3 Cognitive Strategies in Sport and Exercise Psychology

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"Change your thoughts and you change your world."
—Norman Vincent Peale

Over 10 years have passed since Straub and Williams (1984) heralded the emergence of the field of cognitive sport psychology, and it has been over 15 years since Mahoney's (1977) landmark paper advocating a cognitive skills approach to the understanding and improvement of athletic performance. Today, cognitive approaches to enhancing athletic performance dominate sport psychologists' research and intervention strategies (Strean & Roberts, 1992; Whelan, Mahoney, & Meyers, 1991).

Cognitive approaches in sport psychology have been broadly and loosely defined, and include techniques such as goal setting, imagery and mental rehearsal, attention control, and cognitive anxiety management. Other chapters in this text deal with many of these topics. This chapter primarily focuses on the relationship of one's thoughts to athletic performance and on approaches to altering thinking for the enhancement of sport performance and enjoyment. The chapter begins with a discussion of cognitive–behavioral strategies that can be used to combat problematic thinking. Next a discussion of self-talk is presented. The chapter concludes with a brief discussion of the relationship of cognitions to exercise behavior, attention, and anxiety.

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Cognitions and Athletic Performance

What athletes think about themselves, their performance, specific situations, and so forth directly affects their feelings and behaviors. Unfortunately, what athletes say to themselves is not always conducive to good performance, and all too often is at the root of poor performance. Although many athletes and sport psychologists believe best performances occur with no conscious thinking—*automatic performance*—it is probably unrealistic to expect athletes to shut off all thinking during every performance (Bunker, Williams, & Zinsser, 1993). However, thinking itself should not be blamed for poor performance, but rather inappropriate or misguided thinking (Bell, 1983). The critical question to answer for improved performance is not whether to think, but what, when, and how to think.

A number of research studies have supported the notion of successful athletes using different cognitive strategies than less successful athletes (see Greenspan & Feltz, 1989 or Williams & Krane, 1993 for a more thorough review). Highlen and Bennett (1979) found that wrestlers who qualified for an elite national team reported fewer negative thoughts about themselves than did wrestlers who did not qualify, but qualifying and nonqualifying wrestlers did not differ in terms of positive thoughts about themselves or in terms of rationalizations. Similarly, Gould, Weiss, and Weinberg (1981) found that more successful collegiate wrestlers had fewer self-doubts and more match-related thoughts prior to competition than less successful wrestlers. All of the researchers reported higher self-confidence for their more successful athletes. These results indicate that more successful athletes use more appropriate thoughts and experience less negativity and self-doubt as compared to even slightly less successful athletes (e.g., Olympic qualifiers vs. nonqualifiers).

Recent qualitative studies have looked at the differences in cognitions and affect before and during best versus worst performance for elite Olympic wrestlers. Gould, Eklund, and Jackson (1992a, 1992b) found that the wrestlers reported positive expectancies and heightened commitment prior to their best performances. In contrast, prior to their worst performances, the athletes reported negative, irrelevant, or irregular thought patterns. In terms of their thoughts during competition, the wrestlers reported task-focused thinking, which included task-specific self-talk during their best performances and a number of ineffective thoughts during their worst performances, including task irrel-

evant and negative thoughts. In another qualitative study, Gould, Finch, and Jackson (1993) investigated the stress-coping strategies of U.S. national champion figure skaters. The two most common coping strategies employed by these highly successful athletes included (a) rational thinking and self-talk, and (b) positive focus and orientation. Although causality cannot be inferred from these studies, results suggest that successful athletes employ more effective cognitive strategies than less successful athletes, indicating that interventions to enhance effective cognitions (e.g., make cognitions more positive, rational, task focused, etc.) may prove effective at enhancing performance.

Cognitive–Behavioral Interventions

The high-pressure situations of competitive sport may represent an ideal environment for fostering irrational or distorted thinking styles. Irrational, self-defeating beliefs are roadblocks to self-direction and achievement in sport and exercise settings. In addition to interfering with good, consistent performance, these self-defeating beliefs can interfere with motivation to participate and may result in individuals avoiding the competitive arena (Ellis, 1982). Sport psychologists use a number of cognitive–behavioral techniques (e.g., Beck, 1970; Ellis & Harper, 1975; Meichenbaum, 1977) to help athletes become aware of irrational or inappropriate thinking styles and to combat or counter this thinking, ultimately creating habits of effective thinking. According to Dobson and Block (1988), three important assumptions underlie cognitive–behavioral interventions:

1. Cognitive activity can affect behavior (including athletic performance).
2. Cognitive activity can be altered.
3. Cognitive change can facilitate desired behavioral change.

