Sport competition is becoming more demanding for student-athletes. Bernier and colleagues (2009) stated that optimal performances does not require the reduction of internal states. Mindfulness Meditation training promotes a non-judging awareness, acceptance and focus on the task at hand, which could be serve as a complementary approach to traditional use of psychological skills training for improving performance and well-being. The construct of Mindfulness appears is compatible with flow and peak performance in sport (Birrer, Röthlin, & Morgan, 2012). The purpose of the present study was to examine the impact of a Mindfulness intervention on flow, dispositional mindfulness and the intention to suppress unwanted thoughts in college student-athletes. College soccer players were randomly assigned to a Relaxation Response, a Mindfulness Meditation or a Control group and changes across the 4-week intervention period on the psychological variables noted above were evaluated. Results from repeated measure ANOVAs indicated no statistical significance between experimental groups or time points. The lack of athlete compliance with practicing the techniques and low sample size appeared to contribute to these non-significant findings. Qualitative methods, and case studies along with quantitate studies with larger samples are suggested for future research.
EFFECTS OF A MINDFULNESS MEDITATION INTERVENTION ON THE FLOW EXPERIENCES OF COLLEGE SOCCER PLAYERS

A Thesis

Submitted to the
Faculty of Miami University
in partial fulfillment of
the requirements for the degree of
Master of Science
Department of Kinesiology and Health
by
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Acknowledgements

I would like to express my very great appreciation to Dr. Robert Weinberg for his valuable and constructive suggestions during the planning and development of this research work. His willingness and patience to give his time so generously has been very much appreciated.

I would like to express my mindfulness gratitude to Dr. Robin Vealey. Thank you for inspiring me to think outside the box and always strive for make an impact on any interaction. I will be eternally thankful for all I have learned from you in the process of completing this thesis.

I would also like to thank Dr. Melissa Chase and Dr. Rose Marie Ward, as they both provided me with many great points to include and gave me advice whenever it was required.

I would like to take this time to thank all the Miami University - Department of Kinesiology and Health staff. Especially to Anita for all her help and support in every moment.

I want to thank my colleague and dear friend, Christopher Hill, for taking the time to review all my drafts, give me feedback and listen to multiple times I wanted to present my project, thank you very much for your help and friendship.

All my cousins, thank you for always been there for me. Especially, Diana and Andres, who were always available for me when I need it some advices regarding my project. You two are are my role models to follow. I truly admire them and they encourage to always strive for the best and dream about completing a Master program outside my country.

Last but not least, I would also like to thank my mother, Beatriz, my dad Raul and my sister Paula, because they were there for me in so many ways. They were constantly there to help me when I didn’t think I could continue.

Thanks to life for not giving me the situations that I wanted but the situations that I truly needed for the evolution of my human consciousness.
Effects Of A Mindfulness Meditation Intervention
On The Flow Experiences Of College Soccer Players

“The pressure is on him. He has to make it... Baggio! No...! Brazil wins!”
ESPN Coverage on the 1994 World Cup Final

“With just 15 seconds left in the AFC championship game, Billy Cundiff faced a 32-yarder to send the game into overtime... But he got a mediocre snap... His kick came low off of his foot and hooked left”
ESPN Coverage on 2011 Ravens vs. Patriots Game

“How awesome was it to see a player, who had basically been hailed as the Jesus Christ of college basketball, look like he was going to pull off the impossible, and then when it was time to step it up on the biggest stage...”
ESPN Coverage on Jason Williams’ performance in 2002 NCAA Duke vs. Indiana

Chapter One

Introduction

It sounds very simple, to just kick a ball in soccer, make a free throw in basketball, swing a bat in baseball, or make a long completion in football. But for a player, oftentimes, it is not that simple. When looking at sport from a critical lens, we can see the complexity of athletes’ performance and all the forces around them (teammates, institutions, coaches, media). These forces often increase the pressure felt by athletes.

Pressure is defined as "any factor or combination of factors that increases the importance of performing well on a particular occasion" (Baumeister, 1984; p.610). In fact, numerous authors have noted elite athletes’ perceived pressures and environmental demands, such as audience’s expectations, coaches’ expectations or athletes’ perfectionist tendencies (e.g. Andersen, 2002; Baillie & Ogilvie, 2002). Athletes might perceive a single task performed under pressure as a stressful event that requires all of his/her
available resources (physical as well as psychological) to meet the demands of the opponent’s challenge or demands that are internally determined by the athlete. Due to the highly stressful demands of this situation, an athletes’ performance might be compromised (Beilock, 2010; Birrer, Röthlin, & Morgan, 2012). Sport psychology scholars have long been interested in performance in highly competitive, stressful situations. They have argued by creating optimal mental states could lead them to perform at their best, athletes need to know how to interpret and respond to these demands (Martens, Vealey & Burton, 1990). These demands can come from many sources, such as high expectations for athletes, fear of negative evaluation, and athletes’ concerns about their image to others (Hill, Hanton, Matthews & Fleming, 2009; Mesagno, Harvey & Janelle, 2011; 2012).

**Optimal Performance Under Pressure**

Sport psychology scholars have been intrigued to define the idea of optimal performance states under pressure. Traditional research has used a variety of concepts to describe this experience in sports, such as peak performance (Cohn, 1991), peak experience (Privette, 1981), and flow (Csikszentmihalyi, 1990). The goal to define and understand the characteristics of optimal experience in sports has been associated with the need to reproduce them as often as possible. Consequently, researchers have long been interested in whether or not successful athletic performance under pressure can be predicted on the basis of personality characteristics (Cox, 2007). When analyzing performance under pressure, research has found that certain psychological variables showed stronger relationships to optimal performance than others (physical and technical) (Birrer, Röthlin, & Morgan, 2012; Jordet, Hartman, Visscher, & Lemmink, 2007). Consistent optimal performance is the ideal or ultimate goal of any athlete, and the necessity to focus on the task at hand while ignoring pressure and distractions is a prerequisite of successful performance in sport (Moran, 2009). Athletes have reported that when they are in optimal performance states they have automatic body movement, lack of awareness of internal experiences, and intensified external awareness (Russell, 2001).
Additionally, coaches’ instructions such as “live in the here and now” and “focus on the present moment” have been related to peak performance and flow in sport (e.g., Jackson & Delehanty, 1995; Jackson & Csikzentmihalyi, 1999; Orlick, 1990; Ravizza, 2002). The concept of flow develop by Csikzentmihalyi (1990) is also linked to the “present moment” mindset and peak performance. Flow is defined as the “merging of action and awareness” (Csikzentmihalyi, 1990) and describes how greater present-moment awareness and concentration on the task at hand that occurs with low feelings of self-consciousness are related to ideal performance states. Research has continuously demonstrated the relationship between flow and athletic peak performance (Kee & Wang, 2008).

Even though there is not a unique personality profile that distinguishes elite from non-elite athletes, meta-analytic reviews have found some common psychological strategies that successful athletes use in competition. These factors include greater emotional control (Taylor, Gould & Rolo, 2008), low levels of anxiety (Woodman & Hardy, 2003), fewer experiences of negative thinking (Hatzigeorgiadis, Zourbanos, Galanis & Theodorakis, 2011), mental toughness (Jones, Hanton & Connaughton, 2007) and high levels of self-confidence (Gould & Maynard, 2009; Gould, Dieffenbach, & Moffett, 2002; Gould, Weiss & Weinberg, 1981; Gould, Eklund, & Jackson, 1992; Orlick & Parington, 1988). During the last 20 years, sports psychologists have worked with athletes in developing these psychological skills to achieve optimal performance under pressure.

**Psychological Skills Training: Achieving Optimal Performance**

To increase the probability of better performance, researchers and practitioners have developed Psychological Skills Training (PST) interventions. An initial definition noted by Vealey (1988) is “techniques and strategies designed to teach or enhance mental skills that facilitate performance and a positive approach to sport competition” (1988, p. 319). This definition has been updated to “the systematic and consistent practice of mental or psychological skills for the purpose of enhancing performance, increasing enjoyment, or achieving greater sport and physical activity self-satisfaction” (Weinberg & Gould, 2010, p. 250). Assisting athletes to achieve optimal performances, is especially
relevant during pressure, demanding and stressful situations when performance matters the most (i.e. when championships are on the line) (Beilock, 2010; Bernier, Birrer, Röthlin, & Morgan, 2012; Thienot, Codron, & Fournier, 2009).

The goal of psychological skill training is to achieve consistent optimal performances through the mastery of self-regulatory processes using systematic, goal-oriented skills-training models which have been adapted from cognitive-behavioral interventions (Gould & Maynard, 2009; Hamirson, 2011; Meichenbaum, 1977; Seiler & Stock, 1994; Sheard & Golby, 2006; Vealey, 2007; Weinberg & Gould, 2010).

Foundational to PST approach is the importance of self-control of the internal experiences to achieve optimal states of readiness to perform at one’s best when it is most important. This internal capacity of self-control of internal states can be achieved through the development and utilization of cognitive behavioral methods and techniques (Whelan, Mahoney & Meyers, 1991; Vealey, 2007). The utilization of certain psychological skills adapted for sport, such as, goal setting, self-talk, arousal control, imagery, and pre-competitive routines are the methods to achieve these desired peak performance states (Durand-Bush, & Salmela, 2002; Hardy, Jones, & Gould, 1996; Vealey 2007).

Psychological skills training benefits on optimal performance states are widely reported (Gould & Maynard, 2009; Morris, Alfermann, Lintunen, & Hall, 2003; S. Murphy, 2005; Vealey, 2005, 2007; Weinberg & Gould, 2010). For example, evidence of case studies in high-level athletes (Olympic level) described the use of psychological skills training on a regular basis, indicating its relevance in high-pressure situations (Calmels, d’Arripe-Longueville, Fournier & Soulard, 2003; Durand-Bush & Samela, 2002). Greenspan and Feltz (1989) reviewed a total of 23 psychological skills training interventions to improve athletic performance (19 published studies). Results showed that, in general, there is a positive effect of educational based interventions on improving athletic performance in youth athletes. Still, researchers believed that their sample size and selection criteria could misrepresent, or overestimate, the effectiveness of psychological interventions with athletes (Greenspan & Feltz, 1989). Another review of the effectiveness of psychological skill training conducted by Weinberg and Comar (1994) found that 38 of 45 studies in competitive sports showed positive performance effects. In a more recent review, Gardner and Moore (2006) analyzed 104 studies.
investigating the efficacy of PST on athletic performance. They found inconsistent results concluding that psychological skills training programs are not always the most effective way to achieve ideal performances states (see Gardner & Moore, 2004, 2006 for a comprehensive review). The implication of these extensive reviews is that PST does work, although not in all situations and not for all the athletes.

However, many recent studies have reported using a variety of techniques to form an integrated or package program. This suggests that including multiple strategies as part of a psychological skills training should be the direction for increasing the effectiveness of psychological interventions in sport, especially in situations under pressure (Fournier, Calmels, Durand-Bush & Samela, 2005; Groslambert, Candau, Grappe, Dugue, & Rouillon, 2003; Thelwell & Greenlees, 2003; Vealey, 2007).

**An Alternative Approach to Performance Enhancement**

One of the central aspects of PST training is the suppression or control of unwanted negative internal states to help achieve ideal performance (Hardy, Jones & Gould, 1996). However, some literature has questioned the idea that internal experiences, judged to be negative, can result problematic for performance (Hayes, Follette, & Linehan, 2004).

Of particular relevance, research has shown that attempts to suppress unwanted thoughts have the paradoxical effect of triggering meta-cognitive scanning processes, increasing the attentional focus on undesired negative internal states (Gardner & Moore, 2004; Purdon, 1999). The roots of this can be found at the heart of Jacobson’s pioneering work (1938), which highlights the importance of learning to recognize the sensations within tension rather than rather than striving to achieve a more desirable state, such as relaxation (Kabat-Zinn, 2003). However, Wegner, Schneider, Carter, and White (1987) first encounter the effect in a study where participants where told to try not to think of a white bear. Results indicated more white-bear thoughts. Wegner proposed the ironic process theory to explain this contradictory effect of thought suppression. The theory suggests that monitoring or attempting to control processes itself will ironically overcome the intentional control (Wegner, 1994).
Evidence about this phenomenon has been reported extensively (for comprehensive reviews, see Birrer, Röthlin, & Morgan, 2012; Najmi & Wegner, 2008; Schmidt, Gay, Courvoisier, Oise Jermann, Ceschi, David, Brinkmann, & Van Der Linden, 2009). These paradoxical effects where first found in clinical populations such as anxiety disorder, posttraumatic stress disorder, or insomnia (for a review, see Clark, 2005). However, researchers have linked this concept of suppression or avoidance with behavioral tendencies and findings have suggested that negatively perceived experiences are linked with moving away from the stimulus or the actual experience itself (see review in Elliot & Covington, 2001). Especially relevant, sport psychologists have used these concepts to analyze performance under pressure in soccer. One study analyzed how avoidance behavioral tendencies (classified by frequency of avoidance looking and length of preparation time) might predict underperformance in high-pressure situations, such as a penalty kick. Results indicated that soccer players’ with more avoidance behavior and less preparation would be prone to underperform in a negative high-pressure situation (Jordet & Hartman, 2008). Subsequently, after those results, Moore (2009) stated that, “the conclusion from studies is that reduction or control of these assumed mechanisms of action may not be relevant for optimal performance, as theorized” (p. 293).

