A Mindfulness-Acceptance-Commitment-Based Approach to Athletic Performance Enhancement: Theoretical Considerations

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While traditional cognitive-behavioral skills-training-based approaches to athletic performance enhancement posit that negative thoughts and emotions must be controlled, eliminated, or replaced for athlete-clients to perform optimally, recent evidence suggests that efforts to control, eliminate, or suppress these internal states may actually have the opposite effect. Interventions based on mindfulness and acceptance suggest that internal cognitive and emotional states need not be eliminated, changed, or controlled in order to facilitate positive behavioral outcomes. Rather, it is suggested that an alternative or supplemental approach to the enhancement of athletic performance may be achieved through strategies and techniques that target the development of mindful (nonjudgmental) present-moment acceptance of internal experiences such as thoughts, feelings, and physical sensations, along with a clarification of valued goals and enhanced attention to external cues, responses, and contingencies that are required for optimal athletic performance.

Applied sport psychology, in its efforts to enhance the competitive performance of athletes, has traditionally utilized cognitive behavioral methods and techniques with an emphasis on developing self-control of internal states, commonly referred to as psychological skills training (Whelan, Mahoney, & Meyers, 1991). In contrast, behavioral theorists in professional psychology have recently begun to advocate and demonstrate empirical support for interventions that emphasize acceptance, rather than direct change, suppression, or control, of cognitive and affective experiences (Hayes, Strosahl, & Wilson, 1999; Roemer & Orsillo, 2002; Segal, Williams, & Teasdale, 2002).

With modern meta-cognitive and acceptance-based theory, research, and practice as a foundation, and theoretical aspects of self-regulatory processes in athletic performance carefully considered, the purpose of this article is to present a new approach to performance enhancement that, adapted and developed...
specifically for use with an athletic population, may elaborate on and increase the effectiveness of traditional performance enhancement approaches. This approach is referred to as Mindfulness-Acceptance-Commitment (MAC) based performance enhancement, and is adapted from clinical models of Acceptance and Commitment Therapy (Hayes et al., 1999) and Mindfulness-Based Cognitive Therapy (Segal et al., 2002). This innovative approach to athletic performance enhancement efforts is markedly different in both theoretical assumptions and intervention strategies and techniques from the traditional psychological skills training approaches that have to date dominated applied sport psychology.

**Historical Development of Psychological Skills Training**

Historically, efforts to enhance athletic performance have been most clearly related to the development of social cognitive theory (Bandura, 1977) and early skills training models of cognitive-behavioral interventions (Meichenbaum, 1977). From this perspective, athletes develop and utilize psychological (mental) skills such as goal setting, imagery/mental rehearsal, arousal control, self-talk, and precompetitive routines as vehicles to aid in the development of self-control of internal processes such as thoughts, emotions, and bodily sensations, in an attempt to create the ideal performance state (Hardy, Jones, & Gould, 1996).

Within the domain of interventions for athletic performance enhancement, a number of authors frequently describe and support the use of psychological skills training (PST) procedures, while concurrently commenting on the inconsistent and inconclusive empirical support for such approaches (Burton, Naylor, & Holliday, 2001; Gould, Damarjian, & Greenleaf, 2002; Gould & Udry, 1994; Meyers, Whelan, & Murphy, 1996; Weinberg, 1994, 2002; Williams & Leffingwell, 2002; Zaichkowsy & Baltzell, 2001).

In addition, questions may be raised regarding the theoretical assumptions that are at the foundation of these procedures. Fundamental to PST is the long-held assumption that reduction of negative emotions and bodily states, and associated increases in positive cognitions and confidence levels, are directly related to an “ideal performance state,” which in turn is directly related to optimal athletic performance (Hardy et al., 1996). Based primarily on correlational studies, practitioners of sport psychology have long accepted the notion that more successful performers are less anxious, more confident, and experience fewer negative thoughts (Gould, Eklund, & Jackson, 1992; Gould, Weiss, & Weinberg, 1981; Orlick & Partington, 1988). What follows from this theoretical position is the related assumption that interventions targeting the enhancement of athletic performance focus on supplanting negative thoughts with positive ones and reducing or controlling negative affective states (Hardy et al., 1996).

