

# **Application of the Mindfulness-Acceptance-Commitment (MAC) Protocol With an Adolescent Springboard Diver**

**Lori Schwanhauser**  
La Salle University

This study presents the case of Steve, an adolescent competitive springboard diver. This diver, referred by his coach, received the Mindfulness-Acceptance-Commitment (MAC) approach for performance enhancement. The MAC protocol, originally written for an adult population, was used in modified form (under consultation from the authors) to ensure appropriateness for an adolescent population. Conducted in nine individual sessions, the intervention targeted abilities in attention and value-driven behavior to enhance focus, poise, and overall diving performance. Self-report measures of mindfulness and flow, along with objective measures of diving performance were collected pre- and postintervention. Results indicated increases in mindful awareness, mindful attention, experiential acceptance, flow, and diving performance from pre- to postintervention. This case supports the applicability of the MAC protocol with an adolescent athlete population.

In the broad field of sport psychology, one of the most highly coveted areas of study and practice is related to the application of mental skills techniques for the enhancement of athletic performance. To assist athletes in their quest for optimal performance states, a number of traditional “second wave” cognitive behavioral techniques are often employed, such as guided imagery, self-talk, goal setting, and arousal control interventions. These strategies, developed in the 1970s, seek to promote control of one’s internal mental and emotional processes, based on the early theoretical prediction that controlling or modifying these processes, especially the presence of negative affect and/or cognitions (Hardy, Jones, & Gould, 1996), will lead to more functional behavior. Although sport psychologists have used these techniques for decades, they have unfortunately not garnered adequate support for their efficacy at enhancing athletic performance (see Moore, 2003). More recently, however, researchers and practitioners have suggested the viability of an acceptance-based model to conceptualize psychological performance (Gardner & Moore, 2004a, 2007; Hayes, Strosahl, & Wilson, 1999; Orsillo & Roemer, 2005).

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The author is currently enrolled in the doctoral program at La Salle, where she plans to concentrate on Sports-Performance Psychology.

Driven by more recent, scientifically grounded developments in clinical psychology, “third-wave” acceptance-based approaches take the perspective that since cognitions, emotions, and physical sensations are naturally occurring internal states, rather than needing to be changed or eliminated for optimal performance to occur, they can be present in conjunction with optimal performance. As an alternative to approaches that target reducing, eliminating, or controlling supposed negative internal states, acceptance-based approaches seek to enhance self-awareness of internal experiences from a nonjudgmental, accepting stance.

Youth athletes represent one unique group of clients who seek to benefit from performance enhancement efforts. Research on children and adolescent participation and motivation in sport has uncovered a number of themes, including competence, affiliation, team identification, health and fitness, competition, and fun (Gould & Petlichkoff, 1988; Weiss & Chaumeton, 1992; Weiss & Petlichkoff, 1989). From this theoretical foundation, it would seem logical that identifying the values (an important component of acceptance-based interventions) underlying a youth’s participation in sport could be a meaningful focus of attention for sport psychology interventions hoping to improve motivation and personal development through sport. Many models of motivation in youth athletics stress the importance of enhancing feelings of competence, mastery-focused orientation, and coping skills (Dweck, 1986; Harter, 1978; Nicholls, 1989; Weiss & Chaumeton, 1992). Within these theoretical models, developing skills of self-regulation, including self-observation, self-judgment, and self-reaction, are thought to be useful to enhancing athletic performance. Acceptance-based interventions in the clinical literature have also demonstrated efficacy in identifying and improving aspects of self-regulation and psychological well-being (Greco, Blackledge, Coyne, & Ehrenreich, 2005; Greco & Hayes, 2008), but through a mechanism of mindful acceptance as opposed to effortful control.

The Mindfulness-Acceptance-Commitment (MAC) approach to performance enhancement (Gardner & Moore, 2004a, 2007) is a step-by-step protocol developed to enhance task-relevant attention and poise, which has been defined as “the capacity to act in one’s own best interest and function in the service of performance values regardless of thoughts and emotions” (Gardner & Moore, 2007, p. 159) in the process of enhancing performance. The primary objectives of the MAC program are to (a) enhance awareness and acceptance of internal cognitive and affective states; (b) enhance willingness to experience one’s wide range of internal experiences, including those which are negative or distressing; (c) enhance attention to task-relevant stimuli (instead of engaging in self-focused attention); and (d) act in a manner that is in accordance with one’s stated values. Developed to target a broad spectrum of human performance both in and out of the sport context, this intervention is designed to be applicable to a wide age range; however, to date it has only been formally studied among college-aged and adult populations.

