CHAPTER 9

SPORT AND EXERCISE PSYCHOLOGY

OBJECTIVES

After reading this chapter the student should be able to—

■ Describe the psychological benefits of participation in physical activities.
■ Understand the different theories of behavior and their potential application to exercise behavior.
■ Discuss the roles of anxiety and arousal in the performance of motor skills and the application of intervention strategies to enhance performance.
■ Understand motivation, goal setting, self-talk, and imagery and how they can be effectively used in physical education, exercise, and sport.

Sport and exercise psychology has its legacy in psychology. In the 1970s, as the academic scope of physical education grew, sport psychology emerged as a subdiscipline. Initially, sport psychologists focused on competitive sport and the elite athlete. As the subdiscipline grew, sport psychologists became interested in studying participation in exercise and other facets of physical activity. Additionally, their focus broadened from working with elite competitors to include people of all ages and abilities. The name of the subdiscipline today, sport and exercise psychology, reflects this expanded focus.

This chapter provides a short introduction to sport and exercise psychology. It includes a brief overview of the development of the subdiscipline. Selected topics within sport and exercise psychology are briefly discussed; space limitations preclude the inclusion of more topics and limit the depth of discussion. Given that caveat, this chapter presents information on motivation, the psychological benefits of physical activity, exercise adherence, personality, anxiety and arousal, imagery, goal setting, self-talk, and various intervention strategies. It is hoped that this brief glimpse will stimulate your interest in this area and encourage further study.
SPORT AND EXERCISE PSYCHOLOGY

Sport and exercise psychology is a rapidly growing subdiscipline of physical education, exercise science, and sport. Initially, this subdiscipline was closely aligned with motor learning; however, during the last two decades it has evolved as a distinct field of study. The definition and scope, historical development, and areas of study within sport and exercise psychology are described briefly in this section.

Definition and Scope

Sport and exercise psychology is defined by Vealey as “the systematic scholarly study of the behavior, feelings, and thoughts of people engaged in sport, exercise, and physical activity.” According to the Association for Applied Sport Psychology, sport and exercise psychology focuses on the psychological and mental aspects of participation in sport and exercise, seeking to understand how psychological processes influence and are influenced by participation. The International Society of Sport Psychology states that “this dynamic field can enhance the experience of men, women, and children of all ages who participate in physical activity, ranking from those who do so for personal enjoyment to those who pursue a specific activity at the elite level.”

The scope of sport and exercise psychology is quite broad, encompassing both theoretical and applied approaches. The initial work in the subdiscipline focused on sport and elite athletes. Today, the focus has expanded and includes the psychological dimensions of competitive sport participation and engagement in fitness, exercise, and physical activity. Sport and exercise psychologists seek to understand, influence, and improve the experiences of people of all ages and abilities, ranging from the youth sport participant to the elite Olympic performer and from the elderly individual engaging in an exercise rehabilitation program following a heart attack to the healthy adult who enjoys lifting weights on a regular basis.

Historical Development

The early history of sport and exercise psychology is closely related to motor learning. As these areas of study grew in the 1970s in the United States, they began to emerge as separate subdisciplines of
the academic discipline of physical education; however, in Europe today, these areas remain closely aligned under the umbrella of sport psychology.

In the late 1890s and early 1900s, physical educators and psychologists began to write about the psychological aspects of physical education and sport. The most notable of these early researchers was Norman Triplett, who, in 1898, studied the effects of the presence of other people on the performance of motor skills. The influence of the presence of other people—that is, an audience—on motor performance later developed into an area of research known as social facilitation.1

In 1918, Coleman Griffith, commonly recognized as the father of sport psychology, began his groundbreaking work in sport psychology as a doctoral student at the University of Illinois. Later, as director of the Athletic Research Laboratory at Illinois, Griffith engaged in research on motor learning and on the psychological aspects of sport. He authored two books considered classics in the field—Psychology of Coaching (1926) and Psychology of Athletics (1928). Like the applied sport psychologists of today, Griffith's research extended outside of the laboratory setting; he observed and interviewed outstanding athletes and coaches of the time, such as Red Grange and Knute Rockne, regarding motivation and the psychology of coaching.4

From 1940 to 1965, Gill characterizes the research in sport psychology as sporadic. Following World War II, colleges and universities established motor behavior research programs. These research programs included some work on topics currently within the realm of sport psychology today. For example, Warren Johnson's 1949 study of pregame emotion in football served as the basis for later research on emotions associated with competition.4 Lawther's publication, in 1951, of The Psychology of Coaching reflected an applied sport psychology orientation to coaching athletes.

In the 1960s, several texts were published that introduced both undergraduate and graduate physical education students to both motor learning and sport psychology.4 Bryant Cratty, who became one of the most prolific authors in the field, published Movement Behavior and Motor Learning in 1964 and Psychology and Physical Activity in 1967.4 Another book published during this era caused considerable controversy—Bruce Ogilvie and Thomas Tutko's book Problem Athletes and How to Handle Them (1966). Gill notes that this book was criticized by scholars intent on advancing the scientific nature of sport psychology for its clinical approach and lack of a scientific framework.4 However, the book was popular among coaches and helped set the stage for applied sport psychology in the 1980s.4

The late 1960s and the 1970s marked the emergence of sport psychology as a subdiscipline of physical education. Courses were developed for inclusion within the graduate and undergraduate physical education curricula, graduate programs were inaugurated and research programs established, professional societies were organized, and specialized sport psychology journals were created. Scholars such as Rainer Martens, Dorothy Harris, Daniel Landers, and

**LIFESPAN AND CULTURAL PERSPECTIVES: Sport and Exercise Psychology**

- How do sociocultural factors influence participants' adherence to an exercise program?
- Does age influence the psychological benefits derived from participation in physical activity?
- Do personality traits and psychological dispositions of elite athletes vary by ethnicity or gender?
- How can self-efficacy be developed in children with low skill ability?
- What interventions are most effective in mediating the effects of anxiety in Senior Games competitors?
William Morgan helped shape the direction of the field.\textsuperscript{1,4}

As the amount of research grew and interest in sport psychology developed, outlets for dissemination of research and forums for the exchange of ideas were needed. In 1965, the International Society of Sport Psychology was founded. Two years later, in 1967, professionals interested in motor learning and sport psychology formed the North American Society for the Psychology of Sport and Physical Activity (NASPSPA). In 1975, the Sport Psychology Academy was organized as part of NASPE, a substructure of AAHPERD. Research Quarterly and journals in the parent field of psychology served as the major outlets for publication of research until the Journal of Sport Psychology began publication in 1979.

However, during this time sport psychology was still aligned with motor learning and drew heavily on the parent discipline of psychology for theories. Much of the work was conducted in laboratory settings, rather than within sport, and offered little help to teachers, coaches, and participants.\textsuperscript{4} In 1979, Martens called for a greater emphasis on applied issues within sport psychology, including a focus on more relevant issues, a greater emphasis on field-based rather than laboratory-based research, and the development of sport-specific conceptual models.\textsuperscript{4} This shift in focus was reflected in the work of sport psychologists in the 1980s.

The 1980s marked a period of tremendous expansion for sport psychology. Many scholars embraced a more applied approach to sport psychology. More field-based research with sport participants was conducted, and a greater emphasis was placed on the application of research to real-world sports events. In 1986, the forerunner for the Association for Applied Sport Psychology (AASP) was organized. Today it embraces three areas: performance psychology, social psychology, and health and exercise psychology. In 1987, the inaugural volume of The Sport Psychologist was published, providing another outlet for scholarly work with an applied focus.

Another factor that helped shape the field was the growing interest of more clinically trained psychologists in sport psychology.\textsuperscript{4} One noteworthy contribution during this time frame was that of Richard Suinn, a clinical psychologist whose work with the US Olympic ski team did much to bring sport psychology to the public's attention.\textsuperscript{4} Another significant step occurred in 1986, when Division 47, Exercise and Sport Psychology, became a formal division within the American Psychological Association.

It was during the 1980s that exercise psychology evolved as a specialized area of study. Researchers became interested in understanding the psychological aspects of fitness, exercise, health, and wellness, including psychological factors that influence participation and the influence of participation on those involved. Attention was also directed toward enhancing the experience for those participants involved in health-related physical activity. This growth of interest occurred at a time when more research and public attention was being directed toward the significant contribution of physical activity to health. To reflect the expanding scope of the subdiscipline, in 1988, the Journal of Sport Psychology was renamed the Journal of Sport and Exercise Psychology.

Sport and exercise psychology during the 1990s and today reflects the rich diversity of this subdiscipline, both in research and practice.

Some researchers seek to focus exclusively on sport psychology; others on exercise psychology. As sport and exercise psychology continues to grow and evolve in the twenty-first century, Gill suggests that it is likely that more sport- and exercise-specific approaches will develop and that there will be a greater appreciation "of the richer understanding that can be gained through collaborative research across specializations, such as exercise physiology and motor learning."\textsuperscript{4}

**Areas of Study**

Sport and exercise psychology includes many different areas of study. Sport and exercise psychologists are interested in understanding factors that influence participation in sport and exercise. For example, why do some athletes "choke" under
pressure? Why do some postcardiac patients fail to complete their rehabilitation program? Sport and exercise psychology also studies the psychological outcomes derived from participation. For instance, does participation in an exercise program reduce stress and alleviate depression? Does participation in youth sport build character?

Sport and exercise psychology can also help professionals make modifications to sport and exercise programs to enrich the experience for the participants involved. This could include helping athletes learn techniques to regulate their level of arousal to achieve optimal performance, teaching coaches how to promote self-confidence or to motivate their athletes, or building more social support into exercise programs to promote adherence and provide greater enjoyment for the participants.

Areas of study within sport and exercise psychology include attentional focus, personality, aggression and violence, self-confidence and self-efficacy, self-talk, arousal, social reinforcement, adherence, team building, commitment, and level of aspiration. Researchers design and assess the effectiveness of various interventions to enhance performance and participation, such as cognitive restructuring, mental rehearsal, and social support. Researchers are also interested in factors that cause people to become involved in sport and exercise and those factors that lead to peoples dropping out or discontinuing participation.