Nevertheless, overall research indicates that athletes believe in the efficacy of mental training and that athletes tend to use mental training techniques more in competition than in practice because pressure reaches its peak (Frey, Laguna, & Ravizza, 2003). Sport competition is becoming more demanding for athletes and the thin line between winning and losing is becoming progressively thinner. Therefore, sport psychologists are challenged to develop greater sophistication or supplementing psychological skills training by implementing new ways of approaching the achievement of optimal performance in sport. The ultimate goal is using all possible strategies that most benefit athletes to reach their full potential rather than determining which approach is the best.

A Mindfulness Approach to Performance Enhancement

Before the emerging interest in Zen Buddhism and other Eastern practices, western athletes, coaches, and sport psychologists have had an ambivalent relationship
with mindfulness. The percentage of athletes who have heard – or read – the book of Eugene Herrigel’s *Zen and the art of Archery* (1953), is very small, and those who used its techniques – probably few professional golfers – is undoubtedly much smaller (Marks, 2008). When athletes’ attempts to reach new training plateaus are not successful, the tendency in the West is to parody Zen or other approaches that are labeled as “mystical” (e.g. “be the ball”). In fact, one of the best cultivators of the mindful awareness approach has been Phil Jackson (11 time NBA Championship coach), and his best stars Michael Jordan and Kobe Bryant, who also practice mindfulness (Jackson & Delehanty, 1995). This “gap” between West and East traditions has been blurred by the emergence of definitions related to enhancement of well-being, performance and excellence (Brown, 2009).

Definitions of eastern psychological techniques have been closely related to traditional meditation notions. Hanh’s (1976) definition of mindfulness as “keeping one’s consciousness alive to the present reality” (p. 11). And from the perspective of the behavioral sciences, it is a “consciousness discipline,” (Walsh, 1980). However, mindfulness has been defined as a distinct form of awareness and as a state of being attentive to and aware of what is taking place in the present moment (Brown & Ryan, 2003). Bishop et al.’s (2004) operational definition of mindfulness, as the openness, willingness, and awareness of experiences in the present-moment has been the substance for research-based operationalization. Building on that definition it is “a mental state resulting from voluntarily focusing one’s attention on one’s present experience in its sensorial, mental, cognitive and emotional aspects, in a non-judgmental way” (Cottraux, 2007).

Overall, mindfulness strategies have reported to promote individuals’ engagement in nonjudging awareness of their internal experience occurring at each moment, such as bodily sensations, cognitions, and emotions and to environmental stimuli, including sights and sounds (Baer, 2003; Kabat-Zinn, 1994; Bernier, Thienot, Codron, & Fournier, 2009; Birrer, Röthlin, & Morgan, 2012).

**From Acceptance and Commitment Theory (ACT) to Mindfulness**
The guiding concepts of Mindfulness approach to performance enhancement were developed by applied sport psychologists, in their effort to develop new ways to enhance competitive performance. This new and alternative approach to performance enhancement was adapted to sport from the clinical model of Acceptance and Commitment Therapy (ACT; Hayes et al., 1999). Mindfulness is based on the concept of acceptance, rather than direct change or control of internal experiences. The original Acceptance and Commitment Therapy (ACT; Hayes et al., 1999) is a psychotherapeutical intervention designed to “promote psychological flexibility and challenge the way in which language works to keep human beings stuck in problems or psychological dogmatisms. It is based on the idea of embracing the internal experience while focusing on constructive behaviors that are guided by our values” (p. 37; Luoma, Hayes & Walser, 2007). The goal of ACT is to increase “the ability to contact the present moment more fully as a conscious human being, and based on what the situation affords, to change or persist in behavior in order to serve valued ends” (Hayes & Strosahl, 2005, p. 17). The theory has six therapeutic processes (Acceptance, Being Present, Defining Valued Directions, Committed Action, Self as Context, and Cognitive Defusion). There have been a lot of clinical studies evaluating and supporting the efficacy of mindfulness and acceptance-based interventions, such as romantic relationship enhancement (Carson, Carson, Gil & Baucom, 2004), stress reduction in work environments and job performance enhancement (Bishop, 2002; Bond & Bunce, 2000; Brown & Ryan, 2003; Schreiner & Malcolm, 2008), and athletic performance enhancement (Bernier, Romain & Fournier, 2009; Cohen, 2012; Gardner & Moore, 2004, 2006, 2012; Schwanhausser, 2009; Wolanin, 2005). For a full detailed review of this body of literature see Roemer and Orsillo (2009).

Contrary to traditional models of performance enhancement, the use of acceptance-based approach in sport suggests that for achieving optimal performance athletes need to focus on (a) the degree of experiential acceptance or the degree of acceptance of internal experiences (thoughts, feelings, and physical sensations) (b) the performer’s willingness to persevere on the performance task despite those experiences and (c) the disposition to commit to tasks relevant for performance instead of focusing on the internal experiences (Gardner & Moore, 2007). Therefore, the Mindfulness approach
suggests that through mindfulness and acceptance based strategies, athletes increase acceptance of internal and external experiences, remain attentionally and behaviorally engaged in performances related tasks which results in improvement to performance (Gardner & Moore, 2007; Hasker, 2010).

As an alternative strategy to PST, it has shown preliminary empirical support. Mindfulness has been associated with activation in brain regions involved in attention, memory, and empathy, suggesting that it contributes to higher levels of psychosocial functioning (Marks, 2008). Also, meditation exercises have been shown to reduce the verbal component of worry and anxiety (Roemer & Orsillo, 2002). See comprehensive reviews (i.e. Marks, 2008; Slager, Davidson & Lutz, 2011).

Mindfulness is comparably consistent with the Individual Zones of Optimal Functioning (IZOF) develop by Yuri Hanin (1980). IZOF has empirical support in sport psychology literature (e.g. Gould & Tuffey, 1996; Hanin; 2007). IZOF is based on the idea that athletes have a zone of optimal functioning in which some positive and some negative emotions can enhance performance and other zones where those emotions (positive and negative) have a dysfunctional influence on performance (Weinberg & Gould, 2010). These findings may be interpreted by acceptance approaches as reflecting the various degrees of experiential acceptance and avoidance across individuals (Gardner & Moore, 2007). Also Hardy (1997) suggests that for developing a better understanding of the natural response to performance under pressure situations, athletes need to become more aware of their cognitive and somatic responses of anxiety, an idea that is consistent with the Mindfulness approaches (Hasker, 2010).

A study done by Bernier, Thienot, Codron, and Fournier (2009) used seven elite golfers who underwent a mindfulness and acceptance program from an educational standpoint during a complete season. Contrary to the traditional psychological skills training paradigm, this program aimed at playing golf with unwanted thoughts and commit to each shot by focusing on the relevant object. A longitudinal design was applied using the Ottawa Mental Skills Assessment Tool-3 (OMSAT-3; Durand-Bush, Salmela, & Green-Demers, 2001). Results showed that awareness and acceptance developed by the intervention helped them perceive their ‘negative’ psychological
internal states in competition as part of the experience, resulting in no attempts to control or eliminate them. This generated a more efficiently psychological mindset during competition (Bernier, Thienot, Codron, and Fournier, 2009). Another more recent study used a mindfulness intervention with 30 long-distance runners, golfers, and archers. Initially participants attended one session (three hours length) of Kaufman, Glass & Arnkoff, (2009) Mindful Sport Performance Enhancement (MSPE) workshop developed to teach athletes how to apply mindfulness skills through repeated practice of mindfulness exercises. One year after, they received a packet of questionnaires relevant to mindfulness, thought occurrences and flow experiences. Results showed that 84% (25 athletes) of the participants reported occasional practice of mindfulness meditation. The study also found a small but meaningful performance improvement from pretest to follow-up (Thompson, Kaufman, De Petrillo, Glass, & Arnkoff, 2011).

**Central Concepts of Mindfulness**

*Awareness*

The concept of awareness originated from Buddhist spiritual practices usually developed by meditation techniques with the goal of the cessation of personal suffering (Hanh, 1976; Thera, 1962; Silananda, 1990). Grounded in religious and philosophical traditions, awareness has been defined initially as “paying attention in a particular way: on purpose, in the present and nonjudgmentally” (Kabat-Zinn, 1994, p.4). A more recent definition has been an update from Kabat-Zinn as an “open-hearted, moment-moment nonjudgmental awareness” (2005, p. 24). This concept has become increasingly utilized in Western culture and scholars have defined the ability to observe the temporal stream of thoughts and feelings, the same traditional Buddhist concept with different names such as *introspection* (James, 1890), *observing self* (Deikman, 1982; 1996), *presence* (Bugenthal, 1987), *reflective functioning* (Fonagy & Target, 1996, 1997) and *deautomatization/decentering* (Safran & Segal, 1990 cited in Bishop et al., 2004).

A study explored the impact of awareness strategies in regular exercisers’ and non-exercisers’ perceived positive emotional states. The study defined awareness as the background “radar” of consciousness, continually monitoring the inner and outer environment (Brown & Ryan, 2003). Participants performed awareness exercises to
promote a different form of “introspection” and self-awareness. Results showed that rather than generating disruptive cognitions about the self, mindfulness awareness exercises “offer[s] a bare display of what is taking place” (Shear & Jevning, 1999, p. 204). These findings of how the present-centered attention–awareness is foundational to mindfulness promote the starting point for further research on the development and validity of the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003).

Acceptance

The second key concept is acceptance or willingness, which as been defined as being experientially open to the reality of the present moment (Roemer & Orsillo, 2002). This type of acceptance involves a conscious decision, and an active process of openness attitude to current thoughts, feelings, and sensations (Hayes, Strosahl, & Wilson, 1999). By adopting this actively open attitude towards unpleasant thoughts and feelings, the context in which those objects is experienced is perceived in a non-debilitating way (Hayes, Strosahl, & Wilson, 1999). The goal of acceptance is to develop the willingness of athletes to experience uncomfortable internal states such as worry and anxiety (Hasker, 2010). Also, willingness will disrupt the avoidance patterns to suppress uncomfortable internal experiences. For example, an athlete may avoid taking a penalty kick in soccer for his/her team in order to avoid the symptoms of anxiety. This temporary relief that avoidance offers, will reinforce the negative valence of anxiety and promote avoidance. Also, as mentioned above, research suggests that excessive attempts to control or suppress unwanted internal experiences caused by performing in pressure situations can have the opposite effect of increasing those negative internal states (Wegner, 1994; Wenzlaff & Wegner, 2000).

A study by Bernier et al. (2009) with 10 elite swimmers of the National French team explored with qualitative semi-structured interviews the experiences of good and bad performances. Swimmers were encouraged to describe in depth their mental states in terms of their cognitions, emotions, and bodily sensations. Results showed that the swimmers described reaching peak performance as the merging of action and awareness (e.g., “I didn’t control what I was doing anymore, as if all my movements had become
automatic! But everything felt natural”). They had been particularly aware of their bodily sensations and accepted them (Bernier et al., 2009).

Commitment

The development of acceptance - in the present moment awareness - of internal states, will help the performer develop the ability to focus on what is an appropriate behavior to perform (Hayes, et al., 1996). This process of actively choosing behaviors or task relevant actions that are directly in pursuit of achievement of valued goals is what is called commitment (Gardner & Moore, 2006; 2007). Commitment can be understood as how individuals developing a nonjudging, attention to present reality can work towards living a more values-driven life so that their actions are in service of their identified values. A more updated definition of commitment is “actively selecting behavioral tasks that are in line with pursuing clearly valued goals” (Hayes, Stroshal & Wilson, 1999; 2012). In sport, we talk about valued goals such as quality practice, hard training, aggressive competitive performance, maintenance of strategic plans and choices. Mindfulness practices give athletes the possibility to work towards their identified performance values; and engage in behaviors relevant to those ideal performance values in every moment of the competition rather than immediate goals and rewards (Gardner & Moore, 2007). In essence, athletes will be characterized to perform under pressure by mindful responding as opposed to mindless reacting.

Gould and Maynard (2009) found in a review of literature on psychological preparation of Olympic athletes this recurrent theme. One of the promoted mindsets was value driven behavior to achievement such as hard work and persistence. Athletes emphasized it in qualitative interviews with comments like “stick to it”. In addition the parents of elite athletes held the belief that “if you are going to do it, do it right” (Bloom, 1985; Sloboda & Howe, 1991; Sosniak, 1985). This follow-through on commitments was concluded as an important premise for the development, maintenance of talent and important during pressure situation in Olympic Games settings (Gould & Maynard, 2009).

Delivering Relaxation and Meditation

Benson’s Relaxation Response
Before the mindfulness approach, in the early 1970s, Herbert Benson a physician at Harvard Medical School in his research about the impact on heart rate and metabolic rate of meditation, documented a significant drop of physiological markers after meditative states. This new way of relaxing the body by means of relaxing the mind was considered to be a polar opposite for mainstream medicine and psychology (Benson, 1979). The term Relaxation Response has proposed by Benson and Proctor (1984) as a method to explain the phenomenon in his study, this technique integrates the basic elements of meditation but eliminates the spiritual or religious significance of meditation. This term for a meditation technique could be useful for those who feel more comfortable with a demythologized approach to meditation. Benson’s (1975) does not claim innovation about this technique, as it is an adapted from Transcendental Meditation. However, Benson has provided scientific validation (e.g. reduction in heart rate, breathing rate, galvanic skin response) for the Relaxation Response (Benson, 1998), which are elements also related to peak performance. Therefore, in the present investigation the Relaxation Response will be compared to a mindfulness technique specific to sport (this technique will be described later).

