

# Sport Psychology: Psychologic Issues and Applications

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The field of sport and exercise psychology explores the relation between psychologic factors and optimal performance. Sport psychology is slowly becoming an integral aspect of the holistic care of sports medicine and physical rehabilitation patients. The physician specialist should have some knowledge regarding the various facets of sport and performance psychology, because many of these skills are relevant to the care and management of an athletic population. For purposes of this article, the areas of “sport” and “performance” psychology are discussed, because many sports medicine and physical rehabilitation professionals find their practices expanding into other performance arenas.

Performance psychology is used in this article to represent the various environments under which mental skills enhancement can be useful. Sport psychology represents the use of mental skills training within the sport and exercise domain. The author has found that many of the techniques he uses with elite athletes have had comparable success with elite musicians, actors, and dancers. Therefore, the skills that are addressed in this article, although related to the sport environment, may be helpful for various forms of performance. In fact, the author carried the title of “Performance Psychologist” for one of the professional sports teams for which he once consulted; this allowed him to expand the role of psychologic consultation within his contracted position. The physical medicine and rehabilitation professional can benefit his or her understanding of the diversity of performance issues and problems that may affect patients by the material presented in this article.

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Topics addressed in this article include a brief review of the history and current issues of sport psychology, a quick summary of “mental skills” training techniques, and a discussion of specific performance concerns related to the injured athlete. The author summarizes by presenting a “model” of psychologic practice within a sports medicine setting in which he currently functions. If a physical medicine professional is to establish a “holistic” philosophy of care, the understanding of underlying psychologic processes, along with a model of care, is necessary.

### **History and current issues**

Sport psychology dates back to the turn of the twentieth century [1]. It is a relatively young discipline, yet it has a history unappreciated by most clinicians. This history is patchy at best, with roots in applied and academic sport psychology, which are primarily housed in departments of physical education and kinesiology. Rarely is sport psychology recognized as a specialty within psychology departments.

In the late 1800s and early 1900s, sport psychology had its beginning. It was Norman Triplett, who conducted the first experiment in sport psychology in 1897 by investigating the performance of cyclists. After finding that young children performed better on a rote motor task in the presence of other children, he concluded that cyclists would usually perform better in the presence of other cyclists. Other studies taking place at about the same time included looking at motor behavior by exploring an individual’s reaction times as well how personality development was influenced by sport. None of these experiments and studies, however, were directly applied to athletes or sporting realms [1].

Since the United States Olympic Committee (USOC) hired their first full-time sport psychologist in 1985, the applied realm of sport psychology has continued to grow tremendously (the USOC now has four full-time licensed psychologists representing their Sport Psychology Department within the Division of Sport Science). Journals within the area of sport psychology began to be published. Division 47 (Exercise and Sport Psychology) in the American Psychological Association (APA) was established, recognizing, for the first time in history, the uniqueness offered to the field of psychology in sport. In addition, the 1988 Olympic Games were the first time that teams were accompanied to the games by a sport psychologist. Other advancements in the field include the establishment of the Association for the Advancement of Applied Sport Psychology (AAASP) in 1986 and the beginning of the *Journal of Sport Psychology* in 1979. In 1991, as a way to advance this burgeoning field further, the AAASP established criteria designating a “certified consultant” in the field of sport psychology as a way to improve the clarity and understanding of a sport psychologist. More recently, Division 47 of the APA has begun to establish a “proficiency” document for members to help guide the unique training standards

(eg, education, training, supervision) that a psychologist would be wise to undertake to practice in the field of applied sport and performance psychology.

The applied realm of sport psychology has been growing rapidly in use and popularity since the 1990s. This use, however, has not been limited to elite athletes, such as those represented at the Olympic Games. Applied sport psychology is finding use not only at the Olympic and professional levels but at the collegiate, high school, and youth levels. Many well-known professional athletes in football, baseball, basketball, and golf have been sharing their beliefs that sport psychology enhances performance, along with physical and technical skills. Some collegiate athletic departments now employ full-time psychologists for their student-athletes. The amount of requests for sport psychology services at high school and elementary school levels and youth camps has grown tremendously in recent years.

