

## ABSTRACT

### THE EFFECT OF A MINDFUL MEDITATION INTERVENTION ON SELF-CONFIDENCE AND READINESS IN BASEBALL PLAYERS

The purpose of the case study was to implement a 2-week Mindfulness-based Intervention (MBI) that emphasized self-confidence and readiness to compete. Participants included baseball players (ages 14-17 years) from one central California travel team, and participated in a mindful meditation intervention. The Sport-Confidence Inventory (SCI; Vealey & Knight, 2002) was administered to measure changes in confidence. T-test analysis showed no significant changes in levels of self-confidence. Participants were interviewed to gain additional insight into their perceptions of mindful meditation, levels of self-confidence and readiness, and on the MBI itself. Although most participants reported a high level of self-confidence at the onset of the study, one athlete reporting low self-confidence perceived the intervention to be beneficial and helped him improve in this area. Mental skills techniques, such as imagery and self-talk have been used extensively to help athletes prepare for competition (Coelho et al., 2012; Kanniyar, 2015; Shweta & Deepak, 2015;), but MBIs present a promising alternative. Recent sport MBIs range from 4 to 10 weeks, and include rigorous coursework (Gardner & Moore, 2004; Kaufman, Glass, & Arnkoff, 2009). However, increases in mindfulness and other performance-related aspects have been found within the first few weeks (Baer, Baer, Carmody, & Hunsinger, 2012; Stankovic, 2015). The current study provides a glimpse into the effectiveness of a more convenient means of practicing mindful meditation.

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THE EFFECT OF A MINDFUL MEDITATION INTERVENTION  
ON SELF CONFIDENCE AND READINESS IN  
BASEBALL PLAYERS

by  
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## CHAPTER 1: INTRODUCTION.

Mindfulness is defined by Kabat-Zinn (2003), as “the awareness that emerges through paying attention, on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (p. 145).

Arising from the use of meditative practices from Oriental traditions, without the religious or cultural ideologies, mindful meditation became a blend of eastern traditional and western psychologies (Kabat-Zinn, Lipworth, & Burney, 1985).

This concept of mindfulness has since been transformed, in many ways, to fit the needs of various populations.

### Mindfulness Interventions

Mindfulness was first developed, as an intervention, with the hope of mitigating the effects of the psychological aspects of chronic pain and stress (Kabat-Zinn, et al., 1985). More specifically, the positive effects of Mindfulness-based Stress Reduction (MBSR) have been demonstrated for chronic pain (Kabat-Zinn, et al., 1985), stress and mood in cancer patients (Garland, Tamagawa, Todd, Specia, Carlson, 2013), and in the treatment of Fibromyalgia symptoms (Schmidt, et al., 2011). In its original form, MBSR typically calls for an 8-week commitment to the program with weekly 2-hour sessions. In addition, participants’ complete homework assignments for roughly 45 minutes per day, 6 days a week (Chiesa & Serretti, 2011). Although time-intensive, MBSR has been validated in clinical settings over the last few decades (see Baer, 2003).

Mindfulness-based Stress Reduction involves the use of three major techniques. The first technique is a full body scan, involving a gradual sweep of attention through the body while focusing on sensations or feelings (Chiesa & Serretti, 2011). The second technique is sitting meditation, focusing on the

relaxation of the breath and nonjudgmental awareness (Chiesa & Serretti, 2011). The third technique consists of Hatha Yoga which involves elementary stretches and posture activities while maintaining focus on the rising and falling of the breath (Chiesa & Serretti, 2011). Although these techniques do encompass some aspects of traditional meditation, the addition of yoga and individual awareness of the body creates a novel experience.

Adaptations to the intervention have also proved useful in some clinical settings. For example, Evans et al.(2008) supplemented the treatment of those suffering from General Anxiety Disorder (GAD) with mindfulness training. This adaptation of MBSR, which is called Mindfulness-based Cognitive Therapy (MBCT), led to significant reductions in anxiety and symptoms of depression (Evans et al., 2008). Similarly, investigations including the use of Mindfulness-based Therapy (MBT) on cancer patients reflected decreases in psychological distress, including anxiety and depression (Piet, Wurtzen, & Zachariae, 2013). MBT is a combination of MBSR and MBCT. The encouraging results from mindfulness-based interventions such as these have led to the supplementation of mindfulness interventions in treatment protocols. It has also led researchers and practitioners alike to recognize the versatility that mindfulness possesses, and use it to create new interventions, specific to diverse populations and needs. One such group includes athletes who compete in sport competition.

### Mindfulness and Mindfulness Interventions in Sport

The athletic competition environment poses unique challenges and stressors for its participants. Examples include, but are not limited to, internal thoughts, feelings and emotions as well as external pressures from coaches and fans. As such, mindfulness interventions have been developed to enhance athletic

performance and self-regulatory processes. For example, a mindful meditation intervention with female tennis players showed an increase in the players' ability to accept performance-related anxiety, while having a positive impact on performance (Stankovic, 2015). In addition, the Mindfulness-Acceptance-Commitment (MAC) based performance enhancement approach (Gardner & Moore, 2004) was designed to put priority on accepting internal experience, mindful attention, and improve commitment to action in pursuit of desired goals (De Petrillo, Kaufman, Glass, & Arnkoff, 2009). MAC, a direct descendent of the clinical interventions MBCT and Acceptance and Commitment Therapy, consists of eight to twelve sessions with each session lasting from an hour to an hour and a half. These sessions focus on the five core principles of MAC, including psychoeducation, mindfulness, values identification and commitment, acceptance, and integration and practice.

Another mindfulness intervention adapted for sport, the Mindful Sport Performance Enhancement (MSPE) approach was developed by Kaufman, Glass, and Arnkoff (2009). The MSPE approach incorporates many of the same techniques native to MBSR and MAC, but also utilizes a walking meditation activity, specifically to promote focus and a gateway to flow (Kaufman et al., 2009). It is a 4-week program, with two and a half to three hour sessions (Kaufman et al., 2009). In a study with golfers and archers that used MSPE, findings showed that there were significant increases in flow, mindfulness, and aspects of confidence. These studies provide some justification for the use of mindfulness meditation interventions by sport psychology consultants when helping athletes to manage a variety of aspects related to increased performance.

### Anxiety and Self-confidence

Current research in sport performance has demonstrated that anxiety and self-confidence are related constructs as evidenced by the considerable number of studies where the Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Burton, Vealey, Bump, & Smith, 1990) was used. The CSAI-2 includes cognitive anxiety, somatic anxiety, and self-confidence subscales. Craft, Magyar, Becker, and Feltz (2003) produced a meta-analysis to better understand the relationship between the CSAI-2 and performance. Analysis of 29 different studies led to the conclusion that the subcomponents of the CSAI-2 had a relatively weak relationship with performance. Data also suggested that self-confidence displayed the strongest and steadiest relationship with performance (Craft et al., 2003).

Studies that investigated the relationships between performance, anxiety, and self-confidence yielded mixed results. In their study with pistol shooters, Gould, Petlichkoff, Simons, and Vevera (1987) concluded that cognitive anxiety was not related to performance as strongly as somatic anxiety, and presented a negative relationship. Also, self-confidence was found to be significantly related to performance, but in a negative manner. Results related to self-confidence were unexpected by the researchers and could not be explained.

Additional research on the anxiety and self-confidence relationship has shown opposing results. Hanton and Connaughton (2002) examined the relationship between elite and sub elite swimmers' self-confidence and anxiety symptoms, and their performance. Using interviews, the researchers discovered how the existence of anxiety symptoms, and the athletes' interpretation of the symptoms affected performance. Results indicated that perceived control of anxiety symptoms was the moderating factor of interpretation and not anxiety

symptoms alone. Also, athletes reporting increases or decreases in self-confidence were observed to improve or decrease performance.