In those few studies that have carefully studied the mechanisms of change mediating traditional PST procedures and competitive performance, results
have generally not been supportive of the assumptions made in the use of traditional psychological skills training procedures. These studies, utilizing a variety of different sports, suggest that reduction in "negative" affective states such as anxiety, and/or increases in self-confidence, do not consistently result in significant increases in athletic performance (Burton, 1989; Daw & Burton, 1994; Holm, Beckwith, Ehde, & Tinius, 1996; Maynard, Smith, & Warwick-Evans, 1995; Murphy & Woolfolk, 1987; Weinberg, Seabourne, & Jackson, 1981). This conclusion receives additional support from a recent study by Cohen and colleagues (Cohen, Pargman, & Tannenbaum, 2003) in which physiological arousal was experimentally manipulated during a dart-throwing competition. The results of this study found no relationship between arousal levels and actual performance. In addition, a recent meta-analysis examined the effects of competitive anxiety and self-confidence on athletic performance (Craft, Magyar, Becker, & Feltz, 2003). In this review, using multivariate meta-analytic techniques, characteristics such as design features, subjects, and type of sport were separately coded. From this analysis, the authors concluded that a weak relationship appears to exist between competitive anxiety, self-confidence, and athletic performance.

It should be noted that these studies are limited by their assumption that all athletes are at nonclinical levels of anxiety or other affective states and thus would all benefit from a single intervention protocol based upon a common goal of enhancing athletic performance. It may very well be that those athletes for whom anxiety (or other affective states) is at subsyndromal or actual clinical levels might benefit from different interventions than those whose anxiety/affective levels are at nonclinical levels. That being said, these studies do suggest that for a number of athletes, reduction of anxiety (with corresponding reduction of "negative" thinking and increases in self-confidence) may have little significant impact on actual competitive performance enhancement. This in turn suggests the possibility that for many competitive performers, particularly for those not experiencing unusually high levels of pre-competitive anxiety, an alternative to traditional interventions targeting reduction of anxiety, increased confidence, and reduced "negative" thinking, may be appropriately considered for use in athletic performance-enhancement efforts.

An Alternative Approach to Athletic Performance Enhancement

In recent years, there has been an increasing body of literature that calls into question the position that "negative" internal experiences invariably lead to negative behavioral outcomes (Hayes et al., 1999). In essence, this literature suggests that attempting to suppress unwanted thoughts and emotions can actually have a paradoxical effect, triggering a meta-cognitive scanning process that actively searches for signs of "negative" or unwanted cognitive activity and brings it to awareness when detected (Purdon, 1999; Wegner, 1994). As such, excessive cognitive activity and task-irrelevant focus replaces meta-cognitive task-relevant attention and functional goal-directed behavior.
The literature further suggests that efforts at thought suppression or control might actually result in an increase in frequency of unwanted thoughts and emotions (Clark, Ball, & Pape, 1991). Further, the reactivation of previously suppressed thoughts has been found to result in corresponding increases in affective states and increased autonomic activity (Wegner, Shortt, Blake, & Page, 1990), which is most often contrary to the desired outcome when working with competitive athletes. These processes and consequences of thought suppression have often been referred to as "ironic process of mental control" (Wegner, 1994).

Recent empirical data describing self-regulatory processes across a wide range of human performance domains (Barlow, 2002; Rapee & Lim, 1992; Sbrocco & Barlow, 1996; Stopa & Clark, 1993) and athletic performance in particular (Moore & Gardner, 2001) suggest that consistent functional human performance involves meta-cognitive attention to external cues, options, and contingencies involved in both immediate performance tasks and valued distal goals. At the same time, optimal self-regulation requires minimal self-judgment, minimal vigilance to external or internal threat, and minimal worry (i.e., scanning for threat) about possible performance consequences and ramifications.

