

Psychological Characteristics of Peak Performance

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Trying to articulate the zone is not easy because it's such an indescribable feeling. That moment doesn't happen often, and when it does happen, you feel like you're playing out of your head! You aren't feeling any tension or any pressure and physically your strokes are just flowing, every ball you hit is going in. Emotionally you're really calm. There's no strain involved. It's a euphoric feeling. The feeling that whatever you touch turns to gold. Whatever you do, whatever decision you make on the court, whatever stroke or shot you try, you know it's going to work.

—Chris Evert, *Tennis Champion*

Peak performances are those magic moments when an athlete puts it all together—both physically and mentally. The performance is exceptional, seemingly transcending ordinary levels of play. Privette defined **peak performance** as “behavior which exceeds one’s average performance” (1982, p. 242) or “an episode of superior functioning” (1983, p. 1361). Competitively, these performances often result in a personal best. They are the ultimate high, the thrilling moment that athletes and coaches work for in their pursuit of excellence. Unfortunately, they also are relatively rare and, according to many athletes, nonvoluntary. But are they truly nonvoluntary? Can athletes be trained so that peak performances occur more frequently? If not to produce a peak performance, can athletes be

trained so they consistently play closer to their optimal level?

To answer these questions, it is first necessary to know if there are any common characteristics that identify peak performances. For example, is there an ideal body–mind state associated with peak performance? If so, is this ideal state similar from one athlete to another or one sport to another? More important, if common qualities are identified, can they be learned and developed?

It is safe to assume that peak performance is a consequence of both physical and mental factors. Mind and body cannot be separated. A precondition to peak performance is a certain level of physical conditioning and mastery of the necessary physical skills. While athletic and sport science communities long have been devoted

to improving physical training programs, today emphasis is being placed on the psychological components of performance as well.

Obviously, the higher the level of physical skill and conditioning, the more potential control the athlete has over his or her performance. Yet, one must realize that peak performance is relative to each athlete's present level of ability. Peak performances are most likely to occur when athletes' skills match the demand or challenge of the situation (Csikszentmihalyi, 1990). Absolute skill level is not important; rather, it is important that the athlete has the skills to match the expected level of play. Thus, concern for enhancing peak performance is as relevant to coaches and sport psychologists who work with less skilled and youth sport athletes as it is to coaches and sport psychologists who work with professional or elite amateur athletes.

Overview of Peak Performance

The focus of this chapter is the mental side of peak performance and how the mind interacts with the body in ultimately producing performance. Most athletes and coaches will acknowledge that at least 40% to 90% of success in sports is due to mental factors. The higher the skill level, the more important the mental aspects become. In fact, on the elite competitive level, it is not uncommon to hear that the winner invariably comes down to who is the strongest athlete—mentally—on a given day! When describing his approach to golf, Tiger Woods (2001) stated, "it is a thinking man's (or woman's) game to a great degree. I believe my creative mind is my greatest weapon" (p. 255). When the physical, technical, and mental readiness of Olympic athletes was assessed, only mental readiness significantly predicted Olympic success (Orlick & Partington, 1988). Likewise, a study of professional baseball players (Smith & Christensen, 1995) showed psychological skills, but not physical skills, significantly predicted pitching performance. For predicting batting performance and which players would remain in professional baseball two and three

years later, psychological skills did as well as the physical skills

If the mental side of performance is so important to success, then perhaps an ideal internal psychological climate exists during peak performance. Before discussing the research supporting this premise, we must offer a caution. Do not think that the field of sport psychology has found all the answers. There is, however, a growing foundation for understanding the mental side of performance. As we identify an optimal psychological state for peak performance, we also provide a foundation for developing a mental skills training program. In fact, research now exists showing that psychological skills training can improve performance. This chapter, and the following chapters in this section, reflect the latest state of knowledge and the current thinking and practices of those involved in mental training for peak performance.

Psychological Characteristics During Peak Experiences in Sport

In early research in this area, athletes were interviewed and asked to describe their "greatest moment" in sport (Ravizza, 1977), how they felt when they were playing at their best (Loehr, 1984), or characteristics of the feelings they have at those moments when they are doing something extraordinarily well (Garfield & Bennett, 1984). Loehr compiled the following composite of athletes' interview statements:

I felt like I could do almost anything, as if I were in complete control. I really felt confident and positive. [Regarding arousal,] I felt physically very relaxed, but really energized and pumped up. I experienced virtually no anxiety or fear, and the whole experience was enjoyable. I experienced a very real sense of calmness and quiet inside, and everything just seemed to flow automatically. . . . Even though I was really hustling, it was all very effortless. (Cited in Garfield & Bennett, 1984, pp. 37, 95)

Across these studies, the athletes gave surprisingly similar accounts. Common psychological

characteristics associated with peak performances included

- Loss of fear—no fear of failure
- Total immersion in the activity
- Narrow focus of attention on the present
- Feeling in complete control
- Time/space disorientation (usually slowed down)
- Feeling that performance was automatic and effortless
- Control over emotion, thoughts, and arousal
- Highly self-confident
- Physically and mentally relaxed
- Highly energized

Garfield and Bennett summed up these feelings as “being in the cocoon” (feeling completely detached from the external environment and any potential distractions). According to Loehr (1984), athletes felt “it was like playing possessed, yet in complete control. Time itself seemed to slow down, so they never felt rushed. They played with profound intensity, total concentration and an enthusiasm that bordered on joy” (p. 67).