The amount of research produced by scholars in sport and exercise psychology has grown tremendously over the past decade. Examples of questions that may be investigated by researchers include:

- Is the personality profile of the outstanding or elite athlete different from that of the average athlete or nonathlete?
- How does participation in an exercise program influence one's body image? Or one's feelings of self-efficacy and control?
- What are the psychological benefits derived from participation in physical activity? How long and how intense (dose-response relationship) should physical activity be in order to yield psychological benefits?
- How can an athlete deal most effectively with the stress of competition?
- What factors influence an individual's adherence to an exercise or rehabilitation program?
- Does participation in sport empower athletes with disabilities?
- How does an individual's self-confidence affect his or her performance? How can self-confidence be developed most effectively and then used to maximize performance?
- How can self-efficacy in adolescents be increased to promote the establishment of beneficial physical activity patterns?

These are only a sample of the type of questions that may be addressed by researchers in sport and exercise psychology.

Sport psychologists today work with both male and female athletes to help them perform at their optimal level. Sport psychologists work with professional sport teams, national sport teams (US Olympic teams in various sports), and intercollegiate teams. Some professional athletes or athletes that compete at an elite level, such as in figure skating, may engage the services of a personal sport psychologist to help them achieve their goals.

Knowledge of sport psychology is important to coaches at all levels. It can help coaches more fully understand the psychological impact of their coaching behaviors and decisions on the athletes. Coaches can incorporate information from sport psychology into their preparation of athletes for competition and use information during competition to help their teams perform at their highest possible level. Additionally, coaches may find it beneficial to understand the factors that contribute to athletes' continuing commitment to a sport and the factors that predispose athletes to discontinue sport participation.

Specialists in exercise psychology focus their efforts on individuals participating in exercise and rehabilitation programs. Researchers have sought to identify the psychological determinants of participation in physical activity and the factors that influence the completion of rehabilitation regimens.
Given the documented evidence supporting the contribution of regular physical activity to health, understanding the psychological dimensions of participation is of critical importance to professionals working in these areas. Such an understanding can help practitioners design programs and structure experiences to enhance the probability that program participants will engage in physical activity to the extent necessary to realize health benefits and incorporate physical activity into their lifestyle.

Sport and exercise psychologists can provide educational or clinical services, depending on their credentials. Clinical sport psychologists have extensive training in psychology and are licensed by state boards to treat people with psychopathology. Clinical sports psychologists may treat participants with personality disorders, eating disorders, or chemical dependency. They supplement their training in psychology with additional training in sport and exercise psychology.

Educational sport and exercise psychologists often have a background in physical education, exercise science, and sport, with extensive training in sport and exercise psychology. They are not licensed psychologists. The AASP offers a certification program for applied sport psychology that recognizes attainment of professional knowledge in sport psychology, including health and exercise psychology, intervention and performance enhancement, and social psychology. Upon meeting the requirements for certification, an individual is conferred the title of Certified Consultant, Association for Applied Sport Psychology (CC-AASP).

Certified consultants engage in educational activities focused on the “development and understanding of cognitive, behavioral, and affective skills in participants of all ages and at all skill levels.” Examples of educational activities include informing individuals and groups about the role of psychological factors in exercise, physical activity, and sport and teaching participants specific psychological skills such as imagery or coping skills that they can use to enhance their participation. Another activity is the education of organizations and groups in areas such as development of team cohesion, strategies to promote exercise adherence, and modification of youth sport programs to enhance the experience for the young athletes. As the AASP notes, “Although some individuals may possess coaching expertise and/or knowledge of the analysis and treatment of psychopathology, these two areas are excluded from the role definition association with AASP certification.”

Sport and exercise psychology encompasses many areas of study. The next section will provide a brief overview of some topics within this subdiscipline. First, the psychological benefits of physical activity are presented, followed by information on motivation and exercise adherence. Personality, anxiety and arousal, self-talk, and mental imagery are addressed. A short discussion of various psychological intervention techniques concludes the chapter.

**PSYCHOLOGICAL BENEFITS OF PHYSICAL ACTIVITY**

The role of physical activity in enhancing well-being is receiving increased professional and public recognition. The physiological effects of engaging in physical activity on a regular basis are well documented. There is also a growing body of evidence supporting the psychological benefits of physical activity. Psychological benefits have been noted for both aerobic and resistance exercise. It appears that moderate-intensity exercise has the best psychological benefits.

**Benefits**

The psychological benefits of participating in physical activity include

- Improved health-related quality of life, by enhancing both psychological and physical well-being.
- Improved mood. Mood states influence our outlook on life, emotions, thought processes, and behaviors.
- Reduction of symptoms associated with mild depression. Physical activity may be a valuable adjunct to therapy in cases of chronic, severe depression.
PSYCHOLOGICAL BENEFITS OF PHYSICAL ACTIVITY

- Improves health-related quality of life
- Enhances mood
- Alleviates symptoms of mild depression
- Reduces state and trait anxiety
- Serves as a buffer against stress and means of stress reduction
- Enhances self-efficacy, self-confidence, self-esteem
- Offers a means of affiliation with others
- Provides opportunities to refresh and reenergize
- Presents challenges that can lead to sense of achievement
- Gives means for nonverbal expression of emotion
- Provides opportunities for creative and aesthetic expression

- Reduced state anxiety—that is, feelings of tension, apprehension, and fear associated with various situations.
- Effective stress management. Physical activity can serve as a buffer against stress as well as provide a healthful means of stress reduction.
- Contribution to the development of the self. Physical activity enhances self-concept and improves self-esteem or feelings of worth. It also promotes greater self-efficacy and self-confidence.
- Opportunities to experience peak moments. Participants have reported feelings of euphoria, such as the runner’s high.
- Recreation and a change of pace from long hours of work or study. Individuals return to their daily routine feeling refreshed, both mentally and physically.
- Challenges that, when successfully met, provide a sense of achievement.
- Aesthetic and creative experiences. Activities such as dance allow individuals to express their emotions in a nonverbal manner and provide opportunities for individual interpretation.

The psychological benefits of physical activity are being increasingly understood and offer exciting possibilities for research.

Mechanism of Effect

Researchers have advanced several hypotheses to explain the effects of exercise on mental health. Hypotheses have been developed that explain the mechanism of effect from a psychological or a physiological perspective. Among the psychological hypotheses offered are the cognitive behavioral hypothesis and the distraction hypothesis. One physiological hypothesis that has received considerable attention is the endorphin hypothesis.

According to the cognitive behavior hypothesis, participation in exercise promotes positive thoughts and feelings.7 These serve to counteract negative thoughts and feelings as well as mood states associated with depression and anxiety.7 Nonexercisers who begin and adhere to an exercise program, a task many nonexercisers perceive as difficult, experience enhanced feelings of competence and an increase in self-efficacy.7 Increased self-efficacy is also associated with effort and persistence, factors that will help individuals continue to participate in exercise and reap the psychological benefits.7

The distraction hypothesis proposes that the psychological benefits of exercise accrue because engaging in exercise distracts individuals from their cares, worries, and frustrations.8 Exercise provides individuals with a “time out” from events and issues.
in their life that are associated with feelings of anxiety or depression. Chronic exercise appears to be more effective in modifying a negative mood than other types of enjoyable physical activities.\(^8\)

The *endorphin hypothesis* explains that psychological benefits associated with exercise are due to the increased secretion of endorphins. Endorphins are chemicals produced in the brain in response to stimuli, including stressors. As a stressor, exercise elicits the production of endorphins. Elevated levels of endorphins are associated with improved mood and enhanced sense of well-being. The general well-being produced by endorphins reduces levels of depression, anxiety, and other negative mood states.\(^9\) The popular press often refers to the improved mood associated with prolonged exercise as the "runner's high." Although there is agreement that the body does produce endorphins in response to prolonged exercise, the research on the mechanism of positive effects has been equivocal.

Although many hypotheses have been advanced, the mechanism by which exercise promotes psychological benefits is not clear at this point in time. Research investigating these and other hypotheses yields conflicting results. What is known, however, is that there is a positive relationship between exercise and various psychological states. Before starting an exercise program, individuals should consult with their physician.

The value of physical activity as a therapeutic modality is increasing, and new avenues are being explored. However, Fontaine points out that several important questions need to be addressed about the therapeutic value of physical activity (PA). These questions include:

1. How and under what circumstances should PA be incorporated into therapy for patients with mental health disorders?
2. What are the long-term effects of PA on mental health disorders?
3. Does regular PA protect against developing mental health disorders?
4. What is the optimal PA prescription for various mental health disorders?\(^10\)

Fontaine notes that despite these questions, it appears that physical activity can play an important role in the treatment of mental health disorders.\(^10\)

Dance therapy and recreation therapy (see Chapter 13) utilize physical activity as part of therapeutic and rehabilitation processes. The role of physical activity in improving mental health and psychological well-being offers exciting possibilities in treatment and prevention.

**MOTIVATION**

Motivation is a critical factor in learning, performance, and participation in sport and physical activity. It influences the initiation, maintenance, and intensity of behavior. Motivation directs and energizes us; it determines whether or not we will practice with a high level of intensity or get up at 6 A.M. to workout before work. Motivation influences whether we will continue an activity or choose to discontinue participation. As previously discussed in Chapter 5, motivation can be influenced by internal and external factors.

Individuals are intrinsically motivated when the motive for starting or engaging in a behavior is derived from the individual's own desires, enjoyment, needs, and aspirations. For example, a soccer player who engages in the sport because she loves the "beautiful game" and has a passion for it that drives her to participate and an adult who desires to be healthy and joins a water aerobics program are intrinsically motivated. Intrinsic motives drive a person who is quadriplegic and seeks to challenge himself by playing quad rugby; he relishes the competition associated with the sport as well as the camaraderie gained from being part of a team.

On the other hand, individuals are extrinsically motivated when they engage in an activity in hopes of gaining external rewards. An employee who signs up for a worksite fitness program to gain the $1,000 bonus promised by the employer for participation is extrinsically motivated. A young gymnast who competes to gain trophies and the approval of her parents is participating for the external rewards.
Intrinsic motivation is more conducive to long-term commitment and engagement in sport and physical activity. As professionals, it is important for us to realize the importance of intrinsic motivation in sustaining involvement by participants in our programs. There are many theories explaining motivation. However, as Vealey points out, "the key to understanding motivation is realizing that all humans, regardless of their individual goals, are motivated to feel competent, worthy, and self-determining." The question, then, for us as professionals is, what can we do to help individuals develop or increase their intrinsic motivation? This answer is complex and reflects an intersection of a multitude of factors, but simply stated, we can create opportunities to help individuals develop competence and promote feelings of self-efficacy. We can promote feelings of personal accomplishment, recognize hard work, engender self-confidence, and offer support as individuals pursue their goals. It is important that we recognize that participants' motives for participation in our programs vary, and we need to respect their motives. However, if we want to sustain participation, we must focus on promoting intrinsic motivation.