Conversely, Crocker and colleagues (Crocker, Alderman, & Smith, 1988) utilized a stress-management intervention including meditation and in-practice integration of coping skills to develop the capacity to focus on performance, attend in the moment, and cope with experienced emotion for elite volleyball players. In this study, while no reductions in competitive anxiety and minimal changes in actual negative cognitions were noted, there were significant competitive performance improvements, and these improvements were maintained at 6-month follow-up. In a more recent study utilizing qualitative analytic methods, D'Urso and colleagues (D'Urso, Petrozzo, & Robazza, 2002) found that when assessing the contribution of psychological skill utilization and physical skill utilization differences between best and worst athletic performances, only the physical skill–based constructs were reliably related to performance differentiation. Consistent with contemporary contextual-acceptance theory, the authors also noted that "both positive and negative emotions may exert beneficial or detrimental effects depending on their idiosyncratic meaning and intensity" (D'Urso et al., 2002, p. 172).

The empirical evidence appears to suggest that for many athletes, the intervention goals of anxiety reduction, minimization of negative cognition, and/or increased confidence may not be necessary, essential, or even related to an outcome of enhanced athletic performance. In addition, internal control-based approaches to performance enhancement may inadvertently result in overly cognitive (verbal-semantic, self-focused) rather than meta-cognitive (in-the-moment, nonjudgmental) activity, resulting in a reduced capacity to automatically engage (i.e., trust) previously developed athletic skills, appropriately respond to necessary contextual cues, and maintain optimal task-relevant focus.

In response to the empirical limitations and theoretical questions associated
with traditional change-based PST approaches to enhance athletic performance, introduction to and utilization/supplementation of newer approaches to athletic performance based upon contemporary theory and research in metacognitive processes, acceptance, and self-regulation would appear warranted. Specifically, burgeoning mindfulness and acceptance-based approaches have direct theoretical relevance to efforts at performance enhancement. In addition to their utility in clinical populations, these approaches have demonstrated some preliminary success in studies focusing on work-site stress reduction (Bond & Bunce, 2000) and pitching and batting performance in collegiate softball players (Little & Simpson, 2000).

Rather than emphasizing control/reduction of internal experiences, emerging approaches to psychological intervention emphasize mindful, nonjudging awareness and acceptance of in-the-moment cognitive, affective, and sensory experiences. Internal experiences are viewed as naturally occurring events that regularly come and go as normal, expected facets of human existence. From this overarching perspective, human difficulties evolve, at least in part, from the tendency for individuals to "fuse" with their internal experiences such as thoughts, feelings, and self-other evaluations, and thus view internal processes as absolute literal truths that provide reasons for events and in turn guide/cause behavioral choices (Hayes et al., 1996). As a result, rather than engaging in behaviors reflective of a commitment to valued goals (quality practice, hard training, aggressive competitive performance, maintenance of strategic plans and choices), competitive choices/behaviors are often made for the purpose of avoiding and thus controlling/limiting internal experiences judged as unacceptable or uncomfortable.

Of particular importance in acceptance-based models are the associated concepts of willingness and commitment. Willingness refers to a decision to fully experience thoughts and emotions (including those defined as "negative") which in turn allows behavioral choices to be made not for the immediate goal of a reduction of discomfort, but rather, in the service of active efforts to achieve distal goals (commitment). Commitment, then, can be defined as the process of actively choosing behaviors that are directly in pursuit of clearly delineated valued goals.

Closely associated with acceptance is the concept of mindfulness. Mindfulness, as a form of present-moment awareness, stems from concepts grounded in Eastern religion and philosophy, and has been defined as "...paying attention in a particular way: on purpose, in the present and nonjudgmentally" (Kabat-Zinn, 1994, p. 4). As a technique, mindfulness has been used as a component in therapeutic interventions targeting many diverse clinical problem areas (Kabat-Zinn, 1994; Linehan, 1994; Miller, Fletcher, & Kabat-Zinn, 1995; Roemer & Orsillo, 2002; Segal et al., 2002). Mindfulness techniques emphasize the development of nonjudging, nonevaluative attention to present realities, including both external stimuli and internal processes. That is, internal or external stimuli that enter awareness are noticed, but not evaluated as good, bad, right, or wrong. Mindfulness from this perspective can be thought
of as an attentional skill. It is developed through regular practice of mindfulness exercises, and with particular relevance to athletic performance, can be viewed as a form of self-regulated present-moment attention (Kabat-Zinn et al., 1992).

