

## CHAPTER

# 12

## Understanding and Managing Stress in Sport

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*Nerves can be brilliant because they get your adrenalin going and it means you care and want to do well. There's a fine line, though. Getting too nervous can ruin a race and that's happened to me. . . . After Beijing the 800m took a bit of a dip and it became this challenge. I just got so nervous and so worked up that I literally dived in and I completely stiffened up. I'd never experienced it before. The whole way through the race I didn't feel myself and it was that moment where I learnt I had to relax. I realized there was no point in harming myself, getting that nervous, and that I had to just chill out and enjoy the experience.*

*—Rebecca Adlington, 2012, Double Olympic, World, European, and Commonwealth swimming champion*

The potential to experience high levels of stress in sport and the challenges associated with the environments that surround the modern-day athlete are widely acknowledged. Thus, an integral element of an athlete's preparation program is some form of stress management, with the goal to cope with those challenges and to achieve the optimal mental and physical state needed to perform. More recently, the stress experiences of other key stakeholders within the sport environment have been considered (i.e., coaches, support staff, parents), with coaches, for example, now widely recognized as "performers" in their own right (e.g., Arnold et al., 2019). Consequently, although a sport psychology

consultant's primary provision of support comprises helping athletes, their role is expanding to assist other key stakeholders in managing stress.

This chapter aims to describe a contemporary understanding of stress, outline the various ways in which stress manifests itself in sport for athletes and coaches, and the process through which stress is proposed to influence performance. The remainder of the chapter then provides an overview of the major skills and strategies that sport psychology consultants and coaches can utilize to help athletes successfully manage stress, with consideration of the transfer of these skills for use by coaches and other key stakeholders.

## *Cognitive-Behavioral Stress Management in Sport Psychology*

Contemporary approaches to understanding stressful encounters experienced by those within sport frequently adopt a cognitive-behavioral focus, that is, one that seeks to change cognitions and thought patterns to influence behavior (i.e., performance). The most popular cognitive approach used in sport psychology is Lazarus's (1999) cognitive motivational relational theory (CMRT). CMRT describes the experience of stress as an ongoing transaction involving an individual evaluating or appraising the demands they face in relation to themselves and their surrounding environment. An individual's view of a potentially stressful situation, known as a stress appraisal, will usually focus on whether a threat, harm/loss, benefit, or challenge is to be experienced. The individual will evaluate that situation (termed a primary appraisal) to determine if the demands faced are likely to be stressful, and subsequently whether they possess the necessary physical and mental resources to deal with the stress and the likely outcomes that will ensue (secondary or further appraisal of the situation). Threat is experienced when resources are perceived as insufficient to meet the demands of the situation, and that threat elevates the more the individual perceives dire consequences for failure to meet the demands.

With threat appraisals and the resultant physical changes that occur in the body due to the stress process, the individual will then attempt to manage the situation accordingly. In the case of athletes, under the cognitive-behavioral approach to stress management, they are taught to utilize cognitive, affective, and behavioral strategies to cope with the specific internal or external demands faced in sport.

Consider a professional boxer competing against an undefeated world champion for the world championship belt in front of an intimidating audience in the current champion's hometown. The boxer may initially evaluate the demands faced as threatening and out of their control (primary

appraisal of the situation), become anxious, and, consequently, suffer performance decrements in the fight. In the break between one of the rounds, the boxer reflects again on their emotional state (further appraisal of the situation), identifies the cause of their symptoms, and subsequently addresses how to cope with the situation and their emotions. During the next round, the boxer may now think and behave (i.e., perform) more effectively as a result of this continued ongoing process of further appraisal.

## *Causes of and Responses to Stress*

Before deciding on appropriate stress management strategies to recommend, it is important to understand what factors may cause stress in sport (i.e., the demands faced) and the typical responses to the stress experienced.

### **Causes of Stress**

The intense physical and psychological demands (also known as stressors) athletes face when competing in sport come from a range of sources relating to competition, organization, and personal factors that exist within their environment (see Fletcher, Hanton, & Mellalieu, 2006; Neil, Hanton, Mellalieu, & Fletcher, 2011).

- Competitive stressors are the demands primarily and directly associated with competitive performance (e.g., the level of physical preparation attained, the standard of the opponent, the internal and external pressures and expectations to perform).
- Organization stressors are the demands associated primarily and directly with the sports organization (e.g., the performer's role in the sport organization, sport relationships and interpersonal demands).
- Personal stressors are the demands associated primarily and directly with the personal life of

the individual(s) (e.g., lifestyle issues, financial demands, the relationships with family or significant others).

For coaches, the demands they experience emanate from sources that are largely analogous to those reported for athletes (Norris, Didymus, & Kaiseler, 2017); however, in addition, performance-related demands for coaches consider both the performance of their athlete(s) (e.g., athlete coachability, training performance) and their own performance (e.g., competition preparation, competition issues).

### Responses to Stress

In addition to understanding the demands performers face, it is important to recognize the mental and physical symptoms that these demands produce.

**Arousal and activation.** **Arousal** refers to a generalized physiological and psychological activation of the person, with neural excitation varying on a continuum from deep sleep to extreme excitement. It serves an energizing function and thus reflects the intensity level of motivation and is nondirective. Whether the arousal starts with a thought or an external stimulus, the result is autonomic nervous system responses such as increased heart and respiration rates, butterflies in the stomach, muscle tension, and sweating. **Activation** is used synonymously with the term arousal, and it also refers to the overall physical and mental state that is required by an athlete to be ready to perform a respective task or activity (Hardy, Jones, & Gould, 1996, p. 118).

If increases in an athlete's levels of arousal or overall activation state come from experiencing high stress when competing in sport or preparing to compete, one of the products of this process, physical tension, in particular can have immediate and powerful effects on an athlete. For example, when a muscle tenses up due to worry and anxiety or trying too hard, it contracts, or is shortened. This is due to the voluntary muscles in humans being arranged in pairs. When a muscle tightens because of perceived

stress, its opposite sets up a counter tension to hold the segment of the body in place. The resulting double pull can build up formidable heights of tension over much of the body, yet most people will not identify it. This double pull explains why a person can be scared stiff and rigid with anger or unable to move because of fright. It also explains why an athlete shoots air balls, misses a short putt, passes with too much force, or overhits a tennis ball. The principle of the double pull, often referred to as **bracing**, has great significance for athletes. When excessive muscular tension occurs, it interferes with execution of the skill because it prevents appropriately coordinating movement (see Exercise 1). Proper form in a movement involves using just the right amount of tension at any given time in the relevant muscles. Athletes can learn the right amount of contraction, that is, to expend only those energies necessary to execute the skill. This is called **differential relaxation**.

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#### Exercise 1: How excessive tension disrupts movement

*Rest your dominant forearm and hand palm down on a desk or tabletop. Tense all the muscles in the hand and fingers and then try to alternately tap the index and middle fingers back and forth as quickly as possible. Relax all the muscles in the forearm and hand and repeat the exercise, noting the differences in speed and smoothness of coordination.*

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**Competitive anxiety.** The typical emotion associated with the experience of stress in sport is competitive anxiety. Competitive anxiety is a situation-specific, negative (unpleasant) emotional response to one's view of competitive stressors, and the general involvement in competition, as threats (Martens, Vealey, & Burton, 1990). This response may include symptoms such as worry, together with a heightened perception of one's physiological state

or level of arousal. These responses represent the mental (cognitive) and perceived physical (somatic) components of anxiety.

Cognitive anxiety responses represent the thoughts experienced in stressful situations and include worries, negative expectations, and apprehensions about performance (i.e., mental responses to stressors). Somatic responses represent an athlete's perceptions of their physiological arousal state in stressful environments (i.e., perceived physical response to stressors). Somatic anxiety symptoms include factors such as muscular tension, butterflies in the stomach, increased heart rate, dry mouth, cold and clammy hands, and perspiration.

Differences exist in how competitive anxiety is experienced in relation to the individual (personal) and the environment in which they compete (situational). These factors include the athlete's gender, skill level, and type of sport performed (see Mellalieu, Hanton, & Fletcher, 2006 for a review). For example, female athletes' cognitive anxiety experiences are predicted by their perceptions of readiness to perform and the importance of doing well. In contrast, males' cognitive anxiety responses are predicted by perceptions of their opponents' ability in relation to themselves and their perceived likelihood of winning (Jones, Swain, & Cale, 1991).

Although competitive stressors might lead athletes to experience some type of anxiety response, the potential effect is not inherently negative. For example, one athlete might perceive a racing heart as a positive "psyched-up" feeling, while another appraises the same anxiety symptom as negative nervousness. Hanton and Jones (1999) identified a large body of research that has consistently identified that certain athletes have the ability, or have learned over time, the skills that enable them to interpret their negative anxiety symptoms as necessary and beneficial toward performance (see the following example), whereas others see such symptoms as detrimental. The expression of getting one's butterflies to "fly in formation" illustrates having positive interpretation skills.

*I discovered the symptoms helped me psych up for races. If you knew the nerves were there the adrenaline would flow and make me perform better . . . concentrate harder. They (the symptoms) would make me concentrate on the race . . . help me prepare to swim fast . . . to get off the blocks quickly, get in the pool and swim fast.*

*(Quote from an Olympic Swimmer describing how they interpreted their symptoms as positive and the subsequent effects on their concentration efforts and performance, cited in Hanton & Jones, 1999, p. 10.)*

The preceding distinctions highlight the importance of examining not just the athletes' anxiety symptoms and their intensity but also whether they interpret their anxiety responses as having a facilitative or debilitating effect on their performance. In essence, interpretation of the direction of the anxiety effect represents a further appraisal of the initial symptoms experienced. In line with the cognitive-behavioral approach to stress management, the key message for sport psychology consultants is to understand that how individuals evaluate and appraise the symptoms they experience will influence subsequent efforts and strategies toward maintaining optimal performance states.

Studies have also found some important individual attributes that are related to having a positive interpretation of anxiety symptoms. For example, athletes who view competitive anxiety symptoms as having a beneficial effect on performance demonstrate better overall performance standards, are higher in skill level, feel more in control, exhibit higher levels of self-confidence, demonstrate a more resilient personality, and are more experienced and highly competitive when compared to those who interpret anxiety symptoms as more negative toward performance (see Wagstaff, Neil, Mellalieu, & Hanton, 2011 for a review).

Given this association with better performance and desirable personal qualities, applied researchers have sought to identify and explore the factors that enable athletes to achieve a positive interpretation of their competitive anxiety symptoms. This

research has been undertaken with the explicit aim of informing the structure and content of possible stress management programs and has helped construct the interventions used within the restructuring approach described later in the chapter. Further, athletes with a positive interpretation of their anxiety consistently suggest the application of strategies that help them appraise their symptoms in a positive way are most valuable to their performance preparation. The important psychological strategies involved in this approach are self-regulatory skills that provide a sense of perceived control over oneself and one's environment, enabling maintenance of high self-confidence to protect against negative anxiety interpretation.

Significant attention has also been afforded to the responses of coaches in relation to the demands that they experience in their roles. Specifically, four types of immediate responses have been established: cognitive (e.g., negative thoughts, maladaptive attributions, loss of focus, making negative decisions), affective (e.g., emotions such as anger and anxiety, becoming "moodier"), physiological (e.g., tension, increased heart rate, shaking), and behavioral (e.g., sharper tone of voice and agitated body language); for a full review see Olusoga and Thelwell, 2016. Although some positive responses have been highlighted (e.g., increased productivity, motivation, and focus), most of the responses have been suggested to have a negative influence on coaching style (e.g., become too directive), the quality of the coach's work, and the relations with their athletes and their subsequent performances. Indeed, as coaches' ambitions often rest upon their ability to harness the full potential from their athletes, they need to effectively manage the demands they encounter.

