition, environmental cues, and stable routines.

18.5.4. Using COM-B to diagnose barriers

Before selecting an intervention, practitioners should identify the most relevant barrier.

Yang et al. (2024) conducted a mixed-methods systematic review of exercise adherence among community-dwelling older adults, including 64 studies. The review identified multiple barriers and facilitators and organized potential strategies into areas such as individualized exercise programming, appropriate environments, multidimensional social support, monitoring and feedback, emotional support, education, self-efficacy enhancement, and autonomy support.

Because the review focused on older adults, its findings should not be generalized without qualification to every age group. Nevertheless, it illustrates the value of considering multiple determinants of adherence rather than relying on a single motivational explanation.

Table 18.3. COM-B assessment and intervention planning

COM-B component	Example barrier	Potential intervention
Physical capability	Low fitness or mobility limitations	Begin with suitable low-intensity activity and progress gradually
Psychological capability	Uncertainty about technique	Provide demonstrations, instruction, and supervised practice
Physical opportunity	Lack of time or accessible facilities	Identify feasible locations and shorter activity periods
Social opportunity	Limited support or discouraging social norms	Introduce supportive exercise partners or inclusive groups
Reflective motivation	Unclear personal benefits	Connect exercise with personally meaningful goals
Automatic motivation	Established sedentary routines	Add environmental cues and repeat exercise in a stable context

The model encourages practitioners to identify which conditions need to change before deciding how to intervene.

18.6. The Theory of Planned Behavior and Exercise Intentions

The theory of planned behavior proposes that intention is influenced by attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991).

Attitudes concern whether the individual evaluates the behavior positively or negatively.

Subjective norms concern perceived expectations or approval from important others.

Perceived behavioral control concerns whether the individual believes that the behavior is within their control.

These constructs can help explain why people intend to exercise and why intentions may differ across individuals.

For example, a university student may have a positive attitude toward exercise and believe that friends approve of physical activity. However, if the student believes that academic demands make participation impossible, intention may remain weak or fail to translate into action.

The theory also highlights a limitation of intention-based approaches: people may intend to exercise without doing so.

This intention–behavior gap can be addressed by examining practical barriers, planning, habitual responses, and the availability of opportunities.

A useful intervention might ask participants to identify when and where they will exercise, what activity they will perform, and what they will do if the original plan becomes impossible.

The theory of planned behavior is therefore useful for understanding intention formation, but it should be combined with approaches that address implementation and maintenance.

18.7. The Transtheoretical Model: Readiness and Behavioral Change

The transtheoretical model conceptualizes behavior change through stages commonly described as precontemplation, contemplation, preparation, action, and maintenance (Prochaska & DiClemente, 1983).

In the exercise context, these stages can be used as a practical framework for discussing readiness.

- **Precontemplation:** The individual is not currently considering a change.
- **Contemplation:** The individual is considering becoming more active.
- **Preparation:** The individual is planning to begin or has taken initial steps.
- **Action:** The individual has recently started participating.
- **Maintenance:** The individual is working to sustain the behavior over time.

These categories can help practitioners structure conversations, but they should not be treated as rigid or universally sequential stages. Individuals may move between patterns of readiness, and exercise behavior can change rapidly in response to illness, work, family demands, or environmental conditions.

The model is most useful when it encourages practitioners to understand a participant's current perspective rather than applying identical advice to everyone.

For example, a person who is uncertain about exercising may benefit from exploring personal values and concerns. A person who has already begun exercising may benefit more from scheduling, feedback, and strategies for handling interruptions.

18.8. Goal Setting, Action Planning, and Self-Monitoring

Motivation is more likely to translate into behavior when intentions are connected to specific actions.

18.8.1. Goal setting

Goals can direct attention, organize effort, and provide a basis for evaluating progress. However, goals should be appropriate to the individual's capabilities, preferences, and circumstances.

A broad goal such as “become healthier” may provide a meaningful direction but offers limited guidance for daily action.

A more actionable goal might be “walk for 20 minutes on Monday, Wednesday, and Saturday, adjusting the duration according to current capacity.”

Goals may focus on outcomes, processes, or participation.

Outcome goals concern desired results, such as improving a fitness measure.

Process goals concern behaviors required to pursue those results, such as completing prescribed sessions or practicing a technique.

Participation goals concern consistency, such as attending planned sessions.

For many beginners, process and participation goals provide more immediate opportunities for success than distant outcome goals.

18.8.2. Action planning

Action planning specifies when, where, and how the behavior will occur.

For example:

“If I finish work at 17:30 on Tuesday, I will walk for 20 minutes in the park near my home before beginning my evening routine.”

The value of this plan lies in its specificity. It reduces the need to make a new decision each time the opportunity arises.

However, plans must remain realistic. A schedule that ignores travel time, caregiving, fatigue, or facility access may fail even when motivation is high.

18.8.3. Coping planning

Coping planning anticipates obstacles and identifies alternative responses.

For example:

- If heavy rain prevents outdoor walking, I will use an indoor route.

- If I miss the planned session, I will resume at the next available opportunity.
- If the full session is not feasible, I will complete a shorter version.
- If I experience unexpected pain, I will stop the aggravating activity and seek appropriate advice.

Coping plans reduce the likelihood that one disruption becomes a prolonged interruption.

They also encourage flexible persistence: maintaining the broader intention while adapting the specific behavior to current circumstances.

18.8.4. Self-monitoring

Self-monitoring involves observing and recording relevant behavior or progress.

Methods include exercise diaries, attendance records, step counts, activity trackers, and brief weekly reviews.

Monitoring can make behavior more visible and help individuals identify patterns. For example, a participant may discover that exercise is more consistent on days when sessions are scheduled before other commitments.

However, monitoring should be proportionate and psychologically appropriate. Excessive tracking may increase anxiety or encourage unhealthy preoccupation with numerical targets in some individuals.

The purpose is to support learning and decision-making, not to make participants feel that every deviation represents failure.

18.9. Habit Formation and Environmental Cues

Habits develop when behaviors are repeatedly performed in association with relatively stable contextual cues. Through repetition, a familiar situation can begin to trigger a behavior with less deliberate decision-making.

For exercise, relevant cues may include a particular time of day, finishing work, arriving home, meeting a walking partner, or attending a scheduled class.

18.9.1. Repetition in a stable context

A consistent routine can reduce the cognitive effort required to initiate exercise.

For example, an individual who walks immediately after lunch on weekdays may gradually associate the end of lunch with the beginning of the walk.

The goal is not necessarily to make exercise entirely automatic. Rather, stable cues can reduce reliance on momentary motivation and repeated decision-making.

Habit formation depends on the behavior, the individual, the context, and the consistency of repetition. There is no single timetable that guarantees habit formation for everyone.

A systematic review and meta-analysis by Singh et al. (2024) examined the time required to form health-related habits and found substantial variability across behaviors and individuals. The findings caution against popular claims that a specific number of days is sufficient for everyone to establish a habit.

18.9.2. Environmental design

Environmental design can make desired behavior easier to initiate.

Examples include:

- Preparing exercise clothing in advance.
- Keeping appropriate equipment accessible.
- Scheduling sessions in a convenient location.
- Placing a reminder in a relevant setting.
- Choosing a route that minimizes unnecessary travel.
- Arranging to meet a supportive exercise partner.

These strategies reduce friction between intention and action.

Environmental design is especially useful when motivation fluctuates or when the individual has limited time and attention available for planning.

18.9.3. Habit disruption

Habits are context-dependent. A routine established around a workplace may be disrupted by a change in employment, relocation, illness, or a new family responsibility.

When the original cue disappears, the behavior may become less automatic.

A useful response is to identify a new cue and rebuild the routine in the changed environment. For example, someone who previously exercised after work may need to establish a morning or lunchtime routine after changing jobs.

The key principle is that habit maintenance requires adaptation when the circumstances supporting the behavior change.

18.10. Social Support and the Exercise Environment

Exercise behavior is shaped not only by individual psychology but also by interpersonal relationships and environmental conditions.

18.10.1. Types of social support

Social support can take several forms.

Emotional support includes encouragement, empathy, and reassurance.

Instrumental support involves practical assistance, such as transportation, childcare, or help with scheduling.

Informational support includes guidance about exercise technique, planning, and appropriate progression.

Companionship support involves exercising with others or sharing an activity.

Different individuals require different forms of support. Encouragement may be useful for someone experiencing low confidence, while transportation or childcare assistance may be more important for someone facing practical barriers.

Support is most helpful when it responds to the participant's actual needs rather than imposing another person's preferred exercise routine.

18.10.2. Group exercise and belonging

Group exercise can provide opportunities for social connection, shared goals, accountability, and enjoyment.

However, group participation does not guarantee positive experiences. Competitive comparison, exclusion, body-related judgment, and excessive pressure can discourage participation.

An inclusive group environment should accommodate differences in fitness, experience, age, body size, disability, and cultural background.

Instructors can contribute by emphasizing individual progress, respectful interaction, and shared participation rather than treating performance differences as evidence of personal worth.

18.10.3. Organizational and community conditions

Exercise opportunities are shaped by the environments in which people live, study, and work.

Universities may support physical activity through accessible facilities, active transportation, inclusive recreational programs, and scheduling that accommodates students and staff.

Workplaces may provide opportunities for movement breaks, walking meetings, flexible activity periods, or access to exercise facilities.

Communities can support participation through safe walking routes, parks, affordable programs, and accessible public spaces.

These environmental approaches complement individual interventions. They also recognize that exercise behavior is partly influenced by resources and opportunities that are not equally distributed.

18.11. Common Barriers to Exercise Adherence

Understanding barriers is essential for designing interventions that are both effective and realistic.

18.11.1. Time constraints

Lack of time is a commonly reported barrier. However, the underlying problem may involve competing priorities, unpredictable schedules, travel demands, or the belief that exercise must occur in long sessions to be worthwhile.

A practical response is to explore feasible opportunities for activity, including shorter sessions and integration into daily routines where appropriate.

The intervention should not imply that all time barriers can be resolved through better planning. Some individuals face genuine structural constraints that require broader support.

18.11.2. Low confidence and perceived incompetence

Individuals who are unfamiliar with exercise environments may worry about performing movements incorrectly, being judged, or failing to keep up with others.

These concerns may be addressed through beginner-friendly instruction, gradual progression, clear demonstrations, and private opportunities to ask questions.

Programs should avoid unnecessary public comparison and provide accessible information about what participants can expect during their first sessions.

18.11.3. Discomfort, fatigue, and unrealistic expectations

Some beginners expect immediate improvements in fitness, weight, mood, or appearance. When progress is slower than anticipated, they may interpret the experience as failure.

Realistic education can help participants understand that progress varies and that different benefits emerge over different time frames.

At the same time, persistent or unusual pain, excessive fatigue, or other concerning symptoms should not be dismissed as ordinary barriers. Exercise may need to be modified, and appropriate clinical advice should be sought when indicated.

18.11.4. Financial and environmental constraints

Membership fees, transportation, equipment costs, unsafe surroundings, and limited facility access may prevent participation.

Home-based exercise, walking, low-cost community programs, and activities requiring minimal equipment may provide alternatives for some individuals.

Nevertheless, alternative programs must be appropriate to participants' needs and circumstances. Practitioners should not assume that everyone has safe outdoor space, sufficient room at home, internet access, or discretionary time.

18.11.5. Previous negative experiences

Experiences of humiliation, exclusion, poor instruction, or repeated failure can influence later attitudes toward exercise.

A person who experienced public criticism during school physical education may feel uncomfortable in group exercise settings as an adult.

In such cases, simply providing information about health benefits may be insufficient. The participant may need a more supportive environment, greater choice, and opportunities to rebuild confidence through manageable experiences.

18.11.6. Competing responsibilities and life transitions

Caregiving, employment changes, academic demands, financial difficulties, and illness can disrupt exercise routines.

Programs should include contingency planning and permit adjustments without treating temporary interruption as evidence of personal inadequacy.

An approach that supports re-entry may be more useful than one that expects uninterrupted adherence.

18.12. Evidence-Based Strategies for Improving Exercise Adherence

An effective adherence intervention should address the factors most relevant to the individual or population rather than apply a standard package indiscriminately.

18.12.1. Individualized exercise prescription

Programs should consider current activity levels, health status, preferences, goals, physical capabilities, and practical constraints.

Individualization does not require every participant to receive a completely unique program. It requires sufficient flexibility to ensure that the prescribed behavior is feasible and meaningful.

A beginner may need a different starting point from an experienced exerciser. An older adult with mobility limitations may require adaptations that would be unnecessary for a healthy, physically active young adult.

18.12.2. Autonomy-supportive communication

Practitioners can support autonomy by explaining the rationale for exercise, listening to concerns, and offering meaningful choices within appropriate safety limits.

For example, a participant may choose between walking, cycling, and water-based activity while working toward a shared functional goal.

This approach does not eliminate professional guidance. It makes the intervention more collaborative and responsive to the participant's circumstances.

18.12.3. Graded progression

A gradual increase in exercise demands can help participants develop capability and confidence.

Progression should be based on appropriate assessment and the individual's response to training rather than an arbitrary schedule.

When a program begins at an unmanageable level, participants may experience excessive fatigue, discomfort, or repeated failure. A feasible starting point creates opportunities for mastery and adjustment.