Motivation is critical to achievement. Whether it is achievement in the athletic arena or as a participant in lifelong physical activity, motivation plays an important role in determining whether or not an individual will persist until a goal is achieved. Goal setting is a critical facet of motivation. Having both short- and long-term goals helps individuals focus their behavior and mobilize their energies in the right direction. Physical education, exercise science, and sport professionals can help individuals achieve their goals by assisting them in developing realistic goals, creating positive expectations for success, providing encouragement, offering appropriate feedback, assisting them to redefine their goals when necessary, and developing new goals as desired goals.
are achieved. Goal setting is discussed more later in the chapter.

Motivation is critical to the initiation, persistence, or maintenance of the desired behavior, whether it is related to participation in competitive sport or engagement in physical activity for health, enjoyment, or recreation. What motivates an individual to begin a new sport or to start a fitness routine? Equally important, once the new behavior is initiated, what contributes to an individual's continuing the behavior? And what motivates an individual to work hard to achieve desired goals? Sustaining engagement in physical activity is important to the realization of the physiological and psychological benefits associated with participation in regular physical activity. Research on exercise adherence has helped us determine factors that contribute to individuals' continuing to workout and incorporating physical activity into their lives. This is discussed later in the chapter.

**EXERCISE ADHERENCE**

An expanding area of research is investigation of exercise adherence. The past decade has brought greater recognition of the value of exercise as a therapeutic modality. Exercise is increasingly being prescribed as part of an overall treatment approach to several diseases, including cardiovascular diseases and diabetes. Unfortunately, adherence to supervised exercise programs is low, with about 50% of adults who start an exercise program dropping out within the first few months. Other researchers report that only 30% of individuals who begin an exercise program will be exercising at the end of 3 years.

Dishman points out that much of our research efforts during the past 20 years have focused on increasing adoption of physical activity. Our efforts also have to focus on sustaining involvement in physical activity. Knowledge that a particular behavior has either good or harmful influences on our health does not consistently affect our behavior. Most individuals are aware of the behaviors that detract from wellness—smoking, high-fat diet, sedentary lifestyle, and so on—but continue to engage in these behaviors despite the health consequences. Why aren't more people active? Despite the known benefits, why are there so few participants? And what can be done about it?

**Understanding Behavior Change**

How do you get people to begin to lead a more active lifestyle? How do you promote behavior change? Many theories and models of human behavior have been used to guide interventions to promote a more physically active lifestyle and encourage health-promoting behaviors. Among the models are the classic learning theories, the health belief model, social cognitive theory, the transtheoretical model, and the ecological perspective.

The *classic learning theories* emphasize that learning a new complex pattern of behavior, such as moving from a sedentary to an active lifestyle, is achieved by altering many of the small behaviors that compose the overall behavior. This suggests that a targeted behavior, such as walking continuously for 30 minutes a day, is best learned by breaking down the behavior into smaller goals to be achieved, such as walking for 10 minutes daily. Incremental increases, such as adding 5 minutes to daily walking a week, are then made as the behavior is gradually shaped toward the targeted goal. Rewards and incentives, both immediate and long-range, serve as reinforcement and motivation for the individual to achieve and maintain the targeted behavior. Looking better, receiving a T-shirt for participation, and experiencing a feeling of accomplishment all strengthen and sustain the behavior change.

The *health belief model* emphasizes that the adoption of a health behavior depends on the person's perception of four factors: the severity of the potential illness, the person's susceptibility to that illness, the benefits of taking action, and the barriers to action. Incorporation of cues to action, such as listing walking on your daily to-do list, is important in eliciting and sustaining the desired behavior. *Self-efficacy*, a person's confidence
SELECTED THEORIES AND MODELS OF HEALTH BEHAVIOR CHANGE

Classic learning theory: New behaviors are learned.
- Achievement of smaller goals leads to attainment of overall goals
- Reinforcement and motivation are critical

Health belief model: Adoption of a health behavior depends on the person's perception of four factors:
- Severity of the potential illness
- Susceptibility to that illness
- Benefits of taking action
- Barriers to action
Self-efficacy plays an important role.

Social cognitive theory: Behavior change is influenced by environmental and personal factors and attributes of the behavior itself.
- Self-efficacy is a critical component
- Requires a perceived incentive for changing behavior
- Outcomes must be valued by the person.

Theory of reasoned action and theory of planned behavior: Behavior change is strongly influenced by intention to change, which depends on:
- Individual's attitude toward the behavior
- Opinions of relevant others regarding the change
- Perceived control over behavior

Transtheoretical model: Behavior change proceeds through stages:
- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance
- Termination
Decisional balance and self-efficacy play an important role in the adoption of new behaviors.

Ecological approach: Health behavior change is affected by:
- Individual factors
- Sociocultural context
- Environmental influences
### Transtheoretical Model and Its Application to Promotion of Physical Activity

<table>
<thead>
<tr>
<th>Stage of Change</th>
<th>Behaviors</th>
<th>Suggested Approaches by Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation</td>
<td>No intention to change behavior in next 6 months</td>
<td>Educate the individual and deliver a clear message about the importance of physical activity to health</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Awareness of the problem, the pros and cons of change; intention to take action within next 6 months</td>
<td>Highlight the benefits of change and try to shift the decisional balance</td>
</tr>
<tr>
<td>Preparation</td>
<td>Taking small steps or developing a specific plan of action to begin physical activity program (e.g., checking out walking routes or joining a fitness club)</td>
<td>Help the individual identify the best time to walk and safe walking route; teach the individual warm-up and cooldown stretches; assist the individual in developing a progressive walking plan (20 minutes at a moderate pace three times a week progressing to 30 minutes of brisk walking most days of the week)</td>
</tr>
<tr>
<td>Action</td>
<td>Making modifications in lifestyle and engaging in physical activity (e.g., getting up an hour earlier to fit walking into day); commitment to exercise</td>
<td>Encourage and support the individual in becoming active; help the individual monitor physical activity; discuss modifications in program as situation changes</td>
</tr>
<tr>
<td>Maintenance</td>
<td>Sustaining the change in behavior for at least 6 months; becoming increasingly confident in ability to sustain change (e.g., continuing to walk on daily basis); exercise becomes routine</td>
<td>Support the individual in remaining active; explore ideas with the individual for continuing to be active even when the schedule changes and the individual can't walk at the usual time, etc.</td>
</tr>
<tr>
<td>Termination</td>
<td>Behavior is fully integrated into lifestyle (e.g., walking is planned for as part of the day's activities); exercise patterns are integral part of life</td>
<td>The individual walks as part of the daily routine; offer to be available as a resource</td>
</tr>
<tr>
<td>Relapse</td>
<td>Move to previous stage</td>
<td>Remind the individual that relapse gives the opportunity to rethink physical activity strategy—what worked and what should be changed; encourage the individual to recommence physical activity at an appropriate level</td>
</tr>
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</table>


In his or her capability to perform the desired behavior, is included as an important component of this model.

Social cognitive theory states that behavior change is influenced by environmental factors, personal factors, and attributes of the behavior itself. Self-efficacy is central to this model. A person must believe in his or her ability to perform the behavior (self-efficacy) and must perceive an incentive for changing his or her behavior.
The outcomes derived from the behavior must be valued by the person. These benefits can be immediate in nature, such as feelings of satisfaction or enjoyment from engaging in the behavior, or long-term, such as improved health from being physically active on a regular basis.

The *theory of reasoned action* is based on the idea that the most important determinant of an individual’s behavior is the intention to perform that behavior. The intention to perform a behavior is influenced by two factors: the individual’s attitude toward the behavior and the influence of relevant others in the environment. The individual’s attitude reflects beliefs about the outcomes of the behavior and the values gained from changing the behavior. If the individual sees the outcome of changing a behavior as positive, this increases the likelihood of change. If relevant others support changing behavior, and the individual is strongly motivated by the opinions of others, this also supports behavior change.

*The theory of planned action* incorporates the tenets of the theory of reasoned action and adds another concept—perceived control. *Perceived control* is similar to the concept of self-efficacy and reflects the individual’s beliefs about his or her ability to perform the behavior. Individuals who intend to become more active are more likely to do so if they see being active as having a positive benefit, receive support from others for being active, and perceive themselves as being successful in being physically active.

The *transtheoretical model* of health behavior uses the concept of stages of change to integrate the processes and principles of change relating to health behavior.13 (See the Transtheoretical Model and Its Application to Promotion of Physical Activity box.) The transtheoretical model views behavioral change as a spiraling continuum that begins at a “firm conviction to maintain the status quo by never changing, and proceeds through the conditions of someday, soon, now, and forever.”14 The stages of change are:

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance
- Termination13,14

In this approach, a relapse or discontinuation of the behavior, such as ceasing to exercise, is seen as a return from the action or maintenance stage to an earlier stage. Relapse should be dealt with in a positive way so that the person does not see it as a failure and become demoralized, but rather perceives it as part of the process of change. Relapse presents individuals with an opportunity to learn which behavior strategies worked and which ones did not.15

Decisional balance and self-efficacy are important aspects of the transtheoretical model. *Decisional balance* involves weighing the relative pros and cons of the behavioral change, that is, perceived benefits, drawbacks, and barriers to change.16 Self-efficacy is a person’s confidence about his or her competence or abilities in a specific situation. In the context of behavioral change, self-efficacy is a person’s belief that he or she can maintain a healthy behavior, such as exercising, or abstain from an unhealthy behavior, such as smoking.

The transtheoretical model has most frequently been applied to the cessation of unhealthy, addictive behaviors and more recently to the acquisition of healthy behaviors such as exercise. It offers professionals insight into the process of change and guidelines for developing intervention programs.