Given the continuum of psychological functioning, both athletically and generally, sport psychologists have begun to realize the importance of considering and assessing general psychological issues and well-being in the conceptualization of the individual’s performance issues and desires (Bauman, 2000; Gardner & Moore, 2004b; Meyers, Whelan, & Murphy, 1996), as a number of athletes who come in asking for “performance enhancement” following the onset of performance decrements turn out to be experiencing such decrements due to greater subclinical

concerns or barriers. Further, implementing evidenced-based interventions that are individually planned can maximize the benefit to the client's overall functioning, both in and out of the athletic milieu. Reasons for referral, presenting problems or symptoms, and overall psychological functioning can range from the presence of a clinical disorder (i.e., depression, anxiety, eating disorders, specific phobias, substance use, behavioral issues) to subclinical/subthreshold issues (i.e., significant apprehension and worry about competition, transitional/developmental issues), to general skill-deficits (i.e., deficiencies in attentional skills) or simply a need for performance maintenance. For this reason, Gardner and Moore (2004b) created a classification system called the Multilevel Classification System for Sport Psychology (MCS-SP), which determines degree/type of any barriers or impairment in sport and other life domains, and a case formulation approach that considers various levels of functioning in different life domains to recognize client needs (Gardner & Moore, 2005). The authors have suggested that in order for professional services to work effectively, the sport psychologist must first identify the presenting problem and overall psychological and life functioning in a complete fashion. From this, the practitioner can then choose a scientifically grounded intervention that will target the necessary processes and in turn maximize the benefit for the athlete. A number of practitioners have used the MCS-SP to assist them in this process (Bennett, 2007; Hack, 2007; Lutkenhouse, Gardner, & Moore 2007; Wolanin, 2005).

With the foundation of the MAC approach and the need for a clear understanding of client issues described, the purpose of this case study is to illustrate the combined use of the MCS-SP, the case formulation method, and the MAC program with an adolescent athlete experiencing minimal performance dysfunction and desiring enhanced levels of competitive performance.

## Case Study

### Case Introduction

**Presenting Information.** In accordance with the Ethical Principles for Psychologists and Code of Conduct (American Psychological Association, APA, 2002), confidentiality will be maintained by referring to the client as "Steve" and modifying all potentially identifying information.

Steve is a 12-year-old Caucasian male who is involved in high-level springboard and platform diving. He was referred by his coach to work with a supervised clinical sport psychology doctoral student-extern (hereby referred to as "practitioner" for ease) to maximize his competitive diving performance. In consultation with Steve and his coach, it was determined that the following would be the goals of intervention efforts: (a) enhanced attention during practice and competition, (b) acceptance of uncomfortable emotions, (c) a decrease in the negative impact of sport-related anxiety on the client's performance, (d) identification of goals and values for his involvement in competitive diving, and (e) enhanced performance.

During his initial contact with the practitioner, Steve described himself as a competitive, optimistic, and motivated athlete. He reported experiencing difficulty maintaining his attention throughout a practice or competition, and being distracted by other teammates and diversions around him. Steve also indicated difficulty in diving off of the 5-m, 7-m, and 10-m platforms, as his "fear" of heights and of

“smacking” (i.e., landing poorly and experiencing pain) would cause him to hesitate during practice and competition. Steve described that his current, preintervention coping strategies included positive self-talk, thought suppression, and preperformance routines to achieve the “perfect feeling” before competition. He reported limited personal success using these techniques, indicating that he is often unable to make his negative thoughts go away, which in turn further negatively impacts his performance, as he believes that these thoughts would inevitably result in poor dives. In addition, Steve indicated a belief that he must feel “pressure” to perform well, as he reportedly underperforms in meets that are less competitive. Steve described being competitive in many life arenas in addition to diving, including school and recreational games with peers.

## History and Behavioral Observations

Steve was born in the northeastern United States and currently resides with his parents and two siblings in a suburb of a large metropolitan area. Steve reported maintaining good relationships with both of his parents and siblings. He is especially close with his mother, who plays a leadership role among the parents of the diving club team in which Steve participates.

In terms of his athletic history, Steve has participated competitively in both diving and swimming since he was 5 years old. Although he excelled in both sports, he enjoyed diving more than swimming and thus gave up competitive swimming and continued with only diving when he was 7 years old. Throughout his competitive diving career, Steve has qualified for regional and national championships, scoring within the top-10 of his age group. Steve described himself as “lucky” regarding his diving abilities. Despite growing significantly in size over the past year, Steve has not experienced any significant setbacks or serious performance dysfunction. Steve reported “loving” diving, indicating that he enjoys practice, studying new dives and other divers, and competing at meets.

Steve is of age appropriate physical appearance in weight and height; however, he demonstrates technical skills that his coach described as highly advanced for his age. Steve shares a close relationship with his coach, who reported that Steve shares an open and honest communication regarding his setbacks, fears, goals, and desires for his diving career.

Steve’s coach described him as having an extraordinary talent for diving. He further depicted Steve as being a fast learner, motivated to learn new dives, and committed to the practice required to becoming a nationally ranked competitive diver. Steve’s coach reported that Steve has difficulty accepting failures, an attribute that while seemingly adaptive for his performance in the past, appears to be limiting Steve from continuing to improve upon his potential at this time. Steve also noted that his competitive nature can be problematic in his ability to focus on the task at hand, as he becomes distracted by the other competitors and loses focus on successfully executing his set of dives.

## Assessments

Steve’s preintervention psychological functioning was assessed by an interview, a SCID screening (First, Spitzer, Gibbon, & Williams, 1997), and several short self-report measures. The assessment phase was used as both a measure for under-

standing/classification of his performance needs and to demonstrate the efficacy of the MAC-A as an intervention for youth athletes. The measures used during the course of the intervention included the Performance Classification Questionnaire (PCQ; Wolanin, 2005), Philadelphia Mindfulness Scale (PHMS; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008), Sport Anxiety Scale (SAS; Smith, Smoll, & Schutz, 1990), Action and Acceptance Questionnaire-2, (AAQ-2; Hayes et al., 2004), Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), and Flow Scales (DFS-2, FSS-2; Jackson & Eklund, 2004). The PCQ, PHMS, SAS, AAQ-2, MAAS, and the Flow Scales (DFS-2 and FSS-2) were all administered both pre- and postintervention (postintervention assessments were completed after module six, session eight, was completed, as the final module, seven, seeks to maintain new skills and promote ongoing use). In addition, Steve also completed the FSS-2 component of the Flow Scales after practice 4 days a week, every other week throughout the intervention (see Figures 1-4).