Furthermore, Covassin and Pero (2004) conducted a study with collegiate tennis players to investigate the relationship between self-confidence, anxiety, and mood states. Psychometrics included the CSAI-2 and the Profile of Mood States (POMS), and each was given to the athletes just prior to a match at an NCAA regional tournament. Results showed that the most successful athletes at the tournament displayed significantly higher scores in self-confidence, and lower levels of cognitive and somatic anxiety, along with lower total mood disturbance. Results from these studies suggest that higher levels of self-confidence, and lower levels of anxiety, have a synergistic effect on increased performance.

Findings from the research on competitive anxiety in sport have varied conclusions (Gould et al., 1987; Parfitt & Hardy, 1993), and there is an opportunity for alternative methods of relaxation. It follows, then, that there is a continued opportunity for research and application of the effect of mindful meditation on self-confidence and anxiety among all populations of sport and performance.

#### Baseball: A Unique Sport Context

Though all sports can be anxiety-provoking, baseball and softball have aspects that may point to a unique relationship between these sports and levels of self-confidence and anxiety for their performers. Baseball, unlike many other team sports, requires a great emphasis on the individual player. For example, the pitcher is on his own on top of the mound until the batter puts the ball into play, and each batter is on his own until he reaches base and a teammate can move him around the bases. Similarly, each position player must field the ball on defense on his

own. Furthermore, baseball and softball are among the few sports in which the team on offense is not in possession of the ball. These factors, among many other common, but unique situations in baseball are possible contributors to state cognitive and somatic anxiety.

In addition, the nature of the sport, as a game of failure, also plays a role in the possible fluctuation in levels of self-confidence and anxiety. According to Baseball-Reference.com, which includes a database of hall of fame players' career statistics, position players end their careers with batting averages near or slightly above .300. This means that these players, who are considered the best of the best, usually failed to hit the ball seven out of every ten at-bats. This high rate of failure (70%) can be frustrating for hitters, and can elicit adverse mind-sets. Krane, Joyce, and Rafeld (1994) looked at a very similar concept in their study of competitive anxiety in softball and concluded that situations, such as runners on base and score differential, evoked the greatest amount of state cognitive and somatic anxiety. These critical situations led to decreased confidence, which may have led to increased anxiety levels. Although pertinent information, this study alone does not fully encompass the effects that anxiety can play in the game of baseball, and it seems that the gap in modern literature among sport populations is in the realm of baseball, at all levels. This presents a unique opportunity for researchers to investigate anxiety and mindfulness training in a population in which it can be beneficial.

Although many other interventions have been developed, ranging from a few weeks to months in duration, the need for shorter mindfulness interventions is apparent. In fact, research conducted using an MBSR program in patients with chronic illness and pain, saw significant increases in mindfulness in just the second week of the four-week program (Baer, Baer, Carmody, & Hunsinger,

2012). In sport, a study with amateur tennis players displayed significant improvement in performance and mindfulness, with decreases in negative thoughts, occurring within the first 4 weeks of mindful meditation training (MMT; Stankovic, 2015). This study utilized a dose of four, 10-minute sessions per week. Considering these interventions, future research should be structured in such a way as to experiment with shorter individual sessions, as well as the duration of the intervention as a whole.

### Purpose

The purpose of this case study was to implement a mindful meditation intervention with a travel baseball team and investigate (a) the extent to which there were any changes in the athletes' level of self-confidence as measured by the Sport-Confidence Inventory (SCI; Vealey & Knight, 2002), and (b) coach and athlete perceptions regarding readiness for competition, their engagement with mindfulness practices, and the mindful meditation intervention itself.

### Hypotheses

The study will include one mindful meditation group, consisting of travel baseball players. It is hypothesized that there will be a significant increase in the self-confidence of the baseball players after participating in the mindful meditation intervention. The null hypothesis for the current study is that there will be no significant difference in levels of self-confidence among the athletes.

### Significance

As the levels of competition and availability of physical training and play continues to increase, it can be speculated that the need for mental strategies and practice is increasingly essential to athlete development and performance. Though

mindfulness interventions have been successful in many sport populations, baseball seems to have been omitted. The unusual individual nature of this team sport requires that baseball players develop and use self-regulatory mental performance protocols. A mindfulness intervention technique could provide a crucial potential solution to a lack of pre-competition self-confidence. Specifically, mindfulness interventions such as the one used in the present study, may be a more convenient and immediate means of increasing self-confidence in the time leading up to competition.

Also, if shown to be effective, mindfulness interventions can help to increase self-confidence in the athlete, and in turn positively influence performance readiness to compete. In addition, as mentioned previously, it can help an athlete to experience everyday life in a nonjudgmental and unbiased manner (Kabat- Zinn, 2003). This restructuring of the human experience can not only have implications on enhanced athletic performance, but can carry over into the development of a fully capable and well-rounded student, athlete, and adult. Also, a more confident, and more mindful individual, can potentially have more positive interactions with teammates and coaches.

#### Delimitations

There are a few delimitations in this study that are important to note, because they are important criteria for exclusion. The first delimiting factor is apparent in the use of travel baseball players age 18 and under. These athletes have been chosen based on their position in their careers as they are getting ready to transition into the next level of play (i.e., at the college or professional ranks). The pressures of this situation may provoke the onset of decreased self-confidence.



The second delimitation is the use of a mindful meditation cell phone application as the intervention method. The use of a cell phone application is convenient, as well as user friendly because of the widespread availability to today's youth. Also, the use of cell phones for the intervention could prove successful because of the intuitive nature that adolescents have towards technology.

Finally, the mindfulness sessions can be completed at the leisure of each athlete. Long and intensive mindful meditation programs such as MBSR have already been established as effective (Kaufman et al., 2009). However, the positive effects from these interventions have occurred in the early stages, in as few as 2 weeks (Baer et., 2012). Shorter intervention periods that lead to successful outcomes may lead to greater integration of mindfulness interventions in sport. These delimitations, chosen by the researcher, will have specific impacts on findings and are important to consider.

### Limitations

Similarly, it is important to note that there also specific limitations that cannot be controlled. The use of a phone application could pose an exclusion to those athletes who might not have access to a smart phone. This could potentially cause the number of participants to drop. Also, the use of baseball will result in very specific data, as the nature and culture of the sport is likely to associate with very different mindsets than those associated with other sports, individual or team oriented. Another limitation that should be mentioned is the specific use of a seventeen and under age group. Because of the specificity of this age group, and the stage of their athletic career, the findings may not be generalized to other age groups or levels of competition. Lastly, data collected in the summer, during the

off season of the athletes' high school team season could produce a different mindset. Student-athletes could be more relaxed at this time without the stress placed on them from school and other obligations.

### Definition of Terms

Anxiety: "Is an aversive emotional and motivational state occurring in threatening circumstances" (Eysenck, Derakshan, Santos, & Calvo, 2007, p. 336).

Cognitive Anxiety: Worrisome thoughts about one's performance (Englert & Bertrams, 2012)

Imagery: a mental process which programs the mind to react optimally. It is the use of senses to mentally reconstruct an experience (Williams, 1994).

Mental Readiness: "is an integration of the mind-body feelings and thoughts that provide the athlete with a feeling of confidence, of mastery and control" (Williams, 1994, p. 230).

Mindfulness: "The awareness that emerges through paying attention, on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145).

Self-Confidence: "The belief or degree of certainty individuals possess about their ability to be successful in sport" (Vealey, 1986)

Self-talk: "Self-talk includes the thoughts of athletes with themselves that are made silently or out loud, either during the execution of an activity, or a sport skill" (Zetou, Nikolaos, & Evaggelos, 2014, p. 27).

Somatic Anxiety: Individual perception of one's physiological arousal (e.g., heart rate, nervousness, tension etc.) (Englert & Bertram, 2012).

State Anxiety: The currently experienced level of anxiety (Eysenck et al., 2007).

Travel Baseball: A team or organization, outside of recreational, city, or school baseball. Usually requires individual competitive tryouts and costly, individual expenses. Players are usually selected based primarily on their playing ability.

## CHAPTER 2: LITERATURE REVIEW

To review, the purpose of the case study was to determine whether a brief mindful meditation intervention is an effective method for increasing pre-competition self-confidence among baseball players. The literature review will provide information regarding the study's main topics, as well as those that are closely related. The review begins with an exploration of self-confidence in sport, along with mental skills training techniques currently used to manage and develop self-confidence. This is followed by a section on mindfulness, with subsections related to mindfulness interventions in and out of sport, mindfulness training for self-confidence in sport, and length of validated mindfulness interventions.