Applied sport psychology covers all sports, not just the more visible ones, such as football, baseball, and basketball. Sport psychology is being used and sought after in motor racing, mountain biking, rowing, soccer, and rifle and pistol shooting to name just a few. Many physicians, attorneys, and corporate executives are requesting that sport psychology principles be applied to the “performances” in their respective settings. The author also developed and implemented a performance psychology education and intervention program with one of the US Armed Services officer candidate training schools; initial results demonstrated enhanced performance in military “skills” applications with the use of performance psychology skills. The applied possibilities in performance psychology seem almost endless. Recent growth in the area of “positive psychology” has heightened awareness of the unique contribution of applied sport and performance psychology techniques.

Although the field has come far in the last 15 years, especially in the area of applied sport psychology, it has not been without its controversies. Probably the largest debate in the field of sport psychology involves the question of what is a “sport psychologist” and who is able to identify themselves as such. Two primary groups identify themselves as sport psychologists, one from the academic side and the other from the applied side. There exist the academicians and researchers in exercise and sport psychology and physical education who identify themselves as such and are concerned with how an athlete can increase speed, motor control, or other physical capabilities to enhance performance. The sport psychologist in applied settings, conversely, has typically been concerned with the mental and emotional well-being of the athlete and uses psychologic theory and concepts in the sport world.

A special note must be made at this point. Individuals do exist who identify themselves as sport psychologists and have had little or no training in psychology or little or no training in exercise science. Who are these individuals? Some of these individuals are persons who have coached a child’s

basketball team, played tennis most of their life, or solely have a subscription to *Sports Illustrated*. Consumers and clinicians must be aware of people who identify themselves as sport psychologists but have little or no formal training. Because of the popularity of sport and the money and prestige surrounding it, it is quite seductive for people to attach themselves to an area filled with such glamour. The organizations within sport psychology are currently trying to refine the requirements of being a sport psychologist, and the author of this article later discusses what he believes to be the criteria for identifying oneself as a sport psychologist. Because most readers of this publication are physical medicine physicians or sports medicine professionals, it should be recognized that a referral made to a nonlicensed sport psychologist may be an inappropriate referral. In this growing field, it is important to ask the referral specialist about his or her licensure status (is he or she a “licensed” psychologist) and training in the field of sport psychology (competency).

In 1991, the AAASP did identify requirements of being a “certified consultant” in the field of sport psychology as a step toward clarifying the training required to be a sport psychologist. Murphy [2] summarizes the criteria as follows:

1. A doctoral degree
2. Knowledge of scientific and professional ethics and standards
3. Three courses in sport psychology
4. Courses in biomechanics or exercise physiology
5. Courses in the historical, philosophic, social, or motor behavior bases of sport
6. Coursework in pathology and its assessment
7. Training in counseling (eg, coursework, supervised practice)
8. Supervised experience with a qualified person in sport psychology
9. Knowledge of skills and techniques in sport or exercise
10. Courses in research design, statistics, and psychological assessment
11. Knowledge of the biologic bases of behavior
12. Knowledge of the cognitive-affective bases of behavior
13. Knowledge of the social bases of behavior
14. Knowledge of individual behavior

Although these criteria are a step in the right direction, further work is necessary. These criteria are still somewhat vague and, unfortunately, carry disagreement among the field. The question still remains as to what constitutes a qualified and competent sport psychologist. The Exercise and Sport Psychology (Division 47) group within the APA has recently advanced a document that highlights a proficiency in applied sport psychology for APA members. This author would argue that an academic sport psychology professional would best refer to his or her applied work as a “mental training consultant” rather than any form of “psychologist” (a title requiring licensure in most states). Additionally, the author would argue that a licensed

clinical or counseling psychologist who identifies himself or herself as a “sport” psychologist should be able to demonstrate competency in the area of sport and performance psychology. This competency could be defined by academic preparation, training, supervision, and experience in working within sport and performance psychology domains.