Privette and Bundrick (1997) further identified what they called the “peak performance dyad,” which encompassed full focus on the activity and “self in process.” They described it this way: “focusing fully on the relevant task of the game, whether narrowly on the placement of the ball or broadly over the entire field, while simultaneously being acutely aware of self as the doer, underlay peak performance” (p. 331). They concluded that peak performances are personally meaningful, rewarding, and fulfilling. Not surprisingly, athletes frequently associate this state with fun or enjoyment (Cohn, 1991).

Athletes described these qualities of peak performance similarly across sports, as well as across skill and competitive levels. For example, both Ravizza (1977) and Cohen (1991) noted that over 80% of the athletes in their studies reported experiencing these perceptions. Noteworthy, peak

performance often was considered a temporary and involuntary phenomenon. However, as Loehr (1984) concluded, the probability of good performance could be substantially increased if the following combination of feelings could be triggered and maintained: high energy (challenge, inspiration, determination, intensity), fun and enjoyment, no pressure (low anxiety), optimism and positiveness, mental calmness, confidence, being very focused, and being in control.

Flow and Peak Performance

Often associated with peak performance is the psychological construct *flow*, defined as “the state in which people are so involved in an activity that nothing else seems to matter” (Csikszentmihalyi, 1990, p. 4). Csikszentmihalyi (1985) considers flow the basis of intrinsically motivated experiences or self-rewarding activity. This was evident in high-altitude rock climbers who reported that the possibility of experiencing flow motivated them to engage in this high-risk sport (Delle Fave, Bassi, & Massimini, 2003). Flow is not analogous to peak performance. One may be in flow and not necessarily be having a peak performance; however, when an athlete experiences peak performance, he or she appears to be in a flow state.

Jackson (1996) distinguished between flow and peak performance, suggesting that flow may be a precursor to, or the psychological process underlying, peak performance and it has been found to be positively related to performance (Jackson, Thomas, Marsh, & Smethurst, 2001). Nine dimensions of flow have been described (Csikszentmihalyi, 1990; Jackson, 2000). When athletes are in flow, they experience the following:

The challenge of the situation matches the skills of the athlete, and these challenges and skills are at a personal high level.

Awareness and action merge, the athlete “ceases to be aware of herself as separate from her action” (Jackson, 2000, p. 142).

Goals are clear; “there is clarity about what one is to do” (Jackson, 2000, p. 142).

Unambiguous feedback indicates that what is being done is correct.

Total and complete concentration on the task at hand occurs.

There is a paradox of control, or the sense of being in complete control without actively attempting to be in control (also described as effortless and without fear of failure).

Loss of self-consciousness whereby one is aware of performing but is not concerned with self-evaluation.

Time seems to speed up or slow down.

The experience is autotelic—the activity is enjoyable and participation becomes its own reward.

Interviews with elite, international level athletes revealed psychological states that coincided with these characteristics of flow (Jackson 1992, 1996), which are very similar to those reported to accompany peak performances. Researchers also have examined the factors perceived by athletes to disrupt or facilitate flow. Interviews with elite figure skaters (Jackson, 1992) and college athletes (Russell, 2000) revealed the following factors interfered with flow: having physical problems or making mistakes, an inability to maintain their focus, a negative mental attitude, and a lack of audience response. Furthermore, interviews with elite athletes across a variety of sports (Jackson, 1992, 1995) showed that mental preparation that facilitated the likelihood of achieving flow included the following:

Having a positive attitude (confidence, positive thinking).

Following precompetitive plans and preparation.

Completing the optimal physical preparation prior to competition.

Attaining optimal arousal.

Achieving appropriate motivation to perform.

Being in tune with movements and performance—feeling good.

Being focused on the task.

Having optimal environmental and situational conditions.

Having positive team interactions or partner unity.

Enjoying what one is doing.

Studies employing flow questionnaires have found that athletes who experience flow, compared to those who do not, have higher preevent self-confidence (Catley & Duda, 1997; Stein, Kimiecik, Daniels, & Jackson, 1995), higher perceived ability, a task goal orientation, and lower anxiety (Jackson & Roberts, 1992; Jackson, Kimiecik, Ford, & Marsh, 1998). Additionally, intrinsic motivation (Kowal & Fortier, 2000) and athletic self-concept (Jackson, Thomas, Marsh, & Smethurst, 2000) have been found to be positively related to flow experiences. Jackson et al. (1998) concluded that high perceptions of one's athletic abilities appear to be crucial to the experience of flow. As they stated, "athletes who believe in their capabilities are probably more likely to experience a balance between challenge and skills, even when the challenge of a specific sport competition is relatively high" (p. 373).

When considering the characteristics of flow and the factors that facilitate or disrupt it, it seems that using psychological skills may enhance the likelihood of experiencing flow. Jackson et al. (2000) explored this notion in a study of competitors in surf life saving, orienteering, and road cycling. They found "the avoidance of negative thinking, combined with good emotional control, relaxation, appropriate activation levels, and, to a lesser extent, setting goals, use of imagery, and positive self-talk facilitated flow" (p. 148). In a rare intervention study aimed to enhance flow, Pates, Cummings, and Maynard (2002) tested the effect of a hypnosis intervention. Using an ideographic (i.e., individualized) design, five athletes were taught how to use hypnosis and applied this skill during a basketball shooting task (i.e., three-point shots). The

hypnosis intervention consisted of relaxation, imagery, hypnotic induction and regression, and use of a trigger. The results showed that the intensity of flow experienced during the shooting task increased after learning to use hypnosis, as did performance.

These findings suggest that athletes can learn prerequisite skills that may enhance the likelihood of experiencing flow. Athletes who learn to be confident, focus their attention on the task at hand, control their anxiety, and have appropriate and challenging goals may experience flow and peak performance more often.