### *Measurement of Stress-Related Symptoms*

Prior to practitioners providing any form of intervention, an accurate assessment of the experiences of the stress process, and its consequences, should

be undertaken. Here, sport psychology consultants typically adopt a combined approach to assess the demands (i.e., stressors) perceived and the context in which these demands occur, how mentally and physically anxious an athlete may be (the level or intensity of anxiety symptoms), associated physiological responses (i.e., arousal level), and whether the athlete views the symptoms experienced as having a beneficial or detrimental influence on performance (directional interpretation of symptom effects). This assessment often uses a combination of validated psychometric questionnaires alongside interviewing procedures with the athlete in question and sometimes their coaches or support staff.

Questionnaires assess athletes' typical and situation-specific anxiety responses to competition (i.e., their trait and state anxiety). **Trait anxiety** is a general predisposition to respond across many situations with high levels of anxiety because of typically appraising situations as threatening (i.e., individuals rate how they generally feel). **State anxiety** is more specific (i.e., rate how they feel "right now"); it varies from moment to moment and fluctuates proportionately to the perceived threat of a situation (Spielberger, 1966). Individuals high in trait anxiety are expected to respond with elevated state anxiety. A common trait anxiety measure is the Sport Anxiety Scale-2 (SAS-2; Smith, Smoll, Cumming, & Grossbard, 2006). It has a somatic scale and two cognitive scales (worry, concentration disruption). The revised Competitive State Anxiety Inventory-2 (CSAI-2; Cox, Martens, & Russell, 2003) assesses the intensity of state cognitive and somatic anxiety symptoms as well as self-confidence. In addition, modified CSAI-2 scales exist (e.g., Jones & Swain, 1992) that add subscales to assess directional interpretation of anxiety symptoms. More recently, a reconceptualized three-dimensional model of performance anxiety has been proposed comprising cognitive, physiological, and regulatory dimensions, with preliminary support across cultures provided for its associated Three-Factor Anxiety Inventory (see Cheng & Hardy, 2016; Cheng, Hardy, & Markland, 2009).

One note of caution regarding these psychometric scales is that their use in applied settings is often intrusive due to their format, length, and time to complete (see Horvath & Röthlin, 2018; Krane, 1994). Brief self-report measures are an alternative that allows examination of anxiety symptoms experienced closer to and, in certain noncontinuous sports, during competition. These include scales such as the Anxiety Rating Scale (ARS-2; Cox, Robb, & Russell, 1999), Mental Readiness Form (MRF; Krane, 1994), and Immediate Anxiety Measurement Scale (IAMS; Thomas, Hanton, & Jones, 2002). All adopt a brief and simple response format. For example, the MRF has three 1- to 11-point scales with anchors of “calm-worried,” “relaxed-tense,” and “confident-scared,” respectively, for assessment of “My thoughts are,” “My body feels,” and “I am feeling.”

Another consideration when using anxiety questionnaires is that not all individuals are willing to give open and honest responses. Particularly problematic are athletes with a repressive coping style. Repressors represent individuals who “avoid disturbing cognitions in an attempt to minimize distress and negative emotions . . . [and] typically deny having elevated levels of anxiety even though their behavior and physiological symptoms suggest otherwise” (Williams & Krane, 1992, p. 136). Thus, a repressor would report low anxiety levels when they are, in fact, quite high, making questionable any determination of the anxiety-performance relationship and its intervention implications.

For all athletes, and particularly so for probable repressors, sport psychology consultants should seek a comprehensive range of assessment strategies to fully diagnose stress experiences in addition to psychometric assessment. For example, sport psychology consultants may ask athletes to record their stress-related symptoms in some form of diary or logbook (this would not work for repressors) and may observe and record the athlete’s behavior in vivo. Here, the use of digital video technology and match analysis techniques can facilitate objective observation and assessment

of player behavior during training and competition and form the basis of a postevent evaluation interview.

Data from measurement of physiological arousal, such as heart rate, blood pressure, muscle tension (electromyography), and sweating (skin conductance), would be helpful, and particularly so with repressors. If the equipment and monetary resources are available, brain wave data and the measurement of epinephrine, norepinephrine, and corticosteroids (all released into the bloodstream during stress) could be undertaken. One limitation with physiological assessment of the stress response is the notion of response stereotypy (Lacey, 1967). Specifically, in the same stressful situation, one athlete might display an increase in blood pressure, and another might show an elevated heart rate. Consequently, an athlete’s most relevant physiological response to stressful encounters needs to be identified to enable the most meaningful collection of information.

Following this comprehensive assessment of the stress experiences of an athlete in and around competition, and the subsequent behavioral/performance outcomes that ensue, sport psychology consultants collate and analyze the information. This information then underpins the selection of a relevant treatment framework for the athlete.

### *Explaining the Relationship of Stress to Performance*

Before recommending the implementation of appropriate stress management interventions, a final consideration is to understand the various approaches in sport psychology research describing and explaining the effects of stress, and related constructs, upon performance and how these have influenced the development of intervention strategies. These stress-performance explanations are grouped around three themes: early arousal-based approaches, contemporary anxiety theories, and mechanistic explanations

### Early Arousal-Based Approaches

In sport psychology, researchers initially referred to the arousal-based concepts of drive theory and the inverted-U hypothesis to describe the stress or arousal–performance relationship (see Woodman & Hardy, 2001, for a review). According to drive theory (Spence & Spence, 1966), increases in drive or arousal are associated with linear increases in performance, providing that the task is well learned—that is, the dominant response of the athlete is the correct one. Drive theory is no longer used because neither research nor anecdotal evidence supports its premise.

Alternatively, the inverted-U hypothesis (Yerkes & Dodson, 1908) describes the relationship between arousal and performance through an inverted-U function. Increases in arousal from drowsiness to alertness result in progressive performance gains up to an optimal level of arousal, beyond which increases in arousal result in progressive performance decrements (see Figure 12-1).

The characteristics of the task and the performer determine the optimal level of arousal. Tasks that are complex, that are high in decisional demands, or that require fine motor skills for precision and steadiness benefit from lower levels of arousal for optimal performance, whereas simple

tasks, gross motor skills, and strength and speed tasks benefit from higher levels of arousal. For example, the desirable mental and physical state to demonstrate readiness to perform as a target rifle shooter is very different from a weightlifter—composure, accuracy, and calmness are key factors within the fine muscular control event of target shooting, whereas strength, power, and assertiveness are key determinants of performance within the gross muscular activity of weightlifting. In terms of individual difference factors, athletes with higher skill levels, more experience in the competitive setting, good stress-coping skills, lower trait anxiety, or an extroverted personality can handle higher arousal levels without performance deficits, in contrast to those with the opposite profile (Figure 12-2).

With the inverted-U approach, the challenge is for the athlete to determine what level of arousal (usually a range) typically leads to the best performance on a given task and to then try to consistently reproduce this arousal state from one competition to the next—thus the need to know how to raise or reduce levels of arousal accordingly (see Exercise 2). Although the inverted-U hypothesis provides some useful information for determining arousal level and interventions, it is too simplistic