### Self-Confidence and Anxiety in Sport and Performance

The multidimensional anxiety theory (Martens et al., 1990) has been offered to understand the relationships between self-confidence and sport anxiety. This theory suggests that cognitive anxiety has a negative linear correlation with performance (Martens et al., 1990). It also suggests that somatic anxiety has an inverted-U-shape relationship with performance (Martens et al., 1990). Furthermore, the multidimensional theory hypothesizes that there is a linear and positive relationship between self-confidence and performance (Martens et al., 1990). Research verifying the efficacy of multidimensional anxiety theory in the field has produced mixed results, but does provide support for the notion that self-confidence and anxiety are intertwined in a performance context.

Woodman and Hardy (2003) completed a meta-analysis of the impact that cognitive anxiety and self-confidence have on sport performance. Computer-based literature searches identified 48 studies that investigated cognitive anxiety,

confidence, sport, and performance. Woodman and Hardy (2003) identified that gender and competitive standard were significant moderators for a relationship between cognitive anxiety and performance. These findings also suggested that self-confidence was significantly related to sport performance as compared to cognitive anxiety (Woodman & Hardy, 2003). In addition, the effect sizes for cognitive anxiety and self-confidence were much greater for high-standard athletes (competing at a national or international level) than lower standard athletes (competing at state or regional level) (Woodman & Hardy, 2003). The authors further noted that a possible reason for this is because high-standard performance is usually associated with more pressure, and athletes who cannot handle such pressure will have a greater disruption on performance outcomes (Woodman & Hardy, 2003). The authors concluded that cognitive anxiety and self-confidence are significantly related to competitive sport performance.

Researchers in anxiety, self-confidence, and sport performance have also investigated their effects as independent factors. For example, Gould et al., (1987) examined the effect that cognitive and somatic anxiety, as well as self-confidence each had on a pistol shooting performance. University of Illinois Police Training Institute cadets (N=39) completed the Competitive State Anxiety-2 questionnaire on five separate occasions to measure their levels of anxiety and self-confidence. The researchers hypothesized that cognitive anxiety, not somatic, would show a stronger relationship with performance, and in an inverted-U fashion. Self-confidence was anticipated to be positively related to performance. After the completion of the study, however, the results showed just the opposite. Somatic anxiety was found to be most significantly related to performance and best explained by an inverted-U model. In addition, self-confidence was found to be negatively related to performance of the shooters. These results highlight that

cognitive and somatic state anxiety, as well as self-confidence, can elicit a different effect on various tasks in very different ways, and should be treated as multidimensional constructs.

It is also important to understand the timing, or the way self-confidence and anxiety can change, in the period leading up to a competition. Krane and Williams (1987) compared the changes observed in cognitive and somatic anxiety, as well as self-confidence leading up to competition. The CSAI-2 was given to 36 females on three high school gymnastics teams, as well as 44 NCAA female golfers. For the gymnasts, dissemination of the CSAI-2 occurred 24 hours prior to a conference meet, during warm-ups (1 hour before the meet started), and finally, 10 minutes before competition. For the golfers, the CSAI-2 was also given 24 hours prior to a tournament practice round, 1 hour before tee off, and 10 minutes before tee off. Results of this study showed that the gymnasts had an increase in cognitive and somatic anxiety leading up to competition, and a decrease in self-confidence. The golfers, however, presented lower cognitive and somatic anxiety leading up to competition, and higher self-confidence than the gymnasts. This research demonstrates the importance of examining self-confidence and anxiety leading up to competition, as well the impact the sport-specific context could have on these variables.

Gillham and Gillham (2014) investigated sources of competitive state anxiety in athletes who competed in a variety of team and individual sports. The 13 college students (7 male, 6 female) participated in focus groups that were designed to have athletes reflect on their competitive sport experiences, with specific emphasis on performance anxiety, when it occurred, causes of the anxiety, and a description of the effects it had on performance. Results showed that, “external theme categories included spectators, time, competitive level, setting,

and consequences, whereas internal theme categories included investment, uncertainty, self-confidence and letting self or others down” (p. 37). Self-confidence was found to be an integral component among internal theme categories of anxiety. Researchers noted that individual self-confidence levels accounted for the ability of the athlete to execute necessary skills involved in the competition. It was also found that the individual levels of self-confidence “appeared to affect their anxiety levels and, in turn, how the experienced anxiety affected their performance” (p. 47). Athletes also reported that when they felt confident, anxiety had a positive relationship with performance, and when they lacked confidence, anxiety was debilitating. These findings suggest that self-confidence can mediate anxiety and performance. The authors also suggested that despite the sport context, anxiety can be experienced in a similar manner by all. It is important, however, that consideration be given to the various unique factors that can contribute to self-confidence and anxiety in a specific sport setting.

Though team sports, the high amount of individual performance within baseball and softball can be considered unique factors. Krane, et al., (1994) examined “cognitive and somatic anxiety and performance as related to athletes’ trait anxiety and situation criticality” (p. 58). The participants included eleven members of an NCAA Division I softball team who were administered the Mental Readiness Form (MRF), a succinct version of the CSAI-2. At a softball tournament, athletes were asked to fill out the MRF while on deck and immediately before entering the batter’s box. Batting performance, and the criticality of each situation, was assessed by five trained observers. It was concluded that the score differential, and the positioning of the runners (whether in scoring position or not), were the biggest sources of stress for the athletes, and conjured a greater amount of cognitive and somatic anxiety. Krane et al., (1994)

also suggests that “cognitive and somatic anxiety, as measured by the MRF, emanate from athletes’ interpretations or perceptions of situational demand... as the perceived demand increased, cognitive anxiety also increased” (p. 68). It was also noted that the situation specific criticality could have also effected the confidence the athletes had in their own ability to meet the challenge, and in turn increased cognitive anxiety. The nature of the game of softball can elicit an anxious state in athletes in between performances (at-bats), at critical moments in the game. This research underscores the sport-specific need for anxiety mitigation and control. It also highlights the importance of providing strategies that aim to increase and maintain levels of self-confidence for performance.

### Mental Skills Training Used to Manage Self-Confidence and Anxiety

#### Imagery

Although there are many different forms of imagery, specific types have been used by athletes to both increase self-confidence and mitigate the effects of state anxiety. In one example, Coelho et al. (2012) examined the effects of a multimodal imagery intervention on self-confidence and anxiety. The purpose of this study was based upon the motivational general-mastery (MG-M) model (Hall, Mack, Paivio, & Hausenblas, 1998), which posits that by increasing self-confidence, one can self-regulate anxiety and stress. Forty-six elite male tennis players were split into two groups: a multimodal imagery group and a control group. Measurements included the Competitive State Anxiety Inventory (CSAI; Martens, Vealey, & Burton, 1990) to measure levels of state anxiety and self-confidence, and the Perceived Stress Scale (Cohen, Karmack, & Mermelstein, 1983) to measure levels of stress. The measurements were given to the participants



pre- and postintervention, which consisted of three multimodal imagery sessions per week for a total of 9 weeks. Each 25-minute session included relaxation, MG-M imagery, and a behavioral modeling video.

Results from Coelho et al., (2012) showed a statistically significant difference between the imagery and control groups on cognitive anxiety, self-confidence, and stress. Findings supported the investigators' hypothesis, in part, that increasing athletes' self-confidence via multimodal imagery would decrease pre-competitive anxiety and stress. The investigators drew the conclusion that, when self-confidence is threatened, coping mechanisms, such as multimodal imagery, used in this study should be employed...low self-confidence is associated with negative thoughts and increased anxiety. When self-confidence is high, anxiety and stress are lower, concentration and focus are maintained, and both tenets enhance performance. (Coelho et al., 2012, p. 426)

This study is an indicator that self-confidence can act as an important mediator of the symptoms anxiety presents.