This brief history and review of current professional issues in sport psychology should assist the physical medicine professional in making appropriate referrals or including psychologic services in a holistic physical medicine and rehabilitation practice. By acknowledging the “growing pains” of an ever-evolving field, the further professionalism of the field can be advanced.

### **Mental skills in sport**

This section covers some of the “basic” psychological skills that are used with mental training and performance enhancement. This overview highlights some of the specific psychological skills that enhance confidence, composure, and focus (attention) in individuals who use these skills.

Many coaches and athletes attempt to put in more physical practice to correct mistakes made during competition. The mistakes, however, are attributable to mental breakdowns many times as opposed to physical or technical ones. The athletes actually need to practice mental rather than physical skills. In the same way, physicians working in sports medicine or physical medicine facilities or with athletes sometimes forget or do not realize how mental skills can be used in their work.

Even though coaches, athletes, and sports medicine physicians agree that more than 80% of the mistakes made in sport are mental, they still do not attempt to learn or teach mental skills that can assist athletes on the field or during rehabilitation (C. Carr, PhD, HSPP, T. Kays, unpublished data 1997). First, sports medicine and other physicians’ lack of knowledge about mental skills prevents them from using these mental skills in their work with athletes (as patients). Even though physicians may tell their athletes to “just relax” as they go through rehabilitation of an injury, they do not provide them with the knowledge of how to do so. Second, mental skills in sport are often viewed as part of an individual’s personality and something that cannot be taught. Many physicians believe that injured athletes have or do not have the mental toughness to progress through rehabilitation. Mental skills can be learned. Injured Olympic athletes report practicing mental training on a daily basis. Furthermore, not only can these skills be learned, but they do not require an excessive amount of time, another reason why physicians working with athletes neglect mental training (ie, reporting not having enough time).

The following section briefly discusses some of the mental skills necessary for athletes to improve their chances of optimal performance in their sports, whether on the field or in the training room. These skills are the basics, and

much more depth and detail than this article allows are needed to explain and understand the power of the mind in sport completely.

### *Goal setting*

Goal setting is one of the primary mental skills used by athletes. In fact, this skill is helpful and even necessary to develop other mental skills. Csikszentmihalyi [3] discusses goal setting as one of the necessary components of achieving a “flow” experience. He describes flow as an experience in which a person achieves peak performance. Other expressions used for this flow experience include “in the zone,” “autopilot,” and “playing unconscious.”

It is not typically a problem to get athletes to identify goals. The difficulty comes in trying to help athletes set the right kind of goals: ones that provide direction, increase motivation, and guide them to achieving optimal performance. Athletes, and most people for that matter, do not need to be convinced that goals are important. They do, however, need instruction on setting good goals and a program that works to achieve them. This type of skill development is essential in physical medicine, where specific interventions are used to enhance functioning in the injured or rehabilitative patient.

It is demonstrated in empiric research that goal setting can enhance recovery from injury [4]. The research also demonstrates that certain types of goals are most effective in helping athletes achieve these goals. Several goal-setting principles that provide a strong base to building a solid goal-setting program have been identified:

1. Set specific goals.
2. Set challenging but realistic goals.
3. Set long- and short-term goals.
4. Set performance goals.
5. Write down goals.
6. Develop goal-achievement strategies.
7. Provide goal support.
8. Evaluate goal achievement.

### *Set specific goals*

Research illustrates that setting specific goals produces higher levels of performance than planning no goals at all or goals that are too broad [5]. Yet, many times, physicians tell patients to “do their best” or “give everything you have” regarding their recovery. Although these goals are admirable, they are not specific and do not help athletes to move toward optimal performance. Goal setting needs to be measurable and stated in behavioral terms. Instead of an athlete setting his or her goal to “get better,” physicians can help these injured athletes to set a more appropriate goal, such as “increasing leg press weight by 25% over the next 2 weeks.”

### *Set realistic but challenging goals*

The research indicates that goals should be challenging and difficult yet attainable [6]. Goals that are too easy do not present a challenge, and thus can lead to less than maximal effort. Goals that are too difficult lead to failure many times, which results in frustration. This frustration leads to lower morale and motivation. Somewhere between these two extremes are challenging and realistic goals.