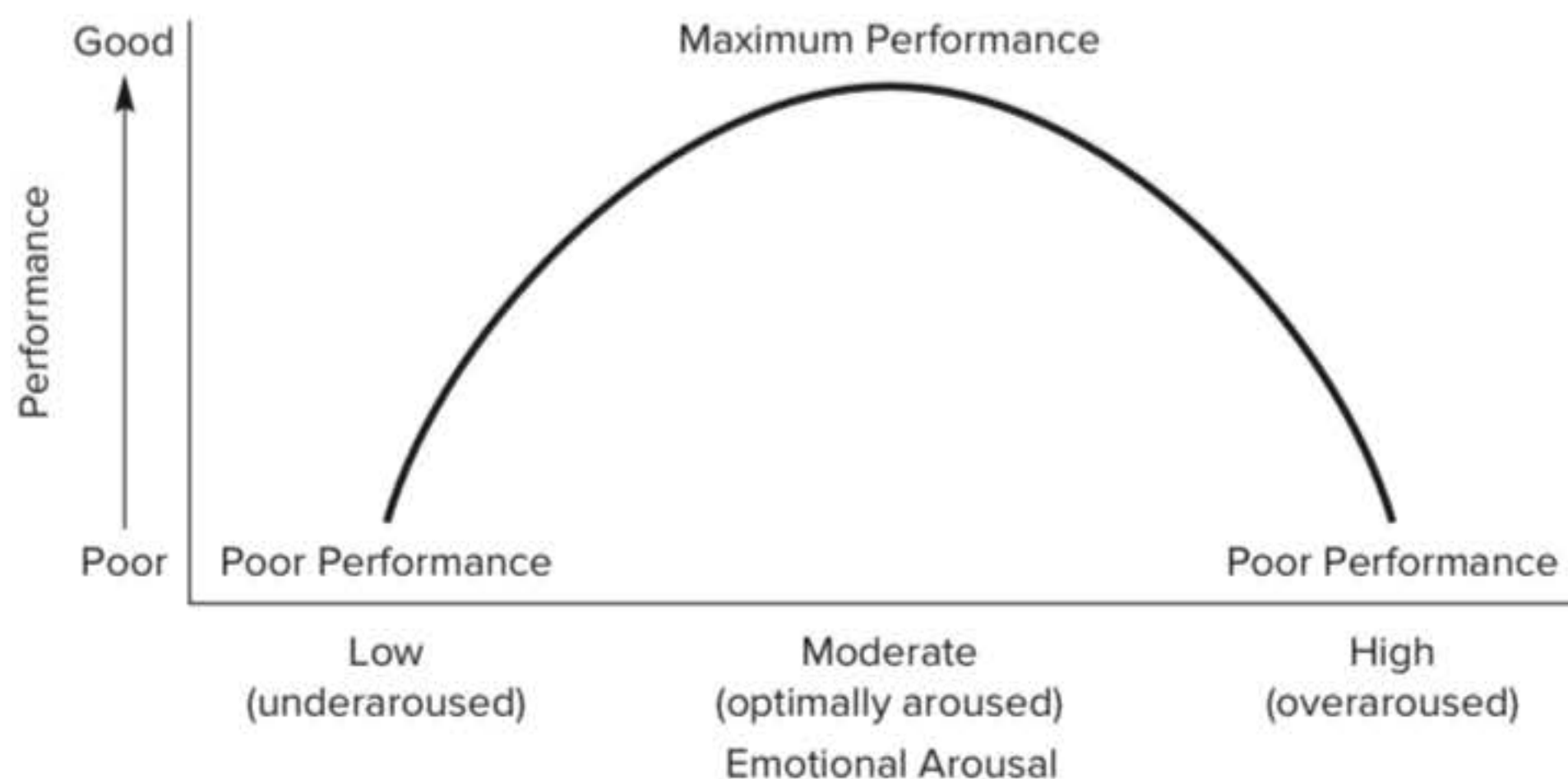


Figure 12-1 The inverted-U relationship between arousal and performance

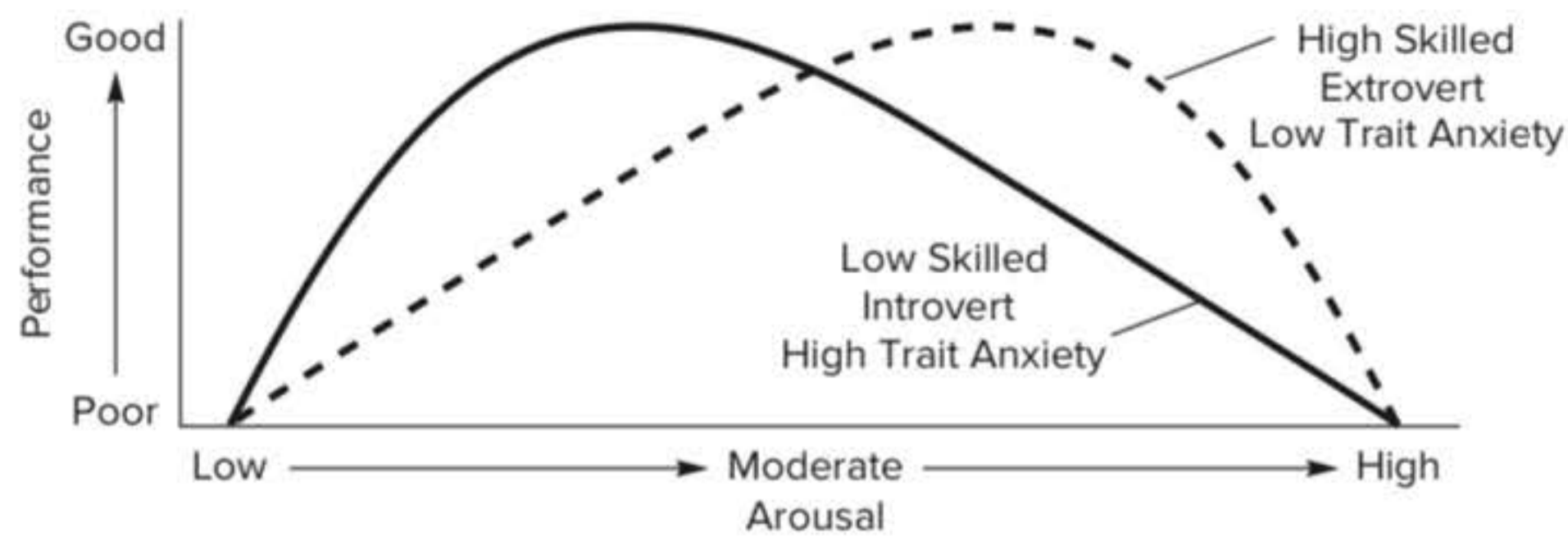


Figure 12-2 The inverted-U relationship between Individual difference factors and optimal levels of arousal

and has too many limitations (e.g., fails to consider cognitive anxiety and its interaction with arousal) to be used solely in explaining the stress-performance relationship or for prescribing stress management strategies.

### Exercise 2: Estimating optimal arousal levels for given tasks

*Select six to eight different sport skills (avoid global activities such as basketball or tennis) and rank their optimal arousal level (use 1-5 scale with 1 = low) by analyzing factors such as the number of muscle actions to execute and amount of coordination required, fine versus gross motor activity/skill, precision and steadiness versus strength and speed, and decision characteristics (number of, alternatives, speed to make).*

### Contemporary Anxiety Theories

In an attempt to more accurately describe the stress and performance relationship, sport psychology consultants have developed theories and models from investigations grounded within actual experiences of competing in sport.

**Individual zones of optimal functioning.** Building upon the zone of optimal functioning (ZOF) hypothesis (Hanin, 1986; see Ruiz, Raglan, & Hanin, 2015 for a review), the individual zone of

optimal functioning (IZOF; Hanin, 2000) is a practical tool for helping athletes establish the level (i.e., intensity) of emotions experienced (e.g., pre-performance anxiety, excitement, anger) within which the best performance occurs (often referred to as “being in the zone”). If, however, the intensity of these emotions is outside of the “optimal” zone or range, performance will suffer. A further postulation of IZOF is that there is interindividual and intraindividual variability in how athletes subjectively perceive their emotions in relation to their impact on performance (facilitative or debilitating). Despite support for its practical significance, as it allows athletes to develop a greater self-awareness of their psychological readiness to perform and consider how they may “get into the zone,” IZOF has received criticism for its lack of explanation as to why different levels of emotions may be optimal or detrimental to performance (Woodman & Hardy, 2001). See Chapter 9 for a more detailed discussion of IZOF.

**Multidimensional anxiety theory.** This theory (MAT, Martens et al., 1990) makes distinctions between competitive state cognitive and somatic anxiety on the premise that they have different antecedents and relationships to performance. Somatic anxiety is predicted to display an inverted-U relationship, with performance and cognitive anxiety a negative linear relationship (i.e., as cognitive anxiety increases, performance progressively deteriorates). Thus, like the IZOF approach, MAT

suggests that an appropriate level of somatic anxiety can have positive performance effects, but not so for cognitive anxiety, as these symptoms should always be reduced. MAT also considers self-confidence and its relationship with performance. Although self-confidence is not a component of competitive anxiety, it is proposed to exhibit a positive linear association with performance (i.e., parallel increases in self-confidence and performance occur). MAT has received only partial support in the sport psychology literature, potentially due to the fact that it does not consider the beneficial effects of cognitive anxiety on performance and, according to Woodman and Hardy (2001), because it fails to consider the interactive effects of the competitive anxiety subcomponents upon performance.

**Cusp catastrophe model.** To overcome some of the existing limitations with MAT, the cusp catastrophe model of anxiety and performance (Hardy, 1990) describes the interactive effects of cognitive anxiety and physiological arousal (as opposed to

somatic anxiety) on performance (see Figure 12-3). Specifically, cognitive anxiety determines whether the effect of physiological arousal on performance will be smooth and small, large and catastrophic, or somewhere in between the two extremes (Woodman & Hardy, 2001).

In contrast to MAT, therefore, the catastrophe model suggests that elevations in cognitive anxiety can have positive performance consequences dependent upon the levels of physiological arousal. For example, when cognitive anxiety levels are low, variations in physiological arousal will lead to small performance effects characterized by an inverted-U type relationship. Under high cognitive anxiety conditions, increasing physiological arousal will, up to a threshold, lead to positive effects on performance. However, continued increases in physiological arousal beyond this threshold are proposed to result in a “catastrophic” drop in performance.

While support for the initial cusp catastrophe model has been mixed, subsequent adaptations to include additional factors on the anxiety-performance

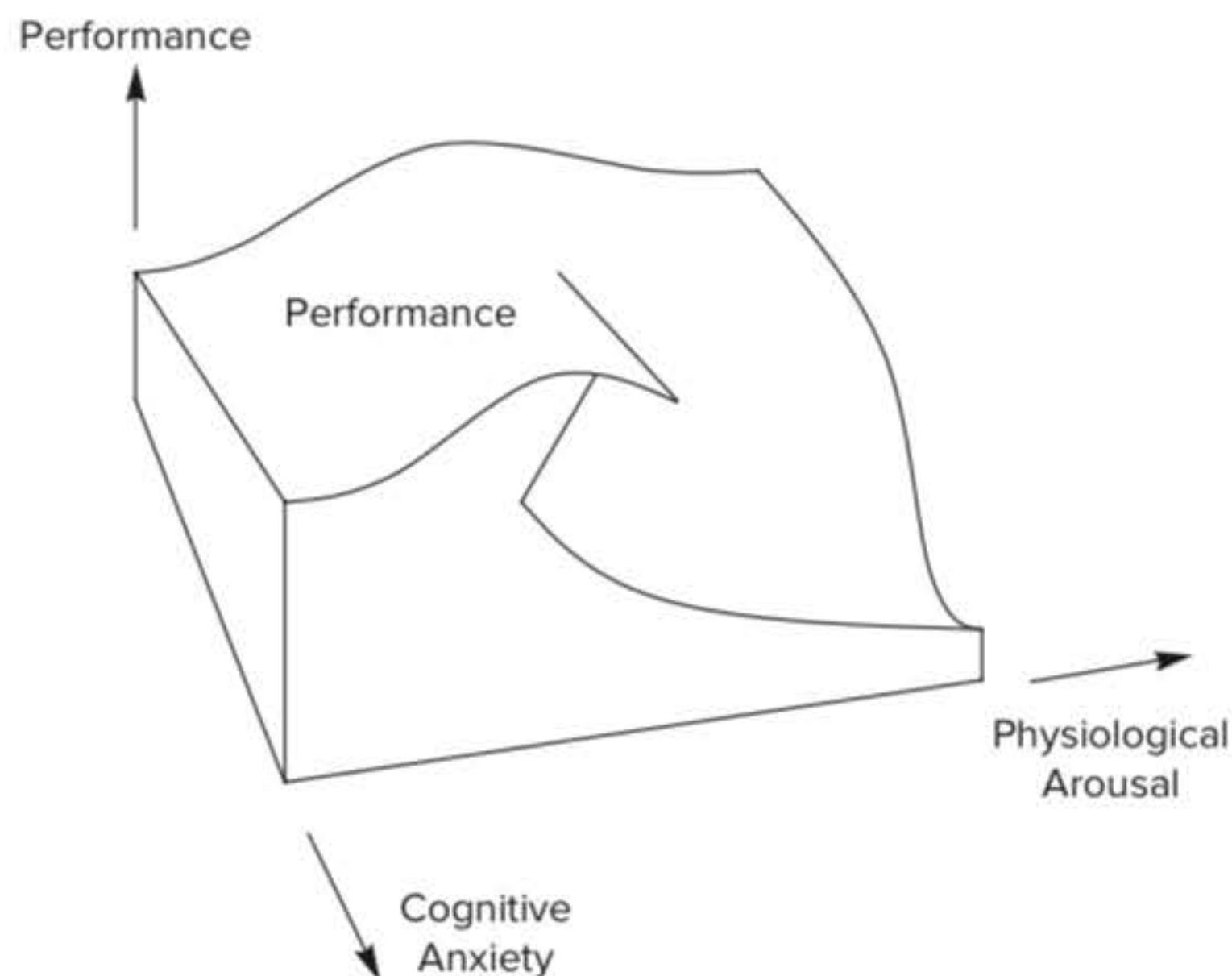


Figure 12-3 Cusp catastrophe model of anxiety and performance (Hardy, 1990), describing the interactive effects of cognitive anxiety and physiological arousal on performance

relationship have proved more fruitful. Hardy and colleagues (1990; Hardy & Parfitt, 1991) have proposed five-dimensional, higher-order butterfly catastrophe models that include additional factors such as self-confidence and the difficulty of the task demands (see also Hardy, Beattie, & Woodman, 2007). For example, increased self-confidence allows athletes to tolerate higher levels of physiological arousal when mentally anxious before suffering a decrement in performance (Hardy, Woodman, & Carrington, 2004). The implications for practitioners from the higher-order butterfly catastrophe model highlight the importance of having suitable strategies and skills that can enhance or maintain (protect) levels of self-confidence to enable successful stress management.

### **Mechanistic Explanations**

Although the cusp catastrophe model gives a clear explanation for the relationship between stress and performance, it provides insight only into what may occur. In reality, the model and the theories discussed so far do not fully explain the mechanisms by which stress and its associated response—competitive anxiety—influence performance. A number of approaches are discussed here that attempt to explain the stress and performance relationship and the implications for sport psychology practice.

**Processing efficiency theory.** The first of these approaches, Eysenck and Calvo's (1992) processing efficiency theory (PET), has been used by Hardy and associates to explain the debilitating and facilitating effects of cognitive anxiety on performance described by catastrophe models. PET suggests that when a person is anxious, a proportion of their attentional capacity for the task is filled by task-irrelevant cognitive worry, effectively reducing their working memory capacity, impairing cognitive processing efficiency, and, potentially, performance. It is also worth noting that cognitive anxiety or worry may also signal the importance of the task to the individual and lead to an increased investment in

the task. For example, many athletes suggest being "nervous" means the race or match is important and leads them to focus intently and try harder with regard to subsequent preparation for/execution of performance.