The Individualized Zone of Optimal Functioning

Another approach to examining psychological states during successful athletic performance focuses on performance-related emotions (Hanin, 2000a). The Individualized Zone of Optimal Functioning (IZOF) model (Hanin, 2000b) attempts to identify emotional patterns associated with individual athletes' successful performances. Hanin (1997) acknowledges that each athlete has her or his own unique emotional state in which successful performances are most likely. Optimal performance states can include both positive and negative emotions (Hanin, 2000b). This model includes four groups of emotional states: positive performance-enhancing, positive performance-impairing, negative performance-enhancing, and negative performance-impairing. For example, elite Finnish athletes described feeling energetic as a positive performance-enhancing emotion, whereas easygoing was considered a positive emotion that was performance-impairing (Hanin, 2000c). Tense and dissatisfied were described as negative performance-enhancing emotions, whereas feeling tired was considered negative and performance-impairing. To identify individuals' IZOFs, athletes complete an assessment identifying emotions related to their successful and unsuccessful performances. Different athletes may include different emotions in their profiles. This assessment results in identifying a range of

optimal and dysfunctional emotions, and an IZOF iceberg profile emerges. As Figure 9-1 shows, both positive and negative emotions considered performance-enhancing comprise the optimal zone, and performance-impairing emotions comprise the dysfunctional zones. Athletes whose emotional states are within their IZOF are more successful than athletes with emotional profiles out of their IZOFs (Hanin, 2000c). For example, successful junior soccer players had emotional profiles that were close to their optimal zones and outside of their dysfunctional zones (Syrja, Hanin, & Pesonen, 1995, as cited in Hanin, 2000c). The soccer players who had poor performances had emotional profiles outside of their optimal zones prior to competition, and they never entered their IZOFs once the match began. Similarly, successful international competitors in squash and badminton had emotions that were close to their optimal zones and outside of their dysfunctional zones (Syrja, Hanin, & Tarvonen, 1995, as cited in Hanin, 2000c).

Robazza and Bortoli (2003) compared the emotional profiles of elite athletes (who competed in major national or international championships) and nonelite athletes from a variety of sports. Their findings showed that the more elite athletes had a higher intensity of facilitating positive emotions than the less elite athletes. Prior to successful and less successful performances, the emotional profiles of elite competitors in blackbelt karate differed (Robazza, Bortoli, & Hanin, 2004). When these athletes compared their emotion scores at competition to their worst-ever emotion score, better performances were associated with larger differences (or greater distance from worst-ever emotions).

This research supports the conclusion that performance-enhancing and performance-impairing IZOFs can be identified for individual athletes. Interestingly, these patterns of optimal and dysfunctional emotions differed not only across athletes, but also across contexts. Elite Finnish cross-country skiers identified different IZOFs for races, intensive training, and technical training (Hanin & Syrja, 1997). Teaching athletes to maintain their emotional state within their performance-enhancing zones may increase the