### *Set long- and short-term goals*

Many times, injured athletes discuss a long-term goal of returning to play after a serious injury. This goal is necessary and provides the final destination for the athletes. It is important, however, for physicians to help them focus on short-term goals as a way in which to attain long-term goals. For example, a physician can make certain that an injured athlete sets daily and weekly goals in the rehabilitation process. One way to use this principle is to picture a staircase with the end or long-term goal at the top of the staircase, the present level of performance at the base of the stairs, and the short-term goals as the steps between.

### *Set performance goals*

It is important for physical medicine physicians to assist patients in setting goals related to performance “process” rather than outcomes, such as returning to play. Murphy discusses “action goals” versus “result goals” as being extremely important and often missed by physicians [7]. With action-focused goals, athletes concentrate their energies on the “actions” of a task as opposed to the “outcome.” Action goals give focus to the task at hand, are under the athlete’s control, and produce confidence and concentration. Result-focused goals, however, are not productive and often lead to slower recovery. These types of goals give focus to irrelevant factors and things outside the control of the athlete, and they tend to produce anxiety and tension. For example, if a collegiate tennis player is working back after a serious shoulder injury, physicians can help him or her by setting action goals, such as lifting a certain weight or obtaining a certain degree of flexibility, that lead to the outcome, full recovery.

### *Write down goals*

Sport psychologists have recommended that goals be written down and placed where they can be easily seen on a daily basis [7,8]. Athletes may choose to write them on index cards and place them in their locker, locker room, or bedroom. Many times, physicians and athletes spend much time with goal-setting strategies only to see them end up discarded in some drawer. The manner in which goals are recorded is varied, but the important fact is that they remain visible and available to athletes on a daily basis.

### *Develop goal-achievement strategies*

This aspect of goal setting is often neglected, because goals are set without appropriate strategies to achieve them. An analogy to this faulty process is taking a trip from Indianapolis to San Jose without having a map. It takes one much longer to reach the final destination without a map. For example, physicians may encounter a patient with frequent flu-like symptoms. This patient needs to use appropriate strategies that can assist him or her in reducing the frequency of these symptoms, such as working on improving nutrition, sleep hygiene, stress management, or time management.

### *Provide goal support*

Research in the sport psychology literature has demonstrated the vital importance that significant others play in helping athletes to achieve goals [9]. In fact, it has been shown that exercise adherence is strongly affected by spousal support [10]. Physical medicine physicians need to enlist the support and help of parents, faculty, friends, and others to help athletes focus on the actions required to achieve success (ie, returning to play).

### *Evaluate goal achievement*

Evaluating progress toward goals is one of the most important aspects of goal setting; yet, it is frequently overlooked. Injured athletes may spend considerable time in setting goals and devising programs, but this activity is for naught if they do not regularly monitor their progress in achieving these goals. To draw an analogy from philosophy, just as an unexamined life is not worth living, unexamined goal setting is not worth doing.

### *Arousal control*

#### *What is arousal control?*

Have you ever watched the National Collegiate Athletic Association (NCAA) basketball finals and wondered how a player can make a free throw or last second shot with thousands of people screaming and millions of people watching on television? If you are like most, we wonder in amazement at how athletes are able to remain calm during such times of high pressure and anxiety. The fact is, however, that these athletes are actually nervous; they do have “butterflies” in their stomach. The skill, however, that they have developed is to use this anxiety as a way to perform their best, to make the butterflies “fly in formation,” so to speak. Similarly, when athletes become injured, they typically experience affective, somatic, and cognitive anxiety. They experience physical pain, lose their place in the line-up, and are not able to perform at their best or participate in something that is a major part of their life and identity. Sports and physical medicine physicians, however, can help the athletes learn to use the anxiety surrounding their injury as way to help them recover quicker.



The theories of arousal regulation are many but too extensive for the current article. For a review and more explicit detail of these theories, the reader is referred to the article by Van Raalte and Brewer [11].