This section of the chapter will discuss common types of distorted thinking and how to identify and refute irrational or distorted thinking in sport.

Irrational and Distorted Thinking

Ellis (1982) identified four general irrational beliefs that may interfere with athletes reaching their potential. These four beliefs are (a) "I must

do well in sport and if I don't I am an incompetent, worthless person"; (b) "I must do well to gain the love and approval of others, and if I don't it is horrible"; (c) "Everyone must treat me with respect and fairness at all times"; and (d) "The conditions of my life must be arranged so that I get what I want easily and quickly." These four general beliefs may contribute to a great deal of emotional distress for athletes and clearly do contribute to the pressure already present in achievement situations.

In addition to these irrational beliefs, athletes may employ a number of cognitive distortions that can interfere with effective performance (Gauron, 1984). Distorted thinking patterns interfere with performance by providing the athlete with faulty information about the competitive environment, resulting in misdirected attention, emotional distress such as excessive anxiety, or lowered self-concept. Gauron (1984) identified the following list of distorted thinking styles that athletes commonly employ:

1. *Perfectionism.* Athletes and coaches often get caught up in demanding perfection. This unrealistic expectation leads to excessive pressure and undermines effective coping. Ellis (1982) differentiated between perfectionist *desires*, which may lead to championship performance, and perfectionist *demands* and *commands*, which have "probably wrecked more athletic attempts than any other self-sabotaging factor" (p. 30). Perfectionistic attitudes can also lead to a negative self-concept and a fear-of-failure syndrome due to self-imposed negative consequences when less-than-perfect performances occur.
2. *Catastrophizing.* When athletes hold beliefs that include horrible consequences when beliefs are not met, they often exaggerate potential consequences of imagined or real negative events. Catastrophizers may expect the worst in every situation—often worse than reality or previous experience would suggest. This expectation can contribute to actual negative outcomes.
3. *Self-worth depends on achievement.* Many athletes view their value as individuals relative to their degree of athletic success. This perception is particularly damaging for young athletes who perceive their self-worth and worth to others, particularly their parents, as depending upon their participation and success in sports. This perception clearly increases the pressure to per-

form, contributes to low and unstable self-worth, and can interfere with the fun of participation in sport.

4. *Personalization.* Closely related to the self-worth and achievement belief, athletes sometimes exhibit a self-defeating tendency to personalize everything. These athletes tend to overestimate their personal responsibility for every failure and mistake. For example, a missed free throw in the final seconds of the game "caused the team to lose." Over time, this misperception clearly contributes to a low self-concept, elevated performance anxiety, and even decreased motivation and commitment.
5. *Fallacy of fairness.* Unfortunately, often times *fairness* translates simply to wanting one's own way versus what someone else (e.g., the coach) thinks is fair, or best for the group. This perception of unfair treatment may interfere with interpersonal relations, appropriate focus of attention, and coping with adversity.
6. *Blaming.* Although some athletes may over-personalize—that is, they internally attribute all failure—others excessively attribute failure externally, to coaches, conditions, officials, and so on. This type of thinking allows athletes relief from all responsibility, which is counter to good performance and effective coping. Athletes need to be taught to realistically and rationally evaluate performance outcomes and to accept responsibility when appropriate to do so.
7. *Polarized thinking.* Athletes are often tempted to view things and people in absolute terms, in black and white. This type of distorted thinking often represents itself as labeling selves or others in simple, unidimensional terms—*losers*, *cheaters*, or *unbeatable opponents.* These irrational labels contribute to performance expectancies and can directly influence performance.
8. *One-trial generalizations.* Similar to polarized thinking, athletes may sometimes use a single incident to define expectancies for future performances. For example, a college basketball player stated, "We are a second-half basketball team" after his team played its first two games of the season. This kind of irrational generalization interferes with good performance, proper preparation, and appropriate focus. In the example above, that team may now underemphasize the importance of its play in the first half of a game and thus fail during that half to make adjustments and take advantage of opportunities.

Identifying and Modifying Irrational and Distorted Thinking

Athletes are often unaware of the irrational beliefs or distorted thinking underlying emotional conflicts and performance difficulties. Identifying these distortions is the first and most important step toward modifying maladaptive thinking styles and enjoying the benefits of rational thinking. Coaches and sport psychologists can help identify ineffective thinking by paying close attention to the athlete's attributions and evaluations following performances, particularly poor performances. Often, teachable moments occur just after important competitions, when the athlete has a greater awareness of cognitions before and during competition and may be more open to learning. Also, because athletes often learn distorted thinking patterns from their coaches, coaches in particular must be aware of their own irrational beliefs and the way they model distorted thinking for the athletes.