**Performance Classification Questionnaire (PCQ).** The PCQ is a 10-item self-report measure developed by Wolanin in 2004 to correspond to the classifications of the MCS-SP (Gardner & Moore, 2004a, 2006; Wolanin, 2005). Using a 5-point Likert scale, the PCQ is specifically used to identify the presence or absence of performance dysfunction. Cut-off scores indicate athletes meeting criteria for Performance Dysfunction (Pdy), as opposed to Performance Development (PD; Performance Impairment, PI, is not evaluated on this measure, as it is easy to

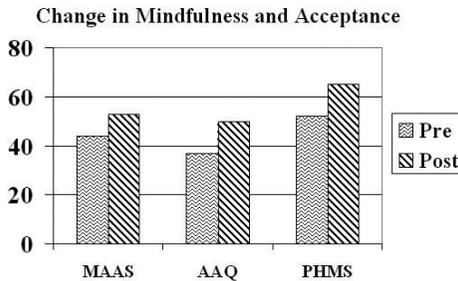


Figure 1 — Change in mindfulness and acceptance.

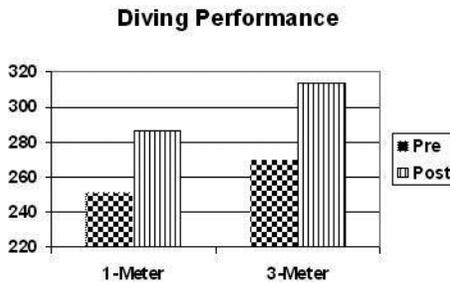


Figure 2 — Diving performance.

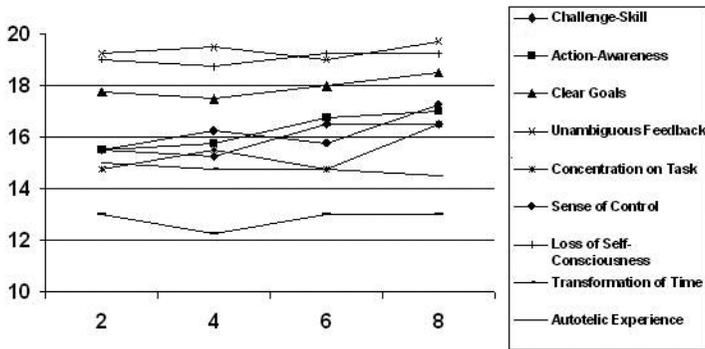


Figure 3 — Flow subscale change.

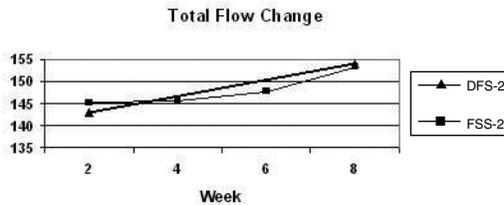


Figure 4 — Total flow change.

determine with a sound interview). Performance Dysfunction is the classification for athletes whose performance has been delayed or impaired due to *subclinical* psychological symptoms or other difficulties. Athletes who score in the range of Performance Development are often recommended for performance enhancement interventions, whereas those meeting criteria for Performance Dysfunction require interventions that target both performance enhancement and subclinical concerns (which are likely negatively impacting performance; Gardner & Moore, 2004b).

**Philadelphia Mindfulness Scale (PHMS).** The PHMS is a 20-item self-report questionnaire consisting of two separately scored subscales of Acceptance and present-moment Awareness, with higher scores reflecting higher levels of acceptance and awareness (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008). The Acceptance subscale measures an attitude of nonjudgmental openness to an experience and refrain from avoiding internal experiences, including negative cognitions and emotions. The Awareness subscale measures monitoring of ongoing internal and external experiences. The measure has demonstrated good internal consistency and was correlated with other measures of the construct.

**Sport Anxiety Scale (SAS).** The SAS is a 21-item multidimensional self-report measure assessing three subscales of competitive anxiety including somatic anxiety, cognitive anxiety and worry, and concentration disruption (Smith et al., 1990). This measure has demonstrated adequate internal consistency and validity in comparison with other competitive anxiety measures of somatic and cognitive anxiety.

**Action and Acceptance Questionnaire-2 (AAQ-2).** The AAQ-2 is a 9-item self-report measure assessing psychological flexibility and experiential avoidance (Hayes et al., 2004). The assessment identifies the extent to which one is unable to experience distressing thoughts and emotions and how much these distressing emotions limit one's behavioral repertoire. The AAQ-2 has demonstrated adequate internal consistency and validity, and is a widely used instrument in clinical psychology to assess levels of experiential avoidance.