### *Arousal regulation techniques*

*Breathing.* Perhaps the most simple yet most important technique to regulating anxiety is breathing [12]. It is common for athletes to take short quick breaths when confronted with a stressful event or situation, such as rehabilitating an injury. This action may result in the muscles becoming tense and fatigued, both of which prevent optimal performance in recovery. Taking slow deep breaths allows athletes to enable oxygen intake and reduce their heart rate; both can assist them in recovery.

*Muscle relaxation.* One of the most potentially damaging aspects of anxiety for athletes is muscle tension [13]. If an athlete's muscles are tense, he or she is not able to perform the kinesthetic tasks required by his or her sport or rehabilitation process in a free-flowing and smooth manner. Therefore, for athletes to perform their best, they must learn to relax their muscles. If the muscles are not relaxed, the athlete's movements are rigid, short, and tight.

How do athletes learn to relax their muscles? Edmund Jacobson's progressive muscle relaxation (PMR) technique laid the groundwork for most current relaxation procedures. His technique and other similar ones allow athletes to become aware of different muscle groups, how they hold tension in these areas, and also how to release this tension. Physical medicine physicians can be extremely helpful by teaching these patients to perform this mental skill as a way of making their rehabilitation less painful and return to play quicker.

### *Concentration and focus skills*

Knowing what to focus on and when to focus on it are essential to optimal athletic performance. Highly talented athletes often fail to achieve their best performance not because of a lack of ability but because of an inability to focus on the "cues" that are necessary for optimal performance. For example, a baseball pitcher may be able to throw an excellent 85-mph slider in his warm-up, but if he is unable to throw it in a game situation, he is not likely to have optimal performance.

Concentration skills can be enhanced through the use of mental skills, such as imagery, cognitive strategies, and attentional control strategies. For purposes of this article, a brief review of these skills is presented.

### *Imagery*

What is the mystery in imagery that has helped elite athletes, such as Jack Nicklaus, Tiger Woods, and Greg Louganis, to compete so well? There is no

mystery at all. Imagery is a human capacity that many people do not know about or have chosen not to use. It is a skill that few athletes have developed to its full potential or realized its possible applications.

Imagery is a process by which sensory experiences are stored in memory and internally recalled and performed in the absence of external stimuli [7]. Furthermore, imagery is more than visualization and more than just the sense of vision. To maximize its potential, imagery must be a multisensory event, involving as many of the senses as possible, including the sense of sound, touch, and movement.

Imagery has many uses for athletes, including regulating arousal level and rehabilitation from injury [4,14]. Imagery is useful for coping with pain and injury by speeding recovery as well as keeping athletic skills from deteriorating. It is difficult for athletes to go through an extended lay-off, but instead of feeling sorry for themselves, they can imagine doing practice skills and thereby facilitate recovery.

### *Cognitive strategies*

Self-talk is one of several different cognitive strategies in sport. It occurs whenever an individual thinks, internally or externally. Sport psychologists are concerned with the self-talk of athletes and how it influences their focus and concentration, arousal level, and performance. In general, self-talk is the conscious and subconscious dialog that occurs in the athlete's mind before, during, and after competition. For example, a golfer hitting his driver may incorporate the self-talk strategy of saying "head down, hips solid, follow through" as the internal dialog before the execution of the swing. The literature in this area is too extensive to cover in this article, but the preponderance of research supports the hypothesis that positive self-talk creates better or "no worse" performance.

Self-talk has a direct impact on our emotional experience. If athletes are engaging in negative self-talk, their affective experience may be one of frustration, anger, or extreme anxiety. These emotional states challenge breathing, increase muscle tension, and create a loss of concentration and focus, resulting in lower performance. If an athlete's self-talk is positive and relevant, however, the resulting emotional experience is one of relaxation, calmness, and centeredness; as a result, the chances of good performance increase dramatically. Physical medicine physicians can assist patients by teaching and discussing positive self-talk and the difference it can make during the rehabilitation process.