Silva (1982) identified three phases for implementing cognitive restructuring interventions with athletes: *identification, cognitive restructuring,* and *pairing.* In the identification phase, the sport psychologist and the athlete attempt to define the boundaries of the effected behavior and the irrational beliefs or self-defeating verbalizations present in the situation. This identification can be accomplished through conversation, journal writing, or actual performance of the skill and verbalization of thoughts in the presence of the sport psychologist. During the restructuring phase, the athlete is convinced of the inappropriateness of the present thoughts and more effective replacement thoughts are created. Silva (1982) emphasized that the effectiveness of the intervention depends on getting the athlete to recognize the need to change. Finally, in the pairing phase, the athlete uses self-instructional imagery and verbal cues to facilitate the application of new thinking patterns into actual performance. The athletes should practice the imagery several times a day to make the new thoughts automatic.

Ellis and Harper (1975), Beck (1970), and Meichenbaum (1977) all emphasized the importance of underlying beliefs in maintaining automatic thoughts. These authors recommended challenging underlying beliefs as a vehicle for long-term change in thinking patterns. Beck (1970) suggested purposefully acting counter to identified irrational beliefs as a way of experiencing new thinking and feeling. For example, an athlete who employs excessive criticism and self-abuse after every mistake may try to smile and be overtly self-complimentary after a few mistakes to experience the positive consequences (i.e., thoughts, feelings, and performance) associated with this new behavior.

Athletes, coaches, sport psychologists, and parents must make an effort to substitute rational for irrational thinking during all phases of training and competition. If athletes have a particularly difficult irrational belief to rid themselves of, they may benefit from daily affirmation statements counter to the belief. For example, an athlete may use the affirmation "I want to be a successful athlete, but my worth does not depend on that success." Physically relaxing may increase the effectiveness of attempts to counter irrational beliefs. As mentioned previously, most irrational beliefs create anxiety and tension, thus decreasing receptivity to more effective, rational thoughts.

If doubt exists about whether a belief is irrational or ineffective, Steinmetz, Blankenship, Brown, Hall, and Miller (1980) suggested the following criteria to evaluate the belief:

1. Are the beliefs based on objective reality?
2. Are they helpful to you?
3. Are they useful in reducing interpersonal conflicts?
4. Do they help you reach your goals?
5. Do they reduce emotional conflict?

If the athlete answers "no" to any of the above questions, the belief is likely to be irrational or counterproductive, and the individual will benefit from modifying it.

Irrational beliefs are well entrenched in sport: "No pain, no gain." "Give 110% all the time." "Practice makes perfect." "Winning isn't everything, it's the only thing." Sometimes athletes or coaches believe that modifying some types of irrational thinking (e.g., perfectionism, self-worth depends on achievement) threatens competitiveness or drive. More likely, modifying irrational beliefs enhances performance by helping athletes stay relaxed, task-focused, positive, and motivated (Bunker et al., 1993).

Metaanalytic reviews of sport psychology intervention research have concluded that cognitive interventions such as cognitive restructuring do, in fact, improve the performance of athletes (Greenspan & Feltz, 1989; Meyers, Whelan, & Murphy, in press). Greenspan and Feltz (1989) found that researchers reported positive results in 11 studies using cognitive-restructuring interventions. Greenspan and Feltz (1989) cautioned that causality could be inferred from only a few of these studies and expressed concern that perhaps journals only publish studies with positive results, thus causing an overestimation of the effectiveness of sport psychology interventions, including cognitive restructur-

ing. The metaanalysis by Meyers, Whelan, and Murphy (in press) calculated a greater effect size for cognitive restructuring interventions (n = 4, d = .79, SD = .36) than that found for goal setting (n = 3, d = .54, SD = .15); mental rehearsal (n = 28, d = .57, SD = .75); and relaxation interventions (n = 25, d = .73, SD = 1.65). These authors also concluded that cognitive-restructuring interventions improve performance. Although published studies of the effectiveness of cognitive-restructuring interventions are limited in number and practically nonexistent with elite athletes, they have reliably demonstrated effectiveness at improving athletic performance.