In another study related to imagery and anxiety, 90 female national cricket players were equally divided into three groups, experimental group I (imagery training), experimental group II (concentration training), and a control group (Shweta & Deepak, 2015). The purpose of this study was to "see the effect of mental imagery training, and concentration training in the elimination of state anxiety and building self confidence among female cricket players" (p. 86). Data were collected using the CSAI questionnaire and the Sports Self Confidence Questionnaire (SSCQ). The questionnaires were administered pre- and post-intervention. The imagery group received twenty minutes of basic imagery training focusing on vividness and controllability, whereas the concentration group

participated in yoga and concentration exercises on and off the field of play. This intervention lasted for a total of 6 weeks. After statistical analysis, results suggested a clear delineation between imagery and concentration training, and the improvement of self-confidence and level of anxiety. Both the imagery and the concentration groups were found to equally effect self-confidence and levels of anxiety.

### Self-Talk

Because of its convenience and ability to be taught with relative ease, self-talk is used within a wide range of performance enhancement research. For example, 36 junior level soccer players (15-18 years old) were divided into two equal groups (Kanniyan, 2015). The experimental group participated in an eight-week Positive Self-Talk (PST) training program consisting of ten to fifteen minute daily mental practice sessions before, during, and after training, three to five days a week. The control group followed their normal practice routines. Results from the CSAI-2 showed a significant decrease in both cognitive and somatic anxiety with an increase in self-confidence after the eight week PST program for the experimental group athletes. No such changes were found for the control group. Kanniyan concluded that the eight week PST method could present a useful means of enhancing self-confidence, as well as decreasing anxiety in junior level soccer players.

Further investigation into the usefulness of self-talk can be seen in a study by Hatzigeorgiadis, Zourbanos, Mpoumpaki, and Theodorakis (2009). The researchers set out to study “the effects of motivational self-talk on self-confidence, anxiety, and task performance in young athletes” (p. 186). Participants included 72 (36 male, 36 female) competitive tennis players (mean age ~13.47

years). The intervention period consisted of five sessions: baseline trial (session 1), training (sessions 2-4), and experimental trial (session 5). Participants were divided into either an experimental or the control group after baseline assessment. To assess performance, the Broer-Miller Forehand Drive Test was utilized. This test measures the forehand drive as a tennis-specific motor task. Anxiety and self-confidence were measured via the CSAI-2. To provoke a state of anxiety, the researchers falsely informed the athletes that the experiment was aimed at assessing their tennis abilities, that scores would be made public, and that the sessions would be recorded. The experimental group was then introduced to self-talk, and instructed to use one self-talk cue for each set of the training tasks. Cues involved both instructional and motivational self-talk. Results showed that self-talk improved self-confidence and reduced cognitive anxiety, which supports the assertion that self-confidence has a significant facilitating effect on performance.

Although the use of mental skills such as imagery and self-talk have shown promise in the enhancement of self-confidence and decrease of state anxiety in sport, these methods can be classified as coping techniques. These techniques can be used to temporarily increase self-confidence, and in turn mediate the symptoms of anxiety, but they do not address the mechanisms that plague athletes who suffer from low confidence and chronic state competitive anxiety. Imagery and self-talk can be considered emotion-focused coping and are associated with “coping efforts to regulate the emotional and associated responses (e.g., anxiety and arousal) that emanate from the problem causing the stress” (Hanton, Mellalieu, & Williams, 2010, p. 217). Although this can prove useful in enhancing self-confidence, mindfulness training provides a promising alternative method.

## Mindfulness

### Origins of Mindfulness

In his seminal study of the effects of meditative practices for the self-regulation of pain in clinical populations, Kabat-Zinn (1985) outlined his newly developed technique called mindfulness. The roots of mindfulness come from Theravada Buddhism, also known as satipatana vipassana, or insight meditation. Further combined with Soto Zen practices and Yoga, mindfulness aims at the development of “insight” into the reality of the present moment. Kabat-Zinn further described this as

a moment-to-moment effort to perceive a phenomenon and to allow it to register with full awareness, as it is, without gross distortion of the bare percept from associated and second-order meanings to the ego of the observer. (p. 165)

In sum, mindfulness is a product of blend between eastern traditions, without any religious ideology, and western psychology. Through many years of trial and error, mindfulness as of today can be defined as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145). This promotion of the acceptance of thoughts, rather than the suppression or restructuring of them, provides a novel approach to the experience of life.

### Mindfulness-Based Interventions

Because of his belief that clinical populations could benefit from mindfulness, Kabat-Zinn created a mindfulness-based intervention. Developed in 1979, and offered through the outpatient stress reduction clinic at the University of

Massachusetts Medical Center, Mindfulness-based Stress Reduction (MBSR) was intended to test the efficacy of mindfulness in a clinical population through rigorous mindful meditation and yoga practices, specifically as it effects pain, stress, and chronic illness (Kabat-Zinn, 2003). Kabat-Zinn (2003) further characterized the purpose of his intervention to

[o]ffer an environment within which to experiment with a range of novel and potentially effective methods for facing, exploring and relieving suffering at the levels of both body and mind, and understanding the potential power inherent in the mind/body connection itself in doing so. (p. 149)

The program has since served as a useful alternative to clinical and pharmacological means of treating patients with a myriad of chronic debilitating pain and disease.

In a review of Mindfulness-based interventions (MBIs), Chiesa and Serretti (2011) outlined the characteristics of MBSR. A group-based program, MBSR cultivates mindfulness in patients by three different techniques. The first, body scan “involves a gradual sweeping of attention through the entire body from feet to head, focusing noncritically on any sensation or feeling in body regions and using periodic suggestions of breath awareness and relaxation” (p. 84). The second characteristic, sitting meditation, involves placing mindful attention on the breath and engaging in nonjudgmental awareness of thoughts and distractions that pass in and out of the mind. The third characteristic of MBSR includes the use of yoga. Hatha yoga practice includes emphasis on breathing, as well as simple stretches and light work on posture and muscular strength. The program is designed to last for 8 weeks. Each week consists of 45 minute sessions, 6 days a week, and includes 2 hours of homework each week.

A validation of the positive association of increased mindfulness and decreased stress from patients partaking in MBSR can be seen in a study conducted by Bear, et al., (2012). These researchers examined the weekly changes that occurred through self-reported mindfulness and perceived stress over the course of an 8-week mindfulness-based stress reduction program. Eighty-seven adult patients in an academic medical center with high levels of stress-related chronic illness and pain completed self-reported assessments of mindfulness and perceived stress. The assessments included a shortened version of the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), and the Perceived Stress Scale (PSS; Cohen & Williamson, 1988). The assessments were given to participants before and after the 8-week MBSR program, and abbreviated questionnaires were completed each week. Results showed a significant change in mindfulness skills and perceived stress by the second week of the program, with significant improvements in perceived stress occurring in week 4. The research highlights the effectiveness of an intensive mindfulness program, and shows that gains in mindfulness and perceived stress were seen relatively early.

Further development of MBIs can be seen in a study by Evans et al., (2008) who investigated the effect of an 8-week Mindfulness-based cognitive therapy (MBCT) for patients with generalized anxiety disorder (GAD). Based on MBSR, MBCT is a group treatment program that was developed as an alternative for cognitive behavioral therapy to reduce the occurrence of relapse. Other than the standard protocol of MBSR, MBCT includes an introduction to mindful eating and walking. In this study, 11 patients with GAD (6 female and 5 male) completed assessments related to anxiety, worry, depressive symptoms, mood states, and mindful awareness before and after the MBCT treatment. Results showed

significant reductions of anxiety and depressive symptoms from baseline to post-treatment. This research further validates the usefulness of MBIs among clinical populations.

### Mindfulness Intervention in Sport

Due to positive findings associated with various MBIs in the clinical realm, mindfulness has been adopted and applied to many other domains including sport. Among the first, the Mindfulness-Acceptance-Commitment-based (MAC) approach to performance enhancement in sport was developed by Gardner and Moore (2004). They explain that, MAC, a combination of Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999) and Mindfulness-Based Cognitive Therapy (Segal et al., 2002), was developed to promote the self-regulation needed for athletes to thrive in competition and in long-term training. The MAC also heavily promotes the commitment necessary for goal attainment and achieving target outcomes. The merging of these two emphases in the MAC approach is regarded for its effectiveness in attaining “flow” states in sport, apart from general athletic performance.