The Relaxation Response Technique

The key elements for using the relaxation response, adapted from meditation, are (1) finding a quiet place that ensures minimized distractions and external stimulation (2) a comfortable seated position (3) a mental device is the critical element of the relaxation response, because it involves focusing your attention on a single word (mantra in Buddhist traditions) that does not stimulate thoughts and repeating it over and over, and (4) a passive attitude to allowing thoughts enter the mind (Benson & Proctar, 1944; Weinberg and Gould, 2010). The main goal of the relaxation response is to quiet the mind from thought, which reduces the negative thoughts related to stress and demanding situations. The reduction of the occurrence of negative thoughts will increase the likelihood of mental readiness states for competition

Ways of delivering Mindfulness oriented interventions

The Mindfulness-Acceptance-Commitment (MAC) Approach
The first protocol develop to deliver mindfulness was established by Gardner and Moore (2006). The Mindfulness-Acceptance-Commitment as an acceptance-based approach designed specifically for performance populations, and as an integration and adaptation of Mindfulness-Based Cognitive Therapy (MBCT; Segal et al., 2002) and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999). The goal of their protocol is to promote acceptance of the internal experience while stimulating the attentional focus towards what is a contextually appropriate behavioral response (Gardner & Moore, 2007). Specifically, athletes will develop a nonjudgmental awareness, experiential acceptance, and task-focused attention in order to reach peak performance despite, negative internal states (Gardner & Moore, 2004, 2007, Hasker, 2010). This is especially relevant for those with inflexible cognitive and behavioral patterns responses because the MAC approach does not view the control or reduction of internal experiences as a necessary means of ideal psychological states. The formal definition of the MAC approach is, according to Gardner and Moore (2007):

“The MAC approach promotes acceptance of one’s internal experience, no matter what that might be, while at the same time focusing the performer on the contextually appropriate behavioral responses required to effectively navigate through life’s ever-changing situations in order to fully engage in one’s valued activities and achieve goals that really matter.” (p. 31)

The MAC Protocol

The Mindfulness-Acceptance Commitment Approach (MAC) is a semi-structured intervention organized into seven modules that incorporates mindfulness and acceptance-based strategies into every session to help athletes achieve optimal performance (Gardner & Moore, 2007). The sessions are explained as follows:

(1) Psychoeducation: The first session of the MAC program is oriented towards psychoeducation about the intervention. The session is intended to prepare athletes for the protocol by understanding the rationale of it and conceptualizing the performance

(2) Mindfulness and cognitive defusion: The purpose of the second session is to introduce the importance of mindfulness awareness, mindfulness attention and cognitive defusion. Athletes in this session should engage in mindfulness exercises to help promote a noncritical, present-focused attention (Gardner & Moore, 2006; 2007, Hasker, 2010; Hayes, Strosahl, & Wilson, 1999; Schwanhausser, 2009).

(3) Values identification and Values-driven behavior: The primary purpose of the third session is to help athletes identify their performance values and understand the important role of them on the performance enhancement journey. The importance of this is to develop a link between values and day-to-day actions and choices (Gardner & Moore, 2006; 2007, Hasker, 2010, Schwanhausser, 2009).

(4) Introducing Acceptance: The fourth session of the MAC protocol is dedicated to introduce the concept of acceptance and help athletes understand the consequences associated with experiential avoidance even though the concept had been vaguely introduced in other sessions. The importance of this session is to promote a reality of performance related activities in which undesired and unpleasant thoughts, emotions, and bodily sensations are inevitable due to the evaluative and pressure nature of sport. The purpose is to normalize internal events as aspects of human performance (Gardner & Moore, 2006; 2007, Hasker, 2010, Schwanhausser, 2009).

(5) Enhancing Commitment: By now, the athlete has advanced in the construction of a solid idea of their desired performance and the psychological barriers needed to overcome to achieve it. The purpose of the fifth session is to enhance athletes’ commitment to striving performance increments. In this session the focus is to promote an ongoing commitment to their performance values task related behaviors (Gardner & Moore, 2006; 2007, Hasker, 2010, Schwanhausser, 2009).

(6) Integration and Skill Consolidation: The sixth session is dedicated to consolidating the skills learned and combining mindfulness, acceptance, and commitment to enhance poise. As a result, of consolidating these behavioral patterns the athlete will develop a greater sense of behavioral flexibility. Enhancing poise is the core goal of this
session. The athlete will have to effectively use and adapt these new skills to performance situations (Gardner & Moore, 2006; 2007, Hasker, 2010, Schwanhausser, 2009).

(7) Practice and Maintenance: Enhancing Mindfulness, Acceptance and Commitment: The final session consists of reviewing the mindfulness skills to (a) promote self-awareness and task-focused attention (b) acceptance of uncomfortable internal events; (thoughts and emotions) as part of performance experience and (c) commit to the consistent use of the necessary choices guided by values-driven behavior. The session is dedicated to prepare the athlete for regular and systematic practice of the skills learned (Gardner & Moore, 2006; 2007, Hasker, 2010, Schwanhausser, 2009).

Mindful Sport Performance Enhancement (MSPE) Approach

Kaufman et al. (2009) developed the Mindful Sport Performance Enhancement (MSPE); which is a more condensed way to train athletes in how to apply mindfulness skills to sport. In a 4-week program with four outlined sessions, and through regular mindfulness exercises adapted to participants’ sport athletes will increase their performance and/or enjoyment of their respective sports. (Thompson, Kaufman, De Petrillo, Glass, & Arnkoff, 2011). Initially the protocol was designed for archers and golfers; and over 75% of the athletes who participated in the protocol indicated that they felt the mindfulness training worked, in terms of subjective experiences. These reports were supported with overall increases in trait mindfulness measured by the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) a clinical inventory for evaluating mindfulness tendencies and the Toronto Mindfulness Scale (TMS; Lau et al., 2006), which assess levels of mindfulness immediate after of mindfulness exercises. However, examination of how archers’ performance changed over the course of the 4-week MSPE protocol was not possible. For the golfers, a mean 18-hole score was computed for each week of the training; yet the analysis did not show significant results (Kaufman et al., 2009)

The MSPE Protocol

The outline of the 4-week program of the Mindful Sport Performance Enhancement (MSPE) incorporates mindfulness and acceptance-based interventions to achieve optimal performance using some of the key elements of Kabat-Zinn (1990) and
Segal et al.’s (2002) mindfulness programs, such as the raisin exercise, the body scan, mindful breathing, the sitting meditation, mindful yoga, and the walking meditation (Kaufman et al., 2009). The outlined four sessions length is around 2.5 to 3 hour, and are explained as follows:

(1) The Introductory Session gives a specific orientation and rationale for the relevant use of the program, with the explanation of some definitions and key mental factors in the sport. The most important part of this session is the introduction of Mindful breathing exercises and the Body Scan meditation (45 minutes) (Kabat-Zinn, 1990). The homework for the week is to engage in the Body Scan meditation 3 times for 45 minutes (Kaufman et al., 2009).

(2) The Second Session starts with the practice of the exercises learned in the previous session (Body Scan meditation for 45 minutes) and discussion of the application of meditation to the sport. The most important part of this session is the introduction of the Sitting meditation exercise (15 minutes) and the Mindful Yoga practice (45 minutes) (Kabat-Zinn, 1990). The homework for the week is to engage in the Body Scan practice 1 time for 45 minutes, Sitting meditation 3 times for 15 minutes and Mindful Yoga practice 2 times for 45 minutes (Kaufman et al., 2009).

(3) The Third Session includes a Mindfulness Yoga practice (45 minutes); introduce the Extended Sitting meditation (45 minutes) and the Walking meditation practice (10 minutes) (Kabat-Zinn, 1990). The homework for the week is a Body Scan practice for 45 minutes, Mindful Yoga practice for 45 minutes, the Sitting meditation for 30 minutes and the Walking meditation 3 times for 10 minutes (Kaufman et al., 2009).

(4) The Fourth Session starts with a Sitting meditation (30 minutes), a Body Scan practice (45 minutes), a Walking meditation (10 minutes) an a breathing exercise for 3 minutes. Here the focus is on reviewing the strategies and discuss the importance of the continued practice, which includes all the Mindfulness practice 6 times a week for 30 to 45 minutes a day (Kaufman et al., 2009).

Mindfulness Meditation Evidence
Mindfulness meditations programs such as the ones developed by Kabat-Zinn’s (1982, 1990) were developed for clinical populations to reduce pain, anxiety, and depression, among other (e.g., Kabat-Zinn et al., 1992; Teasdale et al., 2000). The core of these meditation programs is the engagement in a variety of formal practices with the purpose of make them informal practices or habits that are designed to cultivate a continuous awareness in all activities of daily living (Kabat-Zinn, 2003). As Kabbat-Zinn (2003) defines it, it is a way of being that takes ongoing effort to develop and refine. In T. S. Eliot’s apt phrase, it is “a condition of complete simplicity” (Eliot, 1943).

It is clear that the core of this program is the mindfulness meditation, a deep-rooted practice that has been defined earlier. However, recent evidence by Jain et al. (2007) has been reported in a randomized controlled trial of mindfulness meditation versus relaxation training. Eighty-one full time college students (32 mediation, 29 relaxation and 35 control) participated in the study. The MM intervention, integrates cognitive components (such as selective attention skills to focus on thoughts, emotions, body sensations and environmental sounds), somatic components (such as Hatha yoga techniques), and spiritual components (such as loving-kindness meditations) (Shapiro, Schwartz, 2000). The most important result indicated that after engaging in a one-month mindfulness meditation program the participants improved their positive mood states and reduced the distress caused by negative experiences (Jain et al., 2007).

Mindfulness meditation practices offer additional benefits than other mindfulness performance enhancement strategies or the relaxation response. Mindfulness meditation practices (a) do not involve discussion of the sport or performance, making them generalizable to other dimensions of the athlete’s experience, and (b) offer tangible benefits in the form of improved mood and mindset (c) do not focus on eliminating the nature of stress in life and thoughts occurrence (Teasdale et al., 2002). Another way to think about it is that the athlete will develop automatic responses of detecting and directing the attention to a desired stimulus or task, without neglecting other relevant data from the senses or internal negative cognitions.

Studies about the effectiveness of meditation suggest shorter interventions in length with weekly follow-ups. Also, these studies suggest the relevance of meditation in
college students, whose greater amounts of stress increase when they are also student-athletes. Furthermore, similar to MAC, MSPE emphasizes a degree of acceptance for the development of mindfulness skills. Distinct to MAC, MSPE does not include a focus on values, value-driven behavior, or commitment (Kaufman et al., 2009). However, the MAC approach emphasizes the importance of 7 sessions that could last between 7 to 15 weeks depending on the progress. The MSPE approach emphasizes the importance of 4 sessions of 3 hours length, with home exercises of about 3 hours. MSPE stresses on the continuous practice of all Mindfulness exercises for 45 minutes 6 times a week. Both programs raise the concerns about the extreme level of commitment from busy elite or busy student-athletes in the college and high school level (Kaufman, Glass & Arnkoff, 2009).

**The Proposed New Approach: Mindfulness Meditation Protocol in Sport**

The present study will use a shorter program than the MSPE and MAC; a Mindfulness Meditation protocol adapted for sport (See Appendix C for complete program). This is an attempt to incorporate different ways of delivering mindfulness benefits in a new mental training approach due to the issues that have been discussed above. In addition, coaches and sport psychologists have recognized the importance of the concepts underlining Mindfulness Meditation for athletic performance in the past. For instance, Blythe (2006) explains how Dean Smith and Mike Krzyzewski, two legendary basketball coaches, separately spoke of the importance of being in the present moment and letting go of the uncontrollable. In addition, Bob Rotella, has discussed the significance of letting go, staying in the present and accepting whatever happens without judgment (Rotella & Cullen, 2004). However, he also argues that these ideas are difficult to accomplish even if the athletes can understand the concepts (Blythe, 2006).

In this proposed Mindfulness Meditation Protocol, athletes will learn to simply increase their awareness and “let go” of any negative or unpleasant thoughts or emotions without acting against them. This could provide guidance for building a mindfulness mindset for pressure situations in sport. The mindset for performance under pressure is characterized by a mindful, nonjudging awareness and a total acceptance of the present moment cognitive, emotional and somatic experiences (Gardner & Moore, 2007). This
mindset can be developed by regular practices of meditation exercises because they promote greater consciousness, nonjudging/nonevaluative attention to both external and internal process, and increasing in commitment to task relevant actions (Gardner & Moore, 2006, 2007; Hasker, 2010).

Consequently, by engaging in mindfulness meditation practices, a total acceptance or willingness to fully experience thoughts and emotions or whatever happens to occur internally will be developed (Bishop et al., 2004). Therefore emotional experiences or pressure demands perceived by the athlete (mostly imposed internally) would be experienced as less threatening. This approach for performance under pressure was not developed to replace psychological skills training. Rather, it is only envisioned for replacing the excessive efforts at internal self-control, task-irrelevant attentional focus patterns and restrictions in behavior that arises in high-pressure situations (Gardner & Moore, 2007). For this reason, this approach could be a possibility for competitive performers who do not benefit from the traditional psychological skill training or traditional interventions. It is especially for those with inflexible cognitive and behavioral patterns responses under pressure.