18.12.4. Feedback and visible progress

Feedback can help individuals recognize improvements that might otherwise go unnoticed.

Progress may include better functional capacity, improved consistency, increased confidence, more comfortable movement, or greater ability to complete daily tasks.

Feedback should be accurate, understandable, and relevant to the individual's goals.

Practitioners should avoid overstating progress or relying exclusively on weight, appearance, or performance comparisons when other indicators may be more meaningful.

18.12.5. Implementation intentions

Implementation intentions connect a goal to a specific cue and action.

A useful format is:

"If situation X occurs, then I will perform behavior Y."

For example, "If my afternoon meeting finishes on time, I will walk for 15 minutes before returning home."

The plan should include a realistic action and, where possible, an alternative for common disruptions.

18.12.6. Relapse-prevention planning

Relapse prevention involves identifying circumstances likely to disrupt participation and preparing responses in advance.

Participants can be encouraged to distinguish between a temporary interruption and complete abandonment of their goal.

A useful recovery plan might include:

1. Identifying the reason for the interruption.
2. Determining whether the original exercise plan remains feasible.
3. Adjusting the frequency, duration, or setting if necessary.
4. Resuming with an appropriate level of activity.
5. Reviewing whether additional support is required.

This approach avoids all-or-nothing thinking and makes behavioral recovery an explicit part of the intervention.

18.12.7. Combining intervention components

Exercise adherence is rarely explained by a single factor. Programs may therefore combine motivational support, practical planning, feedback, environmental adjustments, and social support.

However, adding more intervention components does not automatically produce better outcomes. Each component should address an identified barrier and be feasible to deliver.

Ntoumanis and Moller (2025) emphasize that SDT-informed interventions can support physical activity, but effects vary and further work is needed to optimize intervention design and implementation.

The appropriate question is not how many techniques a program contains, but whether its components address the barriers that matter for the target population.

18.13. A Practical Framework for Exercise Adherence

The following six-step framework translates the preceding theories into an applied process.

Step 1: Assess the starting point

Establish the participant's current activity level, preferences, previous experiences, goals, health considerations, and practical circumstances.

Useful questions include:

- What forms of movement do you enjoy or tolerate well?
- What has made exercise difficult in the past?
- What would you like to achieve?
- What time and resources are realistically available?
- What concerns do you have about starting or continuing?

The assessment should be proportionate and respectful. It should not require unnecessary disclosure of personal information.

Step 2: Identify the primary barrier

Use a structured approach, such as COM-B, to distinguish capability, opportunity, and motivation barriers.

More than one barrier may be present. For example, a participant may be uncertain about technique, have limited access to facilities, and feel embarrassed about exercising in public.

Each barrier may require a different response.

Step 3: Establish a personally meaningful goal

The goal should connect with the participant's values and be sufficiently specific to guide behavior.

Examples include improving mobility, increasing daily energy, participating in recreational sport, managing stress, or maintaining independence.

Health benefits can be discussed, but the goal should not rely solely on external pressure or unrealistic expectations.

Step 4: Design a feasible plan

Specify the activity, frequency, timing, location, and starting level.

The plan should be realistic enough to implement under ordinary circumstances and flexible enough to accommodate predictable disruptions.

Step 5: Monitor behavior and experience

Record participation and relevant outcomes. Monitoring should include both behavioral indicators and the participant's experience of the program.

For example, attendance may be increasing while enjoyment is declining. Such a pattern may indicate that the program needs adjustment even if the numerical adherence rate appears satisfactory.

Step 6: Review and adapt

Review progress collaboratively at regular intervals.

The practitioner and participant can examine which strategies are working, which barriers remain, and whether the goals or exercise prescription need modification.

A useful framework is iterative rather than linear: assessment informs planning, monitoring informs adjustment, and changes in circumstances trigger reassessment.

Table 18.4. Example of an individualized adherence plan

Component	Example
Participant goal	Improve everyday energy and establish a consistent walking routine
Initial activity	Short, manageable walks on three days each week
Main barriers	Unpredictable work schedule and low confidence
COM-B assessment	Opportunity and psychological capability
Intervention strategies	Flexible scheduling, route planning, gradual progression, confidence-building feedback
Self-monitoring	Record planned and completed walks
Coping plan	Use a shorter alternative session when time is limited
Review	Reassess feasibility, confidence, and participation after several weeks
Adaptation	Adjust duration, frequency, or setting according to progress and circumstances

Note. This is an illustrative example, not a medical prescription. Exercise intensity and progression should be appropriate to the participant's health status and capabilities.

18.14. Measuring Exercise Adherence and Intervention Effectiveness

A behavior-change intervention should be evaluated using outcomes that match its purpose.

18.14.1. Behavioral outcomes

Possible measures include:

- Attendance at scheduled sessions.
- Completion of prescribed exercises.
- Frequency of physical activity.
- Duration and intensity of activity.
- Continuation at follow-up.
- Return to activity after interruption.

Each measure has limitations. Attendance does not necessarily indicate the quality or amount of exercise completed, while self-reported activity may be affected by recall and reporting biases.

Objective measures, such as accelerometry or attendance records, can complement self-report when appropriate.

18.14.2. Psychological outcomes

Relevant psychological outcomes may include autonomous motivation, self-efficacy, perceived competence, enjoyment, perceived social support, and confidence in overcoming barriers.

These measures can help explain why participation changes, but psychological improvement should not automatically be interpreted as evidence of increased physical activity.

Whenever possible, interventions should assess both behavioral and psychological outcomes.

18.14.3. Retention and follow-up

An intervention may appear successful immediately after completion but fail to maintain participation later.

Follow-up assessment is therefore important when the goal is long-term behavior change.

Researchers should report the duration of follow-up, participant attrition, missing data, and the method used to assess physical activity.

18.14.4. Implementation and feasibility

Effectiveness depends partly on whether an intervention can be delivered consistently in real-world settings.

Important implementation outcomes include reach, participation, acceptability, feasibility, cost, fidelity, and sustainability.

A theoretically sound program may have limited public-health impact if it requires resources unavailable to the target population.

Evaluation should therefore consider both whether the intervention works under the conditions studied and whether it can be delivered in the intended setting.

18.15. Digital Technology and Exercise Behavior Change

Digital technologies can support exercise adherence through reminders, self-monitoring, feedback, remote instruction, and social connection.

Mobile applications and wearable devices may make activity patterns more visible and provide timely feedback. Remote programs may improve access for individuals who cannot easily attend supervised sessions.

Nevertheless, digital tools should be treated as intervention components rather than guaranteed solutions.

18.15.1. Potential benefits

Digital systems can help participants:

- Record exercise behavior.
- Monitor progress toward personally meaningful goals.
- Receive reminders.
- Access instructional resources.
- Communicate with practitioners or exercise partners.
- Identify patterns in participation.

These functions may be particularly useful when they address a specific barrier, such as forgetting scheduled sessions or lacking access to in-person instruction.

18.15.2. Limitations and risks

Digital interventions can also create difficulties.

Participants may experience notification fatigue, become discouraged by missed targets, or focus excessively on numerical indicators. Device ownership, digital literacy, internet access, and disability-related accessibility may influence who benefits.

Data privacy and security are also important. Exercise-related data may reveal information about daily routines, location, health, or behavior.

Practitioners should use proportionate data collection, explain how information will be used, and avoid making access to basic exercise opportunities conditional on unnecessary digital monitoring.

18.15.3. Personalization without excessive surveillance

Technology can support personalization by helping participants identify feasible routines and monitor progress. However, personalization should not become intrusive surveillance.

Participants should retain meaningful control over the information they share, the feedback they receive, and the goals they pursue.

Digital systems should complement human judgment and accessible exercise environments rather than replace them.

18.16. Special Considerations Across Populations

The determinants of exercise adherence differ according to age, health status, disability, social circumstances, and the setting in which activity occurs.

18.16.1. Children and adolescents

For young people, enjoyment, perceived competence, peer relationships, family support, and the quality of instruction may influence participation.

Programs should emphasize skill development, inclusion, and positive experiences rather than relying exclusively on performance comparisons.

Young people should have opportunities to experience different forms of physical activity and develop confidence without being pressured into a narrow definition of athletic success.

18.16.2. University students

University students may experience irregular schedules, academic demands, financial constraints, and changes in social networks.

A systematic review by Brown et al. (2024) used the COM-B model and Theoretical Domains Framework to examine factors influencing university students' physical activity. The review highlights the importance of considering multiple behavioral domains rather than assuming that lack of knowledge is the primary barrier.

Universities can support activity through accessible facilities, inclusive recreation, active transportation, flexible programming, and communication that recognizes students' competing responsibilities.

18.16.3. Older adults

Older adults may face barriers related to mobility, chronic conditions, fear of falling, transportation, or limited access to suitable programs.

Exercise prescription should reflect individual capabilities and relevant health considerations.

The systematic review by Yang et al. (2024) identified individualized programming, supportive environments, social support, feedback, emotional support, education, self-efficacy, and autonomy as potentially relevant intervention areas for community-dwelling older adults.

These findings support a person-centered approach rather than assuming that age alone determines the appropriate activity.

18.16.4. People living with chronic conditions

For individuals with chronic health conditions, exercise adherence may be affected by symptoms, treatment demands, fluctuating energy, concerns about safety, and competing health priorities.

Programs should be adapted to the individual's clinical circumstances and coordinated with relevant healthcare professionals when necessary.

Psychological support can help individuals identify manageable goals and respond constructively to interruptions, but it cannot replace appropriate medical assessment or treatment.

18.16.5. People with disabilities

Accessibility is a central determinant of exercise opportunity.

Physical environments, equipment, communication, transport, program design, and staff knowledge may either enable or restrict participation.

Inclusive exercise programs should be developed with attention to individual preferences, functional requirements, and barriers identified by participants themselves.

The responsibility for improving access should not be placed solely on the individual. Organizations and communities also have a role in creating environments that support participation.

18.17. Future Directions in Exercise Adherence Research

Several areas require continued attention.

18.17.1. Long-term maintenance

Research should examine whether interventions produce sustained changes after active support ends. Short-term increases in attendance do not necessarily establish long-term maintenance.

Longitudinal studies can help identify which intervention components remain useful as participants' circumstances change.

18.17.2. Individualized and adaptive interventions

Individuals differ in their barriers, preferences, and responses to intervention strategies.

Future research can investigate how programs might adapt to changes in motivation, capability, opportunity, and behavioral patterns without assuming that a single approach is optimal for everyone.

Adaptive interventions should remain transparent and should be evaluated for effectiveness, feasibility, and unintended effects.

18.17.3. Integrating motivation, habit, and opportunity

Motivational theories, habit research, and environmental models address different aspects of behavior.

A comprehensive intervention may need to support meaningful motivation, provide practical opportunities, and establish repeatable routines.

Future research should examine how these processes interact and whether their relative importance changes during initiation, early adherence, and long-term maintenance.

18.17.4. Equity and structural barriers

Exercise interventions should account for socioeconomic inequality, neighborhood safety, disability access, caregiving responsibilities, and differences in available resources.

Programs that depend on expensive facilities or extensive discretionary time may be inaccessible to groups that could benefit from physical activity.

Equity-oriented research should evaluate not only average effectiveness but also who participates, who benefits, who discontinues, and why.

18.17.5. Better measurement and reporting

Studies should clearly define exercise adherence, specify how physical activity is measured, report intervention components, and document follow-up duration.

Researchers should distinguish self-reported intention from actual behavior and avoid interpreting associations as causal effects.

Consistent reporting can improve comparison across studies and support more reliable conclusions about intervention effectiveness.

18.18. Conclusion

Exercise adherence is a multifaceted behavioral process that cannot be explained by motivation alone. Individuals may value physical activity yet struggle to participate because of limited time, low confidence, inadequate access,

competing responsibilities, negative previous experiences, or an exercise program that does not match their needs.

Self-determination theory highlights the importance of autonomy, competence, relatedness, and personally meaningful motivation. The COM-B model directs attention to capability, opportunity, and motivation as interacting conditions for behavior. The theory of planned behavior helps explain intention formation, while habit research clarifies how repetition in stable contexts may reduce the effort required to initiate familiar routines.

These approaches are complementary rather than interchangeable. Each addresses different aspects of the behavioral process and can contribute to intervention design when applied with attention to its assumptions and limitations.

Evidence-informed exercise programs should begin with a clear assessment of the target behavior and its barriers. They should provide achievable goals, practical planning, appropriate progression, supportive feedback, and opportunities for participants to exercise with a sense of autonomy and competence. They should also anticipate interruptions and make returning to activity a normal component of long-term behavior change.

Ultimately, successful exercise promotion is not simply about persuading people that physical activity is beneficial. It is about helping them develop realistic, personally meaningful, and sustainable ways to be active within the conditions of their everyday lives.

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CHAPTER 19: Body Image, Exercise Identity, and Disordered Eating in Sport and Physical Activity: Psychological Mechanisms, Risk Factors, and Prevention

19.1. Introduction

The body occupies a central position in sport and exercise. Athletic performance depends partly on physical capabilities, while sporting cultures often attach considerable importance to body size, shape, muscularity, body composition, and visible indicators of fitness. These characteristics may influence how athletes evaluate themselves, how others evaluate them, and how they experience participation in sport.