**Mindfulness Attention Awareness Scale (MAAS).** The MAAS is a 15-item self-report measure designed to assess one's tendency to attend to and be aware of internal and external experiences in everyday life, with higher scores reflecting higher levels of mindfulness (Brown & Ryan, 2003). Everyday experiences of mindfulness include being on automatic pilot, inattentive, or preoccupied. It has demonstrated good consistency and validity, showing a positive correlation with openness to experience, well-being, and emotional intelligence and a negative correlation with rumination and social anxiety.

**Flow Scales.** The Flow Scales are designed to measure the optimal psychological state of flow, both within general tendencies to experience flow (DFS-2) as well as postevent experience of flow (FSS-2) in performance (Jackson & Eklund, 2004). *Flow* is defined as the mental state of performance in which a person is fully immersed in what he or she is doing, by a feeling of energized focus, full involvement, and success in the process of the activity (Csikszentmihalyi, 1990). The DFS-2 identifies the frequency and common patterns of experiencing a flow state and propensity for an autotelic personality, or one who is more able to experience flow. The FSS-2, on the other hand, assesses flow in a specific identified activity, such as postpractice or postcompetition. The flow scales have demonstrated good internal consistency and reliability and are widely used instruments in determining peak states of performance in sport psychology literature.

## Case Formulation

Gardner and Moore's (2005, 2006) case formulation model was used to form a conceptualization of the case information and material. According to this case formulation model, there are ten basic elements to be considered: (a) contextual performance demands; (b) current performance-relevant skill development; (c) relevant situational demands, including performance and nonperformance demands; (d) transitional and developmental issues; (e) unique psychological characteristics, including performance and nonperformance schemas; (f) direction of attentional focus (self versus task) during performance; (g) cognitive responses; (h) affective responses; (i) behavioral responses; and (j) readiness for change and level of reactance.

### Contextual Performance Demands

Contextual performance demands consist of the levels of performance demands placed upon the athlete. While Steve is in a competitive environment within his club diving program and continued successes have extended his goals to qualify for elite competitions, the demands placed on him have not significantly changed.

## Skill Level

Skill level refers to the parallel between performance demands and the performer's skill level. Steve's skill level has not negatively impacted his performance. Both Steve and his coach believe his skill level is above average for his age group. Further, his coach believes his skill level has placed him in a position to compete at an international level.

## Situational Demands

Situational demands refer to the specific context in which Steve is expected to perform his athletic skills. Steve's place on his diving team was stable and consistent without any expected situation to affect his performance demands.

## Transitional and Developmental Issues

Transitional and developmental issues consist of the natural transitional and developmental milestones and issues that are part of the human experience. In an athlete's case, these issues may at times serve as a source of stress that can potentially impact performance. For Steve, these issues include or have included historical, current, and future (anticipated) developmental and transitional milestones related to his diving career, and issues related to preadolescence and its associated growth spurts that are often a difficult adjustment for young people. Further, Steve's mother was diagnosed with breast cancer shortly before his referral to the practitioner. While she is undergoing treatment and has a favorable prognosis, the illness has caused increased stress and anxiety for Steve. From the standpoint of competitive performance, however, there has been no suggestion from either Steve or his coach that this increased stress has resulted in any decrement in diving performance.

## Psychological Characteristics: Performance and Nonperformance Schemas

Performance and nonperformance schemas refer to the lens through which individuals interpret their world. Based on the information collected during the interview and SCID screening, there appeared to be an absence of significant maladaptive schemas, and in turn no significant psychosocial difficulties were noted. In addition, Steve's score on the PCQ indicated that he fell within the Performance Development (PD) classification of the MCS-SP, suggesting that he did not meet criteria for a Performance Dysfunction (Pdy) classification (the Pdy classification is reserved for athletes who possess subclinical psychological barriers or concerns).

While no clinically relevant schema-based psychological concerns were noted, there were several psychological *processes* that would appear to be potential barriers to optimal competitive performance. The client's mother and coach both described Steve as "competitive" and "strong-willed," as characterized by his unwillingness to quit until he has succeeded and significant dissatisfaction with failure. While this may not seem to many to be an "issue," Steve reported that he becomes frustrated and angry with himself when he does not perform to his goals, which sometimes distracts him in practice and competition. Further, Steve indicated that he believes being in "the right mindset" is crucial to successful performance, characterizing

his intolerance for negative emotion, thoughts, or sensations during performance. While Steve denied having difficulties performing in pressured or highly competitive situations, he reported having difficulty “getting psyched up” for competitions with low importance or competition. This approach to competition extends beyond sport to other areas of his life, including school, extracurricular activities, and activities with friends. Steve’s mother reported his competitive nature extends beyond diving, such as when losing a game played with his family or friends, or making a mistake on homework or an academic test. While it can be stated that these competitive characteristics are common among young individuals, the practitioner’s goal, of course, is to determine if these characteristics, however “common,” impede the attainment or maintenance of optimal performance states.

### **Attentional Focus**

Attentional focus refers to the athlete’s direction of attention (task-focused or self-focused) when engaged in performance-related activities or other tasks. Steve described himself as generally being focused on the task during performance but indicated his tendency to get distracted during practice, particularly when the diving boards are crowded and occasionally during competitions when focusing on the activities of the other divers. Steve also stated that his efforts to control his internal experiences, including thoughts and emotions, often distract him from the task at hand.