Nevertheless, the impact of the Mindfulness Meditation Protocol for sport is not only intended for competitive situations. This mindset also promotes optimal decision-making under pressure, problem solving and fosters behavioral quality practices, intense training, and long-term development of student – athletes’ day-to-day coping skills. The main goal of the protocol is to allow athletes perform automatically, with their mind quiet and focused on only the task at hand. This journey to performance excellence will enhance their overall well-being (Gardner & Moore, 2007; Kabat-Zinn, 2003; Kaufman et al., 2009). With this benefits, mindfulness has been labeled as a potential tool to teaching new generations the importance of the enjoyment and acceptance of the present moment, how to focus, manage their emotions, handle their stress, and resolve conflicts. In fact, there is an organization called “Mindfulness School” that promotes this new mindset (for more information see Cowan, 2013).

**The Relationship Between Mindfulness and Flow**
An important related concept that helps evaluating mindfulness effective development by this meditation is flow. Flow has been regarded as a key to achieve peak performance and presents characteristics such as attentional awareness, nonjudging task relevant attentional focus, and greater behavioral flexibility (Gardner & Moore, 2006); characteristics, present in both concepts. The impact on mindfulness meditation on flow states would help achieve an optimal psychological state involving total absorption in a task; and consequently, experience an episode of superior functioning reflecting the upper limits of an individual’s capability (Baer, 2003).

A study done by Aherne, Moran & Lonsdale (2011) explored the relationship between mindfulness training and flow experiences in athletes. College athletes were randomly assigned to either control or experiment (6 week period mindfulness training) groups; flow experiences were measured before and after the intervention. Results showed that athletes who participated on mindfulness training increased their scores in flow measures. The findings were consistent with case studies reported by Gardner and Moore (2004) and Kee and Wang (2008).

**Rationale for present study**

Overall research suggests that athletes increase their capacity to act with awareness, increase overall acceptance of experiences, and decrease task-irrelevant cognitions by using engaging in mindfulness training practices. However, meditation is a stepping-stone towards a mindfulness mindset. The mindfulness meditation for sport compresses the concepts of the Relaxation Response, MAC, and MSPE approaches into one practice/protocol. It is particularly relevant to establish “fast track” techniques for achieving the benefits that long-term meditation practice offers (Marks, 2008).

This meditation for sport is more complete and concise way of delivering the benefits mindfulness approach. Studies have shown that within a month, in which recreational athletes engaged in Mindfulness Meditation practices, changes in both trait and state psychological factors were considered crucial to successful performance (Jain et al., 2007; Kee & Wang, 2008). However, future research should continue to investigate how meditation practices can be applicable in sport psychology by facilitating the attainment of flow, thus potentially helping athletes to achieve peak performance.
Additionally, recent studies have reported the need to examine mindfulness and acceptance approaches in a variety of sports, especially the effects of mindfulness mediation in optimal performances in sports with different characteristics (Bernier, Thienot, Codron, and Fournier, 2009). As Gardner and Moore (2004) have noted additional research is needed involving team sports (e.g., soccer), to understand the impact of the heightened awareness of self/other relationships and the strong evaluative nature of team sports (Gardner & Moore, 2004, 2007; Thompson, Kaufman, De Petrillo, Glass & Arnkoff, 2011) because most of the studies proving the efficacy of MAC and MSPE protocols have been developed with individual sports.

Empirical studies that have reported an impact of mindfulness interventions on other psychological factors in sport have used instruments developed and validated with clinical populations, such as the Mindfulnesss Attention Awareness Scale (MAAS), the Toronto Mindfulness Scale (TMS), or the Kentucky Inventory of Mindfulness Skills (KIMS). Therefore, all the Mindfulness-based programs that have been implemented towards the enhancement of sport (e.g., Bernier, Thienot, Codron, & Fournier, 2009; Gardner & Moore, 2004; Kabat-Zinn, 2003) to date have not been supported by a context specific instrument that accurately assess mindfulness skills among sport (Aherne, Moran, & Lonsdale, 2011; Bernier et al., 2009; Birrer, Röthlin, & Morgan, 2012; Gardner & Moore, 2007). Because of the natural differences between clinical and sport settings, Thienot, Jackson, Dimmock, Grove, Bernier, & Fournier (2014) developed a context-specific instrument to measure mindfulness processes in sport. They examined reliability and the content, structural and generalizability of construct validity. The psychometric analysis performed in the study concluded that The Mindfulness Inventory for Sport (MIS) is a new valid and reliable instrument; the only one to date assessing mindfulness processes in sport performance contexts (Thienot et al., 2014). The use of The Mindfulness Inventory for Sport (MIS, 2014) will provide a more accurate measure of the mechanism underlying mindfulness based interventions in sport specific contexts.

The Present Study
Adding to mindfulness interventions in the sport psychology literature, the proposed Mindfulness Meditation protocol for sport may provide athletes with the skills to experience distress while maintaining attention on valued behaviors despite internal experiences (Marks, 2008). The purpose of the present study was to explore how a new shortened and compacted mindfulness training approach for sport, could influence flow and the suppression of unwanted thoughts. The study evaluated the effectiveness of the program with a sport specific measure of mindfulness, the Mindfulness Inventory for Sport, recently developed by Thienot, Jackson, Dimmock, Grove, Bernier, & Fournier (2014).

The main hypothesis examined through this research was that players who received the 4-week mindfulness meditation intervention significantly improved their tendencies to experience flow, mindfulness and decreased their intention to suppress unwanted thoughts or sensations after the 4-week intervention compared to the Benson Relaxation Response group or an attention control condition group.

Chapter Two

Methods

Participants

Ninety-two soccer players were contacted by email. Initially thirty-three agreed to participate in the study by filling out the pre-test questionnaires. However, due to lack of compliance when completing the pre-test and post questionnaires the sample was reduced significantly to 15 female soccer players that completed pre and post test questionnaires (Eight in the Mindfulness Meditation for Sport group, five in the Benson’s Relaxation Response group and two in the Attention Control group). However, due to the low participation of the attention control group, the group was dropped from any further analysis. Therefore, the final sample was 13 soccer players (Eight in the Mindfulness Meditation for Sport group, five in the Benson’s Relaxation Response Group).

Participants varied in academic class from first year to senior, with ages ranging from 19 to 24 years old (M = 21.5) and their years practicing soccer ranged from 7 to 20 years. From the thirteen remaining participants, the majority of them reported no previous
experience with a sport psychology consultant (N = 11). However, those participants who worked with a sport psychology consultant reported the experience to be very helpful in exceeding their expectation (ranging from “1” = Far short of expected to “4” = Far exceeded expectations; M = 2.78). They also reported that they would probably be willing to work with a sport psychology consultant in the future (ranging from “1” = Definitely will not to “4” = definitely will; M = 2.96).

Volunteers received no compensation for their participation in the study. All participants signed an informed consent that had been approved by the University Institutional Review Board prior to participation in the study. (See Appendix A for Informed Consent Form)

General Procedure

After contacting the coaches (See Contact Script for Coaches in Appendix B) of four universities, the entire initial sample of participants received an introductory session stating the purpose of the research was to test different relaxations strategies (without naming them as Mindfulness or Relaxation Response) as a way to promote a more enjoyable experience. They received information about the general procedure (before and after measures) and methodology (4 week intervention period). Two universities received a personal introductory session and the other two received an introductory session via a Skype conference. (See Appendix C for outline of introductory session). Players who agreed to participate in the study were randomly assigned to a Mindfulness Meditation for sport, Benson’s Relaxation Response or Attention Control Group. Participants in each group completed questionnaires (detailed under Measures) before and after the intervention period. Each group received an audio file with the instructions to engage in the intervention lasting 10 minutes.

Participants were asked initially to practice 3 times a week for the 4 weeks. However due to lack of compliance as seen in the practice logs for each group, after the second week they were told to practice at least once a week and optimally 3 times a week for the 4 weeks. Participants received multiple email reminders (including the audio file again and practice logs) during each week of the intervention period. Reminders focused on encouraging them to engage in their practices, completing their practice logs, asking
about any difficulties or doubts about the practice and, their free right to withdraw from the experiment. For more details on each weekly email reminder see Appendix D.

**Interventions**

*Mindfulness Meditation for Sport Group*

The primary focus of the Mindfulness Meditation intervention was to promote a modified relationship with internal experiences (i.e., cognitions, emotions, and physiological sensations), rather than seeking to change their form or frequency (Gardner & Moore, 2012). The goal of the mindfulness meditation practice was to stimulate athletes to develop a non-judging (i.e., not good, not bad, not right, not wrong) moment-to-moment awareness, acceptance of one’s internal state and engagement on a task related to performance (Gardner & Moore, 2012).

This group received a 4-week protocol that included a Mindfulness Meditation practice. The athletes received an audio file to engage in the guided meditation. Dr. Diana Winston, Director Mindfulness Education at the UCLA Mindfulness Awareness Research Center provided the meditation for the present research. The Mindfulness Meditation practice was focused on developing awareness of the present moment, specially directed to increase the moment-to-moment commitment to each experience. Individuals engaged during meditation towards a nonjudging awareness of their internal experience occurring at each moment, such as bodily sensations, cognitions, and emotions and to environmental stimuli, such as breathing, sounds and present moment cues (Baer, 2003; Kabat-Zinn, 1994; Thienot, Codron, & Fournier, 2009). However, the meditations were transcribed and recorded again to include cues related to sports and more specific instructions towards the unique sport environment of soccer (See Appendix E for transcriptions, adaptations to sport and final version of the mindfulness meditation adapted to sport).

*Benson’s Relaxation Response Group*

The primary focus of the Relaxation Response group was to serve as a comparison group for the mindfulness meditation practice because this technique has been related to quiet experiences of the mind by controlling thoughts with a mental
device. The Relaxation Response (Benson, 1976) was a 10-minute practice during the 4-week intervention period (same amount of time as Mindfulness Meditation group). Participants received an audio file with the explanation of the main elements of relaxation response (1) select a quiet environment (2) assume a comfortable seated position (3) focus on a word (e.g. ‘one’ or ‘ease’), (4) maintain passive attitude, and (5) repeat the word every time the attention goes to a undesired thought. After this audio explained instructions they were told to stay with the audio file as a timer for the 10 minutes (See Appendix F for transcription of instructions to the Benson’s Relaxation Response).

**Attention Control Group**

The primary focus of the attention control group was to serve as a control group in order to make sure there was no placebo effect on the other groups, just because of the attention they were getting. Participants received an audio file with a 10-minute relaxation music file (i.e. sound of water, waves in the ocean and nature). The participants were told that the purpose of the study was to determine how a relaxation strategy had an impact on their experience in soccer.

**Measures**

Participants completed questionnaires before and after the 4-week intervention period. The first two measures were for Mindfulness, the third measure was for Dispositional Flow and the last one assessed the intention to suppress unwanted thoughts.

**The Mindfulness Inventory for Sport (MIS)**

The MIS developed by Thienot, Jackson, Dimmock, Grove, Bernier, and Fournier (2014) is a 15-item self-report questionnaire that measures the athletes’ ability (1) be aware of disruptive stimuli and their associated internal reactions (score with the mean of 5-items for awareness subscale); (2) adopt a non-judgmental attitude towards these stimuli and reactions (score with the mean of 5-reversed items for non-judgmental subscale); and (3) quickly refocus attention on goal-related cues (score with the mean of 5-items for refocusing subscale) (Thienot et al., 2014). The instrument used a 6-point Likert scale (1 = almost never and 6 = almost always) to indicate how much each statement was reflective of their general sport competitive experience According to this,
it is an instrument more trait-like rather than state-like. An overall scale is scored with the mean of all the individual items’ scores. Higher scores reflect higher levels of mindfulness in sport. The MIS has demonstrated initial validity and good internal consistency, with stable alphas for awareness: $\alpha = .77$, non-judgmental: $\alpha = .78$ and refocusing: $\alpha = .77$ (Thienot et al., 2014). (See Appendix G for copy of the questionnaire).

The Mindful Attention Awareness Scale (MAAS)

The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) 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 dispositional mindfulness (Brown & Ryan, 2003). This instrument has been used in mindfulness sport research (Gardner & Moore, 2007; Kee & Wang, 2008). The MAAS was designed to measure one’s tendency to be on ‘automatic pilot’ in everyday life. Items are rated on a 6-point Likert scale (1 = almost never and 6 = almost always). To score the scale, simply compute a mean of the 15 items. Higher scores reflect higher levels of dispositional mindfulness. Brown and Ryan (2003) reported acceptable internal consistency for the MAAS, with $\alpha = .82$ in a student sample and $\alpha = .87$ in an adult sample. (See Appendix H for copy of the questionnaire).

Dispositional Flow Scale-2 (DFS-2)

The DFS-2 (Jackson & Eklund, 2002) measures the tendency to experience flow, with each of the 36 items rated on a scale from 1 (never) to 5 (always). This scale is theoretically grounded in Csikszentmihalyi’s (1990) concept of flow and contains nine subscales: challenge-skill balance, action-awareness merging, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of self-consciousness, time transformation, and autotelic experience. A total scale score can also be obtained by averaging the scores across all the dimensions. People who report higher scores possess a greater predisposition towards experiencing flow. DFS-2 studies have reported that it is a reliable and valid measure of the flow construct with reliability estimates alphas ranging from ranged from .81 to .90 for the DFS-2 (Jackson & Eklund, 2002). (See Appendix I for copy of the questionnaire).
White Bear Suppression Inventory (WBSI)

Research has shown that Mindfulness states are characterized for having less intention to suppress unwanted thoughts or sensations. Wegner and Zanakos (1994) developed the White Bear Suppression Inventory (WBSI) to assess people’s general tendency to suppress unwanted thoughts. The 15–item inventory can be used to identify people’s engagement on suppression inclinations of thoughts. Items are scored on a 5-point Likert scale from (1) Strongly disagree to (5) Strongly agree. The total score is obtained by summing up the responses in each item. Responses are coded such that high scores reflect greater thought suppression. The WBSI demonstrates excellent convergent validity and has very good internal consistency, with alphas ranging from .87 to .89 (Wegner & Zanakos, 1994). (See Appendix J for copy of the questionnaire).