Another model that has increased in popularity in the last decade is the ecological approach. One criticism of many theories and models for changing health behavior is that they emphasize individual behavior change while paying little attention to the sociocultural and environmental influences on behavior. The *ecological approach* emphasizes a comprehensive approach to health, including developing individual skills and creating supportive, health-promoting environments. Creating longer-lasting changes and maintaining health-promoting habits can be enhanced
PROMOTING EXERCISE ADHERENCE

- Structure program to optimize social support to participants
- Offer programs at convenient times and locations
- Utilize goal setting, on both a short- and long-term basis
- Provide frequent assessment of progress
- Use qualified and enthusiastic leaders
- Foster communication between leader and participants
- Develop rapport among leader and participants
- Involve a variety of enjoyable activities
- Give participants a choice of activities
- Tailor frequency, intensity, and duration of activities to individuals' needs
- Incorporate reinforcement and rewards

by addressing environmental and societal barriers to change, such as limitations imposed by poverty on access to services or the difficulty in jogging or walking if one lives in an unsafe neighborhood. These interventions can take place in the family, school, worksite, community, and health institutions. Societal and environmental influences on health behavior must be considered by physical education, exercise science, and sport professionals.

Promoting Adherence

What are factors that promote adherence, encourage persistence, and prevent dropping out? Researchers have identified several factors that predispose individuals to drop out of exercise programs. In general, the researchers found that low self-motivation, depression, and low self-efficacy were related to decisions to quit the program, as was denial of the seriousness of one's cardiac condition. Higher dropout rates were found among smokers, blue-collar workers, and individuals who either are obese, exhibit the type A behavior pattern, perceive that exercise has few health benefits, lead physically inactive lifestyles, or work in sedentary occupations. Lack of social support from significant others, family problems, and job-related responsibilities that interfered with the exercise program were also identified as factors associated with quitting.

Social support from other participants was important to individuals who continued in the program. Group exercise programs usually had lower dropout rates than individually designed programs. Programs that were inconvenient to attend and that involved high-intensity exercise were associated with higher dropout rates than programs that were conveniently located and offered exercise of a less-intense nature. One of the things that has become clearer is that a broader, ecological approach must be taken to understanding adherence. Environmental influences and factors that influence different types of physical activity with respect to different populations are increasingly important in understanding adherence. Factors such as access to facilities and neighborhood safety are an important consideration.

Knowing the factors associated with exercise program dropout enables practitioners to target intervention strategies to those individuals at greatest risk of discontinuing their participation. Intervention strategies to improve adherence include educational approaches and behavioral approaches. Educational approaches
provide participants with information to increase their knowledge and understanding. Behavioral approaches focus on increasing individual involvement in the program and creating more healthful behavior patterns. These methods use such strategies as reinforcement, contracting, self-monitoring, goal setting, tailoring programs to meet individuals' lifestyles, and enhancement of self-efficacy. Behavioral approaches have been found to be more effective than educational approaches in promoting adherence.

Exercise adherence also can be enhanced through careful program design. One approach is structuring the program to increase the social support available to participants. Successful strategies include forming exercise groups rather than having the individual exercise alone and involving significant others, such as family members or friends, in encouraging the participant to exercise. Offering programs at times and locations convenient to the participant is important in maintaining involvement. The use of goal setting combined with periodic assessment of progress, use of qualified and enthusiastic leaders, establishment of ongoing leader and participant communication and rapport, and inclusion of a variety of enjoyable activities to meet individual needs are some techniques that can promote exercise adherence and reduce dropout rates.

The issue of adherence during sport injury rehabilitation is also a concern to sports medicine specialists. Many of the psychosocial factors that contribute to exercise adherence also play a role in the success of sport injury rehabilitation. There is increased recognition that sports medicine specialists' and athletic trainers' knowledge of injury mechanisms and treatment protocols is not enough to ensure successful completion of the rehabilitation program. Researchers have found that rehabilitation adherence can be enhanced through the use of such strategies as goal setting, establishing effective communication, active listening, tailoring the program to individual needs, monitoring progress, and building a collaborative relationship to achieve the goals of therapy. Social support has also been linked to rehabilitation adherence.

Social support is a complex, multidimensional construct and has been found to be related in many ways to health outcomes. With respect to rehabilitation, social support has been found to relieve distress, enhance coping, and help an injured athlete remain motivated throughout the recovery. It has also been found to strengthen relationships between the injured athlete and team members, coaches, and providers of health care. Understanding the significant role social support plays in exercise and rehabilitation adherence can assist professionals in developing psychosocial rehabilitation interventions.

Young professionals aspiring to work in fitness and rehabilitation fields, such as corporate fitness, athletic training, and cardiac rehabilitation, will find knowledge from the subdiscipline of sport and exercise psychology very valuable in their work.

PERSONALITY

Researchers have long been interested in personality types in sport. Some researchers sought to address the question of whether sport influences personality; other researchers have investigated whether there were personality differences between athletes and nonathletes. Still other researchers undertook the task of identifying the psychological differences between elite athletes and their less successful counterparts. One of the questions was whether it would be possible to predict the success of an athlete based on his or her personality characteristics.

Nature of Personality

Personality has been defined in many different ways. For example, Vealey describes personality as "the unique blend of the psychological characteristics and behavioral tendencies that make individuals different from and similar to each other." Weinberg and Gould define personality as "those characteristics or blend of characteristics—that make a person unique." Anshel describes personality as traits possessed by an individual that are enduring and stable. Because traits are
enduring and stable, they predispose an individual to consistently act in certain ways in most, but not all, situations. For example, you may find yourself exhibiting more outgoing behavior is social situations, and less in classroom situations.

**Personality and Sport**

The early research focused on the relationship between personality traits and sport performance. Researchers addressed questions such as:

- Do athletes differ from nonathletes?
- Can athletes in certain sports be distinguished from athletes in other sports on the basis of their personality?
- Do individuals participate in certain sports because of their personality characteristics?
- Do highly skilled athletes have different personality profiles than less skilled athletes in the same sport?
- Are there certain personality traits that can predict an athlete's success in a sport?

Researchers' findings have revealed contradictory answers to each of these questions. In many instances, problems in research design have contributed to these contradictory results. Cox, after an extensive review of the research on personality and sport, offers the following generalizations about athletes relative to the questions posed above:

- Athletes and nonathletes differ with respect to personality characteristics. Various researchers have reported that athletes are more independent, objective, self-confident, competitive, and outgoing or extroverted, and less anxious than nonathletes.
- Sport participation has an effect on the personality development of young athletes during their formative years. Thus, youth sport experience can positively or negatively affect the development of personality.
- Athletes in one sport can be differentiated from athletes in another sport based on their personality characteristics. Perhaps the clearest example occurs between individual sport athletes and team sport athletes. It has been shown that individual sport athletes are less extroverted, more independent, and less anxious than team sport participants.
- World-class athletes can be correctly differentiated from less-skilled athletes by their psychological profile 70% of the time. Personality profiles that include situational measures of psychological states have been shown to be the most accurate in predicting level of athletic performance. 

While Cox has advanced some generalizations based on an overview of research in the area, much of the research is still inconclusive due to a host of issues, such as defining who is an athlete and methodological approaches.

Despite the controversies and the limitations of personality trait research, there is some agreement about the psychological characteristics of highly skilled athletes. Anshel reports:

Highly skilled athletes score relatively low in neuroticism, tension, depression, anger, fatigue, and confusion. They tend to score very high in self-confidence, self-concept, self-esteem, vigor, need achievement, dominance, aggression, intelligence, self-sufficiency, mental toughness, independence (autonomy), sociability, creativity, stability, and extroversion. A composite of the psychological profiles of elite athletes reveals a person who is mentally healthy, physically and psychological mature, and committed to excellence. 

Anshel points out that these characteristics serve as a model of the elite athlete, but the value of applying these characteristics as the basis for athletic selection, promotion, or elimination is questionable.

The elite performer continues to remain of interest to sport psychology researchers who are exploring new concepts. One concept that recently has captured the interest of sport psychologists is psychological hardiness. Hardiness has been linked with the ability to function at an
optimal level in a variety of different environments and has been associated with persistence and resiliency. Hardiness consists of three components: commitment, control, and challenge. Hardy individuals are characterized by high involvement in life, a strong belief in their ability to take personal control over events, and enjoyment of challenges. Sheard and Golby studied more than 1,500 competitors at elite and subelite levels of performance and across different sports and genders. They found that elite, international competitors scored highest on overall hardiness and the components of commitment and control compared to other subelite performers.24

Gould, Dieffenbach, and Moffatt interviewed 10 US Olympic champions, winners of 32 Olympic medals, and their coaches as well as one of their parents, guardians, or significant others. The researchers found that these Olympians were characterized by “(a) the ability to cope with and control anxiety; (b) confidence; (c) mental toughness/resilience; (d) sport intelligence; (e) the ability to focus and block out distractions; (f) competitiveness; (g) a hard-work ethic; (h) the ability to set and achieve goals; (i) coachability; (j) high levels of dispositional hope; (k) optimism; and (l) adaptive perfectionism.”25 Coaches and parents exerted an important influence on the athletes’ psychological development, both directly by teaching psychological strategies or indirectly by modeling specific psychological strategies.

As interest in personality in sport grew, different approaches began to be utilized to study personality and psychological characteristics of athletes. The interactionist approach views behavior as being influenced by both the traits of the individual and situational and environmental factors. The study of personality states is another approach that has been undertaken by researchers to study athletes. Unlike traits, which are relatively stable, states fluctuate and are a manifestation of the individual’s behaviors and feelings at a particular moment, reflecting the interaction of traits and situational factors. For example, anxiety has both a trait dimension (how you typically respond to situations) and a state dimension (how you feel at this moment, such as before the start of the competition, or in a particular situation, such as a state qualifying meet.)

The emergence of cognitive psychology offers another perspective to understand the behaviors, feelings, and thoughts of athletes. According to this theory, individuals continuously process information from the environment, interpret the information, and then behave based on their appraisal of the situation. Cognitive psychology recognizes that individuals’ thoughts about themselves and the situation influence their actions. Vealey reports that researchers using the cognitive approach were able to distinguish between successful and less-successful athletes.1 Compared to less-successful athletes, successful athletes

- possess more self-confidence,
- employ more effective coping strategies to maintain their optimal competitive focus despite obstacles and distractions,
- more efficiently regulate their level of activation to be appropriate for the task at hand,
- tend to be more positively preoccupied with their sport, and
- have a high level of determination and commitment to excellence.23

The research on personality and psychological characteristics of athletes, while at times presenting conflicting results, does offer us some insights into the psychological characteristics and

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**SIGNS OF ELEVATED AROUSAL AND HEIGHTENED ANXIETY**

- Sweaty hands
- Frequent urge to urinate
- Increased respiration rate
- Elevated heart rate
- Deterioration in coordination
- Inappropriate narrowing of attention
- Distractibility
- Negative self-talk
thoughts of athletes. Differences in traits, predispositions, and cognitions influence athletes’ behaviors and experiences in sport. What can be said with some degree of assurance is that each athlete must be treated as an individual.