In addition to enhancing moment-to-moment attention, mindfulness-based techniques have also demonstrated efficacy in reducing the verbal-linguistic component of anxiety and worry (Roemer & Orsillo, 2002). In this regard, a number of studies have confirmed the idea that worry (a central feature of anxiety) is characterized most clearly by a preponderance of cognitive activity and low levels of imagery and autonomic activity (Borkovec & Intz, 1990; Borkovec, Lyonfields, Wiser, & Deihl, 1993; Lyonfields, Borkovec, & Thayer, 1995). This may be of particular importance in athletic populations, as one study has demonstrated decreased levels of left-hemisphere cortical activity, indicative of lowered levels of verbal-linguistic activity in high-performing golfers (Crews & Landers, 1993). Similar results have been found in other studies utilizing elite marksmen and archers (Hatfield, Landers, & Ray, 1984; Janelle, Hillman, Apparies, et al., 2000; Janelle, Hillman, & Hatfield, 2000; Salazar, Landers, Petruzzello, & Han, 1990). To date, these results have only been noted with athletes engaged in self-paced (closed skill) sports, such as golf, pistol shooting, and archery. As such, it is still an open empirical question as to whether these same results would be found in athletes engaged in externally paced (open skill) sports such as basketball and hockey. That being said, the data do suggest the potential value of mindfulness-based interventions for use in athletic performance enhancement.

Further, as it has been suggested that the use of mindfulness techniques may lead to the development of greater self-awareness (Roemer & Orsillo, 2002), habitual ways of responding to external cues can be more easily identified, which may result in enhanced behavioral flexibility in response to athletic demands. The present-focused nature of mindfulness techniques does not promote excessive self-focus or cognitive activity related to past or future events, but rather, promotes attention to performance-relevant cues and enhanced behavioral flexibility as competitive demands and internal experiences fluctuate. An example of the important role of task-relevant, in-the-moment focus and associated attention to contextual cues in sport can be seen in a study by Klinger and colleagues (Klinger, Barta, & Glas, 1981). In this study, reversals in game performance and an enhanced level of play by the competition shifted the attentional focus of intercollegiate basketball players from appropriate external game-related cues to a more self-judging future-oriented anticipatory focus, which in turn resulted in impaired performance. This attentional shift was associated with changes in “momentum,” and was associated with mini-slumps and more long-term performance dysfunction. Similarly, a study by Edwards, Kingston, Hardy, and Gould (2002) found that an attentional shift to self-evaluation of performance was a significant contributor to in-competition catastrophic performance decline in high performing athletes.
MAC-Based Performance Enhancement

The Mindfulness-Acceptance-Commitment-based approach to performance enhancement is an integration and adaptation of Acceptance and Commitment Therapy (Hayes et al., 1999) and Mindfulness-Based Cognitive Therapy (Segal et al., 2002) for use with an athletic population. This approach draws heavily on the extensive research on rule-governed behavior by Hayes and colleagues (Hayes et al., 1999). Their research suggests that when an individual has a negative emotional response to an external stimulus (such as anxiety in response to a skilled opponent), and then directly thinks about the stimulus ("I can’t keep up"), he or she is likely to develop a negative emotional response directly to those thoughts. In the future, the individual will then experience those same thoughts in the presence of either the emotional response or the external stimulus. As such, responses, both cognitive and emotional, become cues in and of themselves and often lead to overt task disengagement (avoidance) or covert task disengagement (worry and loss of concentration). In essence, individuals respond to their thoughts and emotions as though they are realities that, by definition, must guide their actions. These actions are frequently intended to avoid or escape from internal experiences judged to be negative and/or uncomfortable (such as becoming less aggressive or asking to be taken out of the game in response to anxiety experienced when facing a superior athlete). Hayes and colleagues have termed this process experiential avoidance (Hayes et al., 1996). Anxiety, frustration, or anger (related or unrelated to athletic participation) experienced prior to practice may lead to thoughts such as, “I’m too stressed to practice,” which in turn results in the decision to skip practice. This would be an example of rule-governed behavior, as the avoidant behavior is directly governed by the cognitive response to the emotion of anxiety (a personal rule established by the individual) and not a choice of action consistent with the valued goal of improving performance, engaging in athletic competition, and enjoying the process of athletic participation.