Statistical Analysis

The means, standard deviations, skewness, and kurtosis were examined using SPSS (V.21). The hypothesis stated that the Mindfulness meditation intervention would significantly improve the experience of flow and mindfulness as well as decrease the suppression of unwanted thoughts compared to the Benson Relaxation Response group. Therefore, a series of 2x2 mixed repeated measures ANOVA’s were conducted. The treatment groups represented the between subjects factor and the pre-post (repeated measures) was the within subject measure.

Chapter Three

Results

Manipulation Check

To encourage the participants to engage in the practice during the 4-week intervention period, practice logs were given to them through an online link with some feedback questions after each practice. Also, in the post-test questionnaire there were retrospective questions about their overall experience with the practice, including their commitment, engagement and transferability of the practice to daily life and other areas.

Practice Logs - Mindfulness Meditation group
The purpose of the Mindfulness Meditation group’s practice logs was to encourage participants to listen to the audio file. For example, they had to document, the time of the day they did the practice and how often. Seven of the eight participants of the group practiced at least once a week, and listened to the audio file for the full 10 minutes without interruption every time they practiced the meditation, as was suggested. Four of the eight participants practiced four times a week and three of the participants practiced two times a week. Finally, one participant listened for less than 10 minutes to the practice. The feedback questions also measured their perception of the prompts and attentional cues during the practice. Descriptively, the three prompts of the practice that they liked the most were “Be in the Present Moment”, “Awareness of the Body” and “Focus on Breathing”.

Practice Logs - Relaxation Response group

The purpose of the Relaxation Response group’s practice logs was to encourage the participants to listen to the audio file. Four of the five participants reported engagement with the practice for the full 10 minutes. Two of the five participants practiced four times a week, as was suggested, two participants practiced two times a week, and one of the participants practice for less than the time suggested. The feedback questions also measured their perception of the four basic prompts of the Relaxation Response. Descriptively, the prompts that they liked the most were “Quiet Place”, “Comfortable Position”, and “Focus on Mental Device”.

Practice Logs - Attention Control Group

Unfortunately, the participants in this group did not engage as expected in their practice. The practice logs were meant to be as a manipulation check to encourage them to listen to the audio file. Due to the low participation of the attention control group, no further data was analyzed.

Post-Test Manipulation Check

Finally, the post-test was more retrospective and focused on providing a manipulation check of the practice of the different interventions. There were two participants who did not practice their intervention (No = 2, Yes = 11). Other questions
were related to how easy it was to follow, the commitment regarding the practice, how much they thought it could be transferred to a competitive sport situation and how much they thought it could be transferred to daily life situations. Regarding how easy it was to follow the practice, participants reported that it was “Somewhat easy” to follow (ranging from “1” Very difficult to “6” Very easy; $M = 4.0$). The entire sample reported their commitment as “Fair” (from “1” Poor to “5” Excellent, $M = 2.5$), which raises issues about how engaged the participants were with the study. However, the Mindfulness Meditation group reported their commitment as “Good” ($M = 2.98$) while the Relaxation Response group reported it as “Fair” ($M = 2.46$).

Regarding the transferability of the practice, the intervention groups reported that their practice was useful (ranging from “1” Very useless to “7” Very useful; $M = 6.15$) for competitive sport situations. In the transferability for daily life situations the Mindfulness Meditation group reported that the practice was useful ($M = 5.97$) and the Relaxation Response reported that was somewhat useful ($M = 5.62$). At the end, they had the opportunity to report any additional comments related to the practice.

An interesting aspect of the current study was found in the manipulation check questionnaires. This part was only aimed at encouraging the participants to be engaged in their practice of mindfulness. However, they also had the option to qualitatively add any comments about their experience with the practice, and some of their comments were mentioned their desire to be more disciplined in their practice of mindfulness:

“I wish I would have stuck with the practice more, I found it helpful when I did participate.”

Also they were honest enough to admit that they should have been more engaged with the practice:

“I wish I had been better with regularly listening to the audio clip. It was a very busy, I would like to try to do this again and be more diligent about the practice.”
Finally they commented about their realization of how helpful it was when they did practice, because it reminded them of their focus on the present moment and the importance of the breathing:

“It is good to clear my mind and recollect my thoughts and incentives, motivations, and goals in such a busy lifestyle.”

“More focus and an enjoyable practices”

“Was more aware of my breathing when I was asked to actually focus on it.”

These preliminary qualitative results will be expanded upon in the discussion.

**Descriptive Statistics**

It is important to take a look at the measurements of central tendency and variability of the Mindfulness in Sport (MIS), Mindfulness in Life (MAAS), Dispositional Flow (DFS) and Suppression (WBSI) to determine how their means and standard deviations changed during pre and post measurement (See table 1). However, this only gives a general description of the variables and a description of the variability of the distribution of the general sample. One aspect of the shape of distributions that is relevant is skewness and kurtosis. Table 1 shows acceptable distributional properties (i.e., skewness, kurtosis) for each variable, and in each time point (i.e. pre and post).

**Reliability**

It is also important to assess the reliability of any scale that is used to interpret the data in both time points (i.e. pre and post). Values for coefficient alpha for the Mindfulness Inventory for Sport (MIS) scale ranged from .70 to .74, which is satisfactory. This reliability score is a good measure of internal consistency especially with a measure that has been recently developed, like the MIS. The mindfulness in life (MAAS) showed alpha values ranging from .93 to .83. The dispositional flow scale (DFS-2) alphas’ ranged from .92 to .94 and the white bear suppression inventory (WBSI) values of alpha ranged from .85 to .93. (See Table 2)
The last three scales indicated satisfactory reliability suggesting good internal consistency of the scale and its adequacy for use in the present research. These scores were in line with previous reported psychometric values (Brown & Ryan, 2003; Jackson & Eklund, 2002; Wegner & Zanakos, 1994).

**Comparison Between Dependent Variables and Intervention Groups**

Using SPSS (V.21), the main analysis included a series of 2 (condition: Mindfulness Meditation (MM) vs. Relaxation Response (RR)) X 2 (time: pretest vs. posttest) mixed design repeated-measures ANOVAs. For each repeated-measure ANOVA, the IV was the treatment group and time was the repeated measure factor. The dependent variables were dispositional Mindfulness in Sport, Mindfulness in general, dispositional flow and the intention to suppress unwanted thoughts and sensations. Each dependent variable was examined separately.

**Mindfulness In Sport**

Results of the repeated-measure ANOVA indicated no significant interaction between the intervention group and time point \([F(1,11) = .238, p = .635]\). In addition, results from the main effect analysis showed that participants who underwent the intervention period did not exhibit significantly higher dispositional mindfulness in sport at the posttest with reference to their pretest results \([F(1,11) = .121, p = .735]\). The between group main effect analysis also showed no significant differences between the mindfulness intervention group compared to the relaxation response intervention group \([F(1,11) = .080, p = .782]\).

**Mindfulness In Daily Life**

Results of the repeated-measure ANOVA indicated no significant interaction between the intervention group and time point \([F(1,11) = .001, p = .981]\). In addition, results from the main effect analysis showed that participants who underwent the intervention period did not exhibit significantly higher dispositional mindfulness in daily life situations at the posttest with reference to their pretest results \([F(1,11) = .371, p = .371]\). The between group main effect analysis also showed no significant differences
between the mindfulness intervention group compared to the relaxation response intervention group \( F(1,11) = 1.15, p = .314 \).

**Dispositional Flow**

Results of the repeated-measure ANOVA indicated no significant interaction between the intervention group and time point \( F(1,11) = .105, p = .752 \). In addition, results from the main effect analysis showed that participants who underwent the intervention period did not exhibit significantly higher dispositional flow at the posttest with reference to their pretest results \( F(1,11) = .289, p = .117 \). The between group main effect analysis also showed no significant differences between the mindfulness intervention group compared to the relaxation response intervention group \( F(1,11) = 1.80, p = .206 \).

**Suppression of Unwanted thoughts**

Results of the repeated-measure ANOVA indicated no significant interaction between the intervention group and time point \( F(1,11) = .076, p = .788 \). In addition, results from the main effect analysis showed that participants who underwent the intervention period did not exhibit significantly lower intention to suppress unwanted thoughts at the posttest with reference to their pretest results \( F(1,11) = .1421, p = .258 \). The between group main effect analysis also showed no significant differences between the mindfulness intervention group compared to the relaxation response intervention group \( F(1,11) = 2.14, p = .171 \).

**Chapter Four**

**Discussion**

The use of psychological skills training on a regular basis has been relevant for improving performance under pressure (Vealey, 2007), although this may not be effective for every athlete. Mindfulness in sport has been an emerging approach intended to provide a new mindset for coping with pressure. It is not a replacement from the traditional psychological skills training; rather it is a complementary new method. Mindfulness has been defined as “a mental state resulting from voluntarily focusing one’s attention on one’s present experience in its sensorial, mental, cognitive and emotional
aspects, in a non-judgmental way” (Cottraux, 2007). The construct of mindfulness appears to be compatible with theories of flow and peak performance in sport (Birrer, Röthlin, & Morgan, 2012). This approach could be a possibility for competitive performers who do not benefit from traditional interventions, such as thought-stopping and thought replacement. By engaging in mindfulness meditation practices, student-athletes will develop a total acceptance or willingness to fully experience thoughts and emotions or whatever happens to occur internally will be developed (Bishop et al., 2004). Therefore emotional experiences or pressure demands perceived by the athlete (mostly imposed internally) would be experienced as less threatening. This new approach towards performance under pressure could be an effective way to approach performance under pressure issues, especially for college athletes.

The goal of the present study was to examine the effects of a four-week Mindfulness Meditation intervention on selected psychological characteristics in collegiate soccer players. It was hypothesized that soccer players participating in the Mindfulness Meditation group would improve more in their dispositional mindfulness (sport and everyday life), dispositional flow, and tendency to suppress unwanted thoughts as compared to a Benson Relaxation Response group or the attention control group. The hypothesis was not supported, as no differences were found between the two groups. Unfortunately, due to dropping the attention control group from the analysis, no statistical analysis was done between Mindfulness Meditation and the attention control group. This finding suggests that the participants’ dispositional mindfulness, flow, and intention to suppress thoughts were not influenced by the intervention procedure.

This study is the first of its kind to apply elements of a Mindfulness Meditation protocol adapted to sport. It is also the first to use the Mindfulness Inventory for Sport recently developed by Thienot et al. (2014). Helping athletes to perform well in pressure situations is an important focus of sport psychology interventions. Benier and colleagues (2009) called for more intervention studies that build up on the effectiveness of new approaches to performance under pressure, and this study attempted to implement the relatively newer method of mindfulness training with athletes. However Benier et al. (2009) also raise the issue of the difficulty of intervention studies in eliciting statistically significant psycho-behavioral change. In this study, the data showed increments on the
scores for all dependent measures, which suggest perhaps some practical improvement although the differences were not statistically significant. Hopefully, this study may serve as a stepping-stone towards the use of mindfulness interventions along with the more traditional forms of mental training in sport.

Preliminary Qualitative data

The comments in the open-ended post-test manipulation check questions showed a glance of the benefits that the participants reported. They felt how their focus was different, and how they enjoy a certain level of daily life demands. In essence, this alludes to the potential impact of mindfulness meditation practices not only on competitive situations, but also on promoting optimal decision-making under pressure, problem solving and long-term development of student – athletes’ day-to-day coping skills, which is in line with previous research. Specifically, a review of research-based evidence showed the impact of the integration of meditation in higher education and how it supported student mental health under pressure situations. In addition, mindfulness fostered cognitive attentional, decision-making processes as well as building resilience and adaptive stress coping patterns (Shapiro, Brown & Astin, 2011). Meditation as a tool for better quality of mental health in higher education has also been supported by performance-based measures of cognitive function (Jha, Krompinger, & Baime, 2007). Several studies have been conducted with students in higher education settings reporting positive results This suggests the call for studies evaluating a possible transferability of Mindfulness in Sport, especially when working with student-athletes populations (Jain, Shapiro, Swanick, Roesch, Bell, & Schwartz, 2007).

Limitations

A concern at the beginning of the project, and in any intervention study, was how much the participants would actually comply with the meditation protocol. To address that issue, multiple strategies were used to try to get participants to comply with the required tasks of the study. These strategies included introductory session, email reminders every week (3 to 5 times a week), the option to do everything online, the flexibility to engage in the audio practice at any time, and the possible reward (cash voucher for dinner) for the team that has more of than 85% of their team participation.
However, these strategies were not sufficient to develop a commitment in the participants towards the practice. This raises the need to use direct meditation practices led by the investigator in person, or a mindfulness expert to ensure compliance at least, in the early stages of this new approach, while the participants develop an understanding of mindfulness as a way to cope with pressure and develop the habit of applying mindfulness concepts to everyday life situations.