ANXIETY AND AROUSAL

The goal of coaches, teachers, and sport psychologists is to optimize an individual’s performance. To achieve this goal they must consider the effect of anxiety and arousal on performance.

Nature of Anxiety and Arousal

Anxiety, as defined by Levitt, is a subjective feeling of apprehension accompanied by a heightened level of physiological arousal.26 Physiological arousal is an autonomic response that results in the excitation of various organs of the body. Examples of this phenomenon seen in athletes are sweaty hands, frequent urge to urinate, increased respiration rate, increased muscle tension, and elevated heart rate.

Anxiety is commonly classified in two ways. Trait anxiety is an integral part of an individual’s personality. It refers to the individual’s tendency to classify environmental events as either threatening or nonthreatening. State anxiety is an emotional response to a specific situation that results in feelings of fear, tension, or apprehension (e.g., apprehension about an upcoming competition). The effects of both state and trait anxiety on motor performance have been studied by sport psychologists.

Anxiety, Arousal, and Performance

Coaches and teachers continually attempt to find the optimal level of arousal that allows individuals to perform their best. An arousal level that is too low or too high can have a negative impact on performance. A low level of arousal in an individual is associated with such behaviors as low motivation, inattention, and inappropriate and slow movement choices. A high level of arousal in an individual can cause deterioration in coordination, inappropriate narrowing of attention, distractibility, and a lack of flexibility in movement responses. It is important for each individual to find his or her optimal level of arousal for a given activity. However, no one knows for sure exactly how to consistently reach this optimal state. A variety of approaches have been employed by physical education, exercise science, and sport professionals in pursuit of this goal. These techniques include pep talks, motivational slogans and bulletin boards, relaxation training, imagery, and in some cases the professional services of a sport psychologist.

Sport psychologists and researchers have studied the relationships among anxiety, arousal, and sport performance. Cox, after a review of the research in this area, offered the following ideas:

- Athletes who feel threatened by fear of failure experience a high level of anxiety. Fear of failure can be reduced by defining success in individual terms and keeping winning in perspective.
- Athletes who possess high levels of trait anxiety tend to experience high levels of state anxiety when confronted with competition. Coaches who are aware of their athletes’ levels of trait anxiety can better
Understand how they are likely to respond in a competitive situation. This knowledge will help coaches select appropriate strategies to adjust athletes’ levels of state anxiety and arousal to an optimal level.

- Athletes’ perceptions of a given situation influence their level of state anxiety. Not all athletes react to the competitive situation in the same manner. Each athlete perceives the same situation in a different way. Coaches must be aware that when placed in the same competitive situation, athletes experience different levels of anxiety. That is why “psych” talks may be an effective means of regulating the arousal level of some athletes and ineffective with other athletes. Techniques must be tailored to the individual athlete and the situation.

- An optimal level of arousal is essential for peak performance. The individual characteristics of the athlete, the nature of the skill to be performed, and the competitive situation influence the level of arousal needed.

- As the arousal level increases, athletes tend to exhibit the dominant or habitual response. Under the stress of competition, they tend to revert to skills they are most comfortable performing. Thus, if a volleyball player has been recently trained to pass the ball in a low trajectory to the setter, under the stress of competition, the player may revert to the safer, easier-to-perform high-trajectory pass.2

Research in sport psychology suggests several ways that coaches can help their athletes achieve their optimal performance, whether that means decreasing their level of arousal and anxiety or increasing it. One way to determine whether an athlete is “feeling up” as opposed to “uptight” is to help athletes accurately identify their feelings, encourage them to monitor their feelings and arousal levels before, during, and after competition, and help them learn and use appropriate strategies to enable them to reach their optimal state.

Anshel identifies several different approaches that can serve to reduce anxiety and arousal. These approaches include:

- Use physical activity to release stress and anxiety. A warm-up can provide an effective means to reduce stress; however, be careful that it is not so emotionally or physically intense that it leads to the depletion of the athletes’ energy.

- To reduce the anxiety associated with the performance of new tasks and activities, develop, teach, and practice a precompetition routine so that it is comfortable and familiar to the athletes.

- Simulate games in practice to allow athletes to rehearse skills and strategies until they are mastered.

- Tailor preparation for the competition to the individual athlete. Athletes prepare for competition in different ways. Some athletes prefer to sit quietly before the competition, relax in their own way, and reflect on what they need to do in the upcoming events. Other athletes thrive on an exciting, noisy locker-room atmosphere and a high-emotion pep talk from the coach. Whenever possible, individualize athletes’ preparation.

- Focus on building self-confidence and high but realistic expectations. Personal insecurities, self-doubts, low self-esteem, and fears about the competition heighten anxiety. Highlighting the athletes’ strengths, reviewing game strategies, and expressing confidence in the athletes’ abilities and efforts help promote positive thoughts, alleviate doubt, and decrease negative thinking.

- Assist athletes in coping with errors by keeping errors in perspective. Help the athletes to stay focused on present and future events when an error occurs, rather than dwelling on past events. Emphasize the opportunity to learn from mistakes, and help athletes avoid negative self-statements, which tend to exacerbate anxiety and disrupt performance.23

There are a host of additional strategies that coaches can use to help athletes manage their anxiety and arousal. Once again, coaches must be prepared to work with athletes as individuals and determine which approach best suits each athlete.
REDUCING ANXIETY AND ARousAL TO ENHANCE PERFORMANCE

- Use appropriate physical activity, such as warm-ups
- Develop and use a precompetition routine
- Design practice situations to simulate competition
- Tailor preparation to the individual
- Build self-confidence and high, realistic expectations
- Help athletes keep errors in perspective
- Keep athletes' focus on the present event, not on past events
- Promote the use of positive self-talk
- Incorporate relaxation training as necessary

What can coaches do to “psych up” a team? Increasing the team’s and athletes’ levels of arousal is sometimes necessary. Anshel suggests that coaches take into account each athlete’s ability level, age, psychological needs, and skills to be performed.²³ Remember that athletes respond differently to various techniques and need different levels of arousal to perform different tasks.²³ Coaches can also use a multitude of different strategies to increase arousal, including increasing the intensity of their voice, using loud and fast-paced music, setting specific performance goals, and using the warm-up to help athletes adjust their level of arousal. Some coaches show video of the opponents, whereas other coaches may show highlights of the athletes’ successful performances.²³

Managing anxiety and arousal is a challenging task. Coaches must recognize that athletes’ perceptions of a situation influence their anxiety and arousal. Individual differences in athletes’ physical and psychological states require that techniques to help athletes achieve their optimal performance must be individualized. Anxiety can affect other factors that influence an athlete’s performance, such as attention.

GOAL SETTING

Goal setting is important in many of the different environments in which physical education, exercise scientists, and sport leaders work. Goal setting can be used to help students in school...
physical education, athletes on sports teams, clients rehabilitating an injury, or adults involved in fitness programs. Goal setting is important both as a motivational strategy and as a strategy to change behavior or enhance performance. It is also used as an intervention strategy to rectify problems or to redirect efforts.

**Types of Goals**

According to Weinberg, a *goal* can be defined as “that which an individual is trying to accomplish; it is the object or aim of an action.”

Goal setting focuses on specifying a specific level of proficiency to be attained within a certain period of time. Goals can be categorized as outcome goals, performance goals, and process goals.

*Outcome goals* typically focus on interpersonal comparisons and the end result of an event. An example of an outcome goal is winning first place at the Senior Games regional track meet at the end of the season. Whether an outcome goal is achieved or not is influenced in part by the ability and play of the opponent.

*Performance goals* refer to the individual’s actual performance in relation to personal levels of achievement. Striving to increase ground balls won in lacrosse from five to ten, decreasing the time to walk a mile from 20 minutes to 15 minutes, increasing the amount of weight that can be lifted following knee reconstruction, and improving one’s free-throw percentage from 35% to 50% are examples of performance goals.

Lastly, *process goals* focus on how a particular skill is performed. For example, increasing axial rotation in swimming the backstroke and following through on the tennis backhand are two examples of process goals that focus on the improvement of technique. As technique improves, improvements in performance are likely to follow.

**How Goal Setting Works**

Goal setting leads to improved performance. Locke, Shaw, Saari, and Latham identify four distinct ways in which goal setting influences performance. It focuses attention, mobilizes effort, nurtures persistence, and leads to the development of new learning strategies.

Goal setting leads to the focusing of attention on the task at hand and on the achievement of the goal related to that task. When there are no specific goals, attention has a tendency to wander, drifting from one item to the next without any particular attention or intent. When specific goals are set, individuals can direct their attention to that task and its accomplishments. For example, a volleyball player who has a goal of getting 15 kills in a match can then focus his efforts on the specific elements of the skill that will help accomplish this goal.

Once a goal is determined, to achieve the goal, individuals must direct their efforts toward its attainment. This mobilization of effort, in and of itself, can lead to improved performance. Knowing what you want to accomplish and having specific strategies to achieve it influence motivation and increase effort.

Not only does goal setting focus one’s attention and mobilize one’s efforts, but it encourages persistence. Persistence is critical. Often the attainment of goals involves a concentrated effort over an extended period of time. There may be periods of frustration and failure as individuals learn new strategies or challenge themselves to higher levels of achievement. Individuals need to persist in pursuit of their goals.

Development of relevant learning strategies is an essential aspect of goal setting. Strategies can include learning new techniques and changing the manner in which a skill is practiced. Strategies can also include developing a plan by which incremental changes in performance or behavior can be attained. For example, an individual desiring to lose 30 pounds through a combination of healthy dieting and increased physical activity may need to learn strategies to select healthier foods, to develop and modify a walking program, and to learn how to continue to maintain the weight loss once it is accomplished.