### **Cognitive Responses**

Cognitive responses are the specific thought content experienced during performance activities (or that or common in other circumstances for the client). Steve reported having thoughts related to his fear of “smacking” and fear of heights.

### **Affective Responses**

Affective responses refer to the athlete’s common emotional reactions to performance and practice situations or other life situations. Steve had difficulty labeling his emotions or describing his affective responses in response to diving, school situations, or his mother’s illness; however, Steve was able to report increased anger and frustration when he does not perform up to his expectations. Consistent with his self-report, Steve’s preintervention assessments (AAQ-2, measuring psychological flexibility and experiential avoidance and PHMS, measuring nonjudgmental openness vs. avoidance, and one’s monitoring of ongoing internal and external experiences) indicated a lack of awareness of his emotions or the effect of his mood on his performance.

### **Behavioral Responses**

Behavioral responses are characterized by the performer’s patterns of behavior in response to performance-related situations, which often mirror behavior in other life contexts. These patterns include behavioral attempts aimed at coping with or avoiding and controlling negative or uncomfortable internal experiences. Steve demonstrated an effort to cope with and/or manage his thoughts and emotions by

discussing them with his coach and parents; however, Steve also employs avoidance tactics of suppressing his negative thoughts and emotions to limit his experiences of internal discomfort.

## Readiness for Change and Level of Reactance

Readiness for change and the level of reactance refer to the athlete's willingness to accept a need for change, make efforts toward change, and the degree to which the performer will be resistant to suggestion or critique. Steve demonstrated a willingness to work on developing his skills during the program and reported satisfaction and excitement in learning and developing the skills needed to improve his performance. This is consistent with his general pattern of becoming excited about learning new dives, receiving feedback from his coach, and working on his skills. His history, self-report, and mother's report suggest no concern of oppositional or defiant behavior in response to critique.

## Intervention Planning and Course of Treatment

The intervention plan for Steve consisted of the seven-module MAC program. Steve and the practitioner agreed that he would receive weekly 45-min sessions over a 7- to 10-week period (understanding that the intervention would terminate upon the completion of the seven modules, which may require more than 7 weeks). Following feedback of the case presentation previously discussed, Steve and the practitioner discussed the intervention rationale and goals for treatment. Consistent with the MAC intervention, it was discussed that the intervention would not attempt to eliminate or control thoughts or feelings, but rather would alter Steve's *relationship* with these experiences by gaining heightened awareness and acceptance of his internal experiences. Further, by increasing his acceptance of these experiences, it can be possible to remain goal-directed and consistently engage in task-focused behavior *despite* the presence of negative or distressing thoughts and emotions.

The original MAC program, as written in its step-by-step, manualized form, was followed. Yet, the protocol was marginally altered for language and examples provided, and delivered in a manner that could be easily understood by someone at Steve's developmental level, both cognitively and emotionally. To preserve the integrity of the MAC intervention, appropriate alterations (termed "MAC-A" to reflect an adolescent-appropriate application) were determined in consultation with the authors of the MAC program. Steve suggested that the MAC program was clear and understandable as presented by the practitioner, and throughout the intervention was comfortable asking for explanations or clarifications of terms or ideas that he did not initially understand. Steve reported excitement to begin the program, indicating that his previous efforts to suppress or distract himself from his thoughts had been largely unsuccessful, and suggesting that he had high hopes of gaining the mental strength to achieve his goals of international competition.

## MAC-A Program

The manualized MAC program consists of seven modules, which can be conducted in individual or group sessions (for a thorough description of the nuances of MAC

group work, authors are referred to Gardner & Moore, 2007). While for some clients the protocol can be conducted in seven sessions (one module per session), it is important to remember that modules should not be rushed, and therefore, the practitioner should move on to the next module only when the goals of the previous module have been achieved. As such, flexibility is required to extend a module into additional sessions to solidify a concept or respond to resistance and barriers. The program therefore typically takes between 7 and 12 sessions. With Steve, the program was completed in nine sessions.

The first module of the MAC-A program is *psychoeducation*. This module (which required one session) presented the rationale for the program and connected this rationale to Steve's personal experiences. Steve expressed that in the past, he would strive to achieve an optimal state by performing precompetition routines both before and during warm-up and before his individual dives. Through discussion with the practitioner, Steve noticed the frequency of experiences where he "felt good" yet did not perform well or "felt bad" and was still successful. The concept that thoughts, emotions, and body sensations are not in and of themselves related to performance success, and do not need to direct the behavioral choices that one makes, was discussed in detail until it was evident that Steve understood this theoretical underpinning of the MAC-A program. The Brief Centering Exercise, a mindfulness activity created specifically for performance-related interventions, was presented. The practitioner explained the goal of increasing self-awareness and the ability to focus (i.e., be mindful of) one's attention on the present-moment, using contrasting examples of Steve's experience of mindless attention in school or daily activities. Following completion of the exercise, Steve's reactions and experience were discussed. The practitioner explained that the goal of the exercise and future mindfulness exercises is *not* to relax (as was the goal in relaxation exercises which he attempted in the past), but to enhance his ability to maintain mindful attention to his world.