For many individuals, physical activity provides opportunities to develop physical competence, appreciate bodily capabilities, experience enjoyment, and strengthen a positive relationship with the body. Exercise can also support social connection, functional independence, and psychological well-being. However, sporting environments may sometimes reinforce unrealistic appearance ideals, excessive concern about body composition, rigid dietary practices, and the belief that personal worth depends on physical appearance or competitive performance.

These competing possibilities make body image an important subject within sport and exercise psychology.

Body image refers to the perceptions, thoughts, emotions, and attitudes individuals have regarding their bodies. It is multidimensional and includes more than satisfaction or dissatisfaction with weight and appearance. Athletes may appreciate their bodies for their strength and functionality while remaining dissatisfied with particular physical features. Conversely, an athlete may be satisfied with appearance but experience anxiety about weight fluctuations because of selection requirements or performance expectations.

Exercise identity represents another relevant construct. It concerns the extent to which physical activity or exercise forms part of an individual's self-concept. A strong exercise identity may support regular participation, persistence, and the integration of physical activity into daily life. Nevertheless, an identity that becomes excessively narrow or rigid may create difficulties when injury, illness, aging, or other circumstances prevent an individual from exercising.

Disordered eating and eating disorders require particular attention because sport can involve distinctive nutritional, physiological, and social demands. Some athletes face pressure to maintain a particular physique, meet weight categories,

or achieve an appearance associated with perceived competitive advantage. In certain circumstances, these pressures may contribute to restrictive eating, compensatory exercise, persistent body dissatisfaction, or clinically significant eating disorders.

The International Olympic Committee's 2023 consensus statement on Relative Energy Deficiency in Sport (REDs) emphasizes that problematic low energy availability can impair multiple physiological and psychological systems in female and male athletes. The consensus also identifies body-composition pressure, body dissatisfaction, disordered eating, and sport-specific expectations as relevant concerns in prevention and athlete care (Mountjoy et al., 2023).

The purpose of this chapter is to examine the psychological foundations of body image and exercise identity, explain how sporting environments may influence body-related experiences, distinguish disordered eating from clinically diagnosed eating disorders, and outline evidence-informed approaches to prevention and support.

Five principles guide the discussion:

1. Body image is multidimensional and cannot be reduced to body weight or appearance.
2. Sport can promote positive body experiences, but its effects depend partly on the sporting environment and the individual's experiences.
3. Exercise identity can support participation while becoming problematic when self-worth depends excessively on exercise or physical appearance.
4. Disordered eating, eating disorders, and REDs are related but distinct constructs.
5. Prevention requires coordinated action by athletes, coaches, healthcare professionals, sport organizations, and relevant support networks.

These principles provide a foundation for understanding body-related experiences without stigmatizing athletes or treating body size as a reliable indicator of health, character, or sporting potential.

19.2. Understanding Body Image

19.2.1. Defining body image

Body image refers to the psychological representation of one's body, including how it is perceived, evaluated, and experienced emotionally.

It is not simply an objective reflection of body size or composition. Two individuals with similar anthropometric characteristics may experience markedly different levels of body satisfaction because of differences in beliefs, personal experiences, social comparison, cultural expectations, and psychological resources.

Body image may also vary across situations. An athlete may feel comfortable with their body during training but become dissatisfied after seeing photographs from a competition, receiving a coach's comment about weight, or comparing themselves with an idealized image on social media.

These variations demonstrate that body image is influenced by both individual characteristics and environmental conditions.

19.2.2. Perceptual, cognitive, emotional, and behavioral dimensions

Body image can be understood through several related dimensions.

Perceptual body image concerns how individuals perceive their bodies, including their estimates of body size or shape. Perceptual judgments may differ from objective measurements, although not every discrepancy indicates a clinically significant problem.

Cognitive body image includes beliefs, interpretations, and evaluations concerning appearance and physical characteristics. Examples include beliefs that a particular body shape is necessary for success or that changes in weight necessarily indicate failure.

Affective body image concerns emotional responses to the body, such as satisfaction, shame, pride, anxiety, or frustration.

Behavioral body image concerns actions influenced by body-related thoughts and feelings. These may include avoiding particular clothing, repeatedly checking appearance, restricting food intake, or engaging in exercise primarily to compensate for eating.

The dimensions interact. An athlete who believes that a small increase in body mass will reduce competitive opportunities may experience anxiety and begin monitoring weight excessively. Repeated monitoring may then reinforce the belief that minor fluctuations are threatening.

However, the presence of body-related concern does not automatically establish a psychological disorder. The intensity, persistence, functional consequences, and broader context of the experience are important.

19.2.3. Body dissatisfaction and positive body image

Body dissatisfaction refers to negative evaluations of one's body or aspects of physical appearance. It may concern weight, muscularity, body fat, shape, height, or particular body parts.

Positive body image involves a broader and more constructive relationship with the body. It may include body appreciation, respect for bodily needs, acceptance of natural variation, and recognition of the body's functional capabilities.

Positive body image is not equivalent to believing that one's body is perfect or never experiencing dissatisfaction. Rather, it involves maintaining a balanced relationship with the body even when appearance-related concerns arise.

In sport, a functional appreciation of the body may involve recognizing what the body enables an athlete to do: accelerate, jump, swim, coordinate movement, recover, learn new skills, and participate in meaningful activities.

This functional perspective can complement appearance-related goals without denying the legitimate performance demands of particular sports.

19.2.4. Body image is not a direct measure of health

Body size, body mass index (BMI), and body composition provide different forms of information, but none independently captures the full complexity of an individual's health, nutritional status, or psychological well-being.

BMI is calculated from body mass and height. It does not directly distinguish fat mass from lean mass and may be difficult to interpret in highly muscular athletes.

Body-composition assessments may provide additional information when appropriately selected and interpreted. Nevertheless, measurement methods have different limitations, and results may be influenced by measurement conditions and technical procedures.

Webb et al. (2024) systematically reviewed 27 cross-sectional studies examining anthropometry, body composition, and body image in athletes. Higher BMI or percentage body fat was associated with greater body dissatisfaction in 16 of 22 studies examining these relationships. However, the studies varied in measurement methods, sporting contexts, and populations, and the cross-sectional designs did not establish causality.

The findings do not mean that body mass or body fat determines body dissatisfaction. Instead, they demonstrate that physical characteristics and body-

related experiences may be associated in some contexts, while psychological and social influences remain important.

A central practical principle follows: **body measurements should not be used as substitutes for comprehensive assessments of health, performance, or psychological well-being.**

19.3. Body Image in Different Sporting Contexts

Sport is not a uniform environment. Different disciplines place different demands on strength, endurance, speed, weight, appearance, and movement efficiency. These demands may influence athletes' body-related experiences in distinct ways.

19.3.1. Aesthetic sports

In sports such as artistic gymnastics, figure skating, and certain judged disciplines, appearance and movement presentation may form part of the competitive environment.

Athletes may receive feedback about line, symmetry, proportions, and the visual presentation of movement. When such feedback is poorly communicated or becomes excessively focused on body characteristics, it may contribute to dissatisfaction or unhealthy attempts to change appearance.

It is important to distinguish legitimate technical feedback from inappropriate body criticism. Comments about movement execution, balance, or technique can support skill development. Repeated humiliation, derogatory comments about body size, or demands for an arbitrary physique are different matters.

Protective environments emphasize technical competence, health, appropriate nutrition, and individual development rather than treating a particular appearance as proof of athletic worth.

19.3.2. Weight-category sports

Sports such as wrestling, boxing, judo, and weightlifting may involve competition within weight categories. Depending on the discipline and competitive level, athletes may encounter pressure to meet specific weight limits.

Some athletes may attempt rapid weight reduction through restrictive eating, dehydration, or other practices that can compromise health and performance.

Weight management in these settings requires particular care because acute weight changes do not necessarily represent meaningful changes in body composition. Dehydration, for example, can alter body mass without reducing body fat.

Weight-category participation should therefore be managed through qualified sport-science, medical, and nutrition professionals. Coaches should not encourage unsupervised or extreme weight-loss practices.

19.3.3. Endurance sports

Endurance athletes may encounter messages suggesting that lower body mass or body fat automatically improves performance.

Although body mass can influence the energetic demands of some endurance activities, the relationship between body composition and performance is complex. Nutritional adequacy, training adaptation, recovery, physiological health, and individual characteristics also matter.

Excessive restriction may reduce energy availability and interfere with recovery, reproductive function, bone health, immunity, and other physiological processes.

The IOC's REDs consensus emphasizes that prolonged or severe low energy availability can produce adverse health and performance outcomes in athletes of different sexes (Mountjoy et al., 2023).

Consequently, body-composition goals should never be pursued without considering their potential effects on health and performance.

19.3.4. Strength and power sports

Strength and power sports may emphasize muscularity, body mass, strength-to-weight ratios, or particular body proportions.

For some athletes, developing muscular strength and appreciating physical capability can support positive body experiences. However, excessive concern about muscularity may contribute to persistent dissatisfaction, rigid eating patterns, or unsafe attempts to alter body composition.

Body image difficulties can involve a perceived lack of muscularity as well as concerns about body fat. Therefore, body-related risk should not be conceptualized exclusively as a desire to become thinner.

Practitioners should consider the specific appearance ideals associated with the sport and the ways these ideals interact with individual beliefs and behaviors.

19.3.5. Recreational exercise and fitness settings

Body image concerns are not restricted to competitive sport.

Fitness environments may expose participants to social comparison, idealized body images, appearance-focused feedback, and expectations concerning weight or muscularity.

For some individuals, exercise is a source of enjoyment, social connection, and functional improvement. For others, participation may become increasingly focused on correcting perceived physical inadequacies.

Fitness professionals can reduce unnecessary appearance pressure by emphasizing multiple benefits of physical activity, providing respectful instruction, and avoiding assumptions about participants' goals based on body size.

Table 19.1. Sporting contexts and potential body-image pressures

Context	Potential pressure	Possible concern	Protective approach
Aesthetic sports	Appearance-related evaluation	Shame, body dissatisfaction, restrictive eating	Emphasize technical performance, health, and respectful feedback
Weight-category sports	Meeting competition limits	Rapid weight loss, dehydration, dietary restriction	Qualified supervision and health-focused weight management
Endurance sports	Perceived advantage of leanness	Low energy availability and impaired recovery	Adequate fueling and individualized performance assessment
Strength and power sports	Muscularity or body-composition ideals	Excessive physique monitoring or unsafe practices	Emphasize functional progress and safe development
Recreational fitness	Appearance comparison and social media ideals	Exercise driven by shame or unrealistic expectations	Inclusive environments and personally meaningful goals

Note. These are potential contextual pressures, not universal characteristics of the listed sports.

19.4. What Does Research Tell Us About Body Image in Athletes?

19.4.1. Athletes and non-athletes

It is tempting to assume that athletes necessarily experience more body dissatisfaction than non-athletes. Research does not support such a simple conclusion.

Burgon et al. (2023) conducted a systematic review and meta-analysis of body image concerns across sporting contexts and competitive levels. Their meta-analysis found that athletes generally reported lower body image concerns than

non-athletes. However, the authors also identified methodological inconsistencies and highlighted the need for more research examining specific sports, gender, gender identity, and competitive contexts.

This finding is important because sport can provide opportunities for physical competence, social support, and appreciation of bodily function. Participation may therefore be associated with positive body experiences in some circumstances.

Nevertheless, a favorable average difference between athletes and non-athletes does not establish that all athletes are protected from body image concerns. Some subgroups may face substantial risks, particularly when appearance or body composition becomes central to evaluation.

19.4.2. Differences between sports and athletes

Body image experiences may vary according to sport type, competitive level, age, gender-related pressures, cultural expectations, and individual history.

However, these variables should not be interpreted as simple risk classifications. Participation in a particular sport does not establish that an athlete has a body image problem, and an athlete outside a traditionally appearance-focused sport may still experience significant concerns.

The more informative approach is to examine the specific pressures, behaviors, and experiences affecting the individual.

19.4.3. Anthropometry and body dissatisfaction

The systematic review by Webb et al. (2024) found that higher BMI or body-fat percentage was associated with greater body dissatisfaction in many of the studies reviewed. Yet associations involving directly measured body-composition indicators were less consistent than some associations involving self-reported BMI.

The review also identified variation in the methods used to measure body image and physical characteristics.

These limitations matter because body image is a psychological construct, whereas anthropometric measurements describe selected physical characteristics. The two should not be treated as interchangeable.

Future research needs more consistent measurement procedures, longitudinal designs, and greater attention to specific sporting populations.

19.5. Exercise Identity: When Physical Activity Becomes Part of the Self

19.5.1. Defining exercise identity

Exercise identity refers to the extent to which an individual sees themselves as someone who exercises or participates regularly in physical activity.

For some people, this identity becomes an important part of self-concept. They may describe themselves as runners, swimmers, weightlifters, recreational athletes, or physically active individuals.

An exercise identity can support behavioral consistency because exercise becomes connected to how individuals understand themselves.

For example, a person who regards walking as an ordinary part of daily life may be more likely to protect time for it than someone who considers it an optional activity that can be postponed indefinitely.

Nevertheless, exercise identity should not be confused with exercise frequency. An individual may exercise regularly without strongly identifying as an exerciser, while another may strongly identify with sport but currently be unable to participate.