Self-Talk

Broadly defined, *self-talk* occurs whenever an individual thinks, whether that individual is making statements internally or externally. Sport and exercise psychologists are most concerned with athletes' self-statements that direct attention ("focus"), label the self or others ("I am a choker."), judge performances ("great shot"), and contribute to or undermine good performance. The irrational beliefs and cognitive distortions discussed previously are manifested in self-talk. Self-talk serves as the vehicle for making perceptions and beliefs conscious, thereby providing the key to gaining cognitive control (Bunker et al., 1993).

A number of studies have documented the usefulness of self-talk in competitive sport. Highlen and Bennett (1983) found divers qualifying for the Pan American Games used more positive self-instruction self-talk and less praising self-talk during competition than nonqualifiers. More successful divers also reported using self-talk more during training and competition. Orlick and Partington (1988) found that successful Olympic athletes often used positive self-statements as part of a well-developed precompetition plan. In contrast, athletes with an ineffective focus of attention were characterized by self-doubt. Similarly, the Gould et al. (1992a, 1992b) studies of Olympic wrestlers indicated that self-talk was a common technique for fostering positive expectancies and appropriately focusing attention on the task.

A study of observed self-talk and behavioral assessments with junior tennis players found that negative self-talk was associated with losing (Van Raalte, Brewer, Rivera, & Petitpas, 1994). These results implicated negative self-talk as a contributor to poorer performance, but failed to show a relationship of positive self-talk to better performance. The au-

thors concluded that the tennis players may have internalized their positive self-talk and thus the researchers could not observe it as readily as negative self-talk.

An experimental investigation of three different types of positive self-talk—*task-relevant statements, mood words,* and *positive self-statements*—demonstrated positive performance effects with cross country skiers for all three experimental conditions compared to a control condition that employed the self-talk normally used by the skiers (Rushall, Hall, Roux, Sasseville, & Rushall, 1988). Other experimental studies investigating the effects of positive self-monitoring have suggested that positive self-statements may be more effective than negative ones at improving both golfing and bowling performance (Johnston-O'Conner & Kirschenbaum, 1986; Kirschenbaum, Ordman, Tomarken, & Holtzbauer, 1982). A number of studies have found positive self-talk led to better performance than negative self-talk for subjects completing fairly simple tasks (Dagrou, Gauvin, & Halliwell, 1992; Schill, Monroe, Evans, & Ramanaiah, 1978; Van Raalte et al., 1995).

Some descriptive studies using self-report of self-talk content found no difference in the content of self-talk between more and less successful athletes (Rotella, Gansneder, Ojala, & Billings, 1980) or between an athlete's best and worst performances (Dagrou, Gauvin, & Halliwell, 1991). Overall, however, the preponderance of studies provide evidence in support of the hypothesis that both positive self-talk and self-confidence are associated with better or at least "no-worse" performances. It appears that, in general, a positive self-concept, high self-confidence, a task-relevant focus of attention, and less self-doubt relate to better performance. Self-talk that detracts from any of these conditions probably inhibits performance. This section will offer suggestions for identifying and modifying self-talk.

Uses for Self-Talk

Self-talk serves a variety of different uses in sport and exercise. For example, individuals can use self-talk to correct habits, focus attention, modify activation, build and maintain self-confidence, and encourage and maintain exercise participation.

Correcting Bad Habits

Athletes can use self-talk when trying to correct well-learned skills or habits. Often, bad habits are "automatic" in technique, and self-talk

can help consciously override this automaticity. The content of the self-talk may range from a description of an entire motion (e.g., "swing back, step, hit, follow through") to a single cue word for minor changes (e.g., "turn" or "push"). When using self-talk for changing technique, the self-talk must focus on desirable movements, and not on unwanted movements. For example, if a golfer wants to shift weight on the downswing, appropriate self-talk would be "shift" not "don't hang back." This type of self-talk is appropriate for the learning or corrective stage, but may not be necessary once skills are learned or during actual competitive performance if the correct actions occur automatically, that is, without prompting.

Self-Talk for Focusing Attention

Athletes can use self-talk for effectively focusing attention during practice or competition. Athletes can use self statements or cue words to focus attention in the present moment ("right now," or "be here") and on task-specific cues ("Track the ball." or "Pick your target."). These cues are used to maintain focus and to refocus when an athlete has lost appropriate focus.

Self-Talk for Modifying Activation

Athletes who perceive a need to modify activation level can use self-statements to decrease or increase their physical activation. These self statements may include relaxing cues ("easy," "quiet," "relax") or energizing cues ("go," "get up," "pumped"). For greater effectiveness, athletes should pick cues that have the best emotional content for them. These cues can help to establish optimal activation prior to and during competition or can help modify it when not appropriate.