The distinction between rule-governed behavior and valued goal-directed behavior is particularly important when one considers the fact that athletes of all skill levels must fairly consistently self-regulate their behavior in the service of distal goals at the expense of more immediate gratification. As such, the MAC approach to performance enhancement would be expected to promote both the competitive (in the moment) self-regulation necessary for optimal competitive performance as well as the valued goal commitment necessary for quality practice, intense training, and long-term development of athletic skill.

For example, comments such as, “I just can’t play for him. He’s a jerk,” or “I didn’t take that shot because I wasn’t confident,” are often made by individuals using their internal processes (cognitive-emotional responses) to explain and guide behavior, which is intended to reduce internal experiences such as frustration and anxiety (experiential avoidance). This function of this behavior is in contrast to the more appropriate focus on environmental contingencies most valued, such as contextually required sport-specific behavior (taking the
shot when available), working to improve performance (quality practice), or enjoying the process of competing in one’s chosen sport.

In contrast, MAC promotes acceptance of internal experiences while at the same time focusing the individual on the appropriate external contingencies and behavioral responses required to effectively navigate situations in order to achieve both immediate and distal goals. From this perspective, the MAC approach supports the recent suggestions by Murphy and Tammen (1998), that sport psychologists give greater attention to the promotion of effective problem solving, decision making, and practice behaviors of competitive athletes. As MAC promotes the clarification of values and the commitment to engage in behaviors necessary for goal attainment in addition to the self-regulatory aspects of actual competitive performance, utilizing the MAC approach to enhance performance targets not only athletic performance enhancement, but also the decision-making, problem-solving, and behavioral processes that athletes must make regarding day-to-day issues directly involved in athletic development and enjoyment, such as training, practice, and self-care.

This discussion highlights relevant connections between the self-regulatory processes associated with optimal athletic performance and the theoretical rationale for mindfulness, acceptance, and commitment-based concepts, suggesting the potential applicability of such an approach for the enhancement of athletic performance. These connections have led to the integration of mindfulness (Segal et al., 2002) and acceptance-commitment (Hayes et al., 1999) strategies and techniques into a new protocol for athletic performance enhancement: MAC-based performance enhancement. This integrated approach to performance enhancement targets the development of mindful, nonjudging, present-moment attention (mindfulness), acceptance of internal experiences as natural to the human experience, willingness to remain in contact with those internal experiences, and a focus of attention on performance-related cues, contingencies and situationally appropriate actions/choices in the service of valued athletic goals (commitment). If achieved, this combination of characteristics would bear some similarity to the concept of flow often discussed in the sport psychology literature (Csikszentmihalyi, 1990) in that both concepts share an emphasis on present-moment, non-self-conscious concentration on a particular task. In describing the concept of flow in sports, Csikszentmihalyi (1990) noted qualities such as “the merging of action with awareness” (p. 53), “concentration on the task at hand” (p. 58), and “the loss of self-consciousness” (p. 62). Athletes’ own descriptions of flow states suggest a lack of awareness of thoughts and feelings and a heightened awareness of seemingly automatic body movements (Russell, 2001). Thus, given that a state of “flow” is regarded as an important attainment for athletes, the MAC approach is likely to be a particularly relevant approach to achieve this state.

The development of mindful awareness, mindful attention, and acceptance of internal processes is intended to replace efforts at internal self-control, a task-irrelevant focus of attention, and restrictions in behavior that often accompany both performance dysfunction and performance in need of further development.
and/or refinement (Moore & Gardner, 2001). Based upon recent research in clinical variants of this approach, it is hypothesized that athletes receiving this intervention will demonstrate enhanced attentional awareness, nonjudging task-relevant attentional focus, and greater behavioral flexibility. In turn, these processes would be expected to result in improved quality of practice/training, competitive performance, and enjoyment of the athletic experience.

The basic components of the MAC protocol utilized to date are highlighted below. The group-administered format is currently being evaluated in an 8-session, 1 1/2 hour per session protocol, while the individual format is currently following a 12-session, 1 hour per session protocol. There are five distinct phases in the MAC protocol, including psychoeducation, mindfulness, value identification and commitment, acceptance, and integration and practice.