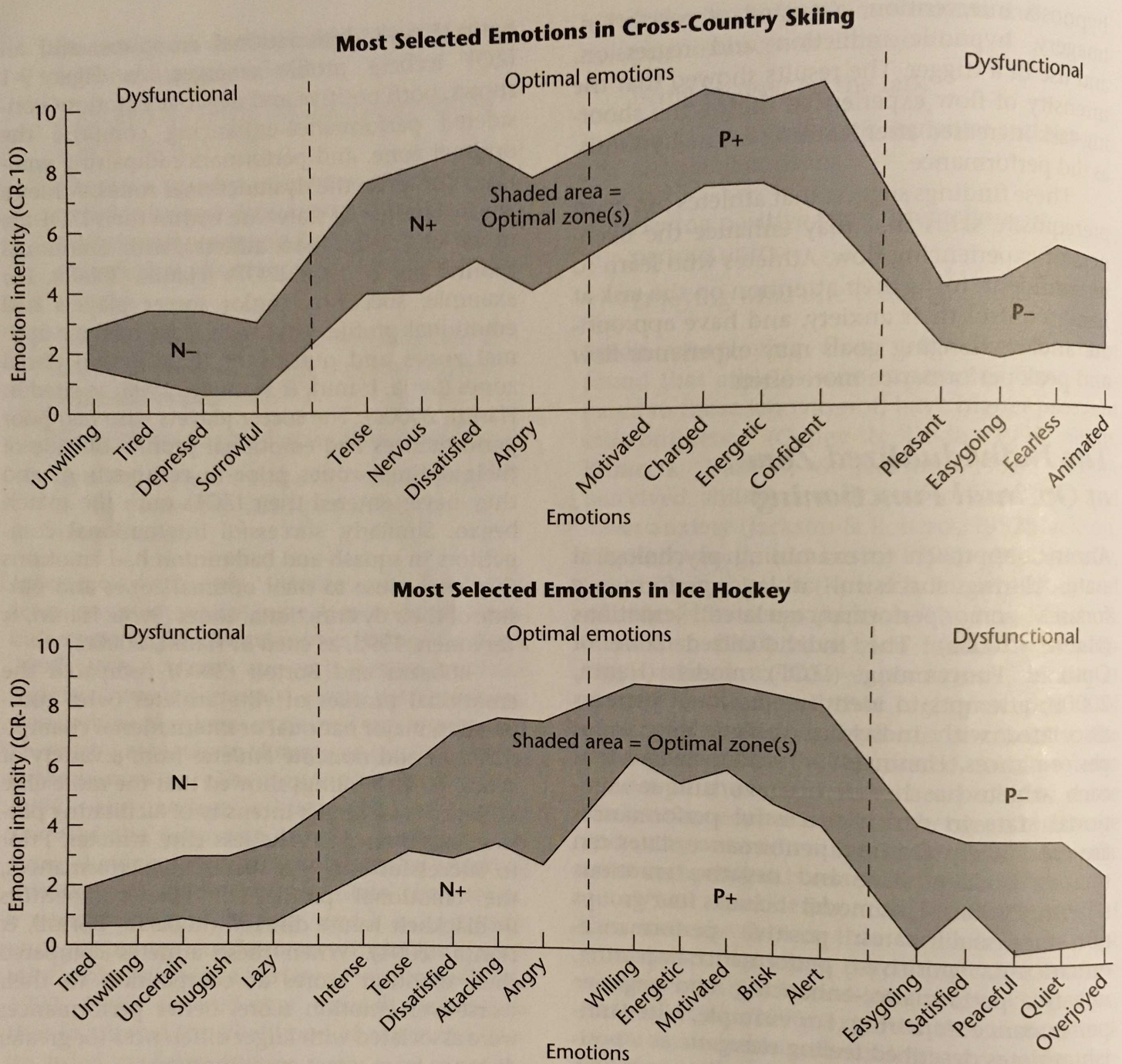


Figure 9-1 IZOF-based-emotion iceberg profiles in cross-country skiing and ice hockey
 Source: Reprinted from Hanin, Y. L. (2000c). Successful and poor performance and emotions. In Y. L. Hanin (Ed.), *Emotions in sport* (p. 185). Champaign, IL: Human Kinetics.

likelihood of peak performance or assist athletes to perform more consistently.

Hanin extended the IZOF approach to include the “metaphor self-generation method” in which athletes develop a personally meaningful, symbolic image “that allows for understanding

something unknown (or difficult to describe)” (Hanin & Stambulova, 2002, p. 397). Individual metaphor profiles revealed that when considering their best performances, athletes’ metaphors were action-oriented and symbolized strength, power, and skill (e.g., “a tiger ready to pounce,”

"a well working pipeline"). Not surprisingly, when considering worst performances, athletes generated converse images reflecting weakness and lack of readiness (e.g., "an empty bottle," "a cow on the ice," "a sinking boat"). Notably, it was not unusual for athletes to describe negative images and unpleasant feelings preevent, even when describing best-ever performance. However, these negative feelings and images changed to productive feelings and images during the event. Additionally, Ruiz and Hanin (2004) found that these symbolic images remained relatively stable over a 5-month period. Yet the images also evolved and reflected new experiences. Ruiz and Hanin concluded that metaphors can both increase awareness of competitive emotions and be used to change dysfunctional images and beliefs.

Psychological Attributes and Skills of Successful and Less Successful Athletes

Although it is interesting to understand the psychological characteristics associated with peak performances, it may be considered even more important to know how athletes achieve these psychological states. Hence, a substantial amount of research has examined the psychological skills that successful athletes use, often by comparing more and less successful athletes with the goal of learning why some individuals outperform others.

Mahoney and Avenier (1977) designed a questionnaire to assess various psychological factors such as confidence, concentration, anxiety, self-talk, and imagery. Researchers studying athletes in an array of sports (e.g., gymnastics, wrestling, tennis, racquetball, and diving) and across competitive levels (e.g., college, Olympic) have used this basic tool, or variations of it. Findings from these studies revealed consistent results across samples: The more successful athletes had high self-confidence and few self-doubts, used imagery more often, and controlled their anxiety better than the less successful athletes (e.g., Gould, Weiss, & Weinberg, 1981; Highlen & Bennett, 1979, 1983; Meyers, Cooke, Cullen, & Liles, 1979).

Using similar questionnaires, modified for golfers and ten-pin bowlers, researchers found that the more skilled athletes had better mental preparation, concentration, automaticity, commitment, competitiveness, confidence in their equipment and technique, interest in improving, and consistency (Thomas & Over, 1994; Thomas, Schlinker, & Over, 1996).

In an attempt to improve our ability to compare findings across studies, researchers have developed a variety of scales that measure psychological skills used by athletes. Mahoney, Gabriel, and Perkins (1987) developed the Psychological Skills Inventory for Sport (PSIS) that measures anxiety management, concentration, self-confidence, motivation, mental preparation, and team emphasis. Using this scale, they examined differences in use and effectiveness of psychological skills in elite, preelite, and collegiate athletes in a variety of sports. Elite athletes reported that they experienced fewer anxiety problems, had better concentration before and during competition, were more self-confident, used internal and kinesthetic imagery in their mental preparation, were more focused on individual rather than team performance, and were more highly motivated to do well than less elite athletes. Other studies using the PSIS found similar results. For example, highly skilled collegiate rodeo athletes (Meyers, LeUnes, & Bourgeois, 1996) and elite equestrian athletes (Meyers, Bourgeois, LeUnes, & Murray, 1998) reported better anxiety management, concentration, confidence, and motivation compared to their less skilled counterparts.

The Test of Performance Strategies (TOPS; Thomas, Murphy, & Hardy, 1999) was developed to assess the frequency with which athletes used goal setting, relaxation, activation, imagery, self-talk, attentional control, negative thinking, emotional control, and automaticity. Athletes rate how frequently they use the various skills in competitive and practice situations. Initial findings using this scale have shown that male international competitors scored higher on goal-setting, imagery, and activation compared to less elite athletes (Thomas et al., 1999). Female international athletes had higher self-talk, emotional

control, goal-setting, imagery, activation, negative thinking, and relaxation compared to their less elite peers. College softball and baseball players who reported high use in both practice and competition of the mental skills assessed by the TOPS also revealed higher perceptions of success compared to the players who reported moderate or low use of the mental skills. (Frey, Laguna, & Ravizza, 2003).