Self-Talk for Self-Confidence

Self-statements affect self-confidence either positively or negatively. Self-talk that reflects negative expectancies and excessive self-doubt ("Once again you're a loser." or "You have no chance at all.") undermines self-confidence. Although some situations warrant self-criticism, this criticism must remain restricted to performance or behavior, and not extend to the self. Many perceived sources of self-confidence, such as performance outcomes, expectations of others, or talent exist outside of an athlete's control. The athlete alone, however, controls self-talk, which is another major source of self-confidence and motivation. Development of positive self-statements ("You can do it." You're good enough to challenge anyone.) can be facilitated by the sport psycholo-

gist. Occasionally, self-statements about negative expectancies ("Don't choke again, stupid!") can self-motivate and mobilize effort, but problems with self-confidence can arise if this theme of self-statements dominates the athlete's self-talk content. Other methods of enhancing motivation and mobilizing effort would probably prove more effective with fewer negative consequences.

Self-Talk for Increasing Efficacy and Maintaining Exercise Behavior

Recent studies in the area of exercise behavior have implicated self-efficacy cognitions as a significant factor in predicting adoption and adherence to an exercise program (Armstrong, Sallis, Hovell, & Hofsetter, 1993; Marcus, Selby, Niaura, & Rossi, 1992; McAuley, 1992).[1] Self-efficacy cognitions may also serve as potential mediators in the relationship of social support to exercise adherence (Duncan & McAuley, 1993). These preliminary findings suggest that modifying self-efficacy cognitions toward exercise contribute to exercise adoption or adherence.

Although cognitive interventions hold promise for fostering exercise behaviors, these interventions have received little attention or research support. For example, Buffone, Sachs, and Dowd (1984) recommended modifying self-talk as a potential cognitive strategy for maintaining exercise behavior, but did not provide any research support for its use. Gauvin (1990) hypothesized that persistent exercisers use positive and motivational self-talk while drop-outs and sedentaries use self-defeating negative self-talk. Based on these recommendations and the preliminary research findings, a need exists for more thorough study of the role of cognitions and the effectiveness of different cognitive-intervention strategies for fostering exercise adoption and adherence.

Identifying Self-Talk

In order to determine if self-talk needs changing, athletes first must have an awareness of the content of their self-statements and the effect the self-talk has on performance (Meichenbaum, 1977). Athletes must become aware of not only negative and self-defeating self-talk, but also positive and facilitating self-talk. A simple paper-clip exercise can help many athletes increase awareness of the frequency of their negative self-talk. Have the athlete carry a number of paper clips in a pocket and then transfer a paper clip to a different pocket each time a negative

1. See Chapter 6 for a discussion of exercise adherence.

self-statement occurs. Often, athletes become motivated to change because of their amazement at the number of paper clips shifted and the adverse consequences of the self-talk. Sport psychologists can use a number of other techniques to help athletes identify self-talk. These techniques include retrospection, imagery, observation, and use of self-talk logs.

Retrospection

When athletes use the retrospection technique, they reflect upon performances in which they performed particularly well or poorly in an effort to recall thoughts and feelings prior to and during these performances. For maximal effectiveness, athletes should use this technique as soon after a performance as possible in order to not forget important aspects of the performance. Often, watching a videotape of the performance can aid more accurate and thorough recall. If sport psychologists observe the performance, they can give specific prompts to help athletes to recall significant moments before, during, or after a performance. For athletes who have little awareness of their self-talk, retrospection may not work.

Imagery

Athletes skilled in imagery can vividly recreate past performances to help recall thoughts and feelings. The reliving of the performance through imagery helps athletes become more aware of the self-talk they had and the effects of the self statements upon their emotions and performance.

Observation

For athletes who frequently say their self-talk out loud, the sport psychologist can help raise the awareness of self-talk by observing and recording verbalized self-talk during performance. Ideally, sport psychologists should collect information about athletes' verbalizations, the situations in which they occurred, and, if possible, the performance consequences. Armed with these data, sport psychologists more effectively can raise athletes' awareness of the content and frequency of their self-talk. Also, this technique provides sport psychologists with data about the actual effects of self-talk on performance. For example, if a tennis player wins most points following negative verbalizations, the sport psychologist may reconsider altering those self-statements. If the observed self-statements improve performance but may damage self-esteem or self-confidence, the sport psychologist may choose different

strategies for altering that self-talk to help the athlete get the same performance effects without long-term consequences to self-concept. This technique has the major drawback of only including verbalized, observable self-statements.