Thus, a main limitation of the study was the poor compliance and engagement in the practice, which in turns affected significantly the sample size of each group. The sample size was one of the biggest issues because due to low participation, the attention control group had to be dropped from the analysis, which gave no comparison group to determine if any intervention was better than nothing. Second, the small sample size of the intervention groups affected significantly the statistical analysis giving lower probability of finding significant results. Finally, the majority of the final sample came from the soccer teams that received a personal introductory session and not the videoconference Skype session. This raises the issue of how effective is an online intervention in terms of developing empathy, commitment and engagement on any intervention. It is clear that technologies are helpful to break the gap of distance, but how different is it to develop those necessary characteristics in a working relationship between athlete and consultant if the person is actually present.

Another limitation was the lack of a performance measure that could serve as a marker to find any transferability of mindfulness practice into competitive situations. As with any applied sport psychology research, not having a performance measure eliminates the chance of determining the effectiveness of the intervention on actual performance. Even though, the soccer layers reported that the practice could be very useful for their competitive situations, there was not an objective measure to test this perception. In line with this limitation, the spring season in most soccer teams is focused more on physical practice and less on competitions. Thus, the players did not have opportunities to apply what was learned, in real competitive situations. In addition, they reported that the technique was helpful in day-to-day situations in the academic life; again there was not an objective measure of the transfer.
Future Research Directions

The present investigation had many limitations as noted above but they do also suggest future research directions. One obvious direction is future studies need larger samples that can better determine (from a statistical perspective) the real impact of mindfulness meditation for sport interventions in soccer players. Another potential research area is the importance of including performance measures, from both the players and the coaches. This would help to better assess the effectiveness of mindfulness meditation programs on actual performance as well as increasing the motivation to practice the meditation.

In addition, it appears to be important for future research that the investigator leads the mindfulness training in person for the first couple of weeks in order to develop a familiarity with the practice. This could be a guided mindfulness meditation with the participants 3 – 4 times a week, and a shorter practice during the other days to remind the concepts and the applicability of mindfulness in pressure situations. This should be also be accompanied by the practice logs. The information from the practice logs served as a manipulation check and also as a reflection for the athletes in their transition towards understanding a new approach of coping with pressure in their sport and in their daily life. Furthermore, even with a small sample size the internal consistency of the new Mindfulness Inventory for Sport (Thienot et al, 2014) was satisfactory. Finally, state weekly measures could possible assess weekly changes in mindfulness skills prior to competition.

Conclusion

As the review of literature and the qualitative data suggest, there is a great promise for integrating mindfulness meditation as a way to deal with demands in student-athletes’ lives and as a complement to psychological skills training. Along these lines, there is a great deal of growing interest in the integration of meditation into higher education (Bush, 2006). However, because results showed no statistically significant differences, between the experimental groups, more rigorous studies with larger sample sizes and better compliance need to be conducted. Mindfulness might be an alternative to developing mental skill training plans as its focus is on the development of psychological
flexibility for rigid thinking patterns that disturb performance under pressure. Along these lines, Bernier and colleagues (2009) stated that optimal performances does not require the reduction or control of internal states. On the contrary, training of a non-judging awareness, focusing on the task at hand and commitment to behavioral choices could assist student athletes in achieving optimal performances. However, investigating the complex new phenomenon of mindfulness may be difficult from a quantitative perspective and qualitative reports of changes experienced through mindfulness meditations practices are also needed. Mindfulness has the potential to help individuals to effectively cope with competitive athletic demands as well as increase their enjoyment of every day life challenges, but sophisticated research is needed to provide empirical support to these contentions.
References


Roemer, L. & Orsillo, S. M. (2002). Expanding our conceptualization of and treatment for


Thienot, E., Jackson, B., Dimmock, J., Grove, R., Bernier, M., Fournier, J., (2014). Development and Preliminary Validation of the Mindfulness Inventory for Sport. Psychology of Sport & Exercise (Accepted Manuscript)


Table 1.

*Descriptive Statistics of the Mindfulness, Flow and Suppression Scales*

<table>
<thead>
<tr>
<th></th>
<th>Mean Pre</th>
<th>Mean Post</th>
<th>Standard Deviation Pre</th>
<th>Standard Deviation Post</th>
<th>Variance Pre</th>
<th>Variance Post</th>
<th>Skewness Pre</th>
<th>Skewness Post</th>
<th>Kurtosis Pre</th>
<th>Kurtosis Post</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mindfulness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in Sport (MIS)</td>
<td>3.9</td>
<td>4.1</td>
<td>.48</td>
<td>.45</td>
<td>.24</td>
<td>.21</td>
<td>.36</td>
<td>.89</td>
<td>-.37</td>
<td>1.1</td>
</tr>
<tr>
<td><em>Mindfulness</em> in Life (MAAS)</td>
<td>3.6</td>
<td>3.8</td>
<td>.97</td>
<td>.62</td>
<td>.94</td>
<td>.38</td>
<td>-.82</td>
<td>.13</td>
<td>1.7</td>
<td>-1.1</td>
</tr>
<tr>
<td><strong>Dispositional</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow (DFS-2)</td>
<td>3.5</td>
<td>3.6</td>
<td>.43</td>
<td>.42</td>
<td>.19</td>
<td>.18</td>
<td>-2.5</td>
<td>-1.6</td>
<td>7.9</td>
<td>7.9</td>
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<tr>
<td><strong>Suppression</strong></td>
<td>56.3</td>
<td>54.5</td>
<td>8.0</td>
<td>11.30</td>
<td>64.7</td>
<td>127.7</td>
<td>-.2</td>
<td>-.43</td>
<td>-.82</td>
<td>.58</td>
</tr>
</tbody>
</table>

*Note:* MIS Scale and MAAS Scale (1 = almost never to 6 = almost always)
DFS-2 Scale (1 = never to 5 = always)
WBSI Scale (1=Strongly disagree to 5 = Strongly agree)
Table 2.

*Internal Consistency for the Mindfulness, Flow and Suppression Scales*

<table>
<thead>
<tr>
<th></th>
<th>Mindfulness in Sport (MIS)</th>
<th>Mindfulness in Life (MAAS)</th>
<th>Dispositional Flow (DFS-2)</th>
<th>White Bear Suppression (WBSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Pre</td>
</tr>
<tr>
<td>Cronbach’s Alpha (α)</td>
<td>.702</td>
<td>.745</td>
<td>.934</td>
<td>.834</td>
</tr>
<tr>
<td>N of Items</td>
<td>15</td>
<td>15</td>
<td>36</td>
<td>15</td>
</tr>
</tbody>
</table>
Table 3.

*Mean Scores and Standard Deviations of the Mindfulness, Flow and Suppression Scales by Group at Pre and Post-Test*

<table>
<thead>
<tr>
<th></th>
<th>Mindfulness</th>
<th>Relaxation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
</tr>
<tr>
<td><strong>Mindfulness in Sport (MIS)</strong></td>
<td>3.9 (.52)</td>
<td>4.1 (.39)</td>
</tr>
<tr>
<td><strong>Mindfulness in Life (MAAS)</strong></td>
<td>3.5 (1.2)</td>
<td>3.7 (.70)</td>
</tr>
<tr>
<td><strong>Dispositional Flow (DFS-2)</strong></td>
<td>3.3 (.53)</td>
<td>3.5 (.53)</td>
</tr>
<tr>
<td><strong>White Bear Suppression (WBSI)</strong></td>
<td>57.5 (6.63)</td>
<td>55.8 (11.05)</td>
</tr>
</tbody>
</table>

*Note:* MIS Scale and MAAS Scale (1 = almost never to 6 = almost always)

DFS-2 Scale (1 = never to 5 = always)

WBSI Scale (1 = Strongly disagree to 5 = Strongly agree)
Appendixes

Appendix A

Informed Consent

Effects of a Relaxation Intervention on the Flow Experiences of College Soccer Players

Principal Investigator: David Quinones Paredes, Department of Kinesiology and Health

Dear Participant:

You have been asked to take part in the research project described below. If you have any questions, please feel free to contact Dr. Robert Weinberg, Dr. Robin Vealey or David Quinones, the people mainly responsible for the study.

WHY ARE YOU BEING INVITED TO TAKE PART IN THIS RESEARCH?

You are being invited to take part in a research study that examines relaxation practices that may affect flow in soccer players. You are being invited because you are a member of a college soccer team. If you volunteer to take part in this study, you will be one of about 60 people to do so. We will be doing this same study with other soccer teams in the future as well.

WHO IS CONDUCTING THE STUDY?

The person in charge of this study is David Quinones, Graduate Student in Kinesiology and Health at Miami University (quinondj@miamioh.edu).

DESCRIPTION OF THE RESEARCH:

The purpose of the study is to collect information about how relaxation practices could impact flow experiences in sport. You will be asked basic demographic questions and questions concerning your flow and experience in soccer (i.e. thoughts, feelings, emotions). We will give you an audio file with some instructions to practice exercises related to relaxation for 4 weeks (during that period you will receive a weekly text message reminder for the practice and you will fill out a short and simple ‘practice log’ to have a chance to write any reactions, comments and concerns about the practices) rafter that period you will be asked to fill out some other questions.

Text Messaging: Text messages will remind you about the practice, they will arrive randomly 3 times a week. The message will be no longer than a sentence, just to remind you about the practice of the study. The texts message will not cost you anything. You
will have the ability to accept or decline the reception of these texts.

1. **You must be AT LEAST 18 years old to be in this research project.**

2. **Research Procedures:** If you decide to take part in this study, your participation will involve filling out a survey pertaining to experience in sport (i.e. thoughts, feelings, emotions).

3. **Time required for participation:** The survey will take approximately 10-12 minutes to complete. The relaxation practices are 10-minute long. And you will be asked to engage in those practices 3 to 4 times a week for 4-week period. The ‘practice logs’ will require between 1 -2 minutes after practice. You will also receive a text message to remind you about the practice.

4. **Potential risks:** The possible risks or discomforts of the study are minimal, although you may feel some discomfort answering some of the questions about private matters. Previous participants have reported learning a lot about their own internal experiences from reading these questions. While extremely unlikely, someone might try to identify you based on your demographic answers and link your identity to your survey responses. Data confidentiality is of the utmost importance for this data collection. We are taking a number of steps to protect your responses. Only project personnel will have access to the survey responses. Although every effort will be taken to ensure confidentiality of your responses, all Internet-based communication is subject to the remote likelihood of tampering from an outside source. IP addresses will not be investigated and data will be removed from the server. You should always be aware that in public wireless space, your activities may be hacked and be aware of your surroundings (could anyone be looking over your shoulder at the screen?)

5. **Potential Benefits:** Although there are no direct benefits of the study, your answers may increase your awareness of issues that are important for your enjoyable experience in sport. Your answers will serve as a basis for understanding college soccer players’ experience (i.e. thoughts, feelings, emotions). By participating in the study you will be also contributing to the literature on how new approaches to performance enhancement such as relaxation practices could promote flow experiences

6. **Confidentiality:** Your part in the study is confidential. That means your answers to all questions are private. The survey will ask you to provide demographic and personal information, which introduces the risk someone may deduce from your responses. However, this is highly unlikely and significant safeguards are in place to protect your confidentiality. Scientific reports (writing by David Quinones) will be based on group data and will not identify you or any individual as being in this project.

7. **Voluntary Participation:** You do not have to participate and you can refuse to answer
any question or withdraw from the study with no penalty or loss of benefits. You will receive a weekly emails asking you about any issues with the practice or desire to withdraw from the study without any consequences.

8. **Contact Information:** If you have questions about the study you can contact the principal investigator, David Quinones, 202-631 2123 or quinondj@miamiOH.edu, or Dr. Robert Weinberg, weinber@miamiOH.edu and Dr. Robin Vealey, vealeyrs@miamiOH.edu.

When finished, please close the browser program and log off the computer to reduce the access of others to your information. If others have access to your computer and password, you may wish to clear the history of the browser software.

If you have any questions or concerns about your rights as a subject, you may contact Miami University's Office for the Advancement of Research and Scholarship, (513) 529-3600 or humansubjects@miamioh.edu.

You are at least 18 years old. You have read the consent form and your questions have been answered to your satisfaction. **Filling out the survey implies your consent to participate in this study.**

Thank you,

David Quinones
Robert Weinberg, Ph.D.
Robin Vealey, Ph.D. Principal Investigators

I have read and understood the above consent form and desire to participate in this study.

Yes

No
Hi Coach ______

First of all, let me introduce myself.

I'm David, a second year graduate student of the Psycho-Social Sport Studies Masters degree program at Miami University of Ohio. I finished my undergraduate program in Bogota, Colombia (my hometown) in Psychology and I did an internship in the Colombian Olympic Committee where I was lucky to work as a Sport Psychology consultant for the Women's Soccer National Team.

Currently, I am working with Dr. Weinberg and Dr. Vealey in my research, which is related to enhancing performance of soccer players through mental skills training.

Basically, my research is about Mindfulness practices and how this new approach to enhancing performance could help improve the quality of the training and competition, which translates into more peak performance experiences. Mindfulness is the willingness, and awareness of experiences in the present-moment. Sometimes we try to control too much (internal thoughts) and I believe that the key to optimal performance under pressure is not about controlling or getting rid of those thoughts but to accept them and perform despite them. This promotes greater psychological flexibility.

For my research project I require women soccer players to participate filling out some questionnaires before and after the engagement in some exercises related to relaxation.

I am contacting you as the coach of the ________________ Women’s Soccer team to see if you’d be willing to help me out with my project. If so, your involvement would be facilitating me with an introductory session (15 to 20 minutes) with the players of your team, in order to explain to them about the details of their possible participation in my research.

If you have any questions or concerns about the project I will be more than welcome to answer you or give you more details about it.