The Ottawa Mental Skill Assessment Tool (Durand-Bush, Salmela, & Green-Demers, 2001) measures athletes' use of goal setting, stress reactions, fear control, relaxation, activation, focusing, refocusing, imagery, mental practice, and mental planning, as well as confidence and commitment. When this scale was administered to Canadian elite (national or international competitors) and competitive (college or provincial sport club) athletes, the elite athletes had higher scores on confidence, commitment, stress reactions, focusing, and refocusing compared to the competitive athletes.

Across a wide array of studies, it seems that regardless of how it is measured, elite and successful athletes consistently report using the following psychological skills, which likely contribute to their high-level performances:

- Imagery
- Attentional focusing
- Maintaining concentration
- Controlling anxiety and activation
- Positive self-talk
- Goal setting

Also, athletes who consider anxiety as facilitative or helpful to performance have been found to be more successful than athletes who interpret their anxiety negatively or as debilitating to performance (Hanton & Jones, 1999a; Jones & Swain, 1995; Jones, Swain, & Hardy, 1993). Subsequent research has shown that athletes who employed a facilitative interpretation of their anxiety also associated more positive emotional states with their athletic performance compared to the athletes who had a debilitating interpretation of anxiety (Mellalieu, Hanton, & Jones, 2003). In this study, elite athletes also reported

higher self-confidence and lower cognitive and somatic anxiety, and they interpreted their anxiety as less debilitating and unpleasant compared to the nonelite athletes. Further, nonelite swimmers' performance improved after participating in an intervention to redefine their anxiety as facilitative to performance (Hanton & Jones, 1999b).

More recently, Thomas, Hanton, and Maynard (2007) interviewed elite female field hockey players and found that "facilitators possess a refined repertoire of psychological skills that they can draw upon during the time preceding performance" (p. 394). More specifically, facilitators had refined imagery skills, used performance and process goals, and restructured negative thoughts. Debilitators attempted to implement psychological skills, yet they were unable to control the negative symptoms of cognitive and somatic anxiety.

Employing a different methodological approach, qualitative researchers examining peak performance have interviewed athletes to obtain a more detailed description of the athletes' perceptions and experiences than can be expressed through questionnaires. The explosion of qualitative research with Olympic and other elite athletes has greatly expanded our understanding of psychological attributes associated with peak performances. These studies have provided comprehensive assessment of Canadian Olympians (Orlick & Partington, 1988), U.S. Olympic teams (Gould, Eklund, & Jackson, 1992a, 1992b; Gould, Guinan, Greenleaf, Medbury, & Peterson, 1999; Greenleaf, Gould, & Dieffenbach, 2001) and professional athletes (McCaffrey & Orlick, 1989). Across these studies, a consistent pattern emerged of what Orlick and Partington (1988) called, "mental links to excellence." These athletes described

- Total commitment.
- Clearly defined goals.
- High confidence.
- A positive attitude.
- Control of arousal levels and a facilitative interpretation of anxiety.
- Daily imagery practice.
- Well-developed concentration and focusing skills.

Well-honed practice and competition plans.

Distraction control strategies.

Postcompetition evaluation and continual refinement of their mental approach.

Emphasis on quality rather than quantity of practice.

Use of competition simulation.

Adding to the previous findings, Gould, Dieffenbach, and Moffett's (2002) interviews with Olympic champions also revealed that they had high optimism, high levels of dispositional hope (i.e., a sense of control in setting and achieving goals), high productive perfectionism (i.e., personal standards), and low unproductive perfectionism (i.e., concerns about mistakes, parental criticism and expectations, doubts). These champion athletes also possessed "sport intelligence," which Gould and colleagues identified as analyzing skills and performances, being innovative regarding technique, making good decisions, being a quick learner, being "a student of the sport," and "understanding the nature of elite sport" (p. 199).

In contrast to the preceding mental links to excellence, these qualitative researchers typically found that poor performances or failure to meet one's goals was associated with feeling listless, over- or underarousal, lacking concentration, irrelevant or negative thoughts, and worrying about losing (e.g., Eklund, 1994; Gould Eklund, & Jackson, 1992a). Perhaps one of the most salient differences between more and less successful performances is the extent to which athletes adhere to their mental preparation plans and precompetition routines and how well practiced and internalized their coping strategies were. Overall, successful athletes have highly developed techniques for coping with distractions, which act as "automatized buffers" that reduce the impact of negative unforeseen events or allow them to interpret these occurrences positively. Coping strategies often included using positive thinking; a narrow, specific focus of attention; and changing their environment (e.g., avoiding potential irritants, moving away from others). The less successful athletes departed from their normal routines, abandoned competitive plans when under pressure, lost competitive

focus, and did not rigorously adhere to their mental preparation plans.

Edwards and colleagues' (Edwards, Kingston, Hardy, & Gould, 2002) qualitative study also sheds light on the mental links to poor performance. They interviewed eight elite male athletes about a "catastrophic performance." A drop in confidence was the most evident characteristic of these performances, followed by increases in cognitive anxiety, inferring their incapacitating effect on performance. These athletes also recalled feeling a loss of control as performance deteriorated and eventually resignation and withdrawal of effort.

Across all these quantitative and qualitative studies, there appear to be some commonalities in the psychological characteristics of more successful athletes. For successful athletes, the most consistent finding is that they are highly confident. Without exception, the research shows that elite and more successful athletes believed in themselves more than less successful athletes. They tended to be "psyched up" rather than "psyched out" by demanding competitive situations, such as the Olympics or World Championships. As Greenleaf, Gould, and Dieffenbach, (2001) described, successful Olympic athletes perceived the Games as a "time to shine." These athletes had numerous other commonalities and they also used a wide array of psychological skills. In particular, they used imagery and had well-developed plans for competition and for refocusing if distracted.