19.5.2. Potential benefits of exercise identity

A positive and flexible exercise identity may support:

- Consistency in physical activity.
- Long-term goal pursuit.
- A sense of belonging to an activity community.
- Perceived competence and self-efficacy.
- Integration of movement into everyday routines.
- Psychological continuity during changes in exercise type.

Exercise identity can also provide a sense of meaning. Physical activity may become connected to values such as independence, health, social participation, or enjoyment.

The key issue is whether the identity supports a broad and sustainable pattern of activity.

19.5.3. Identity foreclosure and excessive dependence on exercise

Problems may arise when exercise becomes the dominant or exclusive basis of self-worth.

An individual may begin to believe that they are valuable only when exercising, achieving performance goals, or maintaining a particular physique. Injury or illness may then threaten not only physical participation but also personal identity.

This possibility is especially relevant to athletes whose social relationships, daily routines, and future expectations are closely connected to sport.

When exercise becomes unavailable, a rigid identity may contribute to distress, loss of purpose, or difficulty adapting to alternative activities.

However, a strong athletic or exercise identity is not inherently pathological. Its consequences depend on flexibility, available sources of self-worth, coping resources, and the individual's circumstances.

19.5.4. Developing a flexible exercise identity

A flexible exercise identity allows physical activity to remain meaningful while recognizing that it is only one component of a broader life.

Practitioners can support this flexibility by encouraging athletes to maintain relationships, interests, educational goals, and roles outside sport.

For injured athletes, alternative forms of participation may preserve some connection to the sporting environment while rehabilitation proceeds, provided these activities are appropriate to the injury and approved by the relevant clinical team.

The goal is not to weaken commitment to exercise. It is to prevent commitment from becoming so rigid that interruptions threaten the individual's broader sense of identity.

19.6. Social Comparison, Media, and Appearance Ideals

Body image develops within social and cultural environments. Family messages, peer relationships, coaching behavior, sporting traditions, advertising, and digital media can influence how individuals evaluate their bodies.

19.6.1. Social comparison

Social comparison occurs when individuals evaluate themselves in relation to other people.

Athletes may compare their physique, body composition, strength, or appearance with teammates, opponents, elite performers, or social media figures.

Comparison can sometimes provide useful information. For example, athletes may observe technical movement patterns or learn about training approaches from experienced performers.

However, appearance comparisons can become problematic when individuals compare themselves with unrealistic, highly selected, or digitally altered images.

Such comparisons may encourage the belief that normal physical variation represents a personal deficiency.

19.6.2. Social media

Social media platforms provide access to training information, supportive communities, and opportunities to celebrate physical achievement. They can also expose users to idealized physiques, extreme dieting messages, misleading claims about body composition, and appearance-focused content.

The psychological effects of social media are not uniform. They may depend on the content encountered, the individual's vulnerabilities, the purpose of platform use, and the extent to which appearance comparison occurs.

Practitioners can help athletes examine how particular content affects their mood, body satisfaction, and behavior.

Possible strategies include curating followed accounts, reducing exposure to content that repeatedly triggers distress, and prioritizing credible educational sources over unverified transformation claims.

19.6.3. Coaching and institutional messages

Coaches and sport organizations can influence body-related experiences through both explicit comments and implicit expectations.

Repeated comments about weight, public weigh-ins, unnecessary body-composition testing, or comparisons between athletes' physiques may increase pressure, especially when the rationale for assessment is unclear.

The IOC's 2023 REDs consensus recommends careful, qualified, and confidential management of body-composition assessment, with particular caution for athletes younger than 18 years (Mountjoy et al., 2023).

This principle does not mean that all body-composition assessment is inappropriate. It means that assessment should have a clear purpose, use

appropriate methods, protect confidentiality, and be interpreted in relation to health and performance rather than appearance alone.

19.7. Disordered Eating and Eating Disorders: Important Distinctions

Disordered eating and eating disorders are related but distinct concepts.

19.7.1. Disordered eating

Disordered eating refers to problematic eating-related behaviors or patterns that may not meet the diagnostic criteria for a clinical eating disorder.

Examples can include persistent dietary restriction, rigid food rules, irregular eating patterns, compensatory exercise, or recurrent attempts to manipulate weight through potentially harmful practices.

The presence, frequency, severity, and consequences of these behaviors matter. An isolated dietary adjustment does not automatically indicate disordered eating.

In sport, nutritional practices may be influenced by training demands, competition schedules, medical advice, and performance goals. The distinction between appropriate sport nutrition and harmful restriction requires attention to the athlete's health, behavior, and broader context.

19.7.2. Eating disorders

Eating disorders are clinically significant mental health conditions characterized by disturbances in eating-related behavior and associated thoughts, emotions, or concerns.

Recognized eating disorders include anorexia nervosa, bulimia nervosa, binge-eating disorder, and other specified feeding or eating disorders.

Diagnosis requires assessment by appropriately qualified healthcare professionals using established clinical criteria.

Eating disorders should not be diagnosed solely from an athlete's appearance, weight, body-composition measurements, or training volume.

Conversely, an athlete may have a clinically significant eating disorder even when body mass appears typical or athletic performance remains strong.

19.7.3. Why sport can complicate recognition

Sport-specific practices can make problematic eating behaviors difficult to recognize.

For example, dietary restriction may be described as discipline, weight loss may be presented as a performance strategy, and excessive exercise may be normalized as commitment.

Such explanations can obscure the distinction between appropriate preparation and behavior that is causing harm.

The sporting context must therefore be considered carefully. Practitioners should ask whether behaviors are flexible, medically appropriate, nutritionally adequate, and consistent with the athlete's health and functioning.

19.7.4. Evidence on prevalence

Fatt et al. (2024) conducted an umbrella review of body image concerns, disordered eating, and eating disorders in elite athletes. Their review brought together existing systematic reviews and meta-analyses and emphasized the importance of considering sport-specific risk factors and barriers to help-seeking.

A subsequent systematic review and meta-analysis by a separate research group reported that eating disorders and disordered eating were common across athlete populations, while prevalence estimates varied substantially according to assessment instruments and study methods. The variability reinforces the importance of distinguishing screening results from clinical diagnoses.

Prevalence estimates should not be interpreted as the probability that a particular athlete has an eating disorder. Individual assessment remains necessary.

19.8. Relative Energy Deficiency in Sport (REDs)

19.8.1. Understanding low energy availability

Energy availability refers to the dietary energy remaining for physiological functions after accounting for the energy expended during exercise.

Low energy availability occurs when energy intake is insufficient relative to exercise expenditure to support the body's physiological needs.

Low energy availability exists along a continuum. Some short-term changes may be adaptable, while prolonged or severe exposure can become problematic and impair health and performance.

The IOC's 2023 consensus statement defines Relative Energy Deficiency in Sport as a syndrome of impaired physiological and/or psychological functioning associated with problematic low energy availability in female and male athletes (Mountjoy et al., 2023).

19.8.2. Potential consequences

Problematic low energy availability may affect several systems, including:

- Energy metabolism.
- Reproductive function.
- Bone health.
- Immune function.
- Glycogen synthesis and recovery.
- Cardiovascular and hematological functioning.
- Psychological well-being.
- Training adaptation and competitive performance.

The nature and severity of consequences vary between individuals and depend on multiple factors, including exposure duration, magnitude, health status, age, sex, and other contextual influences.

REDs should not be reduced to a single body-weight threshold or one laboratory result.

19.8.3. REDs and disordered eating

Low energy availability and disordered eating may occur together, but they are not synonymous.

An athlete may experience low energy availability unintentionally because energy intake does not increase sufficiently when training demands rise. Another athlete may restrict food intake intentionally because of weight or appearance concerns.

An eating disorder may contribute to persistent under-fueling, but problematic low energy availability can occur without a diagnosed eating disorder.

These distinctions are important for assessment and treatment. Identifying the physiological consequences of inadequate energy availability does not, by itself, explain why the problem developed.

19.8.4. Clinical assessment and multidisciplinary care

REDs requires appropriate clinical assessment. The IOC's REDs Clinical Assessment Tool, version 2 (REDs CAT2), supports risk assessment and clinical decision-making when used by appropriately qualified professionals.

Assessment may involve sports medicine physicians, registered dietitians or qualified sports nutrition professionals, and mental health practitioners, depending on the athlete's presentation.

Treatment generally prioritizes restoring adequate energy availability and addressing relevant health consequences and underlying behaviors. The appropriate plan depends on the individual's medical condition and should not be replaced by generalized advice from a coach or an online resource.

19.8.5. Body composition and adolescent athletes

Body-composition assessment in young athletes requires particular caution.

Adolescence involves growth, maturation, and changes in body composition. These processes vary between individuals and may be influenced by biological development as well as training.

The IOC consensus recommends that body-composition assessment in athletes younger than 18 years generally be limited to medical purposes, with exceptional circumstances requiring careful consideration, appropriate professional agreement, and guardian consent.

This approach prioritizes health, development, and psychological safety over unnecessary appearance monitoring.

19.9. Psychological Mechanisms Linking Body Image and Eating Behavior

Body image concerns and disordered eating may be associated through several psychological processes. These processes are not universal and should be understood as possible pathways rather than a single causal sequence.

19.9.1. Internalization of appearance ideals

Internalization occurs when an individual adopts a particular appearance ideal as a personal standard.

An athlete may come to believe that success requires a specific body shape or degree of leanness, even when this belief is not supported by individualized performance evidence.

When the athlete perceives a discrepancy between the ideal and their current body, dissatisfaction may increase.

If the discrepancy becomes a central source of self-evaluation, the athlete may engage in increasingly rigid dietary or exercise behaviors.

19.9.2. Perfectionism and self-criticism

Perfectionistic concerns may contribute to body-related distress when athletes interpret small deviations from an ideal as evidence of failure.

For example, a minor change in body mass may be interpreted as loss of discipline rather than ordinary biological variation.

Self-criticism may then intensify attempts to control eating or exercise, potentially creating a cycle in which short-term relief reinforces the behavior.

However, perfectionism alone does not establish that an eating disorder will develop. Its effects depend on other individual and environmental factors.

19.9.3. Conditional self-worth

Conditional self-worth occurs when an individual's sense of personal value depends heavily on meeting specific standards.

In sport, these standards may concern selection, winning, body composition, coach approval, or perceived attractiveness.

When self-worth becomes strongly contingent on appearance, normal changes in the body may provoke disproportionate distress.

A protective approach encourages athletes to recognize multiple sources of identity and value, including relationships, learning, effort, personal qualities, and contributions beyond physical performance.

19.9.4. Negative reinforcement

Some behaviors may be maintained because they temporarily reduce unpleasant emotions.

For example, an athlete who feels anxious about body weight may experience short-term relief after restrictive eating or additional exercise. This relief can reinforce the behavior even when the behavior becomes harmful over time.

The immediate reduction in anxiety may make it difficult for the athlete to recognize the longer-term costs.

This mechanism illustrates why simply telling an athlete to stop a behavior may be insufficient. Appropriate psychological treatment may be required to address the underlying distress and develop alternative coping strategies.

19.9.5. Social reinforcement

Behaviors may also be reinforced by the social environment.

If restrictive eating is praised as discipline, or rapid weight loss is rewarded with selection or positive attention, the athlete may interpret the behavior as necessary for success.

This does not mean that every coach or teammate intentionally encourages harm. Risk can emerge from unexamined traditions, poorly designed incentives, or limited understanding of nutrition and mental health.

Preventive strategies should therefore address the wider environment as well as individual beliefs.

19.10. Exercise Dependence and Compulsive Exercise

Exercise is generally beneficial, but the relationship between exercise and psychological well-being depends partly on the motives, flexibility, and consequences associated with participation.

19.10.1. High commitment versus problematic behavior

High exercise frequency does not automatically indicate exercise dependence or a psychological disorder.

Elite athletes may train for many hours each week as part of a structured program. Their training volume must be interpreted in relation to sport demands, recovery, health, and professional guidance.

Concern arises when exercise becomes rigid, difficult to control, or continues despite significant harm.

Potential warning signs include persistent distress when unable to exercise, repeated exercise beyond prescribed training to compensate for eating, or continuation despite medical advice that activity should be reduced.

These signs require contextual assessment rather than automatic diagnosis.

19.10.2. Exercise as emotional regulation

Physical activity may help regulate mood and manage stress. However, reliance on exercise as the only acceptable way to manage distress may create difficulties when participation is interrupted.

An athlete may benefit from developing a broader set of coping resources, including social support, relaxation, psychological skills, and appropriate professional assistance.

The goal is not to discourage exercise as a coping strategy. It is to support flexibility and prevent exercise from becoming the sole mechanism for regulating emotions or maintaining self-worth.

19.10.3. Injury and forced inactivity

Injury can interrupt exercise routines and threaten an individual's exercise identity.

Athletes who strongly associate self-worth with physical performance may experience frustration, anxiety, or loss of identity during rehabilitation.

These responses are not necessarily pathological. Nevertheless, persistent distress, compulsive attempts to train through injury, or extreme concern about body changes during inactivity may warrant additional support.

Rehabilitation plans should therefore consider psychological adaptation alongside physical recovery.