**Psychoeducation**

In the first phase of the MAC protocol, the need to understand and collaboratively participate in this intervention is carefully addressed. It includes a rationale for the intervention, a discussion of self-regulatory aspects of athletic performance, a review of best and worst personal athletic performances, and the contradiction of “efforts to control” internal experiences such as thoughts, emotions, and bodily sensations from a self-regulatory perspective. In this first phase of the MAC protocol, clients begin to develop the capacity to recognize external events related to performance difficulties/blocks (early cue detection) and their relationship to internal experiences (thoughts and emotions) and subsequent behavioral choices.

**Mindfulness**

In the next component of the MAC protocol, the concept of mindfulness is introduced as an important element of optimal athletic performance through the self-management of attentional processes. Mindfulness techniques are systematically introduced to heighten awareness of internal experiences (mindful awareness) and develop nonjudging, in-the-moment attention (mindful attention). Great care is taken to ensure that the functions of these techniques are well understood and not used to avoid uncomfortable or troubling experiences. Rather, the focus is on the development of the capacity to notice and let go of negative or distressing thoughts or emotions, and a “willingness” to simply experience these events without judgment or avoidance. Clients learn both general and sport-specific mindfulness exercises (mindfulness of the breath; full body-scan mindfulness; mindful pre-game stretch; mindful drill/practice activities), and practice them in-session, at home, and during practice and competition. In addition, clients learn to contrast these skills with more typical habits of avoiding internal experiences and/or ruminating/worrying about them.

**Values Identification and Commitment**

In this component of the protocol, emphasis is placed on exploring the distinction between goals (outcome) and values (process). The discussion
focuses on choosing valued directions in both sport and other important life domains. The overarching purpose of this component is to increase effective action in the service of personal values (the type of player one desires to be, the type of athletic career one wants to have, etc.). Following this exploration, athletes are introduced to the concept of cognitive defusion, the process of disconnecting actions and behavioral choices from internal rules and experiences (rule-governed behavior), and instead committing to action in the service of their personal values.

Acceptance

In the next component of the MAC protocol, clients further develop their ability to recognize the connection between thoughts, feelings, and behavior. Here, the concept of rule-governed behavior is continuously described and discussed, with a focus on developing an awareness of and ability to decenter from and disconnect previously automatic connections between thoughts, feelings, and behavioral choices. The role of internal language on one’s behavior, especially as it relates to athletic performance, is considered and discussed. Cognitive fusion is elaborated and directed efforts at defusing thoughts/emotions from choices/actions are continued. This discussion once again focuses on acceptance of, and willingness to fully experience, events and associated thoughts and emotions as opposed to efforts toward control and reduction with associated negative consequences. These concepts are intertwined with previous discussions of both self-regulation in athletic performance and mindfulness.

Integration and Practice

In the final component of the MAC protocol, focus is placed on integrating, consolidating, and practicing concepts (and skills) of mindfulness, acceptance, and value-directed action (commitment) into a daily approach to both sports and everyday life. In vivo (practice and competition) experiences are developed, allowing participants to utilize and practice the techniques already presented. In addition, problems or issues in the effective use of the techniques are thoroughly processed, and this new approach to dealing with external demands and internal experiences is continuously practiced, reinforced, and shaped. Special attention is given to utilization of these new skills in practice and competition as well as relevant nonathletic situations.

Case Studies of the MAC-Based Performance Enhancement Approach

The basic components of the MAC protocol utilized to date are highlighted in the following case examples. The first example is that of a male college student who sought sport psychological services, and the second example is a master’s-level female who sought consultation in a private practice setting providing athletic performance-enhancement services.
Case Study 1: DG

DG is a 22-year-old male intercollegiate swimmer performing well academically and socially. He sought out sport psychology services on the recommendation of his college coach. He is a 4th-year student-athlete who has been inconsistent in his performance over his entire college career. He has regularly demonstrated the physical ability to compete at a higher level in practice and has, on occasion, performed at expected levels during competitive meets. However, more often than not he underperforms.