The second and third sessions corresponded to the second module, which focuses on mindfulness and cognitive defusion. Requiring two sessions for Steve, these sessions continued the discussion of mindfulness that were briefly introduced during the psychoeducation module, identifying the differences between *mindful* versus *mindless* attention. When Steve experienced certain cognitions, emotions, and distractions from the surrounding environment, he diverted his attention away from focusing on his dives. The practitioner explained the importance of both present-moment attention and nonjudgmental awareness. Steve's previous efforts to control his thoughts and ignore his emotions had proven ineffective, as these tactics led him to hesitate before diving and fail to remember skills to use for a dive, thus increasing his chances of injury on a dive and decreasing his overall performance. Mindfulness techniques were explained and conducted to help promote a noncritical, present-focused attention to his experience (Hayes, Strosahl, & Wilson, 1999). Other examples of mindless attention, including at school and other daily activities were generated to enhance Steve's understanding of the impact of mindless awareness on his performance in multiple domains. A "mindfulness of the breath" exercise was explained and practiced in session, followed by a discussion to answer questions or misunderstandings regarding the goal of mindfulness activities. This discussion was integral for noticing Steve's tendency to use the mindfulness activities as a time to relax (and thus *avoid*) rather than to be nonjudgmentally present with his

reactions, sensations, and cognitions. To help strengthen his understanding, the practitioner aided Steve in generating terms to refer to sensations, cognitions, and emotions experienced, and identifying the judgments he has about those internal experiences. By noticing his cognitions and emotions in a nonjudgmental manner, Steve was able to gain an acceptance of his ever-changing thoughts and emotions, which he previously had ignored and/or avoided. The concept of cognitive defusion was presented and defined as the willingness to let go of the associations and connections between internal experiences (i.e., thoughts, emotions, and sensations) and behavior (actions and reactions). Steve and the consultant discussed various metaphors that allowed for an understanding and application of the concepts of mindfulness and cognitive defusion (Greco & Hayes, 2008). To solidify this concept, the practitioner processed with Steve the ways in which his judgmental and/or avoidant reactions to his internal experiences prevent him from being the athlete he wants to become, both from a perspective of achieving his goals as well as from living in accordance with how he wants to be as a competitive diver.

The fourth and fifth sessions focused on the third module of the intervention, which introduces the concepts of values and values-driven behavior. Requiring two sessions to complete this module, these sessions identified Steve's personal values, both in competitive diving as well as in other areas of his life, to distinguish between *values*-driven and *emotion*-driven behavior. From an acceptance-based perspective, when people interpret their cognitions, beliefs, and feelings as absolute truth or reality that requires action, behaviors are undertaken in service of managing these internal experiences rather than being driven by values that are personally meaningful. While Steve was attuned to identifying goals for his competitive season and long-term career, considering the choice in everyday behaviors as stepping-stones to accomplishing these goals was somewhat of a novel concept. The practitioner helped explain the difference between *goals* and *values* by contrasting one reaching a destination (goal) with the process of the trip to get to the destination (value). This metaphor was salient for Steve, who was then able to identify his values of being a supportive teammate and competitor, being competitive regardless of the level of competition, being attentive during practice to gain the most benefit of the allotted time, and maintaining focus despite the emotions and cognitions he experiences.

To help Steve identify emotion-driven behavior in contrast from values-driven behavior, the practitioner provided basic psychoeducation about emotions in daily life. More specifically, the function of emotion was explained as providing us with information regarding the situations we face and allowing us to be fully engaged in and experience life, rather than merely "going through the motions." Further, we naturally experience a wide array of emotions, both pleasurable and distressing, which are part of the human experience and thus do not need to be controlled, eliminated, or reduced despite their discomfort. To solidify Steve's understanding of the function of emotions, the practitioner helped Steve identify emotions that served as obstacles or barriers to his performance. This discussion was facilitated by highlighting the difference between emotions as the problem, versus the efforts to ignore, eliminate, or control emotions as the problem. While Steve had difficulty identifying his "problematic emotions" initially, he was able to recognize his emotions through a discussion of situations in practice and competition where he has felt different emotions, including anger, sadness, and fear. Steve viewed these emotions as obstacles to his performance needing to be overcome; however, his efforts to control or eliminate them would ultimately distract him from his diving

in both practice and competition. The practitioner introduced the Given Up for Emotions form, which allows the performer to identify situations in which one attempts to avoid or eliminate emotion and analyze the short- and long-term effects of this avoidance (see Gardner & Moore, 2007 for the manual and all corresponding forms). In completing this form with the help of the practitioner, Steve identified situations in both practice and competition.

To help Steve continue his identification of values in different areas of his performance and recognize barriers to these values, Steve filled out the Performance Values form (Gardner & Moore, 2007). This form assesses five areas of values in performance, including values as a teammate, for sport activity, technical skills, tactical skills, and recreation or values for fun activities. After identifying values in each of these domains, the form elicits the barriers to living in accordance with the identified values and necessary actions to take to change behavior to be values-driven. To process how values impact his goals, Steve set specific goals with the practitioner including learning various new dives on platform, winning regional championships, placing at the national championship, and striving for qualification to the Pan-American games and discussed how emotion-driven versus values-driven behavior would affect his attainment of these goals.