**Attentional control theory.** An extension to PET is that of attentional control theory (ACT, Eysenck, Derakshan, Santos, & Calvo, 2007), which explains how anxiety affects attention and performance. Specifically, anxiety impairs the efficiency of attention because it causes a shift in attention to threat-related stimuli rather than toward task- and goal-relevant information, thereby negatively affecting performance. The inability to exercise attentional control may, however, be compensated for by inhibition and shifting functions that stop the effect of the threat-related stimuli and shift attentional resources to task demands. Therefore, while anxiety influences efficiency (the relationship between effective task performance and the use of attentional resources), it does not influence effectiveness (outcome in terms of performance accuracy).

Support for both PET and ACT has been established in sport (e.g., for a review see Wilson, 2008), with both theories assuming there is a fundamental distinction between performance effectiveness (quality of performance) and processing efficiency (the relationship between performance effectiveness and use of processing resources) and that anxiety impairs processing efficiency more than performance effectiveness. The implication for sport psychology consultants here is that the experience of high levels of cognitive anxiety are not inherently negative and that it can serve to motivate athletes to increase effort to prevent their anxiety from impairing performance, but at the expense of using a greater amount of their available concentration (attentional) resources.

**Conscious processing hypothesis.** A final theory of attentional processes is the conscious processing hypothesis (CPH; Masters, 1992). CPH attempts to explain the mechanisms underlying anxiety-induced

performance decrements. Here, a high-anxious performer starts to use excessive thinking (reinvestment), which leads to the execution of skills with an inward attention that in turn can lead to a failure to execute the skill successfully (Weiss, 2011), a process that is commonly referred to as “paralysis by analysis.” That is, skills that are normally undertaken with little or no thought become disrupted due to the skilled athlete trying to “consciously” control the movement. In doing so, the athlete is adopting a mode of control based on explicit or declarative knowledge (i.e., factual knowledge) that is associated with early stages of learning of a skill (Gucciardi & Dimmock, 2008). The implication for sports psychology consultants is that attempts to solely focus on encouraging athletes to exert conscious control over previously automated skills will cause performance impairments whereby anxiety may induce regression from implicit/automatic control to explicit/verbal control.

The attentional-based mechanistic explanations for the anxiety-performance relationship are most closely related to the concept of “choking” in sport. Indeed, choking is a term frequently cited in the media to label unexpected or sudden failures in athletic performance due to anxiety when performing under high-pressure situations. Choking is characterized by high arousal and anxiety symptoms and the feeling that the harder one tries, the worse one’s performance.

Generally, researchers agree that choking is the product of misguided attention control combined with elevated arousal and anxiety, caused by concern with excessive self-consciousness and the mechanics of skill execution. The likelihood of an athlete experiencing choking in sport has been suggested to be moderated by a number of interpersonal and environmental factors (e.g., skill type, perfectionism, fear of negative evaluation, team cohesion, coping approach, and self-presentation; cf. Hill, Carvell, Matthews, Weston, & Thelwell, 2017). Chapter 15 presents a detailed consideration of choking and specific choking prevention techniques.

## *Implications for Stress Management Interventions*

As discussed in the preceding sections, many different theories/models have been forwarded in an attempt to describe or explain the effect of the typical symptoms associated with stress (i.e., competitive anxiety and arousal) upon performance. These explanations have resulted in interventions typically being grouped into one of three approaches adopted by sport psychology consultants. The first perspective is that when elevated arousal and competitive anxiety have a detrimental effect on performance, a **reduction** approach is required to reduce the symptoms associated with stress. The second perspective is based on the principle that high levels of anxiety and arousal associated with a stress experience need not be detrimental, but may be interpreted in a positive way that actually benefits performance. Under these conditions, anxiety is viewed as a signal that indicates the presence of a threat and stimulates action, including heightened attention, planning, motivation, and effort toward managing the demands experienced (i.e., the coping processes). This notion is fundamental to the **restructuring** approach to stress management in which athletes are taught to restructure interpretations of symptoms from a negative to a positive viewpoint (i.e., debilitating to facilitative). The third perspective describes circumstances whereby athletes possess an insufficient activation state in relation to their sporting task or activity (i.e., underarousal). Here, sport psychology consultants take an **energizing** approach—that is, they try to enhance performance by using interventions that increase arousal.

The preceding approaches fall under an “emotion-focused” coping umbrella; that is, they reflect introducing coping efforts that regulate the emotional and associated responses (e.g., anxiety and arousal) that emanate from the problem causing the stress (i.e., the stressors). Although used less often, a fourth effective approach for managing stress is that of **prevention**; it falls under

a problem-focused coping umbrella, which entails trying to prevent or manage the stressful demands (stressors) the individual experiences. Teaching athletes and coaches a range of both emotion- and problem-focused strategies would best prepare them to cope with stress and subsequently produce effective behavior and performance. The remainder of the chapter presents interventions that fall under the four approaches (preventative, reduction, restructuring, energizing) for stress management skills and strategies.

### **Stress Management Skills and Strategies: Preventative Approaches**

Problem-focused or preventative strategies to manage competition stress involve efforts that deal with the stressor causing the stress symptoms as a way to bring relief. Problem-focused strategies aim to **remove**, or more likely reduce, the stressor. If effective, they provide a long-term solution to stress management for that particular issue (stressor). They work, however, only when the athlete is able to exert some control over eradicating the stressor. When not possible, emotion-focused coping strategies are more appropriate treatments. Some examples of problem-focused strategies appropriate for sport include advice seeking, information gathering, planning, problem solving, and proactive behavior. In addition, see Randall, Nielsen, and Houdmont (2019) for a discussion of what sport psychology consultants can learn from organizational psychology regarding how to design and implement effective interventions to reduce stressors that occur outside of competition but still affect the stress levels and performance of athletes.

**Advice seeking.** This is a process of seeking support from an individual, group of individuals, or organization in an attempt to cope with a stressor. Social support helps to provide relief from stress, increase perception of control over events, and reduce susceptibility to illness (Sheridan, Coffee, & Lavalley, 2014). Having good social support means being involved in social relationships, feeling connected

with other people, and feeling understood and cared for. Social support provides individuals with tangible assistance, information, and emotional support. Tangible and informational support offer specific information and direction to an athlete to thrive in a competitive setting, while caring and emotional support provides a valuable sense of being understood and appreciated. In sport, this may take the form of athletes asking a coach, support staff or management personnel, fellow athlete, friends, or family for advice with regard to how to manage the competition stress they are experiencing. Athletes can be encouraged to engage in social support activities (sharing problems) with others and generally seek to build up their support networks. For example, a young professional soccer player struggling to perform in their first season may be encouraged to seek an “elder” on the team who can empathize and share personal experiences of the challenges faced in being a rookie athlete. While everyone needs social support, athletes in individual sports in particular may lack the large social support resources typically found in team sports. This may leave them vulnerable to stress when the pressure mounts, meaning it is especially important to ensure they have suitable support networks.

**Information gathering.** Here athletes actively seek information regarding a stressor they are faced with in order to empower themselves with the knowledge to determine how best to cope. In sport, a common competition stressor is concerns around one’s opposition or opponent. Problem-focused information gathering in this respect would involve athletes undertaking an analysis of their future or past opposition. By gathering information and familiarizing himself with an opponent’s tactics and strategies, the athlete becomes more informed, more in control of his performance, and able to perceive (appraise) the opposition as less of a threat than before the information was available. Similar problem-focused approaches can be adopted to deal with other competition and organization stressors, such as practicing at a novel or difficult venue in advance

of competition or holding pre-competition training camps to familiarize athletes and teams with their new environment.

**Planning.** Planning is the process of thinking about the activities required to achieve a desired goal on some scale. Depending upon the activities, a plan can be long, intermediate, or short range. Planning is synonymous with goal-setting and helps facilitate goal achievement and growth both in personal and performance terms. In sport a common example of planning to prevent or manage stress is a pre-competition plan. Pre-competition plans are essentially global competition preparation strategies. They typically are composed of a sequence of process-oriented goals (Hardy et al., 1996) that provide a simple way to help focus on priority sources of information and key aspects of performance and in this case preparation for performance—whether technical or emotional. To develop a competition plan, athletes should first perform a retrospective analysis of what they did and what they felt prior to their best and worst performances. The athlete is then helped to use these profiles to construct a pre-competition plan (see Figure 12-4). The plan

should specify what the athlete should do the day before the event, when preparing to leave for the competition, upon arrival at the competition site, during the warm-up and the countdown to performing, and during the event itself.

It is important to make the plan specific to the athlete in question, using the time scales or significant moments/critical incidents that they see as meaningful in achieving optimal preparation in their lead-up to competition. Further sensitivity to the athlete's idiosyncrasies can be developed by considering the relevant or desired cognitions (thoughts), emotions (feelings), and behaviors (performances) experienced across these significant moments. Once constructed, pre-competition plans can be tested, revised, and modified as desired. Visual reminders can be kept as hard copies (in kit bags or on changing room/accommodation walls or lockers) or in electronic format (mobile devices, tablets) to provide forms of reinforcement.

**Problem solving.** Problem solving refers to the athlete sitting down to think about possible solutions to a problem with which they are confronted (i.e., experiencing competition stress). Consider

	Night Before	Competition Day	Travel & Arrival At Venue	Pre-Race Warm-Up	On The Track
	24 Hr To Start	3 Hr To Start	2 Hr To Start	45 Min To Start	10 Min To Start
Doing	Watch TV Pack Kit Bag Stretch & Nutrition	Keep Busy Watch TV	Listen to iPod Get Used to the Facilities Walk Around Track	Race Drills Personal Warm-Up	Quiet 5 minutes Breathing Routine
Thinking	Relax	Keep Mind Occupied with Nonathletics Things	Begin Thinking Through Each Part of My Race (Start/Middle/End)	Getting Feet on Track Getting Sharp	Visualize/Think About My Race Think Positive
Feeling	Relaxed	Calm	Confident	Sharp Big & Powerful	Confident & Big

Figure 12-4 Example of a pre-competition plan for a track and field athlete

an athlete who has become anxious about his or her ability to sink free throws during the crucial moments of the game. A problem-solving strategy would be to think about a course of action to cope with the potential stressor, such as working out a new practice regimen or speaking to the coach or sport psychology consultant about a technical element of their pre-shot routine. Problem solving would not be the act of going to the coach or engaging in the practice itself, but rather the thought process involved in arriving at a solution to the problem. To facilitate problem solving, athletes can be encouraged to

- Identify the problem—an athlete cannot manage their stress unless they know what's causing it.
- Break the problem down into specific parts—describe all elements. Who and what are involved? Where and when does it happen? How do they react?
- List all the possible solutions, decide what they want out of the situation, and think about ways to solve the problem. Ask these questions: Can they change the stressful situation? Can they avoid it? Can they change how they respond?
- Explore the consequences of each solution—look at the pros and cons for each option. How does it make them feel? What affect will it have on the other people involved? What are the short-term and long-term consequences? Do the benefits outweigh the costs? Choose the solution that promises the best outcome.
- Set the course—write down the plan and discuss/revise it with a trusted coach, support staff member, or fellow team member.
- Go for it and take some time to reflect in detail on what helped and what didn't.