DG engages in a great deal of self-evaluation and judgment when engaged in competitive performance. He describes himself as being a worrier, particularly regarding his athletic performance. The MAC protocol was utilized in an effort to enhance engagement in necessary practice, enhance competitive performance and enhance enjoyment of the athletic experience. The intervention aimed to develop in DG an in-the-moment nonjudgmental focus on necessary external cues and requirements of his sport, acceptance of and willingness to experience naturally occurring “negative” thoughts and feelings during competition, and a commitment to act/train in a manner consistent with his personal valued goals of being an effective and fully engaged student athlete.

At the outset of this intervention, DG scored a 67 on the Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990), consistent with moderate levels of worry and rumination. Results from the Sport Anxiety Scale (SAS), a measure of sport-related anxiety (Smith, Smoll, & Schutz, 1990), also suggested that DG engaged in a great deal of worry during performance and had difficulty concentrating. His total score on the SAS was 61, and reflects a rather high level of anxiety related to competitive pursuits. In addition, initially DG scored an 81 on the 16-item Acceptance and Action Questionnaire (AAQ-16), a measure of acceptance of internal states and of willingness to act in pursuit of one’s goals (Hayes et al., 1999). This score suggests a high level of experiential avoidance, and is typical of scores found in clinical populations.

The MAC protocol utilized in this case focused on the systematic and sequential utilization (and practice) of mindfulness exercises, which DG engaged in on a consistent basis. Exercises began with mindfulness of simple nonathletic task execution, and over time moved to mindfulness of breath and body exercises, and later to mindfulness of preperformance stretching, pre-race positioning, and actual swimming activities. In addition, focus was placed on early cue detection exercises, from which he developed an understanding of the relationship between his thoughts, emotions, and behavioral choices. From this point, the emphasis of intervention was on the determination of valued goals, efforts at defusing his internal experiences from his behavioral choices, and refocusing attention to external (task relevant) cues and contingencies related to competitive success.

Midway through the 12-week protocol, scores on the self-report measures of worry and anxiety had not changed and actually increased slightly, while
the AAQ had been only marginally reduced. However, behaviorally, DG demonstrated substantial increases in practice time and intensity as reported by the coaching staff. By the end of the 12-week MAC protocol, DG's scores had decreased to a score of 43 on the PSWQ and a total score of 35 on the SAS, a significant reduction in both worry and sport-related anxiety, although the reduction of anxiety was never directly targeted. By the end of treatment, DG's score on the AAQ had decreased to a score of 50, suggesting that DG had become more willing to accept his negative internal states. He was becoming less judgmental about these internal experiences, and rather than utilizing avoidance, a primary behavioral style, he was behaving in a manner more consistent with his stated desires.

At the completion of the MAC protocol, DG reported that he was worrying a great deal less, enjoying his athletic experience a great deal more and was more completely engaging in necessary athletic activities, consistent with his own valued goals of athletic involvement and improvement. He also described the regular (daily) use of mindfulness and acceptance techniques. While these results were promising, DG's competitive performance had not yet evidenced as great an improvement. In his first competitive meet following the completion of the structured MAC protocol, DG finished fourth, with a time only slightly better than preintervention levels. This result was limited by the fact that this was his first and only competitive performance since receiving the intervention. His performances in practice had demonstrated significant improvements in practice times according to both staff and self-report. Mindfulness and acceptance were presented as skills that, like physical skills, are more difficult to use under stressful situations (competition) but with repeated practice are likely to become more effective. The formal MAC protocol was intended to be 12 sessions in length. However, it was extended by 4 weeks to fine-tune his competitive use of the skills of mindfulness and acceptance during the competitive season. Following these additional 4 sessions, which focused on the integration of MAC skills into actual competitive performance, DG had his best competitive season, winning two meets, and achieving two personal-best times.