Overall, the successful athletes were less likely to be distracted and had a higher ability to rebound from mistakes. The psychological characteristics associated with successful elite athletic performance include the following:

High self-confidence.

Total commitment.

A strong performance focus.

The ability cope well with stress and distractions.

Good attention-focusing and refocusing skills.

An optimistic, positive attitude.

High personal standards.

Well-developed precompetition and competitive plans.

The ability to control emotions and remain appropriately activated.

A view of anxiety as beneficial.

The use of performance goals.

The use of imagery.

An interesting new theme that has emerged from recent studies with elite performers links peak performance with being creative, engaging in self-reflection, developing perspective, and having balance in one's life (Gould, Dieffenback, & Moffett, 2002). Comparable to Gould, Dieffenback, and Moffett's (2002) notion of sport intelligence, optimal performance appears to be related to training smart. Developing talent, according to Csikzentmihalyi et al. (1993), involves viewing difficult situations as challenging and enjoying the hardships inherent in perfecting skills. Being creative and reflective may allow athletes to view challenges more like a puzzle to complete rather than as a difficult situation. As Csikzentmihalyi et al. (1993) found with talented teenagers, creativity is associated with flow experiences, and flow is an enjoyable state. In all, enjoyment is one of the primary determinants of developing talent (Csikzentmihalyi et al., 1993). Part of enjoying sport excellence and being mentally tough is having balance in one's life. This new theme suggests that a broader view of psychological influences on peak performance may be appropriate.

A Profile of Mental Toughness

It seems that throughout this chapter we have been discussing what may be termed *mental toughness*. When discussing what it takes to be successful in sport, athletes often express that to have consistently strong athletic performances, they need to be mentally tough. Although athletes, coaches, and sport psychologists commonly use this term, mental toughness can be described in many different ways. In "What Is This Thing Called Mental Toughness," Jones, Hanton, and Connaughton (2002) asked 10 elite athletes (competitors from the Olympic and Commonwealth

Games) to come to a consensus definition of *Mental Toughness*. The following definition emerged:

Mental toughness is having the natural or developed psychological edge that enables you to:

Generally, cope better than your opponents with the many demands (competition, training, lifestyle) that sport places on a performer.

Specifically, be more consistent and better than your opponents in remaining determined, focused, confident, and in control under pressure. (p.209)

These attributes were verified and extended in a subsequent study with "super-elite" athletes (Olympic and world champions) and coaches and sport psychologists who worked with super-elite athletes (Jones, Hanton, & Connaughton, 2007). The components these athletes added to the concept of mental toughness perhaps reflect the super-elites' greater insight into exceptional performance. Based on the resulting broader conception of mental toughness, Jones et al. proposed a mental toughness framework that contains two subcomponents: belief and focus. Mental toughness is composed of an unshakable belief that one can achieve her or his goals regardless of obstacles or setbacks. Through focus, mentally tough athletes prioritize their long-term sport goal over all other life goals, yet they also possess the ability to switch off this focus to maintain balance in their lives, which then contributes to their success.

Further, belief and focus interact with the sport context (i.e., training, competition, postcompetition). The super-elites expressed the importance of long-term goal setting, controlling the environment, and pushing oneself to the limit in training. During competitions, mentally tough athletes:

Have an "unshakable belief" (they know they can do anything they set their minds to do).

Stay focused.

Regulate performance (increase effort as necessary).

Cope well with pressure.

Are aware of, and control, their thoughts and feelings.

Control the environment (i.e., are not affected by things out of their control).

Postcompetition, these athletes are able to cope with both failure and success. They learn from their failures and use them to motivate themselves toward future success. Balancing competitive demands with other life priorities is another essential aspect of being mentally tough. See Crust (2007) for a recent review of mental toughness research in sport.

Bull, Shambrook, James, and Brooks (2005) have developed a framework of mental toughness that seems to integrate Hanin's metaphor concept with athletes' perceptions of mental toughness. Their four-level pyramid of mental toughness reflects a developmental approach to elite athlete performance (see Figure 9-2). At the base of the pyramid, the environment provides the foundation for developing mental toughness, which is illustrated with an image of a production line. Then athletes' tough character (i.e., fairly stable personality attributes such as independence, resilient confidence, competitiveness) is akin to the engine which is fueled

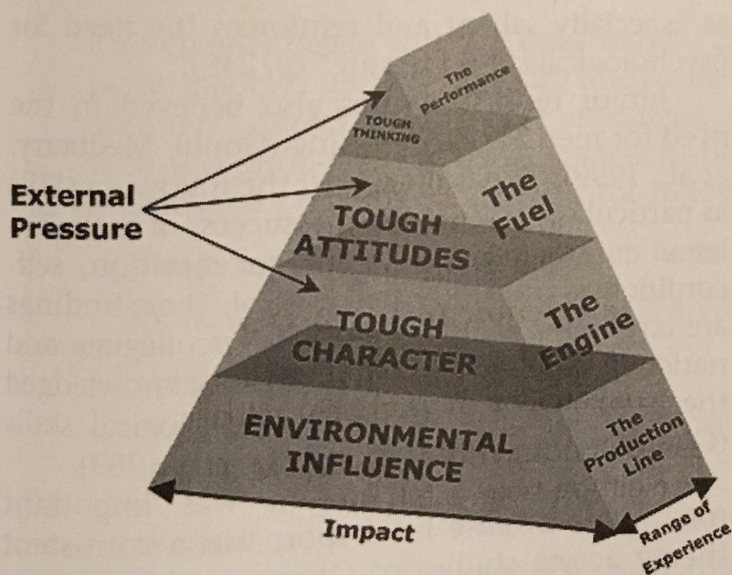


Figure 9-2 **The mental toughness pyramid**
 In Bull, S. J., Shambrook, C. J., James, W., & Brooks, J. E. (2005). Towards an understanding of mental toughness in elite English cricketers. *Journal of Applied Sport Psychology*, 17, 209-227.

by athletes' tough attitudes (i.e., belief in preparation, "never say die," and "go the extra mile" mindsets), ultimately resulting in tough thinking leading to the performance.