### *Attentional control strategies*

*Concentration.* Concentration is the ability to focus all one's attention on the task at hand. For physicians and their athletes, concentration is being able to direct all attention to the recovery process. When athletes experience anxiety, however, maintaining attention on the task at hand becomes more

difficult. Concentration also becomes more narrow and internally directed toward worry, self-doubt, and other task-irrelevant thoughts [15].

Part of the definition of concentration involves paying attention to “relevant environmental cues.” This ability to give one’s full attention to only the relevant parts of a task is sometimes difficult to do. Think about a football player recovering from a serious knee injury. Which cues are relevant and which are irrelevant? Relevant cues include the rehabilitation process: keeping appointments with the physical therapist, good goal setting, and following the physician’s recommendations regarding treatment. Irrelevant cues, however, might include the thoughts of friends or the next opponent on the schedule. These cues have absolutely nothing to do with rehabilitation. The physical actions required to rehabilitate the knee do not change regardless of the next opponent. It is important that the rehabilitation specialist advise the patient on the factors that are controlled by the therapist, the patient, and the physician. By encouraging patients to focus (eg, set goals) on the components of rehabilitation that they control (eg, effort), patients may feel more empowered and motivated.

*Improving concentration skills.* Physicians can be extremely beneficial in helping athletes to maintain their concentration levels on the task at hand (ie, rehabilitating an injury). First, physicians can remind their patients that just as they are skilled to maintain focus in high-pressure situations (ie, an athlete shooting free throws to win a game), they can do this same thing in the recovery process.

Second, patients can use cue words to help bring their full attention to the tasks in rehabilitation. For example, a tennis player recovering from an elbow injury might use the words “stay loose” as he or she lifts weights to strengthen the elbow or the word “breathe” to remind himself or herself that deep breathing assists relaxation during times of intense pain.

Furthermore, much research has demonstrated that routines can focus concentration and be extremely helpful to mental preparation [16,17]. The mind can easily wander during rehabilitation. Injured athletes might worry about losing their position or the reactions of coaches and teammates. These are the times when routines are ideal. For example, when a patient is performing rehabilitation exercises, he or she might take a deep breath, imagine what he or she wants to do in the session, and then say one or two cue words to maintain this focus.

Finally, the importance of staying focused in the “here and now” (present) is relevant. Many times, athletes get caught up in thinking about past injuries or what might happen to their position on the team after returning, causing them to lose focus on the relevant cues of the rehabilitation process at the present time.

In summary, to develop an effective mental skills plan, a patient who is an athlete may incorporate the use of many specific and defined behavioral skills in a structured manner. This type of detailed skill development

requires more than a simplistic (“they are not tough enough”) approach. Rather, it is a systematic plan of skills that are individualized to account for the patient’s age, skill level, sport-specific demands, and individual abilities [18].

### **Psychologic factors with athletic injury**

An inevitable aspect of sports participation is the risk of athletic injury. Injuries ranging from lacerations, to ligament sprains, to fractured bones are an undeniable aspect of the sports world. For the physical or sports medicine professional, this is commonsense. Yet, to “treat” the injured athlete fully, what is done for his or her “psychologic” (compared with “physical”) recovery? For example, to inform a patient that he or she is to have an anterior cruciate ligament (ACL) reconstruction that requires surgery followed by extensive rehabilitation before his or her return to play is one aspect of care. What if the injury occurs 2 weeks before a championship contest or right before a national scouting combine, where his or her individual talents are going to be assessed with the potential reward being millions of dollars? At this point, a significant emotional, mental, and behavioral dynamic occurs that should be treated. A well-timed referral to a sport psychologist may enhance not only the emotional and mental recovery of the athlete but his or her physical recovery.

The purpose of this brief section is to review some of the expected emotional, behavioral, and cognitive responses of the injured athlete. Heil [19] authored a comprehensive text that addresses many of the psychologic dynamics of the injured athlete. For purposes of this section, the following “stages” of response to athletic injury are highlighted [19].