David Quinones
Graduate Student
Miami University
Appendix C

Outline of the Introductory Session

1. The title of the thesis changes to relaxation strategies.

So they don’t participate with any previous knowledge or conceptions about mindfulness.

2. Introduce the topic of performing under pressure in soccer.

“Only soccer players know that soccer is almost as messy as the picture. Soccer players have to make decision every second, be aware of multiple things at one moment, so is not easy at all”

3. Soccer players need to train their awareness of multiple things in one moment.

There is a video that is called Awareness test. Is more like an icebreaker!

4. What I strive for as a sport psychologist is to help athletes reach their flow state of peak performance.

One of the best experiences of my life has been working with the National Team in which I worked with athletes that were completing at the highest level. In those moments of flow and peak performance, you enjoy every single second of the game (win or lose), you are completely in the present moment.

5. You have been invited to participate in a study about how relaxation strategies can influence your experience in soccer.

The study will assess relaxation strategies for women soccer players. You are part of a larger sample with other universities in the U.S. The purpose of the study is to identify the most effective relaxation strategy to enhance your well-being and enjoyment in soccer.

You are going to complete a survey before and after the intervention. The survey takes 10 minutes and you will receive a link in an email. In that email you are gong to receive a MP3 or Audio File with the relaxation practice. The practice is going to be 10 minutes long. And you will be asked to do it 3 times a week during a 4 week period. It seems like a lot of time, but you will find the practices easy to follow. Then you will receive a second survey to finish the study.
EVERYTHING IS ONLINE. So it is easy and accessible for you at anytime.

6. *At the end, all the relaxations strategies will be evaluated.*

You will have the chance to evaluate yours in the post test survey.

7. *This is what it looks like when soccer players use relaxation strategies when it counts the most.*

Davor Suker gets a PK (video). If you see he check his hear rate and breathe in and out to control his activation. He does this and makes the PK. Then he has to repeat it again and he does the same thing and makes the PK. This mastery of this technique takes time, many years. You are going to do it just for 4 weeks.

My goal is to help women’s soccer players to handle pressure and perform at their best.

THANK YOU VERY MUCH and PLEASE THIS IS FOR OUR OWN BENEFIT.

8. *The next step.*

You are going to receive an email from me with the link and the instructions to follow the practice. It is easy to follow and everything is online. So please check your emails!

9. *Remember this is absolutely voluntary and you can decide whether to participate or not.*

The introductory session lasted around 15 minutes.

10. *The coaches facilitated the emails.*
Appendix D

Detailed Emails Reminders

*Link to Pre-test and Audio practice*

*(Twice a week)*

Dear Soccer Player or Research Participant

You have been invited to participate in a study about how relaxation strategies can influence your experience in soccer.

This study will assess relaxation strategies women soccer players. You are part of a larger sample with other universities in the U.S. The purpose of the study as I hope you remember, is to identify the most effective relaxation strategy to enhance your well-being and enjoyment in soccer competition.

The first thing I need you to do is to fill out a short survey. Just follow this link to get to the survey (Or copy and paste the URL below into your Internet browser):

https://miamioh.qualtrics.com/SE/?SID=SV_0HrFK3eHytckgFn

Please be totally honest in responding to the questions. There are no right or wrong answers. Don’t try to think what would be the best answer, but instead just answer truthfully based on your experiences.

As you see in the attachments you have an mp3 audio file of the relaxation practice session. Each one of you has a different practice session, which is individualized for each of you.

The practice takes only 10 minutes. You can download it to your mp3, Ipod, or music player device, plug your earphone and just listen to the file. I’m going to ask you to engage in this practice 3 times a week minimum. It seems like a lot of time, but you will find the practices easy to follow.

Remember that it is important to take time for ourselves; take these 10 minutes to simply relax and stay with the practice.

When you finish the practice, follow this link to record the date and time of the day:

https://miamioh.qualtrics.com/SE/?SID=SV_5u8nGuDKVH4e0XX

You will engage on this for 4 weeks. After the fourth week, you will receive another link to end your participation with a closing survey.
I know you are all competitors; therefore, the university team that has more than 85% of their team participating will win a cash voucher for a dinner for the entire team as a team building promotion activity.

Lastly, I will like to THANK YOU very much for taking the time to help me.

Any questions or concerns, don’t hesitate to email me.

First week reminder

(3 emails a week)

"Do not dwell in the past, do not dream of the future, concentrate the mind on the present moment" – Buddha.

I hope you are having a good day.

Remember to fill out the survey:

https://miamioh.qualtrics.com/SE/?SID=SV_0HrFK3eHyktegFn

And engage in your relaxation practice... just 10 minutes of your day!

Thank you very much.

Second week reminder

(2 emails a week)

Just a friendly reminder for the beginning of the week:

If you haven't fill out the first survey you can follow this link Or copy and paste the URL below into your Internet browser:

https://miamioh.qualtrics.com/SE/?SID=SV_0HrFK3eHyktegFn

The practice takes only 10 minutes. You can download it to your mp3, Ipod, or music player device, plug your earphone and just listen to the file. Remember to practice this 3 times a week minimum. It seems like a lot of time, but you will find the practices easy to follow.

Remember that it is important to take time for ourselves; take these 10 minutes to simply relax and stay with the practice.
Every time that you finish the practice, follow this link to record the date and time of the day:

https://miamioh.qualtrics.com/SE/?SID=SV_eIGXOixJbjq9Od

Keep practicing.

Thank you and have a nice day.

*Third week reminder*

**(2 times a week)**

"Life will give you whatever experience is most helpful for the evolution of your consciousness." ~ Eckhart Tolle

Just a friendly reminder for the week:

The practice takes only 10 minutes. Just listen to the file. Remember to practice 3 times a week minimum. It seems like a lot of time, but you will find the practices easy to follow. Take these 10 minutes to simply relax.

Every time that you finish the practice

Follow this link to record the date and time of the day and some feedback (This is important in order to evaluate the strategy)

https://miamioh.qualtrics.com/SE/?SID=SV_7ZNSTkz4pdI6Q97

Keep practicing.

Thank you very much!

Have a great week.

*Wake up every morning with determination & dedication. You will go to bed with satisfaction.*

*Fourth week reminder*

**Fourth week Reminder (2 times a week)**

With all our own responsibilities, commitments and worries, the world can sometimes feels very small and hectic. This practice allows you the time and space to remember just how big you really are.
Is the last week of the research. You are almost done!

Keep it up. The hard work and discipline always pays off.

This practice will help you deal with pressure of everyday live.

You have a week to give the practice a try. If you never try, you will never know.

The practice takes only 10 minutes. Just listen to the file. Take these 10 minutes to simply relax and learn more about you as an athlete.

Every time that you finish the practice Follow this link to give me some feedback.

https://miamioh.qualtrics.com/SE/?SID=SV_5u8nGuDV4e0XX

I know that the emails have been "annoying". But discipline into the mental side of the game takes time, effort and persistence. Excellence is a choice, a state of mind. I hope you understand and have given yourself time to try this strategy

“ I am building a fire, and everyday I train, I add more fuel. At just the right moment, I light the match” (Mia Hamm)

Link to Post-test

"Gratitude makes sense of our past, brings peace for today, and creates a vision for tomorrow"

Time goes by quick.

You have made it through the entire intervention period and you should be proud of yourself for taking the time evaluate a strategy that may help athletes perform and enjoy their competitive situations.

The last part of the study is to fill out a closing survey.

Just follow this link or copy and paste the URL below into your Internet browser:

https://miamioh.qualtrics.com/SE/?SID=SV_5u8nGuDV4e0XX

Please be totally honest in responding to the questions. There are no right or wrong answers. Don’t try to think what would be the best answer, but instead just answer truthfully based on your experiences.

Any questions or concerns, don’t hesitate to email me.
Thank you again for taking the time to help me with my research.

I wish you all the best in your future endeavors and competitions.

Keep dreaming BIG,

“The future of football is feminine” (Joseph Blatter, FIFA Chief Executive)

Fifth Week Reminder (Extra week)

(5 times a week)

This is just an email to let you know that the final survey's link will be closed tonight at midnight.

I truly encourage you to fill out this survey, it won't take you more than 10 minutes.

I would appreciate very much if you could help me be by filling out the entire survey. If you started the survey, just copy and paste the link and finish it, please!

Your opinions as soccer players are very important.

Just follow this link or copy and paste the URL below into your Internet browser:

https://miamioh.qualtrics.com/SE/?SID=SV_a5ExVqZI82psuCp

Thank you again for helping with my research.
Appendix E

Mindfulness Meditation in Sport

The original transcription from Dr. Diana Winston, Director Mindfulness Education at the UCLA Mindfulness Awareness Research Center:

So begin the meditation by getting into a comfortable seated position, back upright, body relaxed yet alert (pause) (pause) you can take a few breaths (pause) to allow yourself to settle into the posture (pause) (pause) (pause) (pause) (pause) (pause) (pause) so lets begin this meditation by listening to sounds (pause) so as you seat here notice any sounds that are around you (pause) the sound of my voice (pause) sounds from outside the room (pause) or inside the room (pause) from inside yourself (pause) (pause) and all you do is listen to these sounds (pause) (pause) (pause) (pause) and see if you can listen to them as you were listening your favorite music (pause) completely attentive (pause) (pause) (pause) (pause) and there may be pleasant sounds and unpleasant sounds (pause) see if you can simply notice sounds come and go (pause) and the sound of silence that its in between (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) and the tendency of our mind is to want to make up a story about the sound, so we hear something and we thing oh that’s a car outside and that’s natural, our mind will do that… but see if rather thinking about the sound and making up a whole story about it, if when you notice there is a sound you might notice a label that you put it, and then just really gently just bring your attention back to hearing (pause) (pause) (pause) staying with the direct experience (pause) experience the bear attention (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) your mind may not label sounds it may just come and go (pause) and you become aware of the sound (pause) simply hearing (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) and now letting go the hearing meditation, bring your attention into your body, so refocus your attention and directed in to your body and notice what there is to notice (pause) (pause) and like with the sound see if you can avoid making up stories (pause) and just notice the sensation as it is (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) you can even notice the absence of sensation (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) now let go of that and bring your attention back to your breathing (pause) finding your breathe in the spot you have chosen (pause) for most of you the belly
or the chest or abdomen (pause) some of you is a full body breathing (pause) (pause) (pause) notice the breathe arising coming into been existing and passing away (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) so as we sit in silence stay with your breathing mostly (pause) but if a body sensation or a sound becomes so strong and obvious and it pulls your attention away from your breathe then bring your attention to the sound or the body (pause) you can explore it and stay with it until it o longer holds your attention or something else put your attention away (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) so as with before when you find your self lost in thought its completely fine notice that you are thinking and then go back and what is predominant that may be the breathe that may be the easiest thing to return to but it may also be a body sensation or sound (pause) (pause) (pause) (pause) (pause) (pause) (pause) (pause) to end our meditation (pause) (pause) bring your attention to your heart and bring to mind a person or being who you love and who is so easy to think with kindness (pause) (pause) (pause) and as you have a sense or feel them or see them in your mind’s eye (pause) wish that they be well and happy (pause) send some kindness to this being, this creature this human (pause) may them be happy and peaceful (pause) may be them at ease, be healthy and strong (pause) (pause) (pause) (pause) (pause) (pause) (pause) notice how you feel as you send this love and kindness to this person (pause) (pause) (pause) (pause) (pause) and you can continue to send it to them or you can try to send some to your self (pause) (pause) may I be happy (pause) may I be healthy and peaceful (pause) (pause) (pause) may I be strong and wise (pause) (pause) (pause) may I accept myself just as I am (pause) (pause) (pause) and find your own word, use whatever words make sense to you (pause) (pause) that send this love and kindness and notice how your body feels (pause) (pause) (pause) (pause) (pause) and you can continue to send it to them or you can try to send some to your self (pause) (pause) may I be happy (pause) may I be healthy and peaceful (pause) (pause) (pause) may I be strong and wise (pause) (pause) (pause) may I accept myself just as I am (pause) (pause) (pause) (pause) (pause) (pause)

Final Version

The following instructions were recorded in the audio file:

10-minute meditation (pause = 10 second)