19.11. Prevention and Early Identification

Prevention is most effective when it involves the athlete's broader environment rather than relying exclusively on individual resilience.

19.11.1. Athlete education

Education can help athletes understand:

- The difference between performance nutrition and harmful restriction.
- The role of adequate energy availability in health and performance.
- The limitations of body-composition measurements.
- The risks of rapid weight manipulation.
- The difference between body dissatisfaction and a clinical disorder.
- The importance of seeking qualified support.

Education should be practical, age-appropriate, and delivered without unnecessarily emphasizing appearance or weight.

19.11.2. Coach education

Coaches can influence body-related experiences through their language, expectations, selection decisions, and responses to mistakes.

Coach education should address appropriate communication about body composition, signs of possible under-fueling, the limitations of visual assessment, and referral procedures.

Coaches should also understand the boundaries of their professional role. They can identify concerns and facilitate support, but they should not attempt to diagnose eating disorders or prescribe treatment outside their competence.

19.11.3. Organizational policies

Sport organizations can reduce risk by establishing policies concerning:

- Confidentiality of body-composition and health data.
- Appropriate professional qualifications for assessment.
- Safe weight-management practices.
- Prohibition of humiliating or discriminatory body-related comments.
- Clear referral pathways for medical and psychological concerns.
- Protection of young athletes.
- Procedures for responding to suspected abuse or coercion.

Policies should be implemented consistently and should provide athletes with safe ways to raise concerns without fear of retaliation.

19.11.4. Screening and clinical referral

Screening can help identify individuals who may require further assessment, but screening instruments do not independently establish a diagnosis.

Athletes may underreport symptoms because they fear losing selection, disappointing coaches, or being removed from competition.

A supportive approach should explain the purpose of screening, protect confidentiality, and clarify how information will be used.

When concerns are identified, referral should be made to appropriately qualified healthcare professionals. Medical urgency, psychological distress, and the athlete's current functioning should guide the response.

Table 19.2. Potential warning signs and appropriate responses

Observed concern	Possible interpretation	Appropriate response
Persistent food restriction	Nutritional concern or disordered eating	Arrange assessment by qualified healthcare and nutrition professionals
Repeated rapid weight changes	Potentially unsafe weight-management practices	Review practices and refer for appropriate medical assessment
Excessive exercise beyond the training plan	Possible compulsive or compensatory behavior	Explore motives and consequences; seek qualified psychological assessment when indicated
Persistent body-related distress	Body image concern requiring further evaluation	Provide a supportive conversation and appropriate referral
Declining performance with fatigue or recurrent injury	Multiple possible causes, including inadequate recovery or low energy availability	Arrange medical and multidisciplinary assessment
Fear of discussing eating or body concerns	Possible stigma, pressure, or concern about consequences	Reinforce confidentiality and safe access to support

Note. These observations are not diagnostic criteria. They identify situations in which further assessment may be appropriate.

19.12. Evidence-Informed Psychological Support

Psychological support should be tailored to the individual's needs and coordinated with medical and nutritional care when required.

19.12.1. Cognitive-behavioral approaches

Cognitive-behavioral approaches can help individuals identify unhelpful beliefs, evaluate assumptions, and develop more adaptive responses.

In body image work, relevant targets may include rigid appearance standards, catastrophic interpretations of weight fluctuations, excessive checking, avoidance, and conditional self-worth.

For example, an athlete may hold the belief that a small change in body mass will inevitably cause performance failure. A practitioner can help the athlete examine the evidence for this belief, consider alternative explanations, and focus on relevant performance indicators.

The purpose is not to convince athletes that appearance never matters in sport. It is to distinguish evidence-based performance considerations from exaggerated or harmful assumptions.

When an eating disorder is suspected or diagnosed, treatment should be delivered by appropriately qualified professionals using evidence-based clinical approaches.

19.12.2. Self-compassion

Self-compassion involves responding to personal difficulty with understanding rather than excessive self-criticism.

Athletes may benefit from recognizing that body changes, imperfect performances, and periods of reduced training are common aspects of human experience.

Self-compassion does not require lowering standards or abandoning performance goals. It can support a more constructive response to setbacks and reduce the tendency to interpret difficulty as evidence of personal inadequacy.

Practitioners can encourage athletes to evaluate whether their internal dialogue supports learning and recovery or intensifies distress without improving performance.

19.12.3. Mindfulness and body awareness

Mindfulness-based approaches may help individuals observe thoughts, emotions, and bodily sensations without immediately reacting to them.

In exercise contexts, body awareness can also include attention to movement quality, fatigue, discomfort, and recovery needs.

However, mindfulness should not be used as a substitute for medical evaluation or specialized treatment when an eating disorder or REDs is suspected.

Interventions must be adapted to the individual's circumstances and delivered by practitioners with appropriate competence.

19.12.4. Functional appreciation of the body

A functional approach emphasizes what the body enables a person to do rather than focusing exclusively on appearance.

Athletes can be encouraged to recognize improvements in coordination, endurance, strength, mobility, recovery, and skill acquisition.

This approach can broaden the basis of body appreciation and help reduce excessive reliance on appearance-related evaluation.

It should not imply that individuals must always feel positive about their bodies. The more realistic objective is to support respect for bodily needs and a balanced relationship with physical appearance.

19.12.5. Multidisciplinary treatment

Eating disorders and clinically significant REDs may require coordinated medical, nutritional, and psychological care.

The multidisciplinary team may include a physician, a qualified dietitian or sports nutrition professional, a licensed mental health practitioner, and other relevant healthcare professionals.

The coach may contribute to environmental adjustments and appropriate training decisions but should not independently determine clinical treatment.

Communication between team members should respect confidentiality and the athlete's rights. Information should be shared according to appropriate consent and professional obligations.

19.13. Practical Framework: Creating a Body-Image-Supportive Sport Environment

The following framework translates the chapter's principles into an organizational process.

Step 1: Review the environment

Examine how body-related information is communicated and used.

Questions include:

- Are body-composition measurements conducted for a clear and appropriate purpose?
- Are results shared only with authorized individuals?
- Do coaches make public or humiliating comments about appearance?
- Are weight-management practices supervised by qualified professionals?
- Can athletes raise concerns without fear of retaliation?

Step 2: Establish clear standards

Organizations should define appropriate and inappropriate communication about bodies, weight, eating, and physical appearance.

Standards should be communicated to athletes, coaches, support staff, and families where relevant.

Step 3: Educate key stakeholders

Education should cover nutrition, energy availability, body image, disordered eating, referral pathways, and the limits of professional competence.

The goal is to support early recognition without encouraging amateur diagnosis.

Step 4: Provide confidential access to support

Athletes should know where to seek medical, nutritional, and psychological assistance.

Referral processes should be transparent, accessible, and consistent with confidentiality requirements.

Step 5: Monitor organizational practices

Organizations should evaluate whether policies are implemented and whether athletes feel able to raise concerns.

Monitoring may include anonymous feedback, review of assessment procedures, staff training records, and evaluation of access to support.

Step 6: Revise policies when necessary

Policies should be updated in response to new evidence, athlete feedback, and changes in sporting requirements.

The aim is to create an environment that supports health and performance simultaneously rather than treating them as competing priorities.

Table 19.3. Organizational prevention framework

Level	Recommended action	Intended purpose
Athlete	Provide accessible education and confidential support	Improve knowledge and facilitate help-seeking
Coach	Use respectful, behavior-focused communication	Reduce unnecessary appearance pressure
Medical and nutrition team	Assess health and nutritional needs appropriately	Identify concerns and guide safe management
Sport organization	Establish confidentiality and referral policies	Create consistent standards and accountability
Family and support network	Encourage balanced goals and supportive communication	Reduce harmful pressure and strengthen support
Sport governing body	Review rules and practices that may create avoidable health risks	Promote safer sporting environments

19.14. Ethical Considerations in Body-Related Assessment

Body-related information can affect selection, self-esteem, social relationships, and future opportunities. Its collection and use therefore require careful ethical consideration.

19.14.1. Informed consent

Athletes should understand why body-composition or related assessments are being conducted, how results will be interpreted, who will receive the information, and how the information may affect decisions.

Consent should be meaningful rather than assumed because an athlete belongs to a team.

Additional safeguards are necessary when working with minors or individuals who may feel unable to refuse assessment because of power imbalances.

19.14.2. Confidentiality and data protection

Body mass, body-composition results, eating-related information, and clinical assessments may constitute sensitive health information.

Access should be limited to authorized individuals with a legitimate need to know. Organizations should avoid unnecessary public disclosure or informal sharing of results.

Confidentiality also supports help-seeking by reducing fear that disclosure will automatically lead to punishment or exclusion.

19.14.3. Avoiding stigma and discrimination

Body size should not be treated as a reliable indicator of motivation, discipline, fitness, or personal worth.

Similarly, an athlete's disclosure of eating-related difficulties should not be used to shame or stigmatize them.

Selection and participation decisions should be based on relevant evidence, safety requirements, and appropriate professional assessment rather than stereotypes.

19.14.4. Balancing performance and health

Sport sometimes requires decisions about training participation, competition readiness, or weight-category eligibility. These decisions should be made using transparent procedures and appropriate expertise.

When a health concern creates a potential safety issue, the athlete's welfare should remain central to decision-making.

The objective is not to eliminate performance standards. It is to ensure that performance goals are pursued through practices that are scientifically defensible, proportionate, and ethically responsible.

19.15. Future Directions in Research

Several areas require continued investigation.

19.15.1. Longitudinal research

Much of the body-image literature uses cross-sectional designs. Longitudinal research can help clarify how body-related experiences develop across training stages, competitive transitions, injury, and retirement.

Such designs can also investigate whether specific sporting pressures precede changes in body image or eating behavior.

19.15.2. Diversity in athlete populations

Research should include athletes across different ages, genders, cultural backgrounds, sporting disciplines, competitive levels, and disability groups.

Findings from elite athletes should not automatically be generalized to recreational exercisers or youth sport participants.

More representative research can help identify which risk and protective factors are broadly relevant and which are specific to particular contexts.

19.15.3. Better measurement

Studies should distinguish body dissatisfaction, body appreciation, disordered eating, clinical eating disorders, exercise dependence, and REDs.

These constructs are related but not interchangeable. Research that combines them into a single outcome may obscure important differences in mechanisms and appropriate interventions.

Validated assessment tools, clear definitions, and transparent reporting are essential.

19.15.4. Organizational interventions

Individual psychological interventions may be insufficient when harmful pressures are embedded in sport culture.

Future studies should evaluate coach education, body-composition policies, confidential referral systems, and organizational approaches to preventing disordered eating.

Research should also examine whether such approaches are acceptable, feasible, sustainable, and effective across different sporting environments.

19.15.5. Digital media and appearance pressure

Further research is needed to understand how specific forms of social media use relate to body image in different athlete populations.

Studies should distinguish exposure to appearance-focused content from other uses of digital platforms, including social support, education, and skill development.

The effects of content, individual vulnerability, and patterns of engagement should be examined rather than assuming that all social media use has the same consequences.

19.16. Conclusion

Body image, exercise identity, and eating-related behavior are important dimensions of sport and exercise psychology because they influence how individuals experience their bodies, interpret sporting expectations, and make decisions about training, nutrition, and health.

Sport can support positive body experiences through physical competence, enjoyment, social connection, and appreciation of bodily function. At the same time, certain environments may reinforce appearance pressure, rigid weight expectations, and unhealthy attempts to control body composition.

The evidence does not support a universal claim that athletes experience greater body dissatisfaction than non-athletes. Instead, body-related experiences vary across sporting contexts, individuals, and measurement approaches. This variability reinforces the need to assess athletes as individuals rather than assigning risk solely on the basis of sport type or physical appearance.

Exercise identity can support consistent participation when it remains flexible and integrated with other aspects of life. Difficulties may arise when self-worth becomes excessively dependent on exercise, appearance, or performance and when interruptions threaten the individual's broader sense of identity.

Disordered eating, clinical eating disorders, low energy availability, and REDs require careful differentiation. They may overlap, but they are not

interchangeable. Screening can identify concerns, while diagnosis and treatment require appropriately qualified professionals.

The most effective preventive approach combines individual support with organizational responsibility. Athletes need access to accurate information, respectful communication, appropriate nutrition and medical care, and confidential routes to psychological support. Coaches and sport organizations must examine whether their practices unintentionally reinforce harmful body-related pressures.

Ultimately, a psychologically healthy sporting environment does not require athletes to ignore physical demands or performance goals. It requires those goals to be pursued in ways that respect health, dignity, individual differences, and the long-term development of the person beyond the athlete.

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CHAPTER 20: Physical Activity, Stress, and Psychological Health: Mechanisms, Evidence, and Applications Across the Lifespan

20.1. Introduction

Physical activity is increasingly recognized as an important component of psychological health, stress management, and public health. Beyond its established contributions to physical fitness and the prevention of chronic disease, regular physical activity is associated with fewer symptoms of depression and anxiety, improved subjective well-being, and several aspects of cognitive functioning. However, these benefits are not automatic, uniform, or independent of the circumstances in which activity takes place.