**Proactive behavior.** This is the engagement of forms of coping in advance to prevent or mute the influence of events that are potential future

stressors. Proactive behaviors comprise the building up of a reserve of personal coping resources, recognizing potential stressors, initially appraising the stressors, and preliminary coping efforts seeking and using feedback about the success of one's efforts. Athletes who are proactive take responsibility for their training and performance rather than looking for causes in other circumstances or people. They seek to develop all areas of their performance through learning new skills and knowledge in relation to their physical (new strength and conditioning regimens), technical, tactical (keeping up to date with new styles of play, rules, or law changes), emotional (seeking new social support networks), and holistic resources (managing nonsport demands). Proactivity is distinct from action taking, in that the latter refers to taking actions in the present to cope with a problem, whereas proactive behavior refers to taking actions to prevent future negative outcomes.

### **Stress Management Skills and Strategies: Reduction Approaches**

Interventions that seek to **reduce** physiological arousal and the intensity of competition anxiety symptoms can be classified broadly into **muscle-to-mind** and **mind-to-muscle** approaches. Muscle-to-mind techniques focus on the bodily aspects and include breathing exercises and progressive relaxation (PR). Mind-to-muscle strategies focus on efferent nerve control, or the stimulation from the brain to the muscles, and include meditation, visualization, and autogenic training. Reviews of research findings clearly indicate the effectiveness of these relaxation techniques in enhancing sport performance (see the meta-analysis by Meyers, Whelan, & Murphy, 1996).

Overall, treatments attempt to target or **match** the dominant anxiety symptoms experienced in stressful situations (Davidson & Schwartz, 1976), as greater reduction in muscular problems follows muscular interventions, and symptoms that primarily involve cognitive processes tend to respond particularly well to cognitive therapies or mind-

to-muscle strategies. When anxiety problems manifest themselves equally cognitively and somatically, the most effective intervention integrates physical and cognitive techniques. Fortunately, interventions for one aspect of anxiety often affect the other—that is, reducing somatic symptoms can have a similar reducing effect on cognitive symptoms, just as interventions aimed at reducing cognitive symptoms can have a corollary effect on somatic symptoms. Also note that reduction techniques are less likely to be needed when the activation demands for a given sport skill are high, as discussed earlier, compared to when activation demands are low. In fact, using them may have a detrimental effect on performance if it lowers activation below the levels appropriate for the optimal execution of the task and for the given individual.

Normally, techniques such as thought stopping, positive thought control, and cognitive restructuring would also be presented as alternative techniques for reducing cognitive symptoms, and these techniques are covered in Chapter 14. The relaxation skills in this chapter are described as a series of logical and progressive steps. To help athletes acquire the skills in question, sport psychology consultants regularly adopt a common learning framework that follows these phases:

- The athlete learns the skill fundamentals in a comfortable position while in a quiet, warm, stress-free environment, working closely with the practitioner.
- Increasing independence from the practitioner, the athlete becomes more self-directed and begins to apply the skill in nonthreatening situations.
- The athlete is instructed to use and test the efficacy of the skill in a nonsporting stressful environment.
- The final stage of learning and acquiring the skill involves the athlete being able to apply the skills across a range of increasingly demanding sporting situations: practice, warm-up, and competitive events.

Coaches and teachers often shout “relax” to an athlete or learner whose performance is suffering because of being too tense—for example, a beginning swimmer going into the deep end for the first time or a skilled athlete becoming frustrated because performance is not up to expectations. Although the instruction to relax is certainly appropriate, often these performers are clueless as to how to relax, particularly when in an uptight state. To learn to avoid too much tension, athletes need to be taught to recognize unwanted tension and to relax or release it. The tension sensation comes from the contraction of skeletal muscle fibers. Relaxation comes from no more than stopping the contraction, thus releasing the tension from the contracted muscle. Total relaxation means letting go and doing absolutely nothing with the muscles so that no messages are traveling either to or from the brain.

Why would an athlete want to be completely relaxed, that is, to experience what **zero-activation** level feels like? The answer is that in learning to train the muscles to relax totally, athletes develop a much greater sensitivity to their bodily feelings and responses and what causes their reactions. This awareness increases their sensitivity to tension levels and their ability to regulate different levels of tension to match the demands of the performance situation. In addition, once trained in deep relaxation, athletes can use this skill to remove localized tension that contributes to headaches or lower back pain or pain surrounding injuries. Complete relaxation can facilitate recovery from fatigue, and it can also promote the onset of sleep and reduce other insomnia problems that plague many athletes prior to competition. If sleeping is a problem, we recommend doing any of the relaxation exercises when you are trying to fall asleep. The progressive relaxation exercise in Appendix A is an excellent one for learning total relaxation, but meditation, visualization, and autogenic training also work for some athletes.

Finally, the ability to relax completely provides the foundation for learning the skill of **momentary relaxation**, which can be done quickly and does not achieve as deep a relaxation state as complete

relaxation. Examples of momentary exercises are the briefer ones, such as those found in the breathing section and the quick muscle relaxation exercises. Momentary relaxation skills are extremely important for athletes because they can be used to reduce overactivation at any point during practices and competition. When the nerves are carrying worry messages instead of the stimuli for smooth, coordinated, integrated efforts, performance suffers. Momentary relaxation lowers arousal and, particularly important, removes excessive muscular tension and, hopefully, worry and anxiety stimuli. The momentary respite also allows the athlete to return to a point of controlled balance. Every aspect of performance is enhanced: coordination, attentional focus, awareness, confidence, precision, speed, and so on.

Momentary relaxation can be used just before and during warm-up. In fact, stretching in preparation for competition is a good time to utilize the strategies of momentary relaxation and to focus on the upcoming performance. The more uptight the athlete is prior to performance, the longer the session of momentary relaxation should be. After the competition, this type of relaxation can be used to return to a controlled, balanced state that enables focusing on other aspects of the athlete's life. During the competition, depending on the specific sport, brief periods or lapses in play allow for momentary relaxation as needed, but athletes must first learn to become aware of excessive tension. Doing a quick momentary relaxation exercise can also facilitate concentration and imagery practice because it eliminates or reduces thoughts and stimulation that interfere with the needed single-minded focus.

**Breathing exercises.** Breathing properly is relaxing and facilitates performance by, for example, increasing the amount of oxygen in the blood and carrying more energy to the muscles. Those who experience stress during a high-pressure performance situation find their breathing is usually affected in one of two ways—they either hold their breath or breathe rapidly and shallowly from the upper chest. Both

of these adjustments create even more tension and impairment of performance.

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### **Exercise 3: Increasing awareness of ineffective breathing**

*Raise your shoulders way up and notice what happens to your breathing. This posture forces your breathing to move into just the upper chest and to become rapid and shallow.*

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Learning to take a deep, slow, complete breaths from the belly will usually trigger a relaxation response. This response is the basis for a variety of breathing exercises (see Mason, 1980, for further details from which the exercises in Figure 12-5 are adapted), but first, learning to breath properly is essential.

Breathing properly comes from the **diaphragm**, the thin muscle separating the lung and abdominal cavities. With a complete breath, the diaphragm pulls down, causing the belly to expand and a vacuum to occur in the lungs, filling the lungs up from the bottom. To facilitate learning what this feels like, individuals should forcefully empty all the air from their lungs and notice what happens on the next inhalation. When practicing a complete breath, individuals should imagine that their lungs are divided into three levels and that inhalation occurs in three steps. First, they fill the lower section of the lungs with air by relaxing the belly and letting it gently swell out as they deeply inhale from the diaphragm. Next, they fill the middle portion of the lungs by expanding the chest cavity and raising the rib cage. Finally, they bring the breath (air) all the way to the top of the lungs by raising the collarbones and widening the shoulder blades. All three stages progress continuously and smoothly. Once comfortable with this sequential inhalation, they should emphasize taking a long, slow, deep inhalation through the nose, inhaling as much air as possible.

Exercise	Description
Sighing with Exhalation	Exhale completely through the mouth, making an audible sigh. Then close the mouth and inhale quietly through the nose to a count of 4. Then hold breath for a count of 7, feeling the tension building in the throat and chest. Exhale audibly through the mouth to the count of 8, letting go of the tension in the rib cage. Repeat the cycle until the desired level of relaxation is achieved.
Rhythmic Breathing	Inhale to a count of 4, hold breath for a count of 4, exhale to a count of 4, and pause for a count of 4 before repeating the sequence. The rhythm of breathing can be altered by changing the count.
1:2 Ratio	Breathe to a count of 4 on the inhalation and a count of 8 on the exhalation. If out of breath before reaching 8, next time take a deeper breath during inhalation and exhale more slowly. Emphasize awareness of a full inhalation and exhalation. With more practice and deepened relaxation, the count may need to be changed to a 5:10 or 6:12 ratio.
5-to-1 Count	Say and visualize the number 5 while taking a deep, full, slow breath. Exhale fully and completely. Mentally count and visualize the number 4 with the next inhalation. During the exhalation, say, "I am more relaxed now than I was at number 5." Do not rush the thought. Inhale while mentally counting and visualizing the number 3. With the exhalation, say, "I am more relaxed now than I was at number 4." Allow the feeling of deepening relaxation. Continue until reaching number 1. At approaching number 1, you should feel totally calm and relaxed. The complete exercise takes one to two minutes. If done properly, it should lead to more relaxation than practicing a single complete breath. This exercise can be used before or during practices and competition, depending on how much time is available and how much relaxation is needed.
Concentration Breathing	This is a good exercise to practice when having problems with distracting thoughts. Concentrate on focusing attention on breathing rhythm. If the mind wanders to some other thought between inhaling and exhaling, redirect attention back to the next breath, letting the intruding thought disappear. The next step is to think of becoming more relaxed with each exhalation while continuing to focus on the rhythm of breathing.

Figure 12-5 Breathing exercises for reduction of tension from pressure situations

During the exhalation, the emphasis is on feeling as if the air drains out of the bottom of the lungs. First empty the top of the lungs, then the rib cage area, and finally the lower part of the lungs. To force out the last bit of air from the lungs, pull the belly in even farther. The exhalation should be long, slow, and complete and result in all tension leaving the body as the air is fully exhaled. Individuals are directed to focus on feeling the stillness and calm at the moment directly after fully exhaling, as this is the quietest or calmest time of the breath. If they

can feel this quietness, they are learning how to relax. Whenever athletes or coaches get too tense, they should try to re-create this moment of peace and calm by momentarily practicing this exercise.

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#### **Exercise 4: Confirming diaphragmatic breathing**

*Put one hand on your abdomen and the other on your upper chest. If you are taking a deep, complete breath from the diaphragm, the hand on your abdomen will*

*move out with the inhalation and in with the exhalation, while the hand on the chest remains relatively still.*

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After learning the procedure, athletes should take at least 30 to 40 deep breaths each day or substitute their favorite breathing exercise in Figure 12-5. Associating deep breathing with events that naturally occur during the day, such as texting, downloading e-mail, or waiting for class to begin, will facilitate practice and provide the benefit of regularly releasing unhealthy tension. The basic technique behind breathing correctly is essential to be able to effectively engage in the range of adapted breathing exercises provided in Figure 12-5.

**Progressive relaxation.** Initially developed by Jacobson (1930) under the assumption that an anxious mind cannot exist within a relaxed body, PR consists of a series of exercises that involve contracting a specific muscle group, holding the contraction for five to seven seconds, and then relaxing. The exercises progress from one muscle group to another. The contraction phase teaches awareness and sensitivity to what muscular tension feels like. The letting go, or relaxation phase, teaches an awareness of what absence of tension feels like and that it can voluntarily be induced by passively releasing the tension in a muscle. Thus, in the learning process, the athlete simply identifies a localized state of tension, relaxes it away, and then contrasts the tension sensations with the ensuing relaxation that comes from the elimination of tension. By practicing this internal sensory observation, the athlete can become quite proficient at recognizing unwanted tension sensations wherever they may occur and can then easily release the tension rapidly in practically any stressful situation.