Team, Coach, Family, and Organizational Influences on Peak Performance

To this point, we have emphasized factors within athletes that help or hinder peak performance. Another consideration is the effect that other people may have on high-level athletic performance, such as teammates, coaches, family members, and administrators. For example, Olympic athletes believed that team cohesion was an important contributor to their success (Gould, Greenleaf, Chung, & Guinan, 2002; Greenleaf et al., 2001). In particular, having a positive team leader and strong team chemistry were considered helpful while lacking trust and confidence in one's teammates interfered with optimal performance. Athletes on Olympic teams that achieved their team goals also described having positive social support from friends and family (Gould, Guinan, Greenleaf, Medbery, & Peterson, 1999). Conversely, members of less successful teams noted poor team cohesion and a lack of trust among team members. See Chapter 7 for a more complete discussion of cohesion and its role in performance.

Coaches also can be quite influential on athletes. Ideally, coaches help athletes learn the psychological, physical, and tactical skills needed to be successful. However, coaches may unintentionally interfere with success. U.S. Olympic athletes identified that coaches with strong commitment and those who implemented a clear performance plan assisted successful performances (Gould, Greenleaf, Chung, & Guinan, 2002; Gould, Guinan, Greenleaf, & Chung, 2002). Conversely, the following coach attributes hindered team success:

- Inability to deal with crises.
- Unrealistic expectations.

Overcoaching and excessive interactions with team members.

Inability to make decisive and fair decisions.

Inability to "keep it simple."

Coaches and athletes who were on teams that did not meet their Olympic expectations also believed that negative attitudes toward the coach and poor coach-athlete communications were at least partially to blame (Gould, Guinan, Greenleaf, & Chung, 2002).

Studies of US Olympic champions (Gould, Dieffenbach, & Moffett, 2002) and young Canadian national level athletes (Côté, 1999) uncovered the critical role that parents and family members played in athletes' support network. In these studies, families provided social and emotional support and encouragement and showed interest in the athletes' sport activity while exerting little pressure to win. Additionally, family members voiced their belief in the athlete's ability to succeed, encouraged a "can-do attitude," and created an "optimistic achievement oriented climate" (Gould, Dieffenbach, & Moffett, 2002; p. 200).

Another issue affecting athletes' ability to perform optimally is organizational stress, or concerns that arise because of the management of teams. Interviews with British Olympic and elite (i.e., international competitors) athletes revealed that they experienced concerns related to finances, travel, accommodations, team selection, coaching styles, and team atmosphere (Fletcher & Hanton, 2003; Woodman & Hardy, 2001). Some athletes overtly claimed that when faced with interpersonal or financial difficulties, they had less than ideal performances (Woodman & Hardy, 2001). Interviews with U.S. Olympic athletes corroborated these findings. U.S. athletes who competed at the Atlanta and Nagano games indicated that a wide range of variables influenced their performances, including transportation difficulties, housing problems, getting event tickets for family, media distractions, and team selection issues (Gould, Guinan, Greenleaf, & Chung, 2002; Greenleaf et al., 2001). All of these factors are aspects of organizational stress. In all,

it seems that team and environmental factors affect the likelihood of peak performance.

Conclusion: What It Takes to "Make It"

There seems to be a fairly strong consensus that to become a successful elite athlete takes commitment, dedication, mental toughness, and the ability to pursue a dream in a rational manner. When top coaches and scouts in the National Hockey League were asked what determines who does and does not make it at the professional level, they used words such as desire, determination, attitude, heart, and self-motivation (Orlick & Reed, cited in Orlick, 1980). Olympic coaches felt that athletes needed confidence, social support, and cohesive teams (Gould, Guinan, et al., 1999; Gould, Guinan, Greenleaf, & Chung, 2002) and needed to be able to maintain their composure, be prepared to cope with distractions, and have a sound competitive plan (Gould, Guinan, et al., 2002). All of these attributes may be developed or enhanced by using psychological skills. Gould, Guinan, et al. (2002) concluded that, according to Olympic coaches, "the role of psychological variables was perceived as especially salient and reinforces the need for psychological skills training" (p. 248).

Junior tennis coaches also believed in the need for mental skills training (Gould, Medberry, et al., 1999). They considered the following skills as particularly essential to the success of their athletes: enjoyment/fun, focus/concentration, self-confidence, and emotional control. These findings are consistent with studies of intercollegiate and national team coaches who also acknowledged the importance of athletes' psychological skills (Gould, Hodge, Peterson, & Giannini, 1989).

That mental preparation was important for success in elite level sport was a consistent theme across studies of Olympic athletes (e.g., Gould et al., 1999; Greenleaf et al., 2001; Orlick & Partington, 1988). The Canadian Olympians in Orlick and Partington's (1988) study believed that through psychological skills training they improved their performance level and learned to

perform more consistently at their best. Many of the Olympic athletes interviewed by Orlick and Partington stated that they could have obtained their best performances much sooner had they strengthened their mental skills earlier in their athletic careers. As U.S. Olympic athletes who met or exceeded their goals pointed out, mental preparation was essential (Gould et al., 1999), whereas athletes on less successful teams felt that they did not spend enough time on mental preparation.