Self-Talk Logs

Often, athletes claim to be unaware of the content or frequency of verbalizations during performance. These athletes typically cannot recall accurately self-talk through retrospection or imagery. Daily record keeping in a self-talk log can effectively increase awareness. The log should include the situation in which the self-talk occurred (e.g., in the locker room, after a foul was called against the athlete, just before a big point); the content of the self-statements (e.g., "Don't choke;" "I can't believe you did that."); and the consequence of the self-talk, expressed in terms of performance consequences (*double fault*), emotional consequences (*frustration, anger*), or both. The self-talk log has a number of advantages. It usually creates the greatest awareness of self-talk by providing the most accurate and thorough identification of self-talk. It also provides for the best identification of the situations triggering the self-talk and the consequences of the self-talk. If convenient, athletes should occasionally carry a small tape recorder during practice to provide immediate documentation of verbalizations, whether said out-loud or merely thought. The sport psychologist should also encourage the athlete to record the situation triggering the self-talk and the behavioral and emotional consequences of the self-talk.

Modifying Self-Talk

Once the preceding techniques raise awareness of self-talk and identify potentially facilitating or self-defeating thoughts, the athlete and sport psychologist can use a number of techniques to modify self-talk. Assuming the athletes have an appropriate awareness of their self-talk and sufficient motivation to make changes, the sport psychologist can use the following techniques—thought stoppage, changing negative thoughts to positive thoughts, countering, and reframing—to facilitate modification. Without commitment to change by the athlete, attempts at using the techniques to modify self-talk probably will prove futile.

Even with commitment to change and appropriate practice, some athletes may not have success with the cognitive techniques. When this problem occurs, the sport psychologist may need to look for underlying factors that contribute to the athlete's difficulty at altering ineffective

self-talk. For example, athletes with low self-esteem and negative self-concepts may lack sufficient confidence to believe constructive self-talk or to believe that they deserve to succeed and to have good things happen to them. When this type of situation exists, sport psychologists may need to intervene at the level of trying to improve self-esteem and self-concept or may need to make a referral. For athletes without these difficulties, the following self-talk modification techniques may be helpful.

Thought Stoppage

After the athlete has identified specific self-statements or patterns of self-talk that need elimination, the technique of thought stoppage can help minimize this self-talk (Meyers & Schleser, 1980). Thought stoppage involves the use of a trigger or cue to interrupt unwanted thoughts when they occur. This trigger can be verbal (e.g., the word *stop*), visual (e.g., a piece of tape on a tennis racquet or visualizing a red stop light), or physical (e.g., snapping of the fingers). Athletes can use almost any trigger they choose, as long as it does not interfere with performance and it gets applied consistently. This technique immediately interrupts the unwanted thoughts and, with practice, may effectively control negative self-talk. By stopping negative self-statements before they lead to negative feelings and behaviors, athletes experience relief from self-imposed negativity. It is hoped that with consistent use of thought stoppage, the need for the technique would decrease because the frequency of the unwanted negative self-talk decreases.

Sport psychologists may not want to use thought stoppage exclusively in their attempt to suppress unwanted thoughts. Recent laboratory experiments by Wegner and colleagues (Wegner & Erber, 1992; Wegner, Schneider, Carter, & White, 1987; Wegner, Schneider, Knutson, & McMahon, 1991; Wegner, Shortt, Blake, & Page, 1990) have demonstrated that merely attempting to suppress unwanted thoughts can have the paradoxical effect of making unwanted thoughts hyperaccessible during and after suppression and can result in greater effects on mood than when no attempt is made to suppress the thought. This effect may be even greater in stressful situations, such as athletic competition. Although these studies were not conducted in field situations such as sport settings, their results suggest that a more lasting change

might come from augmenting thought stoppage with one of the following techniques.

Changing Negative Thoughts to Positive Thoughts

For maximum effectiveness, the athlete initially may want not only to stop negative or counterproductive thoughts, but to follow them with a positive thought that encourages or appropriately directs attention. For example, if the athlete says, "I hate playing for this coach," she might follow the statement with "I may not enjoy this coach as much as my high-school coach, but I can learn a lot from him."