The MAC approach can be implemented in a group format, which includes an 8-session, 1½ hour per session protocol, or in an individual program that follows a 12-session, 1 hour per session format (Gardner & Moore, 2004). The MAC protocol itself includes five unique phases: psychoeducation, mindfulness, value identification and commitment, acceptance, and integration, and practice. A case study with a 22-year-old male intercollegiate swimmer suggests that the individual program is effective (Gardner & Moore, 2004). The athlete, DG, struggled with inconsistent performance and chronic self-criticism. At baseline assessment, DG scored relatively high on the Penn State Worry Questionnaire, the

Sport Anxiety Scale, and the Acceptance and Action Questionnaire. At the end of the 12-week intervention, a significant reduction on all psychometrics was recorded, and the conclusion was made that DG had become less judgmental of himself and partook in less avoidance behavior. Also, DG reported less worry and a much greater enjoyment of his athletic experience.

Another MBI adapted for sport is the Mindful Sport Performance Enhancement program (MSPE). An extension of MBSR and MBCT to sport, MSPE aims to cultivate mindfulness in a similar manner. MSPE also incorporates the use of walking meditation adapted to a sport-specific context. Kaufman, Glass, and Arnkoff (2009) assessed how this new program affected flow states, performance, and psychological aspects, including confidence, of recreational archers (n=11) and golfers (n=21) who were 18-76 years old. Before the onset of the MSPE training, participants completed several questionnaires including the Sport Anxiety Scale (SAS), Thought Occurrence Questionnaire for Sport (TOQS), Carolina Sport Confidence Inventory (CSCI), Kentucky Inventory of Mindfulness Skills (KIMS), Dispositional Flow Scale (DFS-2), Toronto Mindfulness Scale (TMS), and the Flow State Scale (FSA-2). Participants were also asked to complete daily performance logs and a daily mindfulness log. Participants then engaged in the 4-week MSPE program with 2.5-3 hour sessions, six days a week.

The research by Kaufman et al., (2009) demonstrated mixed results. In regards to trait variables, the archers' trait mindfulness significantly increased. Furthermore, there was a significant increase in the golfers' capability to describe observed phenomena (a condition of mindfulness). For state variables, including overall state mindfulness and the curiosity aspect of state mindfulness, results for the archers were non-significant. There was, however, a significant change that occurred in overall state flow from preintervention to postintervention. Analysis



also showed MSPE is a promising intervention in terms of enhancing sport confidence, and revealed a significant positive relationship with confidence and flow. These results can be interpreted that MSPE is a viable intervention in terms of improving flow and mindfulness.

Further adaptation of mindfulness-based practices into the sporting world has led to the creation of one of the newest programs, the Mindful Performance Enhancement, Awareness & Knowledge (mPEAK) program. The program is described, in detail, by Haase et al. (2015). Aimed at improving the performance of peak performers of all types, mPEAK was developed at the University of California San Diego Center for Mindfulness. Similar to other MBIs, mPEAK, is based on MBSR (Kabat-Zinn, 1985). In addition to aspects regarded in MBSR, mPEAK focuses on improving resiliency when facing powerful emotional or physical adversity, and on concentration under performance-related stress. The intervention is offered as a three-day intensive or eight-week (20 hour) course, focusing on four mPEAK “pillars.” The pillars include (1) Inhabiting Your Body (formal breathing), (2) Getting Out of Your Own Way and Letting Go, (3) Working with Stress, Fear and Failure, and Challenges of Perfectionism, and (4) Glitches in Goal Setting.

Haase and colleagues (2015) investigated the effectiveness of an 8-week mPEAK intervention with the U.S. Bicycle Motocross (BMX) Cycling Team (n=7). The purpose was to see if it “would modify how the brains of elite athletes processed aversive interoceptive stimuli ... [and] if this modification would be related to the self-reports of being better able to adjust physically and emotionally to extreme conditions” (p. 11). Using Functional Magnetic Resonance Imaging (fMRI) before and after the intervention, results showed a change in “interoceptive awareness and sensitization of interoceptively-relevant brain structures” (p. 11).

The riders also reported less difficulty pinpointing feelings, and increased self-regulation, trust and ability to identify and describe feelings. The mPEAK program, developed by neuroscientists and elite mindfulness teachers, is a new and appealing venture into the field of mindfulness-based practices in sport performance.

Current research on anxiety in sport has shown to have a significant effect on the performance levels of athletes (Haase et al., 2015, Kaufman et al., 2009; Krane & Williams, 1987;). Although MBIs in sport, such as the MAC, MSPE, and mPEAK have shown positive results in regards to performance enhancement, their length and intensity may prove to be an obstacle. More specifically, 8 to 10 week interventions, with many hours each week dedicated to training and homework may not be a realistic expectation of athletes, especially during season when they have multiple training and competitive commitments. This demonstrates the need for shorter and more convenient interventions. It is for these reasons that the current case study used a brief mindful meditation intervention to investigate the effects it can have on the levels of self-confidence and readiness in baseball players.

## CHAPTER 3: METHODS

### Participants

Participants included male baseball players (n=6) who compete on one travel team based in Central California. The players ranged in age from 14 to 17 years old (mean=15.6). These players are all considered to be at the top of their peer age group in terms of skill and use travel ball (as it is popularly known) to seek attention from college coaches. They hope to earn a scholarship to play at the collegiate level. Many also have a long-term goal of playing professionally upon completion of their college eligibility.

### Experimental Design

The present case study included players from one travel baseball team, in the 18 and under age group. All participants completed questionnaires (see the Instrument section) prior to the start of the intervention, and at its conclusion. Postintervention, participants and the head coach were interviewed about their use of the mindful meditation program, perceptions about their mental readiness, and levels of self-confidence.

### Procedures

The participants were recruited by contacting travel ball coaches through baseball facilities in Central California. Upon approval from the coach, the researcher provided a brief overview of the study. In addition, assent (see Appendix A) and informed consent forms (see Appendix B) were distributed to players and parents. After the athletes provided assent and their parents or guardians provided consent, the researcher obtained contact information, including cell phone numbers, for all participants.

A short demographics questionnaire (see Appendix C), along with the Sport-Confidence Inventory (SCI; Vealey & Knight, 2002; see Appendix D); were administered at the onset of the study. Following the protocol outlined by Lane, Sewell, Terry, Bartram, and Nesti (1999) using the SCI, data collection occurred approximately 60 minutes prior to each competition.

Following the first data collection period, intervention participants were asked to download the mindful meditation app *Headspace* with their smart phones. With a generated list of phone numbers from all participants, the researcher sent reminder text messages to participants throughout the intervention period. The SCI was administered at the onset of the intervention to assess baseline measures, and after the intervention's conclusion. Six players completed the mindful meditation training via the *Headspace* app.

Following the intervention period, qualitative measures were included. This consisted of semi-structured interviews (see Appendix E) with the athletes and the head coach. All six baseball athletes were contacted via phone calls and text messages multiple times on several different occasions to schedule interviews. Four agreed to be interviewed. All interviews were conducted on an individual basis at a time and place mutually convenient for the researcher and athlete or coach. The final tool used was a readiness checklist (see Appendix F). With this checklist, the head coach could identify his athletes' mental readiness to compete prior to a game. The checklist was completed at the beginning and end of the intervention.

### Instruments

*Demographic* information was collected at preintervention. Specifically, participants were asked to record their race, academic classification, primary and

secondary position, years of playing experience, if they have plans to pursue baseball in college, and if they had previous experience with meditation or yoga.