Initial practice requires 25 to 30 minutes and should be done daily. The coach or sport psychology consultant should take athletes through the initial session, then provide a handout or audio track containing instructions for progressing through the muscle groups (see Appendix A for a PR script and guidance for using it). Once the skill is acquired, shorter practice

sessions will achieve a state of complete relaxation, and variations can occur, both for achieving complete and momentary relaxation. See Figure 12-6 for shorter and alternative variations of this technique.

**Meditation.** Regular meditation helps one achieve a state of deep relaxation and facilitates concentration by disciplining the mind. Four basic components are common to most forms of meditation: a quiet environment, a comfortable position, a mental device, and a passive attitude. A mental device, such as a mantra (i.e., meaningless, rhythmic sound of one or two syllables) or fixed gazing at an object, quiets the mind by providing a nonarousing and nonstimulating focus of attention.

It is critical that athletes do not worry about how well they are performing the technique or “try hard,” because this disrupts effective meditation. Emphasize a “let it happen” attitude; this passive attitude is perhaps the most important element in learning to meditate. If distracting thoughts or mind wandering occur, the athlete should redirect attention to the mental device, focusing on this cue and letting all other thoughts move on through consciousness with a passive attitude, making no attempt to attend to them.

The **relaxation response** developed by Herbert Benson (1975) is a generalized version of Eastern transcendental meditation but without reference to mysticism and unusual postures. For a mental device, athletes use a word such as **calm** or a word/sound of their choosing and adopt the following instructions:

1. Sit in a comfortable position in a quiet place and close the eyes.
2. Deeply relax all muscles, beginning at the top of the head and progressing to the feet (feet to head if preferred) and keep them relaxed.
3. Concentrate on breathing whilst breathing easily and naturally through the nose. With each breath out, say the word *calm* or some other mantra or nonsense sound silently to oneself.
4. When finished, sit quietly for several minutes, initially with eyes closed and then open. Do not stand for a few minutes.

Exercise	Description
Differential PR.	Use Appendix A muscle sequence or devise your own. Generate half as much tension and relax and then just enough tension to identify and let it go. Create tension only in the muscle group being contracted and only at the predetermined level of intensity. Practicing this helps individuals better accomplish the differential relaxation required during practice and competition, as well as throughout the day, because of the increase in sensitivity to the slightest unwanted tension in different muscle groups and increase in confidence in the ability to control the level of tension.
Abbreviated active PR.	Once skilled at PR, use a shorter procedure to achieve deep muscle relaxation by combining some of the muscle groups. Tense each group for 5 to 10 seconds and then relax for 30 to 40 seconds. For example, "Make a tight fist with both hands, tighten the biceps and forearms, hold. . . and relax. . .", and repeat for different sections of the body.
Passive PR.	Having learned active, deep muscle relaxation, try relaxing the muscles without first tensing them by merely letting go of whatever level of muscular tension is in the muscle group. Slowly progress from one part of the body to another, relaxing each body part more deeply by letting go of any remaining tension. The same sequence of complete or abbreviated body parts can be used for passive PR as for active PR. Many people find this passive form of relaxation more effective and pleasant than the active form.
Momentary muscle relaxation.	Best used during performance, such as just before serving, shooting a free throw, batting, or even while running, particularly middle or long distances; also during daily life whenever you get uptight. <b>Quick body scan:</b> Scan from head to toe (or toe to head), stop only at muscle groups where the tension level is too high, release that tension, and continue the scan. <b>Neck and shoulder check:</b> It is common to carry excessive tension in the neck and shoulders, so scan these muscles periodically for any undue signs of tension and, if you feel it, tense and relax or release it passively. Releasing this excessive tension tends to spread relaxation to the rest of the body; it may also have a calming effect on the mind. <b>Sport muscle check:</b> Substitute whatever muscle group is most appropriate for the sport skill. For example, batters could squeeze their bat and golfers their club followed by relaxing to the appropriate level.

Figure 12-6 Alternative progressive muscular relaxation strategies

The athlete does the preceding for 5 minutes and, with practice, builds to 15 to 20 minutes, trying to remain passive by letting the relaxation happen and not worrying about the time or whether the strategy is working. Practice one to two times daily, but not within one hour after a meal because the digestive processes can interfere with the relaxation response.

**Visualization.** Visualizing being in a place conducive to relaxation is another technique for eliciting relaxation. For example, an athlete might visualize

lying on a beach feeling the warm sand and sun on the body while listening to the continuous rhythm of breaking waves and smelling the salt air. Other images might be sitting in the midst of a beautiful mountain scene or lying in a grassy valley by a gentle, gurgling stream. Whatever image provides the athlete with a sense of calm and relaxation is the one he or she should use.

**Autogenic training with visualization.** Autogenic training consists of a series of exercises designed

to produce two physical sensations typically associated with relaxation: warmth and heaviness (see Linden, 1993). Essentially a technique of autohypnosis or self-hypnosis, it focuses attention on the sensations one is trying to produce. As in meditation, it is important to let the feeling happen passively. There are six stages in the training, and the athlete must learn each stage before progressing to the next stage (see Appendix B for a full description). The progression can be modified to suit athletes' learning rates as well as the training program and length of season of the sport. Once athletes have mastered the six stages of autogenic training, they may be ready to combine autogenic exercises with visualization. The progression goes from first doing the autogenic exercise to then visualizing the desired feeling or objective. For example, athletes might build confidence by imaging some peak or clutch performance when everything went just right, or they might program success by imaging the proper execution and outcome of a skill or strategy for an upcoming competition. The visualization applications are without limit, but the athlete must first have skill at imagery (see Chapter 13). It typically takes several months of 10 to 40 minutes of daily practice to become proficient at experiencing heaviness and warmth in the limbs, the sensation of a relaxed and calm heartbeat and respiratory rate, warmth in the abdomen, and coolness in the forehead.

Despite the time required to become proficient in autogenic training, many athletes find it a satisfactory means of training for relaxation and imagery. The approach is particularly appealing to those athletes who respond to autosuggestion.

**Multimodal stress management techniques.** Other, more complex multimodal frameworks have been proposed and successfully tested to reduce anxiety symptoms, including stress inoculation training (Meichenbaum, 1985) and stress management training (Smith & Rohsenow, 1987). The rationale behind these approaches is that rather than "match"

the intervention to the prominent anxiety response, interventions should be designed to treat both cognitive and somatic anxiety simultaneously because of their shared overlap, so any attempt to reduce one of the anxiety components is likely to "cross over" and influence the other.

**Stress inoculation training.** This approach combines the skills of imagery, self-talk, and relaxation to develop a coping skills program. Imagery is initially used to rehearse exposure to increasingly "stair-step" stressful encounters and is then paired with relaxation at each step to induce a relaxed state while maintaining the image before progressing to imaging a slightly more stressful situation. The athlete is then exposed to challenging but manageable stressful environments where these coping skills are tested in real life. The intensity of the demands is steadily increased so that coping skills are built up to effectively deal with the most stressful situation the athlete may encounter, thereby "inoculating" the athlete to the effects of the stressors.

**Stress management training.** This approach adheres to similar underlying principles of stress inoculation training; however, the distinguishing factor is the focus on coping with emotional and affective responses to the stressor(s):

1. Imagery rehearsal: athlete is asked to focus on emotional and affective responses to demand(s) being visualized.
2. Rehearsal phase: practitioner encourages strong and intense emotional response through use of verbal propositions.
3. Athlete is instructed to "turn off" intense emotional and affective response by implementing coping responses in the form of relaxation and self-instruction skills.
4. Skills are transferred from imagined rehearsal scenarios to real-life settings of a steadily increasing stressful nature.

### Stress Management Skills and Strategies: Restructuring Approaches

The distinction between restructuring interventions and those that solely seek to reduce arousal and anxiety is the presence of an appraisal process whereby athletes (or coaches) gain control over their anxiety by restructuring, that is, interpreting their anxiety symptoms (both mental and physical) as beneficial (or positive) for optimal performance. The restructuring approach advocates combining various techniques (see next) into an integrated framework.

*Re-creating symptoms.* Athletes first use imagery to re-create symptoms associated with anxious thoughts and feelings related to competition. For example, the athlete is asked to identify stressful situations where the images have been experienced and then recall experiences of these symptoms, possibly with the aid of video footage or a diary/competition log (imagery scripts and audio tracks can also be used to aid with the creation of symptoms). The athlete is encouraged to include as much information as possible in order to re-create a vivid image. The information gleaned is then used to create a series of images depicting the symptoms associated with the stressful situations.

*Rationalizing and restructuring symptoms.* Once athletes can re-create anxious thoughts and feelings, they are taught to rationalize and restructure symptoms via the use of self-talk and rational-emotive behavioral therapy (REBT). These skills are based on the notion that athletes experience and appraise situations that lead to beliefs that are either rational (i.e., positive interpretation of anxiety symptoms) or irrational (i.e., negative interpretation of anxiety symptoms). Rational beliefs lead to functional (beneficial) consequences for performance, whereas irrational beliefs lead to dysfunctional (harmful) consequences. Self-talk and REBT are used to question the interpretation of the negative symptoms experienced and restructure them to form a positive interpretation,

thereby creating beliefs that lead to functional consequences for performance.

Traditionally, three progressive stages are used that focus on **identifying**, **disputing**, and then **replacing** negative interpretations of anxiety symptoms: First, athletes' record/describe the negative mental and physical anxiety symptoms they experience; then they **identify** the symptoms are indeed irrational and will have a negative impact upon preparation and performance. This is achieved through guided questioning in relation to the symptoms experienced: "Is my appraisal based on fact?" "Does my appraisal help me achieve my sporting goals?" and "Does my appraisal help me to feel positive about my upcoming sport performance?" If athletes answer "no" to these questions, they are asked to challenge this initial appraisal and provide examples of how these interpretations can be **disputed**. Here, practitioners educate the athlete to dispute this irrational appraisal and **replace** it with a rationalized or restructured thought process, thereby creating a positive anxiety interpretation for performance. Continuing the example, athletes would be educated to change the appraisal of their symptoms by questioning whether the symptoms reported are always detrimental to performance. Athletes would be asked to replace these thoughts with ones suggesting that the worries experienced highlight the personal importance of the event and create increased effort and a more focused and concentrated state.

Finally, athletes are educated to consider that the physical symptoms experienced actually indicate a level of physical preparedness for the task and a readiness to perform optimally. Initially, application of these skills can be challenging, and it is advised athletes progress through the stages with a high degree of conscious thought and reliance on a trained sport psychology consultant. Tapes, diaries, and scripts are often used to assist and educate the performer during this process to help create individualized restructuring programs; however, as athletes practice the skill and engage in ongoing dialogue with the practitioner, the application of the skill becomes a more automatic process.