Properly implemented, goal setting can lead to improvements in performance and changes
in behavior. Goals can be outcome, process, or performance oriented. Goal setting improves performance by directing attention, mobilizing effort, encouraging persistence, and introducing new strategies. Goal setting requires careful planning if it is to be effective as a motivational strategy or intervention strategy.

**Principles of Effective Goal Setting**

Several principles provide guidance for physical educators, exercise scientists, and sport leaders involved in goal setting. It is important that the goal setting program be structured and implemented correctly, because a decrement in performance can actually occur from improper goal setting. To help you get started with goal setting, think “SMART.” SMART is an acronym suggested by Weinberg and Gould to help professionals remember the critical characteristics of effective goals. Goals should be specific, measurable, action oriented, realistic, and timely.

Specific goals have been linked to higher levels of performance than no goals or general do-your-best-type goals. While do-your-best goals may be motivating and encouraging, they do not have as powerful an impact on performance as having specific goals. Furthermore, general goals such as “I want to be a better swimmer” or “I want to be healthier” are not as effective as specific goals. It is hard to monitor general goals or to know what types of changes need to be made to achieve them. A specific goal, such as a swimmer stating, “I want to reduce my time in the 200 freestyle to 1 minute 56 seconds from 2 minutes 5 seconds by the championships,” is more likely to result in improvements in performance.

Additionally, measurable goals allow progress to be more easily monitored. Measurable goals provide individuals with feedback, which helps motivate them and sustain involvement. An individual who sets a goal of walking 30 minutes a day for 5 days a week at a brisk pace of 12 minutes a mile or less can easily monitor whether progress is being made toward goal attainment. Action goals, also referred to as observable goals, are goals that can be assessed through observation of a person’s actions. By viewing the person’s actions, you can determine whether or not the individual is exhibiting the desired goal or behavior.

Identification of the time frame for achievement is a critical part of goal setting. Will the goal be accomplished by the end of the season? Or within 1 month? The time frame should be long enough so that it gives a reasonable time to accomplish the goal. If the time frame is too short, it appears unrealistic, which may cause the individual to give up prematurely. If the time frame is too long, there is a tendency to procrastinate.

Goals that individuals establish should be moderately difficult so that the individuals feel challenged and have to extend themselves to achieve the goals. Goals must be perceived by individuals to be realistic and achievable with effort, persistence, and hard work.

Both Weinberg and Cox, noted sport psychologists, suggest several other principles that should be incorporated into goal setting in addition to the SMART goal characteristics. These include writing goals down, incorporating different types of goals into the program, setting short-term and long-term goals, providing individual goals within the group context, determining goals for both practice and competition, ensuring that goals are internalized by the individuals, regularly
evaluating progress, and providing for individual differences.

Goals should be written down and monitored regularly to determine if progress is being made. Some swimmers religiously chart each practice, writing down times for each set of repeats in a swim diary. Other swimmers may only chart their meet performances. What's important is that the individual knows his or her goal, writes it down, and tracks its progress consistently.

A variety of goals should be integrated into the goal setting plan. A combination of outcome, performance, and process goals is recommended. When individuals set goals based on their own performance, they feel more in control. Goals based on outcome measures, such as winning and losing, can lead to a loss of motivation and higher levels of anxiety. The reason is that there are many aspects of an outcome goal that individuals cannot control, such as their opponents' ability. Furthermore, using a combination of different types of goals presents individuals with additional opportunities for success. For example, a swimmer can finish third and fail to achieve an outcome goal of finishing first in the event, but feel successful by posting a personal best time for the event, a performance goal.

Setting a long-term goal provides a direction for individuals' efforts. In addition to long-term goals, short-term goals should be established. Short-term goals play an important role in goal achievement. They serve as stepping stones to the long-term goal. Short-term goals provide individuals with benchmarks by which to judge their progress. This form of feedback serves to keep motivation and performance high. It allows individuals to focus on improvement in smaller increments and helps make the long-term goal task seem less overwhelming.

Goals should be set for different circumstances. Goals are important for both practice and competition. What happens in practice is reflected during performance in competition. Daily practices are a critical component of competitive success. If a tennis player wants to improve his first-serve percentage during competition, this goal should be given attention during practice. Practices also provide the opportunity to work on other goals that contribute to team success, such as working hard or communicating more with teammates.
Goals can also be set for teams. Team goals provide a focus for practice goals. For example, if the lacrosse team's goal is to be ranked number one in the conference on winning ground balls, practice time should be allocated to the achievement of that goal. Additionally, individual performance goals that contribute to the achievement of the team goal, such as working on skills to increase the percentage of ground balls won, should receive attention.

Social support is acknowledged as an important factor in goal achievement. Social support has been found to be critical in achieving rehabilitation goals as well as health goals. For example, in cardiac rehabilitation programs, where individuals set goals related to fitness and nutrition, eliciting the support of a spouse or significant other increases the likelihood that individuals will achieve their goals. Expressions of social support, such as genuine concern and encouragement, also help individuals remain motivated and committed when they are discouraged or frustrated or hit a performance plateau.

Acceptance and internalization of goals by the individual is one of the most critical aspects of goal setting. Individuals must commit to the goals and invest themselves in their attainment. Allowing individuals to set their own goals increases their commitment to their achievement. Goals set by others, such as a personal trainer or a coach, may cause individuals not to feel ownership of the goals. Ownership can be enhanced by using a collaborative approach to goal setting. If goals are not determined by the individual, but are assigned by others, professionals should make sure that the individual commits to the assigned goal.

Provision for frequent evaluation needs to be incorporated into the goal setting plan. Evaluative feedback helps individuals assess the effectiveness of their goals and whether or not their goal achievement strategies are working. Additionally, goal setting is a dynamic process. Frequent evaluation allows both short- and long-term goals to be adjusted to reflect progress, the changing circumstances of the individuals, or the effectiveness of learning strategies.

Individual differences need to be taken into account when setting goals. Some individuals thrive on challenges and welcome goals whose achievement, although attainable, will be difficult. Other individuals require a boost in self-confidence and may benefit from a goal setting approach that uses many short-term goals, the achievement of which enhances their feelings of competence. Individual circumstances should be reflected in goal setting.

Physical education, exercise science, and sport professionals may find goal setting to be an integral part of their work. Goal setting can be used effectively in many different ways to help individuals improve their performance or change their behaviors relative to physical activity.

**ENHANCING PERFORMANCE THROUGH SELF-TALK**

What thoughts run through your head before an athletic performance? As you sit and wait to give a 10-minute speech in front of a class, what are you thinking? As you set out on your daily 3-mile jog, what conversations do you have with yourself in your head? What did you say to yourself as you took a test for this course? Cognitive approaches in sport and exercise psychology focus on understanding the relationship between individuals' thoughts, feelings, and behavior or performance.

**Nature of Self-Talk**

What individuals say to themselves during performance can be positive or negative. These thoughts and associated feelings can influence self-confidence, which, in turn, impacts performance. Who would you rather have take a penalty kick in soccer—a soccer player who steps up to take the shot and thinks, "I consistently make this shot in practice; I can do it" or a player who steps up to take the shot and thinks, "What if I miss?" Which player's self-talk is more conducive to successful performance? Understanding and modifying
Self-talk can help individuals focus their attention and concentrate on relevant cues.

individuals' self-talk is one focus of cognitive sport and exercise psychology.

According to Williams and Leffingwell, “Self-talk occurs whenever an individual thinks, whether making statements internally or externally.” Self-talk is thoughts that occupy an individual's mind or spoken words, and they can be positive or negative in nature. Positive self-talk does not guarantee an outstanding performance, but it does enhance factors associated with better performance, such as self-confidence and a task-relevant focus of attention. Sport and exercise psychologists use a variety of strategies to promote positive self-talk and to counteract the effects of negative self-talk.

Types of Self-Talk

There are several different types of self-talk. Task-relevant statements reinforce technique. For example, a volleyball setter may use the cue “diamond” to remind himself of the correct hand position. Positive self-statements refer to talk that encourages effort or persistence or reinforces feelings of confidence. A cross-country runner, facing an uphill stretch during the last kilometer, may say to herself, “I can do it” as a way of encouraging herself to push through to the finish. A third form of self-talk is mood words—words designed to elicit an increase in intensity or arousal. “Turn it on,” a swimmer says to himself as he completes the last 50 yards of a 1,500-yard freestyle race.

Application of Self-Talk

There are several uses of self-talk. Self-talk can be effective in enhancing skill acquisition, focusing attention, modifying activation, and promoting self-confidence. Self-talk is not only for athletes, but is also useful for individuals engaging in a variety of physical activities.

Self-talk can be useful when learning a new skill or modifying a previously learned skill or habit. Self-talk can range from rehearsing key words of the steps involved in a skill to the use of a cue word such as “step” to serve as a reminder of what to do. It is important that the self-talk focus on the desirable
movement, versus what not to do. For example, if a tennis player wants to toss the ball higher in preparation for the serve, appropriate self-talk would be “High toss,” not “Don’t toss the ball so low.”

Focusing attention is another effective use for self-talk. During practices or competition, athletes’ attention may wander or be directed inappropriately. Cue words such as “focus” help athletes regain their concentration. Self-statements can also be used to help athletes focus on relevant task cues such as “mark up” or “adjust position relative to the ball.”

The right intensity at the right time is critical in performance. Self-talk can be used by athletes to modify their intensity or arousal so that it is at an optimal level. Self-statements may be helpful in decreasing activation ("relax") or increasing it ("get psyched").

Promoting self-confidence is an effective use of self-talk. Self-confidence is influenced by a variety of factors, such as performance outcomes and skill ability. Self-confidence is also influenced by self-talk. Individuals’ self-talk affects their self-confidence, either positively or negatively. Self-confidence is undermined with negative self-talk and feelings of doubt. Although self-criticism can provide an important source of feedback to improve later performances, it is important that it not be overgeneralized (“My shot went wide because of the direction of my follow-through” versus “I’m a terrible player”). Positive self-talk enhances feelings of competence. Self-statements prior to and during competition should be positive in nature and engender high levels of motivation and effort.