The *Sport-Confidence Inventory* (SCI; Vealey & Knight, 2002) was utilized to assess levels of self-confidence in the athletes from preintervention to postintervention. The SCI was designed to measure the three types of sport confidence based on the multidimensional framework of sport confidence (Vealey 1986; Vealey & Chase, 2008) The three types of sport confidence (SC) are: SC-Physical Skills and Training, SC-Cognitive Efficiency, and SC-Resilience. The SCI contains 14 items and the athletes are asked to record how they typically feel about their performance on a 7-point Likert scale. The number 7 indicates being “Totally Certain (Absolutely Sure I Can Without a Doubt),” while the number 1 indicates “Can’t Do It At All (Absolutely Not At All).” Reliability and validity of the SCI are supported by the preliminary study (Vealey & Knight 2002).

### Data Analysis

A paired sample t-test determined if there were significant differences in the athletes’ levels of pre-competition self-confidence as measured by the SCI (Vealey & Knight, 2002) on the posttest as compared to the pretest prior to the mindfulness intervention. A second paired sample t-test investigated if there were significant differences in the coach’s perceptions of his athletes’ levels of pre-competition readiness before and after the mindfulness intervention.

In terms of the qualitative data, interviews were analyzed following Miles and Huberman (1994). Interviews lasted between 10 and 15 minutes, and were transcribed verbatim resulting in 13 pages of single-spaced text. Data were then organized into text segments of meaning units or raw data themes by the primary researcher. Following data organization, the meaning units were coded for

consistent themes by the primary research and faculty advisor. This was accomplished in weekly peer review meetings that occurred throughout the entire study. Each meeting lasted approximately 1 hour.

Weekly meetings were also used to ensure that meaning units and themes were directly addressing each respective research question. Initially, 17 theme categories were identified and defined based on relevance to the meaning units. After much consideration, theme categories were narrowed to focus on the specific research questions. Themes such as adaptability, fun, acceptance, stress, awareness, and convenience were discarded or dissolved into more appropriate categories. Once the theme categories were agreed upon, and appropriately defined, the next step was to place themes under the heading of each research question. For example, one research question asked, “Will a mindfulness meditation intervention change athlete readiness for competition? After much discussion in the peer review meetings, it was decided that the most relevant theme categories to sufficiently address this question were Readiness for Competition, Preexisting Strategies, Approach, and Outcomes of Mindfulness Exposure. After further meetings and discussions, the themes were melded together to create one category: Readiness for Competition. A similar process was used for all three research questions. After each peer review meeting, an updated organizational framework was created with a new date. This provided evidence of the data analysis process as this, and all changes made as a result of the meetings and review, were documented. Thus, an audit trail (Rodgers & Cowles, 1993; Sparkes, 1998) as just described, along with the peer review and debriefing meetings were the primary reliability and validity tactics used for the current study.

## CHAPTER 4: RESULTS

This chapter is divided into three sections. The first section includes the intentions of the present study and how a series of events changed the focus of the research design. The participating baseball players are also described in this section. Section 2 includes the results of the statistical analysis to answer the modified research question: how does a 2-week mindful meditation intervention effect pre-competition levels of self-confidence and readiness in baseball players? Finally, results from the qualitative data analysis are presented in the third section.

### Overview of Study Intentions

Initially, the researcher was going to investigate the effects of a 4-week mindful meditation intervention on the levels of self-confidence among travel baseball players. The original research design required three travel baseball teams, two of which would serve as experimental groups, while the third would be the control group. The first experimental group would complete four weeks of mindfulness training via the *Headspace* mindful meditation training phone application. The second experimental group would complete four total weeks using a positive self-talk phone application. Each group would complete the Self-Confidence Inventory (Vealey & Knight, 2002) a total of three times: at the beginning, week 2, and end of the 4 weeks. The control group would receive no intervention.

With a goal of recruiting three separate teams, the primary researcher contacted multiple travel baseball facilities and independent travel ball teams spanning across Central California. Specifically, seventeen various teams and coaches were contacted through multiple phone calls and messages via Facebook. A few travel baseball teams initially committed to the study, but then withdrew,

leaving the study without participants. One team did agree to the terms of the study and committed to participate as the experimental group. This team became the mindful meditation intervention group.

With one travel baseball team committed, the researcher traveled to the site of the first game, marking the first day of the 4-week intervention. At this game, the researcher met with the head coach and players to collect informed consent, assent, and demographics. The baseline questionnaire was also administered, and the team was instructed to begin the mindful meditation intervention. In addition, the coach was given a mental readiness-checklist (see Appendix E) that was created to assess the coach's perceptions of his athletes' levels of readiness at the baseline of the intervention. The baseline information was collected from all 13 of the players on the team, and iTunes gift cards were disseminated to the athletes to cover the cost of membership to the *Headspace* phone application. Also, a list of the athletes' cell phone numbers was collected and the researcher generated a group text, where reminders to complete the meditation sessions were sent three to four times per week.

At week 2, the researcher traveled to the site of the second game, marking the halfway point of the intervention. Due to other obligations, many players who were present for the initial questionnaire were not present for the second game. This came with no prior notice from the coaching staff, and resulted in a total of only 6 participants who had completed the baseline assessment, and 2 weeks of mindfulness training. The coach completed a second athlete readiness questionnaire (see Appendix E) about his players. After the game, the coach informed the researcher that there would not be a third game due to scheduling issues. This announcement prematurely ended the study by 2 weeks.



The 6 participants who did comprise the sample for the present study ranged in age from 14 to 17 years old (mean=15.6), and were all from the same team. Ethnic backgrounds included White ( $n=4$ ), Hispanic ( $n=1$ ), and Asian ( $n=1$ ). Academic classification of the participants varied with freshmen ( $n=1$ ), sophomores ( $n=3$ ), junior ( $n=1$ ), and senior ( $n=1$ ). All participants identified as planning to pursue a baseball career in college. In addition, all participants noted having some limited experience with mental skills training (i.e., self-talk), but no experience with any form of meditation or yoga. Participants included a mix of position players' outfield, infield, and pitchers. The coach identified as a White male, with 5+ years of coaching experience.

Due to this series of unforeseen events and the small number of available participants, the present study was modified into a case study. This change provided an opportunity to gain more in-depth data regarding athlete self-confidence, readiness, mindfulness, and their experiences with using the mindful meditation app, as well as the coach's perceptions. To gain this information, the researcher conducted semi-structured interviews with the coach and four athletes (see Appendix F).

#### Statistical Analysis

Pre- and postintervention data were collected from a total of 6 participants. A paired sample t-test was conducted to examine if there were any significant differences in self-confidence. Results showed there was no statistical difference  $t(5)=.99$ ,  $p=.37$ . The same procedures were utilized in analyzing the data for the athlete readiness checklist. No statistical significance was observed in the levels of readiness between pre-intervention and post-intervention,  $t(7)=-2.61$ ,  $p=.03$ .

### Qualitative Data Analysis

A content analysis (Miles & Huberman, 1994) was performed on the qualitative interview data. The final organizational framework consisted of four main themes structured around the four research purposes. More specifically, the first research purpose was to implement a mindful meditation intervention with a travel baseball team and investigate the extent to which there were any changes in the athletes' level of self-confidence as measured by the Sport-Confidence Inventory (SCI; Vealey & Knight, 2002). Though this purpose emphasized quantitative analysis, questions related to self-confidence were included in the semi-structured interview guides (see Appendix F). For this reason, qualitative data analysis results (i.e., Changes in Self-Confidence) are presented as a way to support or refute the findings of the t-test with the SCI scores.

With respect to the other research purposes, they were to implement a mindful meditation intervention with a travel baseball team and investigate (a) coach and athlete perceptions regarding readiness for competition, (b) coach and athlete perceptions of their engagement with mindfulness practices, and (c) coach and athlete perceptions of the mindful meditation intervention itself. This analysis resulted in three main themes: Readiness for Competition, Mindfulness, and Perceptions of the Intervention.