Supplementing thought stoppage with this technique has several advantages. Athletes who doubt their ability to stop negative thoughts from occurring may accept that at least they can replace that thought with a more constructive one. If athletes experience more early success in using the cognitive techniques, they might persevere longer in trying to change faulty thinking habits. Finally, substituting a positive thought may negate, or at least minimize, the effect of the negative thought.

One way to help athletes successfully implement this technique is to have them list their typical negative self-statements on one side of a sheet of paper and then opposite each write an appropriate positive self-statement that they might immediately substitute the next time they make the statement. Because negative thoughts often occur when an individual is under stress and over-activated physiologically (Bunker et al., 1993), the sport psychologist may want to suggest that the athlete say the positive self-statement after the exhalation of a deep breath.

Countering

Changing negative self-statements to positive ones likely will not change behavior as long as the athlete still believes in the negative statements (Bell, 1983). If athletes are encouraged only to "be nicer to themselves," more than superficial and short-term effects cannot be expected. Countering is a useful technique for challenging the athlete's belief in the negative statement, thereby facilitating the acceptance of the constructive self-statement.

Countering is a process of internal debate—using facts, reason, and rational thinking to counter self-defeating thoughts. Bell (1983) suggested that when athletes believe in negative self-statements, they need to build a case against that belief in order to effectively make changes in self-talk and performance. When using countering, the ath-

lete gathers evidence from a variety of sources to refute the negative belief. For example, an athlete may perceive heightened activation during competition as a sign of fear and weakness. "My heart is pounding so hard. I'm going to choke. I'm such a wimp," athletes may tell themselves. The athlete can counter these self-defeating statements by using evidence from past experiences with heightened activation. An athlete may say, "My heart is pounding hard, but that's natural, happens to everybody. It is a sign that this is important and exciting. I have come through in these situations before and I can do it now." In this situation, encouraging athletes to say "I am not nervous" or "I am calm" would not be sufficient, particularly when athletes have evidence available that they are nervous (e.g., a pounding heart).

Reframing

Individuals, athletes included, tend to view the world in narrow, rigid terms. Consistent with Peale's quote at the start of this chapter—"Change your thoughts and you change your world"—Gauron (1984) recommended the technique of reframing for changing an athlete's frame of reference or view of the world. Often times, athletes can change negative self-statements to positive by changing their perspective. For example, athletes concerned about competing against a much higher ranked opponent may think "I'm going to really embarrass myself," they can reframe this concern as an opportunity to assess their skill—"I'm going to see how good I've gotten and where I need improvement." Similarly, an athlete who has the self-talk "I'm feeling tense and nervous" can reframe the statement to "I'm excited and ready."

Reframing can help maintain a proper perspective on competition. Coaches often use reframing to focus their teams or to affect morale. For example, if a team loses a number of games successively, the coach may emphasize the value of the learning experience. After a big win, coaches often say, "That game is behind us; we have to focus on the next one."

Bell's (1983) caution regarding the importance of knowing the beliefs underlying negative statements bears repeating. If an athlete reframes the situation and thus changes the self-talk, but the belief that caused the negative statement remains, behavior change is unlikely. For the greatest effectiveness, the sport psychologist and athlete should employ a combination of thought stoppage, changing negative thoughts

to positive thoughts, reframing, and countering when attempting to modify negative, unwanted, or self-defeating self-talk.

Cognitions and Endurance Performance

Investigations of optimal cognitions for enhancing endurance performance have focused on attentional focus, specifically *associative* and *dissociative* cognitive strategies (Brewer & Sachs, 1996). Associative cognitions direct attention toward task-related cues (e.g., strategy, pace) and physical sensations that result from the exercise (e.g., breathing, leg muscle fatigue). Dissociative cognitions refer to thoughts that have nothing to do with exercising (e.g., relationships, spiritual matters, doing math problems).

Since Morgan and Pollock's (1977) original work in this area, a number of studies have investigated the effect associative and dissociative strategies have on endurance performance. In general, researchers have found that experienced endurance athletes, such as elite marathoners, choose associative strategies as their dominant attentional focus (Masters & Lambert, 1989; Morgan & Pollock, 1977; Silva & Appelbaum, 1989) and most effective strategy for improving performance (Clingman & Hilliard, 1990; Spink & Longhurst, 1986). The opposite occurred for inexperienced individuals. They used dissociative strategies the most and found them the most effective at improving performance (Fillingim & Fine, 1986; Gill & Strom, 1985; Pennebaker & Lightner, 1980; Rejeski & Kenney, 1987; Spink, 1988).