Case Study II: LD

LD is a 37-year-old master’s-level female power-lifter who, while in her 20s, had won several world championships at her weight level. Over the last 3 years, she has begun competing again in master’s events with little success. Her weight training had reached a plateau, and no progress was reported over the past two competitive seasons. LD described her workouts as inconsistent and unfocused. LD described her occupational and social functioning as positive and highly effective. Upon beginning the MAC protocol, LD scored a 27 on the distraction subscale of the SAS, suggestive of significant competitive attentional difficulties, and a 77 on the AAQ, suggestive of high levels of experiential avoidance as a primary coping strategy. All other self-report data were within normal limits. The goal of intervention was the enhancement of
training behavior, including focus and intensity, as well as an increase in competitive performance. The focus of the MAC intervention was the development of enhanced present-moment attention and commitment to directly engage in training behaviors consistent with her personal goals of competitive success.

The MAC intervention with LD began with practice and development of mindfulness skills, which were initially helpful for her in recognizing the degree to which her thoughts were task irrelevant during practice. She was diligent in pursuing a mindfulness practice and then began to work on the acceptance of her thoughts and emotions during training, as opposed to trying to limit or control them. Of particular importance to LD was the discussion regarding valued goals. She evaluated her commitment to weight training/lifting and determined that her approach to training did not accurately reflect her desire to fully engage in that enterprise. She began training harder and more efficiently and reported significant increases in enjoyment. By the end of the intervention, her AAQ score had been reduced to 43 and by the end of the intervention, she had reduced her score on the distractibility component of the SAS to 12, well within normal limits. More importantly, her self-reported (and recorded) training intensity had increased dramatically, as did her actual weight lifting performance (maximum weight lifted and total volume) during practice. Following week 6 of the 12-week protocol, LD had her first competitive performance and finished third, her best performance since competing at this level, and had lifted 15% beyond her best master’s-level competitive performance.

The case studies presented here provide some initial support to the hypothesis that the integration of mindfulness techniques and acceptance-commitment methodology can be effectively applied to a competitive population desiring athletic performance enhancement. While individual case studies do not provide conclusive intervention efficacy data, they can, at the early phases of intervention research, help guide elaboration of intervention protocols, help develop manualized interventions, and aid in the development of hypotheses to be tested in later controlled research.

Recently, a preliminary investigation utilizing a nonrandomized design to investigate the efficacy of the MAC protocol with female intercollegiate athletes (field hockey and volleyball) was conducted (Gardner, Moore, & Wolanin, 2003). Results suggested that athletes desiring enhanced athletic performance (receiving the MAC protocol) who were not experiencing sub-syndromal levels of clinical difficulties increased coach ratings of competitive performance when compared to athletes experiencing subsyndromal clinical difficulties (also receiving the MAC protocol) or controls (receiving no intervention). In addition, as predicted by the theoretical foundation of the MAC approach, those athletes whose performance was enhanced demonstrated associated increases in coach ratings of concentration and aggressive (nonavoidant) athletic behavior, and a self-reported reduction in both believability of negative thoughts and use of avoidance as a general behavioral strategy. While
preliminary, these data suggest that traditional cognitive behaviorally based interventions, or more clinically focused acceptance-based protocols, may be a more appropriate intervention for those athletes desiring performance enhancement but experiencing clinical or subsyndromal disorders. Similarly, the MAC protocol may be a more appropriate intervention for those highly functioning athletes desiring and needing only athletic performance enhancement. A randomized controlled trial comparing the MAC protocol to traditional psychological skills training has recently begun.

Conclusions

Recent meta-cognitive, mindfulness, and acceptance-based approaches to understanding and enhancing human behavioral functioning have emerged in the literature of clinical science, demonstrating promising empirical support across a variety of human behavioral issues. This article presents the theoretical rationale for an intervention based on, and directly adapted from, an integration of these recent conceptualizations, and a overview of an innovative approach to enhancing athletic performance and engagement—Mindfulness-Acceptance-Commitment–based performance enhancement. In this approach, mindful, nonjudging, present-moment attention, acceptance of internal states as natural human experiences, and a willingness to remain in contact with internal states (regardless of intensity and nature), is emphasized. In addition, the focus of attention is on performance-related (task-relevant) cues, contingencies, and contextually appropriate behaviors in the service of valued athletic goals. It is hoped that this new theoretical position and intervention strategy that follows directly from it may spur sport psychologists to consider alternative methodologies to supplement traditional psychological skills training procedures in the process of developing an evidence-based practice of sport psychology.

References


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