People engage in physical activity for different reasons and under different conditions. Some participate in recreational exercise because they enjoy movement, while others use walking, resistance training, swimming, or sport to manage stress, maintain social relationships, or support recovery from psychological difficulties. Physical activity can provide structure, mastery experiences, social connection, and opportunities to experience personal competence. Conversely, exercise may become an additional source of pressure when it is excessively demanding, externally imposed, inaccessible, or associated with guilt and unrealistic expectations.

Understanding these differences requires an integrated approach to physical activity and psychological health. The relevant question is not simply whether exercise is beneficial, but **for whom, under what circumstances, through which mechanisms, and with what degree of certainty particular forms of physical activity support psychological health**.

Evidence from systematic reviews and meta-analyses indicates that physical activity interventions can reduce depressive and anxiety symptoms across several populations. Singh and colleagues' overview of systematic reviews, published by the *British Journal of Sports Medicine* in 2023, included 97 reviews covering 1,039 unique randomized controlled trials and 128,119 participants. The authors reported median effects favoring physical activity for depression and anxiety, although they also identified substantial limitations in the methodological quality of the underlying reviews (Singh et al., 2023).

Noetel et al. (2024) subsequently examined exercise as a treatment for major depression in a systematic review and network meta-analysis of 218 studies involving 14,170 participants. Their findings supported several exercise

modalities, including walking or jogging, strength training, yoga, and mixed aerobic exercise, as interventions associated with reductions in depressive symptoms. The certainty of evidence varied across comparisons and modalities, and the findings do not establish that exercise is an adequate substitute for every form of established depression treatment.

A further synthesis published in 2026 integrated 63 studies, 81 meta-analyses, 1,079 component studies, and 79,551 participants. It reported reductions in depressive and anxiety symptoms associated with exercise interventions, while also identifying variation by population, intervention characteristics, and delivery context (Munro et al., 2026).

These findings provide a strong rationale for integrating physical activity into psychological health promotion. Nevertheless, physical activity should be understood as one component of a broader approach that includes social conditions, sleep, psychological resources, access to healthcare, and appropriate treatment when mental health difficulties are clinically significant.

This final chapter examines the relationship between physical activity, stress, and psychological health across the lifespan. It reviews theoretical mechanisms, evidence relating to depression and anxiety, psychological well-being, social and environmental influences, intervention design, and the practical implications for sport and exercise professionals.

The chapter is guided by six propositions:

1. Physical activity can support psychological health through interacting physiological, psychological, behavioral, and social pathways.
2. The effects of exercise depend partly on individual characteristics, activity preferences, context, and intervention design.
3. Stress responses are influenced by how individuals appraise demands and evaluate their available coping resources.
4. Physical activity can complement psychological and medical treatment but should not be presented as a universal replacement for professional care.
5. Sustainable participation requires attention to motivation, accessibility, recovery, safety, and personal meaning.
6. Effective public health strategies must address environmental and structural barriers rather than placing the entire responsibility for psychological health on individuals.

20.2. Conceptualizing Psychological Health

20.2.1. Mental health and mental illness

Mental health and mental illness are related but distinct concepts. Mental health concerns psychological functioning, emotional experience, social participation, and the capacity to manage everyday demands. Mental illnesses involve clinically significant disturbances that require assessment and, where appropriate, treatment.

The absence of a diagnosed mental disorder does not necessarily indicate high psychological well-being. An individual may have no current psychiatric diagnosis yet experience loneliness, persistent stress, low life satisfaction, or reduced purpose.

Similarly, a person receiving treatment for a mental health condition may continue to experience meaningful relationships, personal growth, and positive aspects of life.

A comprehensive understanding of psychological health should therefore include both the presence of psychological difficulties and the resources that support positive functioning.

20.2.2. Subjective well-being

Subjective well-being concerns individuals' evaluations of their lives and their emotional experiences. Diener (1984) identified life satisfaction, positive affect, and negative affect as important components of subjective well-being.

Physical activity may contribute to subjective well-being by providing enjoyment, accomplishment, social interaction, and opportunities to engage in personally meaningful activities.

However, the relationship is not necessarily straightforward. Individuals who already experience higher well-being may find it easier to participate in exercise, while exercise participation may also contribute to improved well-being. Both processes may occur simultaneously.

Consequently, observational associations should not automatically be interpreted as proof that physical activity caused the observed differences.

20.2.3. Psychological well-being and flourishing

Psychological well-being extends beyond momentary happiness. Ryff (1989) proposed a multidimensional model that includes autonomy, environmental

mastery, personal growth, positive relationships, purpose in life, and self-acceptance.

Physical activity may provide opportunities to develop some of these dimensions. Learning a new skill can support personal growth, while participation in a recreational group may strengthen social relationships. Completing a personally meaningful activity can also contribute to a sense of competence and environmental mastery.

Nevertheless, exercise does not automatically improve every dimension of well-being. An overly competitive environment may undermine autonomy or social relationships, and excessive training demands may interfere with recovery and other life priorities.

The psychological consequences of physical activity therefore depend partly on the quality of the experience.

20.2.4. Psychological distress

Psychological distress refers to unpleasant psychological experiences that may include worry, tension, sadness, irritability, emotional exhaustion, and difficulty coping with demands.

Distress can occur in response to temporary challenges without necessarily indicating a mental disorder. Persistent, severe, or functionally impairing symptoms, however, may require professional assessment.

Physical activity may help reduce some forms of distress, but it should not be used to dismiss the underlying causes of an individual's difficulties.

For example, exercise may provide temporary relief from work-related stress, but it cannot independently resolve unsafe working conditions, financial insecurity, discrimination, or interpersonal violence.

A comprehensive intervention should distinguish between coping with a stressor and changing the conditions that produce it.

20.3. Understanding Stress: Appraisal, Coping, and Adaptation

20.3.1. Defining stress

Stress can be understood as a process involving demands, the individual's appraisal of those demands, and the resources available to respond.

Lazarus and Folkman (1984) emphasized that stress depends partly on how individuals evaluate a situation and their perceived ability to manage it.

The same event may therefore produce different responses in different people. A demanding exercise session may be experienced as an enjoyable challenge by one participant and as an overwhelming threat by another.

The difference may reflect previous experience, perceived competence, personal goals, available support, current fatigue, or expectations concerning the consequences of failure.

This perspective does not imply that stress is merely subjective. Objective demands, physical conditions, social inequalities, and environmental threats can substantially influence the stress process. Appraisal helps explain how these demands are experienced, but it does not eliminate their material consequences.

20.3.2. Primary and secondary appraisal

In the transactional model of stress, primary appraisal concerns the significance of an event for the individual's well-being. A situation may be interpreted as irrelevant, beneficial, threatening, or involving potential harm or loss.

Secondary appraisal concerns the resources and options available for responding.

For example, a university student preparing for an important examination may interpret the examination as a threat to future opportunities. If the student believes that insufficient time remains for preparation, distress may increase.

A planned physical activity session may provide a temporary opportunity to regulate tension, but the student may also need a realistic study plan, adequate sleep, and appropriate academic support.

The practical lesson is that physical activity can be one coping resource among several. Its usefulness depends partly on whether it addresses the relevant needs without displacing essential actions.

20.3.3. Challenge and threat

Demands may be experienced as challenges when individuals perceive that they possess sufficient resources to respond, or as threats when demands appear to exceed available resources.

Physical activity can provide opportunities to practice responding to manageable challenges. Gradual progression, supportive instruction, and achievable goals may help participants experience difficult tasks as controllable.

However, challenges that exceed an individual's physical or psychological capacity may increase distress rather than build confidence.

Effective exercise programming therefore requires appropriate progression and sensitivity to the participant's current condition.

20.3.4. Coping strategies

Coping refers to cognitive and behavioral efforts to manage demands that are perceived as challenging or stressful.

Problem-focused coping aims to change the stressor or its practical consequences. Emotion-focused coping aims to manage emotional responses to the situation.

These strategies are not mutually exclusive. An individual may use physical activity to regulate tension while also taking practical steps to resolve the source of stress.

Physical activity can be useful when it supports emotional regulation, provides a constructive break, or creates opportunities for social support. Nevertheless, it may become unhelpful if it is used rigidly to avoid every difficult emotion or to postpone necessary decisions.

The goal is flexible coping rather than dependence on a single strategy.

20.4. How Physical Activity May Influence Psychological Health

The relationship between physical activity and psychological health is likely to involve multiple interacting mechanisms. No single pathway fully explains the observed effects.

20.4.1. Neurobiological mechanisms

Physical activity produces changes in physiological systems involved in arousal, mood, sleep, and cognitive functioning.

Exercise may influence neurotransmitter signaling, neurotrophic processes, autonomic regulation, and inflammatory pathways. Research has also examined the potential contribution of brain-derived neurotrophic factor (BDNF) and other mechanisms associated with neural plasticity.

These mechanisms are biologically plausible and supported by different strands of research, but their contribution to psychological outcomes varies according to the population, exercise protocol, measurement method, and duration of intervention.

It would therefore be inaccurate to attribute all psychological benefits of exercise to one neurotransmitter or to assume that a single biological pathway explains improvements in depression or anxiety.

20.4.2. Autonomic and stress-regulation processes

Physical activity produces temporary physiological demands, including changes in heart rate, respiration, and autonomic activity. With appropriate training and recovery, adaptation can improve aspects of cardiovascular and physiological functioning.

Exercise may also influence how individuals experience bodily arousal. Participants who become familiar with increased heart rate and breathing during safe exercise may become more comfortable interpreting these sensations in other contexts.

However, exercise is not uniformly calming during or immediately after every session. High-intensity activity can temporarily increase physiological arousal and may be unsuitable for some individuals under particular conditions.

The psychological response depends partly on exercise intensity, health status, perceived control, and the individual's experience of bodily sensations.

20.4.3. Self-efficacy and mastery

Self-efficacy refers to beliefs about one's capability to perform particular actions (Bandura, 1997).

Exercise provides opportunities for mastery experiences, such as completing a planned walk, learning a movement skill, increasing strength, or returning to activity after a manageable interruption.

These experiences may strengthen confidence in the ability to influence behavior and achieve personally meaningful goals.

The benefits may extend beyond physical performance when individuals interpret successful exercise experiences as evidence of their capacity to manage other challenges.

Nevertheless, transfer is not automatic. Confidence developed in one context may not generalize to unrelated demands unless the individual recognizes relevant similarities and applies the experience appropriately.

20.4.4. Reward, enjoyment, and positive affect

Enjoyable physical activity may provide immediate positive experiences that support continued participation.

These experiences can include pleasure, satisfaction, accomplishment, curiosity, and relief from routine demands.

The psychological value of exercise is therefore not limited to distant health outcomes. Activities that are enjoyable and personally meaningful may be easier to integrate into everyday life.

However, preferences differ. Some individuals enjoy group activities, while others prefer walking alone or exercising at home. An intervention that disregards these differences may reduce engagement.

Supporting psychological health requires offering feasible and acceptable forms of activity rather than assuming that one exercise modality is universally optimal.

20.4.5. Sleep and daily routines

Physical activity may contribute to better sleep and help establish more regular daily routines.

Sleep, in turn, is relevant to emotional regulation, attention, cognitive functioning, and perceived stress. A person who develops a consistent activity routine may also develop more predictable patterns of daily behavior.

Nevertheless, the relationship between exercise and sleep is influenced by timing, intensity, individual sensitivity, and other health or lifestyle factors.

Exercise should not be used as a substitute for assessment of persistent sleep difficulties. Where sleep problems are severe or ongoing, appropriate clinical evaluation may be necessary.

20.4.6. Social connection and belonging

Group exercise, recreational sport, walking groups, and community physical activity can provide opportunities for interpersonal contact and social support.

Social connection may contribute to psychological health through belonging, shared goals, encouragement, and opportunities to exchange experiences.

However, group activity is not automatically beneficial. Exclusion, excessive comparison, discrimination, or humiliating instruction may produce negative experiences.

The social environment is therefore an important component of intervention quality. A physically active setting that is unsafe or socially hostile may fail to provide the expected psychological benefits.

20.4.7. Behavioral activation and structure

Behavioral activation is a psychological approach that encourages engagement in meaningful activities, particularly when withdrawal and reduced activity are associated with low mood.

Physical activity can serve as one form of structured, potentially rewarding behavior within a broader behavioral activation plan.

A scheduled walk or exercise session may help create routine, increase contact with reinforcing experiences, and reduce prolonged inactivity.

However, behavioral activation is a structured psychological intervention, and physical activity alone should not be assumed to reproduce all of its therapeutic components.

Table 20.1. Potential pathways linking physical activity and psychological health

Pathway	Possible contribution	Example	Important qualification
Neurobiological	Changes in systems associated with mood and neural functioning	Regular aerobic exercise	No single biological mechanism explains all outcomes
Physiological regulation	Adaptation in cardiovascular and autonomic functioning	Gradual aerobic training	Responses vary by health status and intensity
Self-efficacy	Greater confidence in performing manageable tasks	Achieving progressive walking goals	Generalization beyond exercise is not guaranteed
Positive affect	Enjoyment, satisfaction, and accomplishment	Preferred recreational activity	Enjoyment differs across individuals
Sleep and routine	Support for daily structure and sleep-related processes	Consistent daytime activity	Persistent sleep problems may require clinical care
Social connection	Belonging and interpersonal support	Community exercise group	Poor-quality social environments can be harmful
Behavioral activation	Increased engagement in meaningful activity	Planned walk during a low-mood period	Exercise is not equivalent to complete psychological treatment

Note. These pathways are complementary hypotheses and mechanisms supported to differing degrees by different research designs. Their presence or magnitude should not be assumed in every individual.