Brewer and Sachs (1996) explained these findings with a parallel processing perspective. Experienced athletes interpret signs of the physical distress encountered during endurance performance (e.g., pounding heart, muscle fatigue) in an objective, nonemotional manner. Thus, they can benefit from the task-relevant cognitions by using the information to evaluate their performance and decide whether they should increase or decrease their pace. Inexperienced athletes, on the other hand, interpret physical distress emotionally and thus benefit from distracting dissociative strategies as a method of coping with the distress.

In terms of the application of these findings, Brewer and Sachs (1996) recommended that sport and exercise psychologists determine the *boundary conditions* (e.g., skill level, length of event) for using either attentional strategy. Previously, Morgan (1984) recommended that as-

sociation should be the method of choice because it is more efficient and entails less risk for injury, but dissociative strategies can be selectively used to cope with a particularly stressful portion of an endurance performance. Since Morgan's recommendation, one intervention study demonstrated that a mental training program can be used to increase associative thought content for marathoners (Schomer, 1987).

Cognitions, Anxiety, and Attentional Focus

Cognitive techniques can provide important interventions for dealing with anxiety and maintaining appropriate attentional focus. Cognitions play an important role in the experience of stress and anxiety (Lazarus & Folkman, 1984; Smith, 1980). The cognitive appraisals of the demands of the situation, the importance of meeting the demands, and the individual's ability to meet the demands of a situation mediate the athlete's anxiety responses. For example, Mahoney and Avener (1977) found that more successful gymnasts tended to constructively use their elevated activation (i.e., physiological arousal), and less successful gymnasts approached near panic states by combining activation with self-defeating thoughts. Clearly, much of the distorted thinking habits discussed earlier in the chapter can create excess anxiety in practice and competition. When an athlete experiences excess stress and anxiety, maintaining a proper attentional focus becomes more difficult, with attention often becoming narrow and internally directed towards worry, self-doubt, and other task-irrelevant thoughts (Nideffer, 1993). Thus, ineffective thinking can hinder good performance in two ways: (a) creating excess anxiety and accompanying physiological changes, possibly moving activation out of the athletes optimal level; and (b) misdirecting attention away from an effective attentional focus, inhibiting good concentration.

Many of the techniques discussed previously in the chapter can be useful for dealing with anxiety and maintaining appropriate attentional focus. Thought stoppage, countering, changing negative thoughts to positive thoughts, and reframing can be used to intervene effectively when anxiety-provoking thoughts occur. Self-talk in the form of cue-words can be used effectively to both modify activation (e.g., *relax, easy*) and focus attention (e.g., *see the ball, be here now*). Sport psychologists, coaches, and athletes must become aware of situations in which

thoughts create anxiety or misdirect attention and use the appropriate techniques to intervene when necessary.

Conclusion

Cognitive–behavioral techniques will continue to dominate sport psychology performance-enhancement interventions in the future (Meyers et al., in press). After interviewing four leading sport psychology practitioners, Newburg (1992) concluded that a primary goal in applied sport psychology is to teach *effective thinking*—the use of good thoughts—during competition. This recommendation points to a worthy and challenging goal.

The popularity and usefulness of cognitive–behavioral techniques is not limited to the field of sport psychology and enhancement of sport performance (Dobson & Block, 1988). Once individuals learn to use the techniques discussed in this chapter to modify ineffective thinking, techniques can be applied in a variety of situations to enhance the personal growth of athletes and their performance in academic and other nonsport situations. For example, cognitive-behavioral techniques can be effectively used for enhancing and maintaining self-esteem (Branden, 1994; McKay & Fanning, 1994). By fostering healthy self-esteem, sport psychologists can enhance the personal growth and development of athletes as well as their performance.

In conclusion, we must caution that thought-control techniques often challenge the sport psychologist who attempts to teach them and the athlete who tries to use them. Thought patterns frequently resist change. Prior to implementing any changes, practitioners should emphasize an awareness of ineffective thoughts, and their consequences and, when appropriate, the underlying beliefs that contribute to the thoughts. Cognitive techniques such as those described in this chapter require skill, practice, and patience by both the sport psychologist and the athlete for maximal effectiveness.

Although we believe that sufficient support exists for the concepts and interventions addressed in this chapter, we concur with individuals who challenge sport psychology researchers and practitioners to continue testing the efficacy of these interventions, particularly when used with elite athletes (Greenspan & Feltz, 1989; Meyers et al., in press; Morgan, 1994; Smith, 1989). Only through careful, theory-based inter-

vention and testing will the field of applied sport psychology advance as a profession and a science.

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