The concept of acceptance (module 4) had been vaguely introduced and explained through discussion of values and emotion-driven behavior. In the sixth session, however, acceptance was heavily reintroduced in the context of Steve's ability to be focused on the present moment and act in accordance with his performance values *despite* the presence of negative or uncomfortable emotions. Steve identified situations in which his attempts to control or eliminate his emotions has been counterproductive. In conjunction with his continual practice with mindfulness, discussion in this session focused on how Steve's tendency to be competitive and critical of his performance divert his attention and behavior from his performance values. His narrowed attention on previous failures and expectations for success limited his ability to stay focused on his current performance in the moment. Further, Steve demonstrated resistance to admitting difficulties with exercises in the program as a strategy of avoidance the distress associated with his perceived "failure." Through validation of this fear and identification of the values and goals he sacrifices through this emotion-driven behavior, Steve increased his understanding of avoidant behavior in many different forms. The consultant helped Steve identify situations where his performance was impaired because of focusing on past or future events (rather than on the competitive task at hand). In addition, the connection between a willingness to experience negative emotions to pursue personal values was also introduced and discussed. To practice this concept, Steve used his understanding of mindfulness to develop his own personal strategies to identify and accept his emotions while remaining present-focused and committed to his performance values.

The fifth module (session 7) of the MAC intervention seeks to enhance commitment to one's performance values by identifying necessary and specific values- and goal-directed behaviors. This session focused on connecting Steve's identified values, linking those values to specific goals and behaviors, and raising awareness to the tendency to engage in emotion-driven behavior as opposed to behaviors in accordance with ultimate goals and values. Using the Committing to Performance Values form (Gardner & Moore, 2007), Steve identified situations in practice when emotions distracted him from his goals, the short- and long-term consequences of

acting upon these emotions, and how he incorporated the utilization of mindful attention and emotional acceptance to stay value-focused in times of distress.

Collecting the many skills and concepts learned in the previous 7 weeks is often overwhelming and daunting. In session eight, the sixth module of the MAC incorporates mindfulness, acceptance, and commitment to enhance poise. To help Steve process the idea of task-focused attention in-session, an exercise was completed with the consultant, which requires the athlete to recall details of the story first with his back to the consultant, then while making constant eye contact with the consultant, and finally after describing a stressful athletic-related event. For Steve, this exercise was particularly salient in demonstrating in-session the difficulty of staying task-focused and mindful in the presence of stress and distractions. This exercise allowed Steve to identify how stressful events in his life, particularly his continual processing of his mother's cancer diagnosis and treatment, can easily distract him.

The final module (module 7) of the program was discussed in the ninth session, consisting of a review of *mindfulness* skills to promote self-awareness and attention; *acceptance* of discomfiting internal events; and *commitment* to values-driven behavior. Steve reflected upon his improved ability to notice his cognitions and emotions, as well as his ability to identify judgments he makes about these internal experiences. The practitioner stressed the ongoing process of gaining awareness and acceptance, allowing Steve to discuss his difficulties in disclosing occasional failures with mindfulness and efforts at emotional acceptance. To solidify the concepts learned, the Post-MAC Practice Plan form (Gardner & Moore, 2007) allowed Steve to verbalize and further commit to a behavioral plan to identify and engage in mindfulness exercises and specific behaviors to remain task- and value-focused.

## Assessment of Progress

A number of measures were given during both the assessment phase and following completion of the MAC-A intervention (after session eight; see Table 1). Pre/postintervention changes in these measures indicate a general increase in mindful awareness and acceptance of internal experiences and the ability to maintain mindful attention. Specifically, changes in the AAQ-2 suggest a significant increase in experiential acceptance (of cognitions, emotions, and physical sensations), while increases in the MAAS and PHMS were consistent with Steve's self-report of increased ability to be nonjudgmentally aware and accepting of his experiences while remaining focused on the present moment. Importantly, Steve's objective diving performance, as measured by his scores in both 1-m and 3-m springboard diving competitions indicated a significant and substantial increase in his competitive performance (12.37% improvement on 1-m dives, 13.97% improvement on 3-m dives).

Subjective reports from Steve after completion of the intervention indicated an increased ability to "stay focused despite distractions." Steve stated that he had more ability to be "in the moment" and was more aware of what he was feeling during practice and competitions. This was most often described in his ability to enjoy the atmosphere of his teammates during practice but also to allow his attention to focus on his skills and dives when needed. While Steve noticed improvements in his attention as a result of his mindfulness practice, he reported his increased emotional

**Table 1 Pre- and Postintervention Scores on Objective Measures of Assessment**

	1-meter	3-meter	PCQ	MAAS	AAQ-2	SAS	PHMS Acceptance	PHMS Awareness
Pre-MAC	251.00	269.45	15	44	37	31	29	23
Post-MAC	286.45	313.30	26	53	50	29	35	30

awareness and acceptance to be most salient in his improved performance. Steve stated that the concept of being able to perform optimally *despite* his emotions was an integral piece of his ability to maintain focus. Specifically, this emotional awareness and acceptance was critical in conquering his fear of heights on the platform as well as his processing of his mother's diagnosis with and treatment for breast cancer. During one particular competition during the 9-week period of the intervention, Steve's mother became ill as a result of her cancer treatment and had to miss his competition. Despite the reported anxiety and distress resulting from his mother's compromised health, Steve improved his diving scores during that competition and stated feeling more able to live with his emotion and dive successfully after utilizing mindfulness and acceptance skills.