20.5. Physical Activity and Depression

20.5.1. Understanding depression

Depression involves persistent disturbances in mood and/or interest or pleasure, together with other symptoms that may affect sleep, appetite, energy, concentration, self-evaluation, and everyday functioning.

Depressive symptoms occur on a continuum, but major depressive disorder is a clinical condition requiring appropriate assessment.

Physical activity has been studied both as a population-level strategy for supporting mental health and as an intervention for people experiencing clinically significant depressive symptoms.

These applications should be distinguished. Evidence that physical activity is associated with a lower likelihood of depressive symptoms does not automatically establish its effectiveness as a stand-alone treatment for an individual with severe depression.

20.5.2. Evidence from systematic reviews

Singh et al. (2023) synthesized evidence from 97 systematic reviews examining physical activity interventions for depression, anxiety, and psychological distress in adults. The review included 1,039 unique randomized controlled trials involving 128,119 participants.

The authors reported median effect sizes favoring physical activity over usual care of approximately:

- **Depressive symptoms:** median effect size = −0.43.
- **Anxiety symptoms:** median effect size = −0.42.
- **Psychological distress:** effect size = −0.60, with a 95% confidence interval from −0.78 to −0.42.

These values should be interpreted in the context of the review's methodology. The reported median effects summarize findings across different systematic reviews and populations; they are not a single pooled estimate from one uniform trial population. Most included reviews were also rated as critically low in methodological quality.

The overall direction of evidence supports physical activity as a useful intervention, but the limitations argue against treating all effect estimates as equally reliable.

Noetel et al. (2024) examined exercise interventions for major depression in a network meta-analysis of 218 studies and 14,170 participants. Compared with active controls, several exercise modalities were associated with reductions in depressive symptoms.

For example, the authors reported standardized effects favoring:

- Walking or jogging: Hedges' $g = -0.62$.
- Yoga: $g = -0.55$.
- Strength training: $g = -0.49$.
- Mixed aerobic exercise: $g = -0.43$.
- Tai chi or qigong: $g = -0.42$.

These estimates do not establish a definitive ranking of exercise modalities for every patient. Comparisons depend on the included studies, control conditions, participant characteristics, intervention implementation, and certainty of evidence.

The findings nevertheless indicate that several forms of physical activity may be useful options within evidence-informed depression care.

20.5.3. Potential differences between exercise modalities

Aerobic exercise, resistance training, mind–body activities, and mixed programs may offer different experiences and practical advantages.

Aerobic exercise includes activities such as walking, jogging, cycling, and swimming. Resistance training involves exercise against external resistance or body weight. Mind–body activities may combine movement, breathing, concentration, and structured attention.

Different modalities may be more acceptable or accessible to different individuals. A person with limited mobility may require an adapted program, while someone who dislikes group classes may prefer independent walking or home-based resistance exercises.

The choice should consider health status, preference, accessibility, prior experience, and the person's broader treatment plan.

The evidence does not justify assuming that one modality is universally superior.

20.5.4. Physical activity as part of depression care

Physical activity may be incorporated into depression care as a structured intervention, an adjunct to psychological treatment, or a component of a broader health plan.

Appropriate clinical management depends on symptom severity, risk, previous treatment, comorbid conditions, and patient preference.

Exercise should not be presented as a guaranteed cure or as a reason to discontinue prescribed medication or psychotherapy without professional guidance.

When depressive symptoms are severe, persistent, or functionally impairing, qualified mental health assessment is important. If an individual reports suicidal thoughts or immediate danger, urgent professional support is required.

20.6. Physical Activity and Anxiety

20.6.1. Understanding anxiety

Anxiety involves apprehension, worry, and anticipation of potential threat. It may be experienced in response to a specific challenge or occur more persistently across different situations.

Anxiety is not always pathological. A temporary increase in arousal before an examination, presentation, or competition can be understandable. Clinical anxiety disorders involve patterns of symptoms and impairment that require professional assessment.

Physical activity may influence anxiety through several pathways, including changes in arousal regulation, exposure to bodily sensations, distraction from repetitive worry, improved self-efficacy, and social connection.

The relative importance of these pathways is not fully established and may differ across individuals.

20.6.2. Evidence for anxiety reduction

The umbrella review by Singh et al. (2023) found that physical activity interventions were associated with reductions in anxiety symptoms across a range of adult populations.

The 2026 meta-meta-analysis by Munro et al. reported a pooled standardized mean difference of −0.47 for anxiety symptoms across the included meta-analyses of randomized controlled trials (Munro et al., 2026).

This result supports exercise as a potentially useful intervention for anxiety symptoms. However, pooled effects across diverse populations do not indicate that all individuals will benefit equally or that exercise alone is sufficient for every anxiety disorder.

20.6.3. Interpreting physiological arousal

Exercise increases heart rate, breathing rate, and other sensations that may resemble some components of anxiety.

For many individuals, these sensations are expected and manageable. For others, particularly those who fear bodily arousal, they may initially feel uncomfortable.

A gradual and appropriately supervised introduction to exercise may help some individuals become more familiar with these sensations. However, this process should not be treated as a substitute for structured exposure-based treatment when a clinical anxiety disorder is present.

Individuals with relevant medical conditions may also require appropriate assessment before beginning or substantially increasing exercise.

20.6.4. Choosing an appropriate activity

The best starting point is often an activity that is acceptable, feasible, and consistent with the individual's current capabilities.

Some people prefer walking in a quiet environment, while others benefit from a supportive group. A highly competitive exercise class may be inappropriate for an individual whose anxiety is intensified by public evaluation.

The aim is not to avoid every challenge but to establish a manageable starting point and increase demands as appropriate.

20.7. Physical Activity and Psychological Distress

Psychological distress can arise from work demands, academic pressures, caregiving, financial uncertainty, interpersonal conflict, health concerns, or major life transitions.

Physical activity may provide a temporary change of context, support emotional regulation, and create opportunities for meaningful engagement. Nevertheless, it should not be used to imply that distress is always an individual coping failure.

20.7.1. Daily stress and emotional recovery

Regular physical activity may help some individuals establish periods of recovery from daily demands.

For example, a university employee may use a walk after work to create a transition between professional and personal responsibilities. A student may find that a brief period of movement provides a constructive break from prolonged study.

These benefits may depend on whether the activity is experienced as restorative rather than as another obligation.

If exercise adds substantial time pressure, physical exhaustion, or guilt, its contribution to stress management may be reduced.

20.7.2. Stressors that exercise cannot resolve

Physical activity may support coping, but it cannot independently eliminate structural or interpersonal sources of stress.

Examples include:

- Unsafe working conditions.
- Financial insecurity.
- Discrimination and harassment.
- Excessive caregiving responsibilities.
- Workplace bullying.
- Housing insecurity.
- Persistent interpersonal violence.

In such circumstances, exercise may be one supportive resource, but appropriate practical, social, organizational, or clinical interventions may be necessary.

A responsible psychological approach recognizes both personal coping resources and the conditions that produce distress.

20.7.3. Recovery and excessive demands

Exercise itself can become a stressor when training demands exceed an individual's capacity for recovery.

Insufficient recovery, inadequate energy intake, illness, and excessive training load may contribute to fatigue, mood disturbance, impaired performance, and reduced motivation.

The relationship between exercise and psychological health should therefore not be framed as “more exercise is always better.”

Appropriate exercise prescription includes consideration of intensity, duration, frequency, recovery, health status, and individual response.

20.8. Physical Activity Across the Lifespan

The psychological significance of physical activity changes with age, developmental stage, social circumstances, and health status.

20.8.1. Children and adolescents

For children and adolescents, physical activity can provide opportunities for motor development, social interaction, enjoyment, and the development of perceived competence.

Supportive environments may help young people develop positive associations with movement and establish habits that continue into adulthood.

However, poorly designed programs may increase embarrassment, exclusion, or performance pressure. Young people differ in physical development, skill, disability, confidence, and preferences.

Programs should therefore prioritize inclusion, age-appropriate challenges, and positive experiences rather than assuming that competitive sport is suitable for every child.

Physical activity should also be integrated with adequate sleep, nutrition, educational demands, and opportunities for rest.

20.8.2. University students and emerging adults

University students may experience academic pressure, financial uncertainty, changing social relationships, and transitions in living arrangements.

Physical activity can provide opportunities for routine, social connection, and stress management. However, academic workloads, employment, transportation, and facility access may create barriers to participation.

Universities can support psychological health through accessible recreation programs, walking opportunities, inclusive exercise facilities, and scheduling that accommodates students' responsibilities.

Programs should avoid framing physical activity as an additional test of discipline. Their purpose is to make movement feasible and meaningful within students' lives.

20.8.3. Working-age adults

Working-age adults may face competing demands related to employment, family responsibilities, commuting, and caregiving.

Physical activity can be incorporated into leisure, transportation, recreation, or structured exercise. The most appropriate approach depends on the individual's goals, preferences, and available opportunities.

The World Health Organization (WHO, 2020, 2024) emphasizes that physical activity can occur across different domains of daily life and that some activity is better than none.

For adults, WHO recommends 150–300 minutes of moderate-intensity aerobic physical activity per week, or 75–150 minutes of vigorous-intensity activity, or an equivalent combination, alongside muscle-strengthening activities on at least two days per week.

These are public health recommendations, not a requirement that every person begin immediately at the upper end of the range. Individuals who are inactive should start at a feasible level and progress appropriately.

20.8.4. Older adults

For older adults, physical activity may support mobility, functional independence, social participation, and psychological well-being.

Walking groups, adapted resistance exercise, balance activities, swimming, and other suitable forms of movement can provide opportunities for physical and social engagement.

However, exercise programming should account for individual health conditions, mobility, fall risk, functional capacity, and personal preferences.

The goal is not simply to maximize activity volume but to support safe, sustainable participation that contributes to the person's priorities and quality of life.

20.8.5. People living with chronic conditions or disability

People living with chronic conditions or disabilities may encounter physical, psychological, social, and environmental barriers to activity.

These barriers can include symptoms, fatigue, pain, limited transport, inaccessible facilities, unsuitable equipment, or a lack of appropriately trained staff.

Physical activity may provide important health and psychological benefits, but the type and amount should be adapted to the individual's condition and capabilities.

Inclusive programs require attention to accessibility and consultation with participants themselves. Where appropriate, exercise plans should be developed in coordination with relevant healthcare professionals.

Table 20.2. Physical activity and psychological health across the lifespan

Population	Potential psychological contribution	Common considerations	Practical priority
Children and adolescents	Competence, enjoyment, social connection	Developmental differences, exclusion, performance pressure	Inclusive and enjoyable movement experiences
University students	Stress management, routine, belonging	Academic workload, cost, changing schedules	Flexible and accessible programs
Working-age adults	Emotional recovery, well-being, daily structure	Employment, caregiving, time constraints	Feasible activity integrated into daily life
Older adults	Functional independence, social participation	Mobility, health conditions, fall risk	Individualized, safe, sustainable activity
People with chronic conditions or disabilities	Participation, confidence, quality of life	Symptoms, accessibility, adapted equipment	Person-centered and appropriately supported programs

20.9. The Social Context of Physical Activity and Mental Health

Physical activity does not occur in a social vacuum. The psychological consequences of participation are influenced by relationships, organizational practices, access to resources, and cultural expectations.

20.9.1. Leisure-time physical activity

An updated systematic review and multilevel meta-analysis by Teychenne et al. (2026) examined associations between different physical activity domains and mental health. The review included 372 studies and a combined sample of more than 3.3 million people.

The authors reported positive associations between mental health and leisure-time physical activity (r = .205), transport-related activity (r = .138), and household activity (r = .096). The strongest and most consistent associations with both positive mental health and lower mental ill-health were observed for leisure-time physical activity.

The authors also emphasized that much of the evidence was observational, limiting conclusions about causality and the direction of relationships.

These findings suggest that the context and meaning of physical activity matter. Leisure-time activity may offer greater opportunities for choice, enjoyment, and social connection than activity undertaken primarily because of work demands.

However, the results do not imply that transport-related or household activity lacks health value. They indicate that the relationship with mental health varies across domains and should not be treated as uniform.

20.9.2. Social support

Support from family, friends, peers, and instructors can facilitate participation and contribute to positive experiences.

Social support may provide encouragement, practical assistance, companionship, and a sense of belonging.

Nevertheless, support is most useful when it respects individual preferences. Unwanted pressure or repeated criticism may undermine autonomy and increase distress.

Practitioners should therefore distinguish supportive encouragement from coercion.

20.9.3. Community environments

Access to safe parks, walking routes, recreation facilities, public transport, and inclusive community programs can influence opportunities for physical activity.

Environmental barriers may be particularly important for individuals with limited financial resources, disabilities, caregiving responsibilities, or restricted transportation.

Public health strategies should therefore combine individual-level interventions with efforts to improve access and remove structural barriers.

20.9.4. Sport organizations and workplaces

Sport organizations, universities, workplaces, and community institutions can promote psychological health by providing safe and inclusive opportunities for movement.