#### *Point of injury and immediate postinjury response*

The most immediate emotional response at the point of injury is shock; the degree of shock may range from minor to significant, depending on the severity of the injury. For example, an open fracture that is observed by the injured athlete may stimulate more of a shock response than a minor laceration. Individual personality differences may have an impact on the shock response, however. Second, there may be a pattern of emotional disorganization, where the individual may demonstrate atypical emotional responses to external or internal stimuli. For example, an injured athlete may become “giddy” on the sidelines during an examination. This response is an adaptive emotional response to a potentially traumatic event; it is a “normal” response to an abnormal event (injury trauma). Finally, the first denial response occurs, typically in an “I can’t believe this happened” response. It is important to note that “denial” itself is an adaptive response that allows an individual to manage extreme emotional responses to situational stress.

As denial presents at the first stage of injury, it may resemble an attempt to recover. This may become an unrealistic expectation of recovery. For example, the athlete with a diagnosed ACL tear may tell an athletic trainer “I’ll be ready to go next week”; in fact, the athlete may really believe this as truth during this stage. With little or no intervention, however, the reality of the injury is confronted and the athlete moves to the second stage of response.

### *Treatment decision and implementation*

This stage is filled with uncertainty for the athlete; lack of knowledge about medical treatments and potential rehabilitation may create excess anxiety. This “reactive” anxiety to the injury and treatment decision may become “anticipatory” anxiety as surgery dates come closer. These anxiety responses may be mild, moderate, or severe in regard to the disruption of daily functioning for the athlete. A psychologic referral for even mild anxiety may facilitate more effective coping and response skills, given the therapeutic relation.

An additional factor to consider is the athlete’s decision-making skills, because some athletes may not have a significant support system (eg, parents) available at the time of making a decision about treatment. If surgery is required and the athlete has no previous surgical experience, there is adaptive anxiety to manage the realities of anesthesia, pain, and physical restrictions. If the athlete is a collegiate student-athlete and far from home (eg, across the country or foreign), there are additional stressors because of the distance from that individual’s primary support network. It is often at this stage that referral to a sport psychologist may best assist the athlete in recovery. The athlete may be more open to support during this time of decision making, and a psychologist can assist in the decision-making process as well as providing emotional support.

### *Early and late rehabilitative (after surgery)*

Whether the intervention is surgical or nonsurgical, there may be a series of emotional, behavioral, and cognitive responses that follow the implementation of treatment. Primarily, there may be affective responses that seem “atypical” to the athlete’s baseline behaviors. These emotional responses may be in the form of depression (acute), anger, confusion, or frustration. Again, individual differences vary based on the athlete’s personality style, adaptive coping skills, and social (eg, family) support network.

If there are delays in scheduled recovery times or disruptions in the healing process (eg, infection), anger or withdrawal may become the affective response. Although anger is a difficult emotion to manage, a nonbehavioral display of anger is an adaptive response. Because withdrawal is more “comfortable” for the health care provider, it may feel like an adaptation to injury; however, this withdrawal may exacerbate symptoms of depression that may lead to further disruption in functioning.

Another factor to consider in the psychologic rehabilitation of the injured athlete is social support networks. A team physician should be aware of the athlete's team "environment" during injury rehabilitation. If the environment is negative and punishing (athletes with some injuries are disregarded as "weak" or "faking"), the sports medicine personnel become more of a support network for the athlete. It is important to educate coaches and to hold them responsible for the teammates' attitudes and behaviors; however, it is primarily the coaching staff whose support is most needed (and often is most neglectful). The team physician or director of sports medicine should have a supportive process for informing, educating, communicating, and reinforcing an emotionally secure environment in which the athlete may recover.

### *Return to play*

This stage of injury rehabilitation often presents with the dynamics of fear and relief. These emotional responses may conflict with one another during what seems to be a desirable period for the athlete—returning to competition. Fear of reinjury and fear of being able to compete and perform are typical affective responses for the athlete. When discussed and identified as normal adaptations to the emotional demands of competition and recovery, many athletes move through this stage well. When the athlete ruminates or obsesses about his or her full recovery status, the feelings of fear may create inhibition in rehabilitation, or perhaps even questions doubting his or her abilities. If the athlete has been working with a psychologist, these emotional and cognitive beliefs have been discussed and processed; thus, adaptive plans would be ongoing and implemented. If the athlete has had no opportunities to discuss emotional responses to the injury, these fears may create significant disruption to coping (eg, compliance to rehabilitation decreases).