Lets begin this practice by getting into a confortable seated position, back upright, body relaxed yet alert.... lets take a deep breath IN.... and breath OUT.... take a couple of breaths to allow yourself to settle into the posture ......................... do what ever you need to do, to really come into this present moment, letting go of your worries or concerns about the day.... take a deep breath IN.... and breath OUT.... commit yourself fully to this present moment take a deep breath IN.... and breath OUT.... so lets begin by listening to sounds..... as you seat here, become aware of any sounds around you..... the sound of my voice....sounds from outside your room or inside the room ..... also pay
attention to sounds from inside yourself ….. remember all you do, is listen to these sounds ……..(PAUSE)…….. see if you can listen to them, as you were listening to your favorite music, or listening to the sound of the ball when you kick it…. completely attending, completely aware of the present moment………(PAUSE)…….. and there may be pleasant sounds and unpleasant sounds (PAUSE) see if you can simply become aware of the sounds than come and go ……..(PAUSE)…….. ……..(PAUSE)…….. see if become aware how your mind tries to make up a whole story about it…. When that happen gently just bring your attention back to hearing, back to the present moment **take a deep breath IN…. and breath OUT…. take a deep breath IN…. and breath OUT….** ……..(PAUSE)…….. ……..(PAUSE)…….. ……..(PAUSE)…….. Now, become aware of any sensation in your body, the weight, pressure, movement, tingling, and fatigue from practice. Pay attention to what is happening in your body right now ……..(PAUSE)…….. you might become aware of the moment of your body while you breathe, pay close attention to that movement………(PAUSE)…….. Now pay close attention to your legs, they do the hard work in your sport…. Feel how as you exhale, you have a sense of relaxing, letting yourself just be here in this moment, you are not trying to change anything, you are not trying to do anything ……..(PAUSE)…….. just be fully present HERE and NOW ……..(PAUSE)…….. ……..(PAUSE)…….. and like with the sounds, see if you can become aware of how your mind is trying to make up stories about the sensations ……..(PAUSE)…….. just be aware of the sensation as it is ……..(PAUSE)…….. accept any sensation, accept the present moment as it is ……..(PAUSE)…….. ……..(PAUSE)…….. ……..(PAUSE)…….. bring your attention back to your breathing (PAUSE) finding your breathe arising, coming and going **take a deep breath IN…. and breath OUT…. take a deep breath IN…. and breath OUT….** ……..(PAUSE)…….. ……..(PAUSE)…….. ……..(PAUSE)…….. ……..(PAUSE)…….. ……..(PAUSE)…….. as we sit in silence stay with your breathing (PAUSE) and now take your attention to your thoughts, try to be really aware about them, without any judgments………..(PAUSE)…….. ……..(PAUSE)…….. ……..(PAUSE)…….. sometimes thoughts are just like background they just come and go, passing through our mind ……..(PAUSE)…….. see if you can become aware if those thoughts are related to the past or to the future …. ……..(PAUSE)…….. maybe something that happened in practice, or a mistake ……..(PAUSE)…….. maybe something that you are waiting for to happen in practice tomorrow or some other worries ……..(PAUSE)…….. Become aware of them and try not to worry about them, just let them be (PAUSE) (PAUSE) (PAUSE) accept any thoughts that are passing right now, with any judgments (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) stay in the present moment, just like in your sport, thoughts will come and go, you just focus on been in the PRESENT focusing in the task at hand (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) now bring your attention back to your breathing (PAUSE) finding your breathe arising, coming and going **take a deep breath IN…. and breath OUT…. take a deep breath IN…. and breath OUT….** Now, take your attention to our emotions….

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when an emotion become strong and grabs your attention, just become aware of that emotion and what does it feel in your body …… (PAUSE)…… maybe there is clenching in your stomach or a burning in your heart area, whatever it is come into your body when you feel an emotion (PAUSE) (PAUSE) emotions may have thoughts attached to it and you can become aware of those thoughts, they may have a general feeling or sense … I’m sad, I’m happy … see if you can become aware of your emotions, without judgment or trying to get rid of them … they are part of your presence moment …… (PAUSE)…… just become aware of the experience, do not try to change it, just accept your emotions as they are and focusing in your breathing try yo get your attention back to the present moment… now bring your complete attention back to your breathing (PAUSE) finding your breathe arising, coming and going take a deep breath IN…. and breath OUT…. take a deep breath IN…. and breathe OUT…. (PAUSE) (PAUSE) (PAUSE) (PAUSE) you also may notice mind states or attitudes… your mind is feeling sleeping, your mind is feeling anxious, these are mind states they are not specific emotions they are more like a general coloring to it… if you notice that, just check in… what do I feel right now? (PAUSE) (PAUSE) then coming back always what ever is more predominant in the present moment usually our breath (PAUSE) (PAUSE) so that’s the general instructions staying with your anchor when something takes you away like sounds, body sensations, thoughts, emotions, mental states or attitude… and it takes you away and you notice that or it has passed or no longer holds your attention or shifted to something else then you either go to the new thing that its holding your attention or you simply return to your breathing (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) now try this together for the last two minute in silence (PAUSE) (PAUSE) staying with your breathing and experience as much as possible (PAUSE) (PAUSE) relaxed (PAUSE) alert (PAUSE) (PAUSE) (PAUSE) accept (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) commit (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) (PAUSE) to end our meditation (PAUSE) (PAUSE) remember that with mindfulness we simply listen (PAUSE) we attend (PAUSE) (PAUSE) (PAUSE) (PAUSE) we accept what is happening right now (PAUSE) (PAUSE) (PAUSE) and we commit to the task at hand, the task that is in the present moment, not past not future, you focus on your PRESENT, HERE and NOW (PAUSE) (PAUSE) just like in your sport, focus on one ball at a time… take a deep breath IN…. and breath OUT…. take a deep breath IN…. and breath OUT…. before opening your eyes, take a couple of breaths and offer yourself a little appreciation (PAUSE) for making it (PAUSE) (PAUSE).
Appendix F

Benson Relaxation Response

The following instructions were recorded in an audio file:

10-minute practice.

Sit quietly in a comfortable position.
Close your eyes.
Deeply relax all your muscles, beginning at your feet and progressing up to your face.
Keep them relaxed.

Breath through your nose. Become aware of your breathing. As you breathe out, say the word, “EASE”, silently to yourself. For example, Breathe IN... OUT, “EASE”; IN... OUT, “EASE”; etc. Breathe easily and naturally.

Continue breathing and repeating the word “EASE”. When the time is done, you are going to hear the word “FINISH”. When you hear that, take a couple of breaths with your eyes closed and later with your eyes opened. Do not stand up for a few minutes.

Do not worry about whether you are successful in achieving a deep level of relaxation. Maintain a passive attitude and allow the relaxation to occur at its own pace. When distracting thoughts occur, try to ignore them and return to repeating “EASE”.

With practice, the response should come with little effort. Practice the technique once or twice daily, but not within two hours after any meal, since the digestive processes seem to interfere the elicitation of the Relaxation Response.
Appendix G

Mindfulness Inventory for Sport (MIS; Thienot et al, 2014)

Instructions: The statements below describe a number of things that athletes may experience during their sport performance. Please circle the number that best indicates how much each statement is generally reflective of your recent experience. There are no right or wrong answers.

Please treat each item separately from every other item.

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*Almost Never*  *Not Very Much*  *Somewhat*  *Very Much*  *Almost Always*

1. I am aware of the thoughts that are passing through my mind.  
2. When I become aware that I am thinking about a past performance, I criticize myself for not being focused on my current performance.  
3. When I become aware that some of my muscles are sore, I quickly refocus on what I have to do.  
4. I am able to notice the intensity of nervousness in my body.  
5. When I become aware that I am angry at myself for making a mistake, I criticize myself for having this reaction.  
6. When I become aware that I am thinking about how tired I am, I quickly bring my attention back to what I should focus on.  
7. I am able to notice the sensations of excitement in my body.  
8. When I become aware that I am not focusing on my own performance, I blame myself for being distracted.  
9. When I become aware that I am really excited because I
am winning, I stay focused on what I have to do.

10. I am able to notice the location of physical discomfort when I experience it.

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11. When I become aware that I am thinking of the final result, I blame myself for not being focused on relevant cues for my performance.

12. When I become aware that I am tense, I am able to quickly bring my attention back to what I should focus on.

13. I pay attention to the type of emotions I am feeling.

14. When I become aware that I am really upset because I am losing, I criticize myself for reacting this way.

15. When I become aware that I am not focusing on my own performance, I am able to quickly refocus my attention on things that help me to perform well.

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**Scoring:**

To score the scale, simply compute a mean of the 15 items.

**Subscales:**

Awareness: 1, 4, 7, 10, 13

Non-judgmental (Reversed): 2, 5, 8, 11, 14

Refocusing: 3, 6, 9, 12, 15
Appendix H

The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003)

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what really reflects your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1 2 3 4 5 6

Almost Never Not Very Much Somewhat Very Much Almost Always

1. I could be experiencing some emotion and not be conscious of it until some time later 1 2 3 4 5 6

2. I break or spill things because of carelessness, not paying attention, or thinking of something else. 1 2 3 4 5 6

3. I find it difficult to stay focused on what’s happening in the present. 1 2 3 4 5 6

4. I tend to walk quickly to get where I’m going without paying attention to what I experience along the way. 1 2 3 4 5 6

5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention 1 2 3 4 5 6

6. I forget a person’s name almost as soon as I’ve been told it for the first time 1 2 3 4 5 6

7. It seems I am “running on automatic,” without much awareness of what I’m doing. 1 2 3 4 5 6

8. I rush through activities without being really attentive to them 1 2 3 4 5 6

9. I get so focused on the goal I want to achieve that I lose touch with what I’m doing right now to get there. 1 2 3 4 5 6
10. I do jobs or tasks automatically, without being aware of what I'm doing

11. I find myself listening to someone with one ear, doing something else at the same time.

12. I drive places on ‘automatic pilot’ and then wonder why I went there

13. I find myself preoccupied with the future or the past


15. I snack without being aware that I’m eating.

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**MAAS Scoring**

To score the scale, simply compute a mean of the 15 items. Higher scores reflect higher levels of dispositional mindfulness.
Appendix I

Dispositional Flow Scale-2 (DFS-2; Jackson & Eklund, 2002)

Instructions: Please answer the following questions in relation to your experience in soccer. These questions relate to the thoughts and feelings you may experience during participation in your activity. You may experience these characteristics some of the time, all the time, or none of the time. There are no right or wrong answers. Think about how often you experience each characteristic during your activity and circle the number that best matches your experience.

1 2 3 4 5

Never Rarely Sometimes Frequently Always

1. I am challenged, but I believe my skills will allow me to meet the challenge. 1 2 3 4 5
2. I make the correct movements without thinking about trying to do so. 1 2 3 4 5
3. I know clearly what I want to do. 1 2 3 4 5
4. It is really clear to me how my performance is going. 1 2 3 4 5
5. My attention is focused entirely on what I am doing. 1 2 3 4 5
6. I have a sense of control over what I am doing. 1 2 3 4 5
7. I am not concerned with what others may be thinking of me. 1 2 3 4 5
8. Time seems to alter (either slows down or speeds up). 1 2 3 4 5
9. I really enjoy the experience. 1 2 3 4 5
10. My abilities match the high challenge of the situation. 1 2 3 4 5
11. Things just seem to happen automatically. 1 2 3 4 5
12. I have a strong sense of what I want to do. 1 2 3 4 5
13. I am aware of how well I am performing. 1 2 3 4 5
14. It is not effort to keep my mind on what is happening. 1 2 3 4 5
15. I feel like I can control what I am doing. 1 2 3 4 5
16. I am not concerned with how others may be evaluating me. 1 2 3 4 5
17. The way time passes seems to be different from normal. 1 2 3 4 5
18. I love the feeling of the performance and want to capture it again. 1 2 3 4 5
19. I feel I am competent enough to meet the high demands of the situation. 1 2 3 4 5
20. I perform automatically, without thinking too much. 1 2 3 4 5
21. I know what I want to achieve. 1 2 3 4 5
22. I have a good idea while I am performing about how well I am doing. 1 2 3 4 5
23. I have total concentration 1 2 3 4 5
24. I have a feeling of total control 1 2 3 4 5
25. I am not concerned with how I am presenting myself. 1 2 3 4 5
26. It feels like time goes by quickly. 1 2 3 4 5
27. The experience leaves me feeling great. 1 2 3 4 5
28. The challenge and my skills are at an equally high level. 1 2 3 4 5
29. I do things spontaneously and automatically without having to think. 1 2 3 4 5
30. My goals are clearly defined. 1 2 3 4 5
31. I can tell by the way I am performing how well I am doing. 1 2 3 4 5
32. I am completely focused on the task at hand. 1 2 3 4 5
33. I feel in total control of my body. 1 2 3 4 5
34. I am not worried about what others may be thinking of me. 1 2 3 4 5
35. I lose my normal awareness of time. 1 2 3 4 5
36. The experience is extremely rewarding. 1 2 3 4 5

**Scoring:**

By averaging the scores you can obtain the following subscales:

- **Balance:** Q1, Q10, Q19, Q28
- **Merging:** Q2, Q11, Q20, Q29
- **Goals:** Q3, Q12, Q21, Q30
- **Feedback:** Q4, Q13, Q22, Q31
- **Concentration:** Q5, Q14, Q23, Q32
- **Control:** Q6, Q15, Q24, Q33
- **Consciousness:** Q7, Q16, Q25, Q34
- **Time:** Q8, Q17, Q26, Q35
- **Autotelic:** Q9, Q18, Q27, Q36
- **Global Flow:** All of them
Appendix J

White Bear Suppression Inventory (WBSI; Wegner and Zanakos, 1994)

Instructions: This survey is about thoughts. There are no right or wrong answers, so please respond honestly to each of the items below. Be sure to answer every item by circling the appropriate letter beside each. Please circle the number that best indicates how much each statement is generally reflective of your recent experience.

Please treat each item separately from every other item.

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1. There are things I prefer not to think about.  
2. Sometimes I wonder why I have the thoughts I do.  
3. I have thoughts that I cannot stop.  
4. There are images that come to mind that I cannot erase.  
5. My thoughts frequently return to one idea.  
6. I wish I could stop thinking of certain things.  
7. Sometimes my mind races so fast I wish I could stop it.  
8. I always try to put problems out of mind.  
9. There are thoughts that keep jumping into my head.  
10. There are things that I try not to think about.  
11. Sometimes I really wish I could stop thinking.  
12. I often do things to distract myself from my thoughts.  
13. I have thoughts that I try to avoid.  
14. There are many thoughts that I have that I don't tell anyone.  
15. Sometimes I stay busy just to keep thoughts from intruding on my mind.

Scoring:

The total score is obtained by summing up all the responses. The total score can range from 15 to 75. Higher scores on the WBSI indicate greater tendencies to suppress thoughts.