Modifying Self-Talk
Some individuals may not even be aware of their self-talk or its potential to impact performance. Sport and exercise psychologists work with individuals to help them use self-talk effectively. For individuals who have negative self-talk, steps can be taken to help them make changes. Williams and Leffingwell identify several approaches to modifying self-talk: thought stopping, changing negative thoughts to positive thoughts, countering, and reframing.29

Thought stopping uses a trigger or cue to immediately interrupt unwanted thoughts when they occur. An athlete who hears herself begin to say “I can’t…” can interrupt this negative thought by saying to herself or out loud the word “Stop,” or by visualizing a red traffic stop sign. Interrupting the negative thought before it leads to negative feelings and adversely influences behavior can have a beneficial effect on performance. With consistent use of thought stopping, the frequency of unwanted negative self-talk can be decreased.

Replacing negative thoughts with positive thoughts is another approach. With this approach, negative self-statements are immediately followed by positive self-statements. For example, a basketball player who misses a foul shot may make the negative statement “I never am good from the foul line.” The player can replace that negative statement with “I made five of my eight shots tonight. With more practice, I can increase that percentage.” Compared to thought stopping, this approach encourages individuals to replace a negative thought with a positive one, rather than simply stopping the negative thought.

Countering focuses on challenging individuals’ beliefs that lead them to accept negative statements as being the truth. Countering uses facts, reason, and rational thinking to refute negative thoughts. Once these negative thoughts are refuted, individuals are more accepting of positive self-statements. For example, an athlete that perceives herself as someone who chokes under pressure can counter that belief by examining her past performances in pressure situations. When the evidence is reviewed, it shows that the athlete actually performs well under pressure, especially in critical games. Now she is helped to replace the negative thought with “I know I can come through under pressure.”

The technique of reframing focuses on altering individuals’ view of the world or changing their perspective. Through this approach, negative statements are changed to positive statements by interpreting the situation differently. An athlete who is nervous and perceives his pounding heart as reflecting his anxiety can reinterpret this as
“I’m geared up and ready to go.” Athletes fearful of competition and the associated stress of winning and losing can be helped to reinterpret competition as a challenge and an opportunity to test themselves while providing the additional benefit of identifying areas of improvement.

Changing the self-talk of individuals presents a challenge to sport and exercise psychologists. First, individuals may not be aware of their negative self-talk. Before modifying self-talk, sport and exercise psychologists need to help individuals realize that self-talk can be self-defeating and adversely influence performance. Exploring the underlying beliefs that perpetuate negative self-talk, such as low self-esteem, is also an important part of the process. In some cases, dealing with the underlying cause of the negative self-talk will require additional interventions. Another challenge is that thought patterns are deeply ingrained and changing them, just like changing any other habit, requires motivation, new skills, practice, and patience.

For greatest effectiveness in modifying negative self-talk, Williams and Leffingwell suggest using a combination of thought stoppage, changing negative thoughts to positive thoughts, reframing, and countering.29 Self-talk is only one cognitive approach that can be used to enhance the performance of individuals as well as their personal development.

The use of self-talk is not limited to the realm of athletics. Students in physical education classes can be taught to use cognitive strategies, such as self-talk, to enhance their feelings of competence as movers. When starting a new activity unit, some students might engage in self-talk such as “I’m no good at this.” This negative statement and others like it result in loss of motivation and lack of effort. Instead, students can be helped to reframe their self-talk and to see that the new unit presents them with an opportunity to improve their skills or learn new ones.

Self-talk can play a critical role in the adoption of a physically active lifestyle. Middle-aged individuals just beginning an exercise program after two decades of inactivity may experience self-defeating thoughts that ultimately may lead to their discontinuing participation. “I can’t do this—I was never athletic anyway” may precipitate participant dropout. Self-talk may also affect participation in rehabilitation programs. For example, a gymnast rehabilitating a shoulder after rotator cuff surgery may be beset with self-doubts about whether he will be able to return to competition. Negative self-talk such as “This is a waste of time” may lead to less than full effort being expended during the performance of the rehabilitation exercises. As a professional, you need to recognize that such negative self-talk can have an adverse impact on achievements by participants in your programs. With training, physical educators, exercise scientists, and sport professionals can learn how to effectively modify self-talk to enhance the experiences of participants in their programs.

MENTAL IMAGERY TO ENHANCE PERFORMANCE

Imagery is an important mental training tool found to be effective in improving the performance of athletes. Recreational marathoners, Olympic platform divers, and professional golfers are among the thousands of athletes that use imagery to improve their performance. Imagery develops a blueprint for performance, enabling athletes to improve their physical skills and psychological functioning during competition. Imagery can assist athletes in attaining their goals.

Vealey and Greenleaf define imagery as the “process of using all the senses to re-create or create an experience in the mind.”30 Anderson explains that “mental imagery occurs when a person images an experience. The person ‘sees’ the image, ‘feels’ the movements and/or the environment in which it takes place, and ‘hears’ the sounds of the movement—the crowd, the water, the starting gun.”31 In contrast to daydreaming, imagery is a systematic process that is consciously controlled by the person, who takes an active role in creating and manipulating the images and structuring the experience. Imagery does not involve
overt physical movements. Imagery in conjunction with physical practice can improve performance.

**Nature of Imagery**

There are two types of imagery: external imagery and internal imagery. Athletes who engage in external imagery see themselves performing as if they were watching a video of their performance. For instance, when a golfer observes herself completing a putt for par on a sunny day or a quarterback watches himself successfully throw a pass through the hands of a defender to the outstretched hands of his receiver, they are using external imagery.

Internal imagery is when athletes construct the image of the performance from the perspective of their own eyes, as if they were inside their body when executing the skill. From this perspective, athletes’ images are formed from what they would actually see, feel, and hear in the situation if they were actually there. Using internal imagery, a surfer would feel her muscles tense and relax as she balances and moves up and down the board, adjusting her body position to ride the wave; she would see the sun beating down on the ocean, the waves forming, and her feet’s position on the board. She would notice the sparkling water droplets from the ocean on her body, and hear the sound of the surf. Athletes using internal imagery see the experience from within themselves.

Athletes who are skilled at the use of imagery can use both the internal and external perspectives effectively. Some sport psychologists suggest that internal imagery is most effective for rehearsing skills and refining performance, and external imagery may be most helpful in assisting athletes to correct critical aspects of their performance.29

Vividness is a critical feature of imagery. **Vividness** refers to the clarity and detail of the mental image constructed by the athlete. Vividness is enhanced through the use of color, incorporation of multiple senses, and integration of emotion within the imagery.29 Imagery goes beyond just the visualization or seeing of an event. The incorporation of other senses, such as kinesthetic (sensations of the body as it moves into different positions), gustatory (taste), olfactory (smell), auditory (hearing), and tactile (touch) senses, adds much to the vividness of the image.

The use of multiple senses enriches the detail of the image. If you compare the two descriptions of the images that follow, it is easy to see how the use of multiple senses enhances the image. One swimmer uses only vision in constructing a visualization of his event—the 400-yard individual medley. The swimmer imagines swimming and seeing the wall coming closer and closer with each stroke as he approaches the turn. Another swimmer also visualizes the wall coming closer and closer with each stroke. But he adds information from his other senses to increase the richness of the image. The swimmer imagines feeling the undulations of his body in the butterfly stroke, smelling the familiar odor of the chlorine in the pool, maintaining the pressure on the palms of his hands and soles of his feet with each stroke, and hearing the roar of the crowd as he sprints home with his freestyle, closing in on a record time.

Adding emotions to imagery further enhances its vividness. The swimmer can enhance his image by adding the feelings associated with the anxiety he experiences as he walks out on deck to the event, waiting behind the starting block to be introduced. As he hears himself being introduced and the roar of the crowd, he can feel the excitement of the race and the challenge it presents, and replace anxiety with the confidence he has gained from months of hard work. As he completes the race and looks up to the scoreboard to see his time, he can image feeling jubilant and excited at achieving a personal best. In experiencing these emotions, athletes should tune into the associated physiological responses, such as their heart rate or sweaty palms, and recognize the positive and negative thoughts associated with the various emotions. Emotions coupled with multisensory input enhance the effectiveness of imagery.

Controllability is an essential feature of effective imagery. Vealey and Greenleaf define **controllability** as “the ability of athletes to imagine exactly what they intend to imagine, and also
the ability to manipulate aspects of the images that they wish to change.30 Athletes must be able to control their images so that they can manipulate the image in certain ways to focus on critical aspects of performance. The ability to control images allows athletes to re-create experiences and view them from different perspectives. It also allows athletes to place themselves in situations that have not occurred previously and rehearse different ways to effectively deal with these situations. If the situation occurs, athletes can respond to it competently and confidently because they have imagined their response. Being able to control the content and perspective of the image is critical to its effectiveness.

Uses of Imagery

Imagery is a versatile mental training technique and can be used in many different ways by athletes to enhance their performance. Vealey and Greenleaf identify seven uses for imagery: developing sport skills, correcting errors, rehearsing performance strategies, creating an optimal mental focus for competition, developing preperformance routines, learning and enhancing mental skills, and facilitating recovery from injuries and return to competition.30

Learning and practicing sport skills is one way that imagery can enhance athletes’ performances. Athletes should select one or two skills to rehearse in their mind. They should rehearse these skills, focusing their imagery on executing the skill perfectly; this practice will help create a mental blueprint of the response. Athletes should incorporate as much relevant sensory information as they can. Athletes who are just beginning to learn a skill may benefit from viewing video of correctly performed skills. Coaches can also demonstrate the correct performance as well as provide verbal cues that will assist the athlete in correctly sequencing the skill’s components or mastering its timing. Athletes can perform the imagery on their own or the coach can incorporate imagery into the regular practice.

Error correction is another use for imagery. Athletes frequently receive feedback from their coaches suggesting corrections in skill execution or adjustments in execution of strategies. To enhance the effectiveness of this feedback, athletes can use imagery. After receiving feedback from the coach, athletes should imagine their performance with the corrections integrated into the image. Imagery allows athletes to experience how the skill or play looks and feels when performed correctly.

Learning and practicing performance strategies is another way that imagery can be used effectively by athletes. This allows athletes to rehearse what they would do in specific situations. For example, after a coach reviews set plays on a corner kick, soccer players can imagine themselves moving through the plays. This approach can also be used after the coach reviews a scouting report on an opponent. Using imagery, players can rehearse the strategies they will use against the opponent. For example, basketball players can rehearse the strategies they will use to counter the opponents’ full-court press.