**Confidence management.** Following rationalization and restructuring of symptoms, imagery can be employed as a confidence management strategy to allow individuals to image themselves successfully managing the emotions that accompany participating in competitive sport (e.g., completing a pre-shot routine under stressful conditions). The content of such images falls broadly into two categories: mastery of performance-related plans (e.g., tactical plans/strategies being executed correctly) and specific skills related to the athlete's role (e.g., successful shooting skills such as a penalty kick in soccer). Initially, athletes develop a series of imagery scripts and audio tracks to use to perfect their imagery skills. For example, if the core of the imagery routine that athletes require is a focus on images depicting mastery of certain skills within their sport under stressful conditions, athletes are asked to (a) record the key skills for their role in their sport—for example, shooting skills as a goal attack in netball; (b) recount recent good performances of these skills, possibly making use of video; and (c) include as much information as possible to re-create a vivid image. The athlete is then asked to use this information to develop a series of imagery routines to create images depicting mastery of skills while experiencing the symptoms associated with the stressful situation. The information athletes input to this process, and the use of their knowledge base of the sport, are key features in creating individualized imagery routines that have relevance to the individual. After gaining competence at re-creating images in non-threatening situations away from the competitive arena, use of the skill is incorporated into progressively increasing stressful environments within the athlete's sport to gain full control over the skill in intense, pressurized competitive settings.

The effectiveness of restructuring is well documented and can be utilized by other key stakeholders to manage their stress, but there are caveats for its use, such as when athletes are performing skills that typically require low activation levels and their arousal level and perceived anxiety symptoms are extremely high. For example, if you need to sink a

putt or shoot a free throw but you are breathing rapidly, have rigid muscles, and are so worried about failure that thoughts cannot be focused, it is best to take a reductionist approach rather than trying to convince yourself that such anxiety symptoms are okay because they can facilitate performance.

### Case Studies

Examples of the reduction and restructuring stress management strategies sport psychology consultants may utilize to treat anxiety symptoms experienced as a consequence of competition stress are discussed next.

### Stress Management Skills and Strategies: Energizing Approaches

As discussed earlier, sometimes performance suffers not because athletes are experiencing the debilitating effects of stress, but because they lack a sufficient stimulus to create the optimum mental and physical activation state for performance. This problem is more likely to occur when the activation demands are higher due to the task characteristics of the sport (see the inverted-U section). Other common times are during tedious practices and when athletes are fatigued, discouraged, or approaching burnout. Athletes need to learn how to recognize signs and symptoms of low energy and activation. As an example, a track athlete should be sensitive to and then energize dead legs during a race, or a weightlifter may want to put all available energy into the legs and arms to attain a particular lift.

When athletes are not sufficiently activated, there are a variety of effective techniques for energizing or increasing arousal and activation. Meta-analysis has documented their effectiveness at enhancing performance (Meyers et al., 1996). Many of these techniques come from simply reversing the focus of the interventions outlined in the reduction approach so that they become energizing rather than calming.

**Breathing exercises.** For example, consider a breathing exercise whereby the athlete is instructed

to consciously deepen and increase their breathing rate and imagine that with each inhalation they are increasing energy levels to reach an optimum activation state. If the athlete is also fatigued, add imagining breathing fatigue out with each exhalation. This breathing technique can be combined with self-talk cues such as “energy in” on the inhalation and “fatigue out” on the exhalation.

*Energizing imagery.* Hundreds of **images** can be conjured up for generating energy—for example, images of trains moving slowly, gaining momentum and speed; images of heavy machinery where working parts move rapidly; images of natural forces such as powerful waves and winds; and images of animals sprinting and moving rapidly. Instruct the athlete to develop a supply of energizing images that work for them in various situations encountered in their particular sport. Then establish a plan ahead of time for their use, such as lapses in action or, if appropriate, during actual performance (e.g., running). Then practice them on a regular basis. Energizing imagery is particularly effective when fatigue is beginning to set in, when discouraged by a series of points that have been lost, or when a sudden burst of energy is needed to finish play.

*Energizing verbal cues.* In the midst of a performance, verbal cues can be effective energizers. Words such as “explode,” “charge,” “psych up,” “power,” and “come on” help facilitate the process of energizing. Raiport (1988), a former Russian sport psychology consultant, described a technique that combined **energizing words, images, and breathing** that was used by Eastern European sport psychology consultants to help athletes self-induce greater activation. The breathing pattern is one of exhaling on the first part of the phrases and inhaling on the italicized part. For example, take the phrase “I am breathing *deeper, inhaling energy.*” The most meaningful part of the phrase (in italics) is combined with the inhalation, which naturally facilitates energy physiologically. Repeat this pattern until achieving the desired activation. Raiport recommended other phrases, such as “Strength is *flowing into my body,*” “I am *vigorous and alert,*” and

“My muscles are *quivering with energy.*” Whatever the phrase, imagine creating that sensation when saying it.

*Transferring energy.* Performers can be taught to transfer energy from other sources. Take activation and arousal that result from anger, frustration, or some other emotion that tends to interfere with performance and convert it into positive energy to accomplish performance goals. Use the environment as a source for transferring energy, such as drawing energy from the spectators or even from the opponent, both when it appears the opponents have the momentum and when they have clearly lost it.

*Disassociate from fatigue.* Another way to deal with underactivation caused by fatigue is to focus attention away from it. Most athletes do the opposite, thereby increasing fatigue the more they tune into it. Instead, suggest that they apply their concentration skills and focusing ability on what is happening or about to happen within the performance setting rather than on how they are feeling. Long-distance runners also use disassociation strategies—that is, they think about something completely unrelated to running.

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### Exercise 5: Applying what you have learned

*Design an optimal intervention for each particular scenario described.*

1. *John, a professional golfer, sees a sport psychology consultant because the demands of playing on the tour circuit have made him so stressed that he is having difficulty sleeping, and sometimes during competitions he is so tense that he cannot consistently hit fairways as he does in practice. He then starts to doubt his swing, and the worry and tension can carry over to his putting. What interventions might a coach or sport psychology consultant implement to help John? Indicate how to sequence them and describe how they might be practiced.*

2. *Jane, a sport psychology consultant, finds that her relaxation training with Tom, a promising ice hockey forward, to help manage pre-game mental worries and physical anxieties is leading to Tom feeling "flat" on the ice. Explain why Jane's intervention with Tom is not working and describe an alternative strategy that might help him manage his pre-game symptoms more effectively.*
  3. *Sue, a high school coach, finds that her team usually competes well. She is frustrated, however, with their play during practice. She feels that the team's development is not what it could be because the players often lack intensity and focus. What might the coach do to try and correct this problem?*
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### Summary

The experience of stress in sport is a phenomenon widely acknowledged as having a significant impact upon performance, often with detrimental repercussions. Stress management strategies can be taught to athletes and coaches using a cognitive-behavioral framework that considers the demands they face, how they appraise these demands, the subsequent mental and physical symptoms that arise (including arousal levels and activation state), and how these symptoms are viewed as affecting performance. Central to this approach is the need to understand the relational-meaning (appraisals) they ascribe to their changing stress experiences over time. In an effort to successfully cope with stress in sport, athletes and coaches can adopt problem-focused strategies that aim to prevent or manage the amount of stress experienced and emotion-focused techniques that seek to reduce symptoms, restructure their meaning, or raise arousal levels to achieve suitable activation states.

### Study Questions

1. Explain Lazarus's (1991) cognitive motivational relational theory and its role in the stress process.
2. Discuss the role of appraisal in how an athlete or coach may experience and manage the stress associated with competing in sport.
3. Give examples of the potential demands athletes and coaches may encounter when competing in sport.
4. Summarize the typical responses athletes and coaches report associated with stress in sport.
5. Consider how negative emotions such as anxiety that occur as a consequence of the stress process can actually have beneficial effects for performance for athletes.
6. Identify three different methods sport psychology consultants can use to measure performers' experiences of stress.
7. Name, describe, and discuss the merits of early arousal-based approaches, contemporary anxiety theories, and mechanistic explanations offered to explain the relationship between stress and performance in sport.

8. Compare and contrast the concepts underlying an emotion- versus problem-focused coping strategy to managing stress in sport.
9. Provide examples of three preventative stress management strategies coaches may use in sport.
10. Contrast the three emotion-focused coping approaches and when to use them.
11. Summarize the two main strategies that sport psychology consultants recommend to “reduce” the intensity of symptoms experienced when competing in sport, and describe the interventions within each strategy.
12. Describe a typical “restructuring” stress management intervention with an athlete or coach.
13. Provide five examples of energizing techniques a sport psychology consultant might recommend to athletes to enhance their activation state.

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## Active Progressive Muscle Relaxation Script and Guidance for Using It

General instructions: Practice PR either sitting or lying down. The latter is usually more conducive to relaxation, but athletes should sit up if they tend to fall asleep. The lying down position is on the back with the head, neck, and trunk in a straight line. The legs should be straight and 6 to 12 inches apart, with the heels inward and the toes pointing outward. Rest the arms comfortably at the sides with the hands a little way from the thighs, palms up, and fingers comfortably bent. Put a small pillow (rolled up sweats are a good substitute) under either the knees or neck (not both) for additional comfort. If using a sitting position the athletes should sit upright, hips against the backrest, with the arms and legs uncrossed and the feet flat on the floor. The hands rest comfortably on the thighs (palms down). Throughout the exercise emphasize the importance of following instructions passively. This is particularly essential during the relaxation phase. Just let the relaxation happen—don't force it. Relaxation requires no effort—just let go of the muscle contraction. Any effort to relax causes tension. Read the following script beginning in a normal, conversational tone but, over the course of the session, your voice should progressively and subtly become smoother, quieter, and more monotonous while giving the relaxation phase instructions and, in contrast, should increase slightly in volume and speed during the tension phase:

“Sit or lie down in a comfortable position and try to put yourself in a relaxed state. Close your eyes and take a long, slow, deep breath through your nose, inhaling as much air as you can. Then exhale slowly and completely, feeling the tension leaving your body as you exhale. Take another deep breath and let the day's tensions and problems drain out of you with the exhalation. [Pause.] Relax as much as possible and listen to what I say. Remember not to strain to relax. Just let it happen. During the session, try not to move any more than necessary to stay comfortable. Particularly, try not to move muscles that have already been relaxed.

“As we progress through each of 12 muscle groups, you will first tense the muscle group for approximately 5 to 7 seconds and then relax for 20 to 30 seconds. Do not start the tensing until I say 'NOW.' Continue to tense until I say 'OKAY' or 'RELAX,' at which time immediately let go of all the tension.

“Begin with tensing the muscles in the dominant hand and lower arm by making a tight fist and bending your hand back at the wrist NOW. Feel the tension in the hand and up into the lower arm. . . . Okay, relax by simply letting go of the tension. Notice the difference between tension and relaxation [pause 20 to 30 seconds]. . . . Make another fist NOW [pause 5 to 7 seconds]. Okay, relax. Just let the relaxation happen by stopping the

contraction; don't put out any effort [pause 25 to 30 seconds].

"Next tense the muscles of the dominant upper arm by pushing your elbow down against the floor or back of the chair. Tense NOW. Feel the tension in the biceps without involving the muscles in the lower arm and hand. . . . Okay, release the tension all at once, not gradually. Just let it happen. Let it all go. . . . Tense NOW. . . . Okay, release it. Contrast the difference between tension and letting go into relaxation. Relaxation is no more than the absence of tension.

"With your nondominant hand, make a tight fist and bend your wrist back NOW. Feel the tension in your hand and lower arm, but keep the upper arm relaxed. . . . Okay, relax by simply draining all of the tension out. . . . NOW tense again. . . . Okay, relax and feel the difference between the tension and relaxation. . . . NOW push the elbow down or back to tighten the nondominant upper arm. . . . Okay, relax. . . . NOW tense the upper arm again. Note the discomfort. . . . RELAX. Let all the tension dissolve away. . . . Enjoy the feelings of relaxation. . . . Notice the sensations you have in the muscles of both arms and hands. . . . Perhaps there is a sort of flow of relaxation—perhaps a feeling of warmth and even heaviness in these muscles. Notice and enjoy this feeling of relaxation.