Relevant practices include flexible scheduling, accessible facilities, non-stigmatizing communication, appropriate staff training, and referral pathways for individuals who require additional support.

Organizational responsibility is important because individual motivation cannot compensate for every environmental limitation.

20.10. Designing Evidence-Informed Physical Activity Interventions

An effective intervention should begin with a clear objective and an assessment of the population's needs.

20.10.1. Define the target outcome

Interventions should distinguish among:

- Increasing physical activity.
- Reducing depressive symptoms.
- Reducing anxiety symptoms.
- Supporting stress management.
- Improving subjective well-being.
- Enhancing social connection.
- Supporting functional independence.
- Preventing deterioration in psychological health.

These outcomes may overlap, but they are not interchangeable.

For example, an intervention that increases walking frequency may not produce a detectable reduction in depressive symptoms over a short follow-up period. Conversely, participants may report improved mood even when total activity volume changes only modestly.

Clear outcome definitions support appropriate evaluation.

20.10.2. Assess capability, opportunity, and motivation

The COM-B model provides a useful framework for understanding whether individuals have the capability, opportunity, and motivation to engage in a behavior (Michie et al., 2011).

Capability includes physical capacity, knowledge, and relevant skills. Opportunity includes access to time, facilities, equipment, and social support. Motivation includes both reflective processes, such as intentions, and automatic processes, such as habitual responses.

An intervention should address the barriers most relevant to the target population.

For example, a person who lacks confidence may benefit from instruction and graded progression. A person with limited time may need a more flexible schedule. Someone who feels socially uncomfortable in a gym may prefer walking outdoors or exercising at home.

The intervention should not assume that the same solution will work for everyone.

20.10.3. Support autonomy and competence

Self-determination theory emphasizes autonomy, competence, and relatedness as important psychological needs (Deci & Ryan, 2000; Ryan & Deci, 2017).

In practice, autonomy support involves meaningful choice and explanation. Competence support involves clear instruction and achievable challenges. Relatedness support involves respectful communication and opportunities for social connection.

These practices may improve the quality of participation and support sustained engagement.

They should be implemented without removing appropriate professional guidance or safety requirements.

20.10.4. Establish realistic goals

Goals should be specific enough to guide action but flexible enough to accommodate individual circumstances.

A participant who is currently inactive might begin with short walking sessions and gradually increase duration as appropriate.

The initial goal should provide a realistic opportunity for success. Unrealistic targets can undermine confidence and encourage all-or-nothing thinking.

Progress should be evaluated using indicators relevant to the individual's objectives rather than relying exclusively on weight or appearance.

20.10.5. Plan for maintenance

Behavior change requires attention to what happens after the initial intervention.

Useful strategies include stable routines, implementation intentions, self-monitoring, supportive social relationships, and plans for responding to interruptions.

Participants should also be encouraged to view temporary reductions in activity as problems that can be addressed rather than as irreversible failure.

A flexible plan is particularly important during illness, injury, travel, caregiving changes, and periods of high stress.

20.10.6. Evaluate outcomes and adverse experiences

Interventions should assess not only whether activity increased but also whether participation was safe, acceptable, and psychologically appropriate.

Relevant outcomes may include:

- Participation and retention.
- Changes in activity levels.
- Psychological symptom measures.
- Enjoyment and perceived competence.
- Accessibility and feasibility.
- Adverse events or worsening symptoms.
- Participant satisfaction.
- Sustainability after active support ends.

Monitoring adverse experiences is important because exercise can be inappropriate or excessive in particular circumstances.

20.11. A Practical Framework for Stress-Responsive Physical Activity

The following framework can be used by exercise professionals, community program coordinators, and appropriately qualified practitioners to organize physical activity interventions intended to support psychological health.

Step 1: Clarify the purpose

Identify whether the primary objective is stress management, general well-being, increased activity, social connection, or support alongside mental health treatment.

The goal should be discussed with the participant rather than assumed.

Step 2: Understand the current context

Explore the person's activity history, preferences, current demands, available resources, health considerations, and practical barriers.

Where psychological symptoms are persistent or severe, ensure that appropriate clinical assessment is not delayed.

Step 3: Select a feasible activity

Choose an activity that is accessible, acceptable, and suitable for the participant's current capabilities.

Potential options include walking, cycling, swimming, resistance training, recreational sport, adapted exercise, or other preferred forms of movement.

Step 4: Establish an appropriate starting point

Begin at a level that can be sustained without unnecessary physical or psychological burden.

Progression should reflect individual response, health status, and relevant professional guidance.

Step 5: Integrate coping and recovery strategies

Encourage the participant to identify how physical activity fits alongside sleep, social support, problem-solving, and other coping resources.

Exercise should not become an additional source of guilt or an attempt to suppress every unpleasant emotion.

Step 6: Monitor and adapt

Review participation, psychological experience, and any emerging difficulties.

If the intervention increases distress, creates excessive demands, or proves impractical, modify it rather than assuming that the participant lacks commitment.

Table 20.3. Example of a stress-responsive activity plan

Component	Example
Primary goal	Establish a manageable routine that supports stress management
Initial activity	Short walks on several days each week, adjusted to current capability
Main barrier	Unpredictable work demands
Intervention strategy	Flexible scheduling and an alternative shorter session
Psychological support	Identify personally meaningful reasons for participating
Social support	Optional walking partner or community group
Monitoring	Record participation, perceived stress, and activity enjoyment
Review	Reassess feasibility and psychological experience after an agreed period
Adaptation	Modify activity type, duration, timing, or support according to individual response

Note. This is an illustrative behavior-change framework rather than an individualized clinical or exercise prescription.

20.12. Integrating Physical Activity with Mental Health Care

Physical activity can contribute to mental health promotion and may serve as an intervention for depressive and anxiety symptoms. Its appropriate role depends on the individual's needs and clinical circumstances.

20.12.1. Prevention and health promotion

At the population level, accessible physical activity opportunities may support psychological health and contribute to broader public health objectives.

Prevention strategies can include community exercise programs, active transportation, school-based activity, workplace initiatives, and inclusive recreational opportunities.

These approaches should be designed to reach people who face barriers to participation rather than primarily serving individuals who already have sufficient resources and motivation.

20.12.2. Adjunctive intervention

For some individuals, physical activity may complement psychotherapy, medication, or other forms of clinical care.

Potential benefits include increased routine, opportunities for mastery, social connection, and improvements in physical health.

However, the appropriate combination of interventions depends on clinical assessment and patient preference. Exercise should not be presented as a universal replacement for established treatment.

20.12.3. Referral and professional boundaries

Exercise professionals may notice changes in mood, motivation, energy, social behavior, or participation.

Their role is to respond appropriately, communicate concerns respectfully, and facilitate access to qualified support when needed.

They should not diagnose mental disorders or independently manage conditions outside their professional competence.

Referral may be appropriate when symptoms persist, interfere substantially with functioning, worsen over time, or raise concerns about safety.

20.12.4. Suicide risk and urgent concerns

Depression and other mental health conditions can involve serious safety concerns.

If an individual expresses suicidal intent, immediate danger, or an inability to remain safe, the response should prioritize urgent professional assistance rather than an exercise recommendation.

Physical activity may contribute to a broader care plan, but it is not an emergency intervention for acute suicide risk.

20.13. Limitations of the Evidence

Although evidence supporting physical activity and psychological health has expanded, several limitations remain.

20.13.1. Heterogeneity

Studies differ in participant characteristics, baseline health, intervention type, exercise intensity, supervision, duration, comparison groups, and outcome measures.

This heterogeneity makes it difficult to identify one universally optimal exercise prescription.

20.13.2. Methodological quality

Systematic reviews and meta-analyses are only as reliable as the studies and review methods on which they depend.

The overview by Singh et al. (2023), for example, found that most included reviews were rated as critically low in methodological quality.

Consequently, the existence of many reviews should not automatically be interpreted as evidence that every specific conclusion is equally certain.

20.13.3. Publication bias and selective reporting

Studies with statistically significant or favorable findings may be more likely to be published than studies with null results.

Selective reporting and small-study effects can therefore influence the apparent magnitude of intervention benefits.

Researchers should use appropriate methods to assess these possibilities and report limitations transparently.

20.13.4. Causality and reverse causation

Observational studies can identify associations but cannot, by themselves, establish causality.

People experiencing better mental health may find it easier to exercise, while people who are more active may experience psychological benefits. Other factors, including socioeconomic circumstances, health status, and social support, may influence both.

Randomized trials can provide stronger evidence about intervention effects, although their results may not always generalize to routine practice.

20.13.5. Long-term maintenance

Some studies measure psychological outcomes immediately after an intervention. These findings do not necessarily establish that benefits persist over longer periods.

Long-term follow-up is important for determining whether activity patterns are maintained and whether psychological outcomes remain improved.

20.13.6. Equity and representation

Research populations may not fully represent people with disabilities, severe mental illness, limited resources, chronic health conditions, or restricted access to exercise facilities.

Interventions should not be assumed to be equally feasible or effective across all groups.

Future research should examine not only average effects but also access, participation, adherence, and outcomes across diverse populations.

20.14. Future Directions

Several research priorities can strengthen the evidence base and improve practical application.

20.14.1. Personalized interventions

Future studies should investigate how interventions can be adapted to individual preferences, psychological symptoms, physical capabilities, and environmental constraints.

Personalization should be based on validated information and evaluated empirically rather than assuming that a theoretically appealing approach will benefit every participant.

20.14.2. Mechanism-focused research

Studies should investigate which psychological, social, and physiological pathways contribute to particular outcomes.

For example, changes in self-efficacy, social connection, sleep, and affect may contribute differently to changes in stress and depressive symptoms.

Mechanism-focused research can help distinguish which intervention components are necessary, which are optional, and which are most useful for particular populations.

20.14.3. Longitudinal and pragmatic trials

Longitudinal research can clarify whether changes in physical activity precede improvements in psychological health and whether benefits are sustained.

Pragmatic trials can examine whether interventions remain effective when implemented in community, educational, healthcare, and workplace settings.

Such studies are important because controlled research conditions may differ from everyday practice.

20.14.4. Environmental and policy interventions

Research should evaluate how access to safe public spaces, inclusive facilities, affordable programs, and active transportation influences psychological health.

These approaches may complement individual-level interventions by improving the conditions necessary for participation.

20.14.5. Digital and hybrid delivery

Digital tools can support activity monitoring, remote instruction, reminders, and social connection.

However, future studies should examine accessibility, privacy, sustained engagement, and the possibility that excessive monitoring may increase distress.

Digital approaches should be evaluated as specific intervention strategies rather than assumed to be effective simply because they use technology.

20.14.6. Integration with clinical care

Further research should investigate how physical activity can be integrated into mental health services while preserving appropriate clinical assessment, patient choice, and professional boundaries.

This includes evaluating referral pathways, communication between healthcare and exercise professionals, and the feasibility of supported exercise programs.

20.15. Final Conclusion: Toward an Integrated Psychology of Sport, Exercise, and Human Well-Being

The relationship between physical activity and psychological health provides a fitting conclusion to this book because it brings together many of the themes examined throughout the preceding chapters: motivation, personality, self-efficacy, emotion regulation, attention, resilience, social relationships, body image, and behavioral change.

Physical activity can provide opportunities for psychological development and well-being. It may support mood regulation, reduce symptoms of depression and anxiety, strengthen self-efficacy, create meaningful routines, and facilitate social connection. These potential benefits are supported by systematic reviews, meta-analyses, and international public health guidance.

However, the evidence does not justify presenting exercise as a universal solution to psychological difficulties. Effects vary according to individual characteristics, health status, intervention design, social context, and the outcomes being measured. Physical activity can complement mental health care, but it cannot replace all forms of clinical assessment or treatment.

A central lesson is that physical activity should be understood as both a behavior and an experience. The quantity of movement matters, but so do the reasons for participating, the quality of the environment, the degree of personal choice, and the individual's physical and psychological response.

An activity undertaken voluntarily in a supportive environment may provide enjoyment, mastery, and belonging. The same activity, when imposed through shame, excessive pressure, or unrealistic expectations, may become a source of distress.

This distinction has important implications for sport and exercise professionals. Their responsibilities extend beyond prescribing movement or measuring performance. They also involve creating environments in which individuals can participate safely, develop competence, maintain autonomy, and access appropriate support.

At the population level, sustainable physical activity requires more than motivational messaging. It requires accessible facilities, safe environments,

inclusive programs, appropriate professional training, and policies that recognize the unequal distribution of opportunities for movement.

At the individual level, sustainable participation is more likely to emerge when exercise is feasible, personally meaningful, appropriately challenging, and integrated into everyday life. Goals should support development without turning temporary setbacks into judgments about personal worth.

At the clinical level, physical activity should be integrated thoughtfully with established mental health care, with clear referral pathways and respect for professional boundaries.

The broader conclusion of this book is that sport and exercise psychology is not concerned solely with improving competitive performance. It also examines how people think, feel, behave, relate to others, and develop through movement and sporting experiences.

A comprehensive approach recognizes that performance and well-being can support one another, but neither should be reduced to the other. Athletes are more than their results, exercisers are more than their activity records, and psychological health is more than the absence of symptoms.

The ultimate objective is to create conditions in which sport and physical activity contribute to human development, health, inclusion, and meaningful participation throughout life.

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