### Self-Confidence

For the present study, self-confidence was defined as the belief that the athletes can succeed in the task at hand. All four of the athletes and the head coach voiced their opinions or experience with confidence in relation to their performance. The head coach expressed, "Out of the 13 guys you have 10-11 guys confident going in and during the game." This was corroborated by three of the four athletes who stated that they are generally confident in themselves before a

typical game. However, the fourth athlete, Owen, expressed that his current confidence levels were quite low and that he “was struggling a bit.” Prior to the intervention, he made some concerted efforts to try and increase his pre-game confidence. He explained:

I usually just listen to music and then I guess you could say have a conversation with yourself. I just get myself in a mental confidence that I’m able to do what I’m able to do. Like I put a lot of work and I know I’m mentally ready for what’s coming next.

Owen used different strategies to increase his self-confidence and asserted that he tries to build confidence by doing “different” things throughout the course of a game.

Three of the athletes stated that there was no difference in their levels of self-confidence after completing the two-week mindful meditation intervention. However, Owen stated that the mindful meditation intervention was very helpful in increasing his levels of confidence. “I like it [the mindfulness intervention]. I used it during the time I don’t have that much confidence in myself and I was struggling a bit but after using the app I felt more confident in myself... I think they [levels of self-confidence] changed a lot. They helped me get through a time where I don’t really have confidence at all.” When asked if he thought mindfulness could help with his own self-confidence or that of his teammates’, Owen also stated that “I think it does. I think it brings more confidence to yourself and it helps you not worry as other things are not as important.”

Most of the athletes interviewed were already confident prior to the investigation. However, the one athlete with low confidence found the intervention to be quite helpful, and believed that mindful meditation is a useful tool for increasing self-confidence, even in the short duration of 2 weeks.

### Readiness for Competition

Readiness for competition is defined as the ability to be mentally prepared for any given situation. Athletes used various strategies to mentally prepare themselves for competition including those that they already had in their repertoire and those that they learned as a result of the intervention.

The coach and all four athletes agreed that mental competition readiness was very important to them. When asked to provide his perception of what readiness to compete means to him, the coach stated that “an athlete is prepared to do their job in any given situation that may occur during that competition.”

The athletes noted that they always feel mentally ready to compete before a typical game, and identified varied ways of achieving mental readiness, such as listening to music and using self-talk. Anthony stated that before games, “I always tell myself I’ve worked too hard to not give everything I’ve got onto this field and to let someone be better than me.” The coach identified other strategies as well saying, “I have a couple guys that go into a self-meditation or controlled visualization whether it’s pre- at-bat or in the bullpen. Or defensively, they go through different scenarios, that a few of them have shared with me, pregame.”

Although each athlete self-identified as always being mentally ready for a typical competition, two acknowledged that mindfulness could be beneficial in helping with mental readiness to compete. Roger discussed his approach and the way it changed over the course of the intervention by stating, “We first started using it (the mindful meditation app) 30 min. before we started warming up but after I started using it, once I got through like the first 10 free trials, I just used it the night before.”

Participants were also asked if the mindful meditation intervention had any impact on competition readiness. The coach stated:

You know what I've noticed is they're more apt to being locked in; when we talk about the psychological part of our game they're a little more locked in and open to you know trying to make an adjustment whereas before it was kind of foreign to them. With this app it's become a little more real to them to understand this is another part of the game.

Additionally, three of the athletes stated that the meditation intervention helped them relax, feel more at ease during stressful baseball situations, and be ready to compete. For example, when asked about the difference in his approach to the second game, after the intervention, Oscar explained, "I was more relaxed. When I was stressing over striking out I just took a deep breath and relaxed and didn't let anything get to my mind."

In sum, coaches and athletes all agreed that mental readiness for competition was very important, but the overall changes resulting from the mindful meditation intervention were minimal. All athletes identified themselves as being typically mentally ready for competition, but believe mindfulness could present further benefits. Although most athletes did not experience great changes in readiness, however, there was a perceived increase in awareness about the psychological aspects of baseball and being ready to compete. Related to readiness for competition, the athletes believed the intervention helped them relax and stay at ease in tough situations.

### Mindfulness

The mindfulness theme includes the coach and athletes' perceptions regarding mindfulness, what it means to each individual, and what they gained from participating in the mindfulness meditation intervention experience, outside of readiness for competition.

Mindfulness was defined in the present study as awareness that comes from paying non-judgmental attention to the present moment through deep breathing and meditation. When asked to define mindfulness in their own words, answers varied. For example, the coach stated that “mindfulness means to me that you take into account what your thought process is as opposed to a gut reaction.” Anthony said that “mindfulness to me basically just means just how much I can connect to my own brain and my own soul.” In continuing to discuss mindfulness, Coach and Anthony stated that the nature of the game of baseball demands an ability to focus, and handle stress and adversity. This leads to the applicability of mindfulness in a sport specific context.

All 5 participants agreed that the sport-specific application of mindfulness to the athletes’ performance in baseball competition was important. Roger explained that mindfulness could help him “lock in and get in a good mindset, not think about too many other things, just the one thing you wanna do.” In addition, Oscar stated the practical importance that the intervention could bring in a team-specific context by saying:

When you make an error, we don’t want the guys to stay focused on it; we want them to relax and just move on from it and keep their mind set on one thing and don’t worry about the bad things.

This quote illustrates the importance of focusing in the present moment on those tasks that are going to help with performance, rather than on what just happened, especially if it is an error or mistake. These are key aspects of mindfulness.

In summary, while each participant’s personal definition of mindfulness varied slightly, all of them included an aspect of being in the present moment. Also, each participant believed mindfulness could be applied to baseball, specifically, and provided examples of how they used this tool to assist with their

performance (e.g., “being able to focus on the one thing you want to do,” and “lock in,” or focus).

### Perceptions of the Intervention

For their 2-week intervention, participants used the *Headspace* application (app) on their smart phones. The perceptions of the intervention category included participants’ thoughts related to the effectiveness of the application, the ease of its use, and advantages for engaging in meditation via a smart phone application.

To start, the athletes noted that the meditation app was enjoyable and fun to use. All four athletes agreed that using the app was convenient and effective because they could choose when to meditate and practice mindfulness. For example, when asked whether he thought this form of meditation was convenient and effective, coach stated:

I do, especially for the age group you were working with cause they’re, whether people like it or not, they are attached to that device so having it be there versus having to set aside a time of no device where they have to be locked in and meditate the old school yoga way, which is good but in this day and age with that age group I think is definitely a good option.

The athletes agreed with this. For instance, Roger said, “I liked it...you can use it whenever you want...on your own time.” Further, Anthony stated “I wouldn’t change anything at all, I think it was perfect.” Having the intervention on their phone made it easy to access whenever they wanted, even just before a game.

## CHAPTER 5: DISCUSSION

To reiterate, the purpose of this case study was to implement a mindful meditation intervention with a travel baseball team and investigate (a) the extent to which there were any changes in the athletes' level of self-confidence as measured by the Sport-Confidence Inventory (SCI; Vealey & Knight, 2002), and explore (b) coach and athlete perceptions regarding self-confidence, readiness for competition, their engagement with mindfulness practices, and the mindful meditation intervention itself. This chapter will serve, first, to discuss the findings garnered from the SCI on the effect that the intervention had on levels of athletes' self-confidence, and how this compares to what is known in previous studies with MBI's. The chapter will go on to discuss the data recovered from the interviews, and specifically, how a group of baseball players and their coach, perceived, changed, and interacted with a mindful meditation smart phone application. Next, the chapter will examine the practical implications of these findings. The remainder of this chapter will focus on the limitations to the present study, and directions for future research.

Statistical analysis of the difference in self-confidence as measured by the SCI yielded no significant changes. This contradicts Kaufman et al., (2009), who found increases in self-confidence through a 4-week MSPE intervention. It is possible that the duration of the intervention (two weeks) used in the current study was not enough time to cultivate an understanding of mindfulness and how it can be applied to the individual's sport. Factors out of the researcher's control led to a change in the duration of the MBI from 4 weeks to two. However, shorter interventions are needed and a trial-and-error approach to investigating the optimal length of MBIs has been documented by studies showing increases in mindfulness



in the first half of a 4-week MBSR intervention in patients with chronic illness and pain (Baer, et al., 2012), and decreases in negative thoughts shown within the first 4 weeks of a Mindfulness Meditation Training (MMT) intervention (Stankovic, 2015). In addition, mindfulness training programs such as the MAC (Gardner & Moore, 2004), MSPE (Kaufman, et al., 2009), and mPEAK (Haase et al., 2015) require copious amounts of work, and are time intensive, some lasting up to 8 weeks (20 hours) total. This time requirement is not always practical, especially when one considers that adolescent student-athletes have very little time outside of school and their sport's training commitments.