"Turn your attention to the muscles in your face. Tense the muscles in your forehead by raising your eyebrows NOW. Feel the tension in your forehead and scalp. (Pause for only three- to five-second contractions with these smaller muscle groups.) Okay, relax and smooth it out. . . . Enjoy the spreading sensation of relaxation. . . . NOW frown again. . . . RELAX. Allow your forehead to become smooth again. . . . Your forehead should feel smooth as glass.

"Next squint your eyes very tightly and at the same time pucker your lips and clench your teeth, but not so tightly that it hurts. Tense NOW. Feel the tension. . . . Okay, relax. . . . Let the tension dissolve away. . . . NOW tense again. . . . Okay, let all the tension go. . . . Your lips may part slightly as your cheeks and jaw relax.

"Next tense the muscles of the neck and shoulders by raising your shoulders upward as high as you can while pulling your neck down into your shoulders. Tense NOW. . . . feel the discomfort. . . . RELAX. Drop your shoulders back down and feel the relaxation spreading through your neck, throat, and shoulders. . . . Let go more and more. . . . Tense NOW by raising your shoulders and sinking your neck. . . . Okay, relax. Let go more and more. Enjoy the deepening sensation of relaxation. . . . Remember relaxation is simply the absence of tension.

"Next tighten your abdomen as though you expect a punch while simultaneously squeezing the buttocks together. Tense NOW. You should feel a good deal of tightness and tension in the stomach and buttocks. . . . RELAX, release the tension, let it all drain out. Just let it happen. . . . NOW tense again. . . . Okay, relax. Feel the spreading sensation of relaxation. Let go more and more.

"Turn your attention to your legs. Tighten the muscles in your thighs by simultaneously contracting all the muscles of your thighs. Tense NOW. Try to localize the tension only to your thighs. . . . Note the sensation. Okay, relax. Contrast the tension and relaxation sensations. Remember relaxation is merely the absence of tension; it takes no effort except merely releasing the tension. . . . NOW tighten the thighs again. . . . Okay, release the tension—just passively let it drain out. Enjoy the feeling of relaxation.

"Next flex your ankle as though you are trying to touch your toes to your shin. Tense NOW. You should be feeling tension all through your calf, ankle, and foot. Contrast this tension with when you tensed the thigh. Okay, relax. Simply release the tension; let go of any remaining tension. . . . NOW tense again. . . . Okay, slowly release all the tension.

"Next straighten your legs and point your toes downward. Tense NOW. Note the discomfort. . . . Okay, relax. Feel the spreading sensation of relaxation as you relax deeper and deeper. . . . NOW straighten your legs. . . . RELAX. Release all the tension. Let go more and more.

“Relax all the muscles of your body—let them all go limp. You should be breathing slowly and deeply. Let all last traces of tension drain out of your body. You may notice a sensation of warmth and heaviness throughout your body, as though you are sinking deeper and deeper into the chair or floor. Or you may feel as though you are as light as air, as though you are floating on a cloud. Whatever feelings you have, go with them. . . . Enjoy the sensation of relaxation. . . . Relax deeper and deeper. . . . Scan your body for any places that might still feel tension. Wherever you feel tension, do an additional tense and relax.

“Before opening your eyes, take several deep breaths and feel the energy and alertness flowing

back into your body. Stretch your arms and legs if you wish. Open your eyes when you are ready.”

Take several minutes to discuss athletes’ reactions to this PR exercise. Get them to identify what it felt like and how successful they thought they were at relaxing. For those who had difficulty relaxing, stress again the importance of the absence of effort, of being passive and just letting it happen. Also remind them of the need to practice regularly. Just like any physical skill, PR takes practice. See if any of the athletes became aware of places in their body where they tend to hold tension. The goal is to spot this tension and release it before it leads to headaches and backaches or performance problems.

## Six Stages in the Training of Autogenic Responses

Throughout all the stages, emphasize letting the feeling happen in a very passive manner. In the first stage, the athlete focuses attention on the dominant arm while silently saying: (a) "My right (left) arm is heavy" (repeat phrase six times); (b) "I am calm" (or "I am at peace") (optional and said only once and then alternated with the first step until completing three to six cycles of these two steps). The athlete then cancels out the effect by bending their arm, taking a deep breath, and opening their eyes. The canceling out should always occur with each part of the heaviness stage, and the following stages, in order to ultimately maximize the effect. The preceding is practiced two or three sessions a day (it takes only one or two minutes each time) until the heaviness starts to spread to the opposite arm. When this occurs, replace "my right arm" with "my left arm" and, once effective, "my arms." Once the heaviness starts to generalize to the legs, replace "my arms" with "my legs are heavy" and, once effective, "my arms and legs are heavy." Ultimately, the entire body starts to feel heavy. If the mind wanders, emphasize passively redirecting attention back to the task at hand. Some athletes may be able to produce a sense of heaviness immediately; others may take one or two weeks of three or more times of practice daily to accomplish the sensation.

Once the heaviness experience has been well trained and can be induced rapidly and reliably, add the second stage, which is "warmth" and may

take longer to achieve. Instructions follow the same general content and format as the first stage, except "heavy" is replaced with "warmth." Before practicing the warmth phrases, however, the athlete begins by repeating the final suggestion for the preceding stage:

1. "My arms and legs are heavy" (repeat six times).
2. "I am calm" (or "at peace"; say only once).
3. "My right (left) arm is warm" (and so forth, as done in stage one).

If athletes are having difficulty feeling the appropriate sensation, facilitate learning by having them first physically experience the sensation. For example, if trying to achieve heaviness in the right arm, put a pillow over the arm and, if need be, a book or two on top of the pillow. For the warmth sensation, immerse hands in hot water or put a heating pad or hot water bottle over the hands while they initially do the exercise.

Regulation of the heartbeat is the third stage and consists of the autosuggestion, "My heartbeat is regular and calm." The athlete may need to be sensitized to their own heart activity by putting their hand over their heart when initially doing the exercise. Again, follow the progressive procedure described previously, only this time begin with the phrase, "My arms and legs are heavy. My arms and

legs are warm.” Follow the same additive protocol for the fourth, fifth, and sixth stages, which consist of the following:

Stage 4: Breathing rate: “My breathing rate is slow, calm, and relaxed: It breathes me.”

Stage 5: Warmth in the solar plexus: “My solar plexus is warm” (hand placed on upper abdominal area); or say, “Sun rays are streaming quiet and warm.”

Stage 6: Coolness of the forehead: “My forehead is cool.”

Once the athlete has achieved competence, the entire sequence can be practiced as follows:

“My arms and legs are heavy” six times; “I am calm” once.

“My arms and legs are warm” six times; “I am calm” once.

“My heartbeat is regular and calm” six times; “I am calm” once.

“It breathes me” six times; “I am calm” once.

“My solar plexus is warm” six times; “I am calm” once.

“My forehead is cool” six times; “I am calm” once.

## Elizabeth

**The athlete.** Elizabeth is a 36-year-old bobsled athlete who competed in her event for 12 years and represented her country at numerous World Championships and two Olympic Games. Although achieving at national trials the qualification time for the Olympic Games, she felt that her performance and time failed to satisfy the expectations of herself, her teammates, and her coach.

**Reason for consultancy.** Elizabeth had indicated to her national team’s sport psychology consultant that prior to the recent Olympic trials and, indeed, during the warm-up events to the trials, she was having problems dealing with distracting negative

thoughts and high levels of muscle tension when in the waiting room at the top of the mountain preparing to race and just before the race. While these symptoms had been present throughout her career, Elizabeth now felt she was unable to control them and their adverse impact on her pre-race preparation and her performance.

**Professional assessment.** Elizabeth was asked to complete a series of validated questionnaires assessing the level of pre-race anxiety symptoms and whether she felt they had a positive or negative impact on her upcoming performance. Her responses and a one-on-one consultation between the sport psychology consultant and Elizabeth established that Elizabeth’s pre-race anxiety levels were high and that she viewed these symptoms as having a detrimental effect on performance. As bobsled is an explosive event that requires the production of a high degree of force over a short distance at the start (Elizabeth was the brake woman and responsible for maximizing the velocity of the sled), the optimal activation state for readiness to perform is a relatively high level of controlled physical and mental symptoms. Consequently, the sport psychology consultant recommended an intervention program that adhered to the principles of the restructuring approach. If the sport psychology consultant had prescribed techniques that sought only to reduce the symptoms Elizabeth experienced, it likely would have led to a detrimental effect upon performance, because Elizabeth may have become too mentally and physically relaxed for the activation demands of the bobsled start.

**Intervention program.** An intervention program based upon restructuring the interpretation (negative to positive) of both mental and physical anxiety was provided to Elizabeth. The emphasis was for Elizabeth to restructure her anxiety interpretations to allow her to view her mental symptoms as indicators of the importance of the event and her physical ones as indicators of physical readiness and commitment to high effort. The sport psychology consultant also provided confidence maintenance techniques (i.e., imagery and goal-setting).

**Outcome.** After undertaking the intervention program for a 12-week period, the treatment resulted in the sought reinterpretation of Elizabeth's anxiety from negative to positive without reducing the level of anxiety symptoms experienced (suggesting that Elizabeth had obtained a suitable state of activation prior to competition). In addition, Elizabeth felt the symptoms could actually improve her performance.

## Jennifer

**The coach.** Jennifer is a 38-year-old international volleyball coach and has been coaching for four years since retiring from the sport. Despite being an international player for 12 years, her four years of coaching have been at the youth level, and this is the first time she has coached at the senior level.

**Reason for consultancy.** Jennifer has indicated to the team's sport psychology consultant that she has been experiencing extremely high levels of worry and panic and feelings of sickness and shortness of breath, particularly during team selections and when providing tactical information. She said she never felt this way before as a coach, but now she is coaching many players with whom she was a good friend when she was playing and she is struggling to manage decisions that may affect them.

**Professional assessment.** Jennifer was asked to complete a series of validated questionnaires assessing the level of anxiety symptoms and whether she viewed that experiencing these symptoms had a positive or negative impact on her coaching performance. A one-on-one consultation between the sport psychology consultant and Jennifer further explored Jennifer's understanding of her anxiety responses. Following this consultation, it was established that prior to addressing the group, her anxiety levels were high and having a detrimental impact upon

her performance as a coach. In particular, she suggested that she felt that the quality of her message was being negatively affected and affecting the way in which her team was performing. Due to the level at which she is operating, being able to confidently make decisions and address the group is vital in order for Jennifer to convey her messages effectively. Consequently, the sport psychology consultant recommended an intervention program that adhered to the principles of both the "preventative" and "reduction" approaches.

**Intervention program.** A range of preventative approaches (i.e., advice seeking, planning, information gathering) was first adopted in order for Jennifer to better understand how significant others dealt with similar scenarios and to ensure that her decisions could be fully justified. It was thought that with more justification, the worry of making and articulating the decisions would stop or lessen. Additionally, a reduction program over the course of six weeks was implemented that involved teaching Jennifer a range of breathing strategies (i.e., concentration breathing, 5:1 count) to reduce her physical symptoms and to direct her attention away from her negative interpretation of the players' thoughts. Some confidence-building strategies were also adopted based around her previous positive experiences of delivering pre-game team talks (i.e., imagery).

The intervention program resulted in Jennifer attaining more confidence in her decisions. On the advice of a significantly experienced other, it also resulted in her changing the way in which she prepared the players by speaking before the pre-game team talk to them individually about important decisions involving them. Jennifer suggested that this alleviated most of the symptoms of cognitive and physical anxiety and that she was able to control the remaining symptoms by using her breathing techniques.