The use of mental imagery is often useful to facilitate the "relief" response and to visualize optimal performance with a healthy body. The use of imagery in injury healing as well as in return to play and action can be an effective instrument in the psychologic care of the injured athlete.

These stages of the injury process display a variety of emotional (eg, depression, anger), behavioral (eg, rehabilitation noncompliance), and cognitive (eg, negative beliefs about future performance) responses from any athlete. Although these responses may range from mild to severe, a psychologic referral can be helpful in facilitating adaptive processing of these psychologic demands. The sports medicine professional who aspires to holistic care of the athlete should have, or create, the appropriate referral network for the psychologic health of the injured athlete. A psychologist can provide the supportive counseling and consultation to assist the athlete in his or her emotional and cognitive recovery from injury.

### **Sport psychology services within a sports medicine setting**

A sport psychologist is an important component of any sports medicine team. His or her practice is devoted to the psychologic care of and consultation with the athletic population regardless of the level of competition (ie, professional, elite amateur, collegiate, high school, other youth athletes). Services are also provided for other elite performance organizations, including performing arts and the military.

Psychologic services provided include individual and group counseling (private practice), which may be third-party reimbursable for diagnostic conditions (eg, injured athletes with mood disorders). Often, the psychologist works in collaboration with primary care sports medicine physicians, orthopedic surgeons, and physical medicine specialists with medication management, rehabilitation education, and counseling to provide the optimal level of care for some mood and anxiety disorders. Other individual consultation may provide performance enhancement counseling, which uses psychologic skills to enhance athletic performance (eg, imagery skills for golf). Although many of these consultations do not treat a specific *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* diagnosis, the development of cognitive and behavioral skills to enhance composure, confidence, and focus is desirable by many elite-level performers.

A staff psychologist also provides consultation with sports organizations and encompasses personal and performance counseling issues. Additionally, educational and consultation work with coaching staff, sports medicine staff, and administrative staff can enhance the development of optimal skills within the athletic environment. This “positive” psychology orientation also leads to lectures and workshops in the surrounding community, including work in educational systems, medical systems, and youth sport organizations. The role of a licensed psychologist with sport psychology training and experience is an invaluable adjunct to a comprehensive sports medicine staff. The need and demand for services continue to develop as athletes and other elite performers seek to gain the “mental edge” in their competitive venues.

### **Summary**

This article has briefly highlighted the area of sport psychology as it relates to performance psychology skills (mental training), including a historical overview and current topics overview. The use of mental training skills may be of interest to the practicing physical medicine and rehabilitation professional in the treatment of his or her patients. It is important that the physical medicine professional recognizes what sport or performance psychology represents within the paradigm of psychologic interventions. Referring to an individual based on his or her training (licensed psychologist versus mental training consultant) is essential for the appropriate management of

psychologic issues related to performance. The issues related to the psychologic rehabilitation of the injured athlete are of importance to the medical staff; the overview of affective responses can assist in understanding the normal and adaptive responses of the injured athlete. Finally, a brief description of a psychologist's role within a sports medicine and rehabilitation practice is presented.

The psychologic issues that are present in the world of sport and elite performance are numerous, and not all are mentioned in this article. Issues of eating disorders, substance abuse, and psychologic health with athletes should be further explored within the physical medicine and rehabilitation discipline as well as in the sports medicine discipline. The ever-evolving psychologic dynamics of individuals involved in sport and elite performance are intriguing and unique. A specialized knowledge base, training, and experience in providing psychologic services are required to treat this unique population. Counseling and clinical issues of the athlete and elite performer require further attention in the realm of psychologic interventions, including further exploration of the efficacy of interventions for performance enhancement. The field of applied sport psychology may offer the physical medicine professional a unique perspective into the care of patients who are athletes and elite performers.

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