Imagery is also a useful tool for athletes seeking to optimize their mental focus. They can rehearse creating and maintaining a strong mental focus during competition. Vealey and Greenleaf suggest that coaches can assist athletes with this aspect of imagery by posing and helping answer two questions: “What will it be like?” and “How will I respond?”30 Helping athletes understand the distractions, crowd noise and booping, and challenges in the competitive environment, such as poor officiating, allows them to imagine themselves effectively

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<th>IMAGERY USES</th>
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<td>- Learn and practice sport skills</td>
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dealing with these situations. This advance preparation helps athletes to respond with greater confidence and composure, not react. Imagery allows athletes to gain experience in responding to a diversity of competitive challenges, whether expected or not.

Imagery is often incorporated into preperformance routines. Many athletes have a set routine they use prior to the performance of a skill, and imagery is a part of this routine. For example, a basketball player taking a free throw carefully positions her feet a certain way at the line, bounces the ball a set number of times, spins the ball in her hands, places her hands for the shot, and then takes a deep breath and exhales before shooting. Before releasing the ball, the player visualizes it leaving her hand, spinning, and entering the basket without touching a rim. Preperformance routines have beneficial effects on athletes' performance. These routines are practiced until they are automatic, essentially becoming part of the skill sequence.

Imagery can be used to strengthen a variety of mental skills critical to athletes' performance. It can enhance self-confidence and engender feelings of competence. This can be done by having athletes mentally re-create past successful performances, focusing on their accomplishments and the feelings associated with them. They can also rehearse via imagery coping confidently with performance errors, effectively managing their emotions in the heat of competition, and assertively meeting unexpected challenges during performance. The regulation of arousal is another way imagery can be used by athletes. Athletes can use imagery to psych up for a competition or to decrease their arousal if too high.

Facilitating recovery from injury and return to competition is another way that athletes can use imagery. When athletes cannot participate in practices because they are injured, they can attend practices and mentally image rehearsing skills and strategies. They can imagine themselves engaging in practices, performing drills, and scrimmaging, just as if they were participating. Imagery can also be used by athletes to enhance their recovery by setting rehabilitation goals and imaging their attainment.

Imagery can be used in many different ways to enhance athletes' performance. It can facilitate the learning of skills and correction of mistakes, and provide opportunities to rehearse and experiment with different performance strategies and tactics. Imagery can be used to strengthen

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**FOCUS ON CAREER: Exercise and Sport Psychology**

**PROFESSIONAL ORGANIZATIONS**
- American Psychological Association—Division 47: Exercise and Sport Psychology (http://www.apa47.org)
- Association for Applied Sport Psychology (http://www.appliedsportpsych.org/)
- North American Society for the Psychology of Sport and Physical Activity (http://www.naspspa.org)

**PROFESSIONAL JOURNALS**
- *Journal of Applied Sport Psychology*
- *Journal of Clinical Sport Psychology*
- *Journal of Sport and Exercise Psychology*
- *Research Quarterly for Exercise and Sport*
- *The Sport Psychologist*
athletes’ mental skills and to aid in returning to competition following injury. Athletes use imagery during their training, immediately prior to and during a competitive event, and following competition. When using imagery, it is important that the skill or situation be visualized correctly. If the skill is imaged incorrectly, performance decrement could occur. As imagery is learned and practiced, users should be encouraged to be accurate and precise in their imagery in order to gain maximum benefit.

Imagery is an important mental skill. Even though imagery was discussed in relation to athletes, it can be used in a variety of performance situations, such as public speaking or taking the National Athletic Trainers’ Association certification exam. Imagery, goal setting, and self-talk are important mental skills that can enhance the learning and performance of people in a variety of situations.

INTERVENTION STRATEGIES

In recent years, coaches, teachers, and sport psychologists have turned to a variety of intervention strategies to help athletes achieve their optimal performance. As discussed earlier, anxiety and arousal can have harmful effects on athletes’ performance. Athletes’ performance can also suffer due to lack of motivation, poor level of self-confidence, and, because of the intimate relationship between the mind and the body, negative thoughts and feelings about themselves and their capabilities. With the help of appropriate intervention techniques, athletes learn skills and strategies to regulate their physiological and psychological state to achieve optimum performance.

Sometimes athletes experience excessive anxiety and arousal, which causes a deterioration in their performance. Intervention strategies focusing on reducing this level would benefit these athletes. One way to deal with elevated levels of arousal is through the use of a variety of relaxation techniques. These techniques teach the individual to scan the body for tension (arousal is manifested in increased muscular tension) and, after identifying a higher-than-optimal level of tension, to reduce the tension to the appropriate level by relaxing. Once specific relaxation techniques are learned, this process should take only a few minutes. Types of relaxation training include progressive relaxation, autogenic training, transcendental meditation, and biofeedback. A note of caution is in order here, however. Athletes should be careful not to relax or reduce their level of arousal too much, because this will have a harmful influence on their performance.

In recent years, the use of cognitive strategies to facilitate optimum performance has gained increased acceptance. Cognitive strategies teach athletes psychological skills that they can employ in their mental preparation for competition. In addition to focusing on alleviating the harmful effects of anxiety and arousal, these cognitive strategies can also be used to enhance motivation and self-confidence and to improve performance consistency. These approaches include cognitive restructuring, thought stopping, self-talk, hypnosis and self-hypnosis, goal setting, and mental imagery.

Some cognitive intervention techniques focus on changing athletes’ thoughts and perceptions. Self-talk, previously discussed, is an example of a cognitive intervention technique. Cognitive strategies can also be used to alter athletes’ perceptions of events, thus reducing anxiety. Affirmation of athletes’ ability to succeed in an upcoming competition is another cognitive strategy frequently used to promote optimal performance.

Imagery is the visualization of a situation. This technique has been used in a variety of ways to enhance performance. It can be used to mentally practice skills or to review outstanding previous performances. By remembering the kinesthetic sensations associated with the ideal performance, the athlete hopes to replicate or improve performance. Imagery has also been used as an anxiety reduction technique. The athlete visualizes anxiety-producing situations and then sees himself or herself successfully coping with the experience, thus increasing confidence to perform successfully in similar situations.
Intervention strategies have proved useful in helping athletes maximize their performance. These strategies are not only for athletes but also have implications for all participants in physical activities and sport. For example, the beginning jogger may derive as much benefit from goal setting as the high-level performer. The practitioner using these strategies must be cognizant of individual differences; otherwise, performance may be affected adversely.

The growth of sport and exercise psychology has provided physical education, exercise science, and sport professionals with a clearer understanding of various psychological factors that may affect an individual's performance. Sport and exercise psychologists have been able to enhance individual performance through the use of a diversity of intervention strategies. Although much of the work done in the area of sport psychology has been with athletes, many of the findings and techniques are applicable to participants in a variety of physical activity settings such as school, community, and corporate fitness programs. As the field of sport and exercise psychology continues to expand, practitioners will gain further insight into how to enhance the performance of all individuals.

**Summary**

Sport and exercise psychology is concerned with the application of psychological theories and concepts to sport and physical activity. Although the physiological benefits of physical activity are well documented, physical education, exercise science, and sport professionals also need to be familiar with the psychological benefits of engaging in physical activity on a regular basis. Unfortunately, too many adults are inactive, and many adults who start a physical activity program drop out. Motivation influences the initiation, maintenance, and intensity of behavior. Exercise adherence focuses on understanding the factors that influence initiation and continuation of physical activity programs. Several theories have been used in research on physical activity participation and health behavior change, including classic learning theories, the belief model, the transtheoretical model, social cognitive theory, and the ecological perspective.

Sport psychologists have studied many different areas relative to athletic performance, including personality, anxiety, and arousal. Goal setting, imagery, and self-talk are three approaches used to help individuals improve their performance. To help athletes perform at their best, sport psychologists assist athletes in learning and using a variety of intervention strategies. Some of the findings, methodology, and intervention strategies of sport psychologists can also be used in other physical activity settings to help us better understand and enhance the experiences of participants in our physical activity programs.

**Discussion Questions**

1. Motivation affects our initiation, persistence, and intensity of behavior. Reflect back on your participation in athletics or consider your commitment to being physically active on a daily basis. What motivated you to begin participating in your sport or to start working out? What motivated you to continue your participation? If you ended your participation, what were the reasons for discontinuing? Were you more intrinsically or extrinsically motivated?

2. Many different models have been developed to provide a framework to understand and promote behavior change. Which model do you believe has the greatest potential to encourage adults to change from a sedentary lifestyle to a more active one? Explain your choice. What commonalities do you find between the models and how can you use this information to help participants engaged in physical activity programs?

3. Think carefully about your experiences in organized sport. What strategies did coaches use to motivate the team and psych them up for competition? Which strategies were the most effective and which were least effective? Why? How did coaches
account for individual differences among athletes in their motivational strategies?

4. Self-talk can have an impact on performance, either facilitating or hindering achievement. Think back to a recent performance situation, in either sport or another aspect of your life, perhaps like giving a speech. What was your self-talk before, during, and after the event? Did it help, hurt, or not impact your performance?

**Self-Assessment Activities**

These activities are designed to help you determine if you have mastered the materials and competencies presented in this chapter.

1. Justify the claim that participation in physical activity can have positive psychological benefits. Develop a 250-word essay to substantiate your claim.

2. Using the information provided in the Get Connected box, access the MindTools, Association for Applied Sport Psychology (see the Resources section for articles), or Athletic Insight site and read about one of the topics in sport and exercise psychology or the Association for Applied Sport Psychology (go to Resources>Athletes to find). Choose a topic that interests you. Then write one to two pages summarizing what you have learned and discussing how you can apply that information in your professional career.

3. Too many people are inactive on a regular basis. Furthermore, many people who begin an exercise program drop out. Using the information on exercise adherence, create a brochure, blog, or website that highlights both the physiological and psychological benefits of regular physical activity. Include information that would encourage people to begin and stay involved in a program (e.g., small groups with individually designed exercise programs). Be sure to include images and pictures highlighting physical activity and a catchy title.

4. In recent years, the field of sport psychology and exercise has expanded tremendously. As a practitioner, whether a teacher, coach, adapted physical educator, athletic trainer, or exercise physiologist, you are concerned with optimizing individuals’ performance. Discuss the roles of anxiety, arousal, attention, self-talk, and goal setting in the performance of motor skills and the use of intervention strategies to enhance performance.

**References**