Completely consistent with the theoretical foundation of mindfulness and acceptances approaches in general and MAC in particular, Steve's self-reported anxiety, as measured by the SAS, did not change significantly. While Steve's initial preintervention score on the PCQ indicated a fairly low Performance Development (PD) classification ranking on the MCS-SP, Steve's score on the PCQ actually increased slightly over time (yet still remained in the PD range). This may suggest a heightened awareness and openness to the stress in his personal life and a new ability to tolerate such distress without fearing or attempting to avoid it. Despite experiencing some anxiety and being more aware of his personal stress, Steve clearly improved his ability to tolerate stress and anxiety (though of course not eliminate, reduce, or otherwise control it) and his overall diving performance, as well. These findings are directly in line with the theoretical foundations of the MAC, and other acceptance-based approaches.

Pre/post changes in flow scale scores indicate an increase in the experience of flow during practice across the intervention, as well as an increase in general flow by the end of the intervention (see Tables 2 and 3). Flow is defined as an integration of the constructs of challenge-skills balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task, sense of control, loss of self-consciousness, time transformation, and autotelic experience. Flow is thought to be an optimal psychological state representing the experience of being completely absorbed in the task, which is rewarding in and of itself. Steve's scores on the dispositional flow state scale (DFS-2), assessed after practice 4 days a week, every other week throughout the intervention, improved on a weekly basis, suggesting Steve's increasing ability to reach a more optimal, task-focused psychological state during specific competitive situations. Similarly, his general flow state scores (FSS-2) increased from preintervention to postintervention, suggesting an overall increase in his ability to reach a state of flow.

**Table 2 Flow Scales (FSS-2; DFS-2)**

FSS-2	Week	Total	1	2	3	4	5	6	7	8	9
Average*	Wk2	145.25	15.5	15.5	17.75	19.25	14.75	15.5	19	15	13
	Wk4	145.5	15.25	15.75	17.5	19.5	15.5	16.25	18.75	14.75	12.25
	Wk6	147.75	16.5	16.75	18	19	14.75	15.75	19.25	14.75	13
	Wk8	153.25	16.5	17	18.5	19.75	16.5	17.25	19.25	14.5	13
DFS-2	Pre	143	16	15	15	14	15	17	19	16	17
	Post	154	17	18	16	16	17	18	19	16	17

*Note.* FSS-2 and DFS-2: Maximum subscale score of 20, maximum total of 180.

Subscales: (1) Challenge-Skill, (2) Action Awareness, (3) Clear Goals, (4) Unambiguous Feedback, (5) Concentration on Task, (6) Sense of Control, (7) Loss of Self-Consciousness, (8) Transformation of Time, (9) Autotelic Experience.

\*Scores from four daily scores each week were averaged.

**Table 3 Daily Scores on FSS-2**

FSS-2	Day	Total	1	2	3	4	5	6	7	8	9
Week 2	M	139	15	15	15	19	15	15	18	13	14
	T	135	16	14	18	19	12	13	18	15	10
	Th	153	15	16	18	19	17	18	20	16	14
	F	154	16	17	20	20	15	16	20	16	14
Week 4	M	144	16	15	17	19	14	17	19	14	13
	T	143	15	15	18	19	16	15	18	16	11
	Th	146	14	17	18	20	15	17	19	14	12
	F	149	16	16	17	20	17	16	19	15	13
Week 6	M	146	16	17	18	20	14	16	20	13	12
	T	146	16	17	20	19	14	16	2-	13	11
	W	147	17	17	17	18	15	17	19	14	13
	Th	152	17	18	16	20	16	16	19	16	14
Week 8	M	146	16	17	18	20	14	16	20	13	12
	T	155	17	17	18	20	17	17	18	14	13
	Th	154	17	17	20	19	17	17	19	15	13
	F	158	16	17	19	20	18	18	20	16	14

Subjective reports from his coach were consistent with Steve's report of his increased ability in focus and attention, as evidenced by decreased hesitation before performing a dive, decreased distractibility while reviewing skills in practice, and increased efficiency in learning and applying new skills learned.

## Limitations

While case studies cannot determine the efficacy of an intervention (Moore, 2003), they do provide valuable information regarding the applicability and development of an intervention to a particular population. Still, there are limitations to this study that should be recognized to understand the overall value of the study. Steve presented as an intellectual, mature, and highly motivated adolescent for his age. Results may not generalize to other less advanced athletes of his age. In addition, as case studies do not use a comparison group, we cannot know if the noted changes were completely due to the intervention or a function of nonspecific intervention characteristics such as the therapeutic relationship.

## Conclusions

As evidence-based practice in sport psychology evolves, it is critical to be professionally aware of the choices of interventions we use. Mindfulness and acceptance-based techniques have shown efficacy in the professional-scientific literature of

clinical psychology, and a mindfulness and acceptance-based sport psychology intervention has also demonstrated merit in collegiate and professional populations among a range of performance domains (Gardner & Moore, 2007). This study suggests the applicability of the MAC program when applied to an adolescent (MAC-A) by targeting specific emotional and cognitive processes through awareness and acceptance, delivered in a manner understandable and coherent for a high level adolescent athlete. This case demonstrates how incorporating efforts at athletic performance enhancement with efforts at overall quality of life improvements can assist a youth athlete in both their athletic development as well as personal growth.

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