At this point, a word of caution is needed regarding the interpretation of the research summarized in this chapter. All of the studies presented were either descriptive or correlational. What this means is that they generated descriptions of successful athletic experiences or identified relationships between psychological skills and peak performances. Based on this type of research, we cannot make any conclusions about cause-and-effect relationships—we cannot say certain mental states cause peak performances;

we can only note that they are related. When considering the question, “Are the psychological differences between successful and less successful athletes critical to performance differences?” we cannot be absolutely sure. There seems to be a lot of evidence suggesting that psychological characteristics are associated with peak performances. Still, we do not know if athletes first learned the psychological skills necessary to achieve an ideal mental state or if they developed these characteristics by being consistently successful (that is, being successful leads to being confident of continued success) (Heyman, 1982). It also is plausible that athletes with certain psychological strengths are drawn to elite level sport. We may never know what causes an ideal mental state. However, given the weight of the evidence presented, it seems safe to assume that athletes use psychological skills in pursuit of their athletic goals and that they have consistent psychological profiles when they compete at elite levels.

Summary

This chapter began with the questions “Is there an ideal body–mind state associated with peak performance?” and “If so, is this ideal state similar from one athlete to another or one sport to another?” Across a wide range of sources, a certain psychological profile appears to be linked with successful athletic performance. Although there are individual variations, in most cases this general profile is depicted by the following characteristics:

- High self-confidence and expectations of success.
- Self-regulation of arousal (energized yet relaxed).
- Feeling in control.
- Total concentration.
- Keen focus on the present task.
- Viewing difficult situations as exciting and challenging.
- Productive perfectionism (i.e., have high standards, yet flexibility to learn from mistakes).
- Positive attitude and thoughts about performance.
- Strong determination and commitment.

Mental states associated with poor performances include self-doubts, acting contrary to normal performance routines, focusing on distractions, concerns about the outcome or score, over- or underarousal, and lack of concentration.

This ideal performance state does not just happen. Top-level athletes have identified their own ideal performance state and have learned, intentionally or subconsciously, to create and maintain this state voluntarily so that their talents and physical skills thrive. Achieving one's own ideal internal psychological climate is not a simple task. As Orlick and Partington (1988) stated, "Mental readying is derived from a number of learned mental skills that must be continually practiced and refined for an athlete to perform to potential and on a consistent basis" (p. 129). Accordingly, elite athletes employ meticulous planning for competitive performances. Generally, this involves

- Setting goals.
- Using imagery.
- Developing competition and refocusing plans.
- Practicing coping skills so they become automatic.
- Employing competitive simulation.

Successful athletes also have highly developed coping skills that they use to deal with the demands of practice and competition. They are quite diverse and typically encompass

- Thought control strategies.
- Arousal management techniques.
- Interpreting anxiety as facilitative to performance.
- Attention control.
- Refocusing skills.

Successful athletes also have strong support networks that include their families, friends, teammates, and coaches. Having high team cohesion, good communication and relationships with coaches, and minimal organizational stress are associated with elite performances. Conversely, lacking team cohesion, trust, or confidence in one's teammates or coach hampers good performances. When coaches make poor decisions, have unrealistic expectations, or have poor coping or communication skills, they can interfere with athletes' optimal functioning. Problems with travel and accommodations, concerns about team selection, financial problems, and other administrative issues also may negatively affect athletes.

The commonalities in mental states and psychological skill use have led researchers and practitioners to conclude that the right psychological climate helps mobilize mental and physical reactions that are essential to performing at one's best. Conversely, things that create a negative mental climate will impede the likelihood that an athlete can perform optimally. Through teaching athletes to control unproductive mental states and enhance the productive ones, athletes will be more likely to create ideal performance states. Psychological skills are learned through knowledge and practice, just as physical skills and competitive strategies are learned. Some gifted athletes may perfect these mental states on their own, but most need to be taught specific training techniques.

The remaining chapters in this section of the book address specific psychological states associated with peak performance and, when appropriate, provide techniques for learning to create and maintain desirable mental and physiological states. Chapter 10 is unique in that its purpose is to help coaches and sport psychologists learn how to assist each athlete in identifying his or her own internal psychological climate for peak performance and to identify those factors that tend to enhance or detract from this ideal climate. Such awareness is the first step in mental skills training. In the chapters that follow, it becomes obvious that peak performance need not be a unique, temporary, involuntary experience. It is a product of the body and mind, and it can be trained. Just as improving physical skills, strategies, and conditioning increases the likelihood of peak performance, learning to control psychological readiness and the ideal mental climate for peak performance also enhances performance.

Study Questions

1. Define peak performance.
2. Think back to your own best sporting performance. What were the psychological states that you experienced? How does your experience compare to the descriptions about the psychological characteristics of peak performance in the research?
3. Summarize the psychological states typically associated with peak performances.
4. Define *flow* and describe its dimensions.
5. What are factors that will enhance and hinder flow experiences?
6. What is the Individualized Zone of Optimal Functioning (IZOF) model and how does it relate to peak performance?
7. Describe several metaphors you associate with successful and less successful performances.
8. What are the primary psychological characteristics that distinguish between more and less successful athletic performances?
9. Summarize the major psychological characteristics of elite athletes.
10. What are the primary psychological skills that elite athletes use? What is the association between these skills and peak performance?
11. Describe mental toughness and its relationship to performance.
12. Describe how athletes' relationships with their teammates may influence optimal performance.
13. What are things that coaches may do that will interfere with peak performance?
14. What is organizational stress and how might it influence athletes' performances?
15. If you were a coach or administrator, how would you minimize the problems faced by Olympic athletes who did not achieve their goals?

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