It should be noted that although t-test analyses found no statistical differences in self-confidence or readiness, there is a possibility that a type II error was made. Type II errors occur when no statistically significant differences are observed when they may actually exist. This can occur, for example, when there is a small sample size and not enough statistical power (Vincent, 2005). Because the study concluded with  $n=6$ , there was lack of sufficient power to accurately suggest that the MBI would not have a significant impact on the self-confidence and readiness of the athletes. It is possible, however, that given a greater effect size, the mindful meditation intervention could have helped significantly increase the group of athletes' levels of self-confidence and readiness.

Qualitative interviews were conducted with the coach and four athletes to learn more about the mindfulness meditation intervention and its perceived outcomes. Four major themes were developed because of the content analysis: (a) Self-Confidence, (b) Readiness for Competition, (c) Mindfulness, and (d) Perceptions of the Intervention. In terms of self-confidence, the head coach and most of the athletes believed that the team, including themselves, were already confident in relation to a typical game. More specifically, three athletes believed

the intervention did not change their levels of self-confidence. It is possible that the lack of perceived changes in confidence of the participants in the current study was because they are typically very confident before a game.

One athlete identified himself as struggling with self-confidence and felt that using the meditation app improved his self-confidence a lot. As the only athlete that identified himself as having low confidence, the MBI could be measured, even if only by self-report, as being beneficial in increasing levels of self-confidence. This presents some evidence of the efficacy of using the *Headspace* phone application for two weeks to increase levels of self-confidence. Similar investigations of short psychological skills training interventions have been completed that could present context to this finding. For example, a study involving a short 10-20-minute intervention found that self-talk helped participants maintain proper squat kinematics while engaging in a high repetition strength training protocol (Macias, Gilbert, Pryor, & Baldis, 2017). Similarly, a 2-week MG-M imagery intervention with youth soccer players showed efficacy in increasing levels of confidence (Munroe-Chandler, Hall, & Fishburne, 2008).

Readiness was defined as the ability to be mentally prepared for any given situation. Coach and athlete perceptions of readiness for competition were evaluated. All participants initially stated that they were typically mentally prepared for every competition. Despite their current levels of mental readiness, each also believes that mindfulness interventions, such as the one utilized in the present case study, could present further benefits to mental readiness. Aspects of mindfulness could prove useful for readiness and the ability to handle adversity in sport. Such aspects have been shown important by investigations with the previously mentioned mPEAK protocol. Athletes reported being better able to adjust physically and emotionally to extreme conditions (Haase et al., 2015). In

the present study, no changes were observed in perceived levels of mental competition readiness, however, the coach believed that the intervention presented the athletes with a novel awareness of the mental aspect of the game of baseball. In addition, perceptions of the athletes were explicit regarding the gains in relaxation and focus that were derived from using the mindful meditation app.

Again, the levels of readiness as self-reported by the athletes was already high before the intervention began, so changes in readiness were minimal. Each athlete, however, agreed that the mindfulness intervention could prove useful in further enhancing their mental readiness for competition. The most common statements recorded in the interview process, however, were regarding the MBI's impact in relaxation and focus. This finding is consistent with the MAC approach (Gardner & Moore, 2004), which uses mindfulness to train participants to recognize and let go of negative and stressful thoughts and emotions. The acknowledgement of increased relaxation and focus by three of the athletes in the present study also fall in line with aspects related to athletes experiencing flow states. In their investigation of the MSPE approach, a mindfulness intervention specifically designed to achieve flow, Kaufman et al., (2009) identified increased self-confidence, focus on the present, and feelings of relaxation as being consistent with the experience of increased performance and flow states. Even using a shortened (2-week intervention) and less intense mindful meditation phone application, increased components of flow (stress reduction, focus and relaxation) were experienced by the athletes in the current study.

Data were collected regarding how the head coach and athletes perceived mindfulness, what it means to them individually, and what was gained from experiencing it in the form of meditation. Each participant had their own unique definition when asked to define mindfulness. Although the definitions were all

different, they did share an emphasis on connecting to oneself. In addition, commonalities in the definitions of mindfulness included an emphasis on not worrying about things that are not important, or less important. This is an interesting parallel as Kabat-Zinn (2003) defined mindfulness as, “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p. 145). Although critical analysis of self-confidence and readiness did not show statistically significant increases, it appears that the short intervention was somewhat successful in conveying important themes of mindfulness to the athletes. This is not surprising, however, as the short-term impact of mindfulness interventions has been shown in other studies investigating MBI’s (Haase et al., 2015, Kaufman et al., 2009;).

Perceptions of the intervention focused specifically on the athletes’ and coach’s views of the smart phone application as a means of experiencing mindful meditation. All participants stated that the app was a convenient method of engaging in mindfulness practices because they could choose when to use it based on individual needs and schedules. In addition, they believed that the interaction with the app was a fun and enjoyable experience. A positive experience with the app might increase the frequency of the users’ engagement with the app, and ultimately lead to a more positive perspective on mindfulness and the benefits that can be gained from it. This mode of a MBI that can be done on one’s phone, at any time most convenient to the athlete, could prove to be a more practical approach to traditional mindful meditation interventions.

Although this type of intervention is relatively new to society as a whole, there are a few published studies on which to draw some context on the use of mindfulness-based phone apps. A systematic review of mindfulness-based phone

apps reviewed 23 apps that met inclusion criteria (Mani, Kavanagh, Hides, & Stoyanov; 2015). Measures included a newly developed Mobile Application Rating Scale (MARS; Stoyanov et al., 2015), that rates each app in visual aesthetics, engagement, and functionality or information quality. Results showed that the Headspace app received the highest score (Mani et al., 2015). There is a membership fee (\$12.99/month), for using Headspace after the first ten free sessions, however, there are many apps on the market that can serve as alternatives. Some examples are: Aware- Meditation & Mindfulness, Calm-Meditate, Sleep, Relax, The Mindfulness App, and Lucid.

The unanimous reporting of positive feelings about the app by participants in the present study as a method of engaging in mindfulness practice shows that a convenient and relevant method to younger generations is worth noting for future use. A positive, fun, and agreeable means of practicing mindful meditation may increase usage, and allow the athlete to engage with the intervention at a time most convenient and relevant to themselves in relation to competition time.

#### Limitations and Future Directions

The current study presented a few limitations that are of note to readers and future researchers. To start, participants of the current study included male adolescent travel baseball players (mean age = 15.6 years). One limitation is evident in the specifications of the participants used. Results from a seventeen and under age group cannot be generalized to an adult population. The level of maturity of the athletes could have changed many factors associated with this type of intervention. This includes the ability to understand some of the concepts of mindfulness that are presented throughout the intervention. Future research could benefit from the use of adult populations. Similarly, the use of an all-male team

presents another limitation. Any results garnered from the current study cannot be generalized to both genders, and future studies should include both men's and women's sports. Baseball is a unique sport in that it is a team sport, however, the individual demands of the sport is greater than, for example, basketball where teammates can rely on each other more frequently rather than a hitter acting alone, with more time available to ruminate on thoughts. Future research should include multiple sports, both male and female, as the culture and dynamics of each sport could provide a more holistic and representative result in terms of the efficacy of a MBI.

The means in which participants were recruited could also be a limitation to the present study. Contacting coaches, clubs and facilities via phone and Facebook is a convenient and less intrusive way to reach participants, but in-person meetings may have yielded more participants. If future researchers adopt a similar approach to studying mindfulness in sport, setting up in-person meetings should be taken into consideration.

Also in relation to the intervention, it should be noted that the primary researcher used weekly group messages to remind the participants to complete the mindful meditation sessions for the prescribed number of times throughout the week. However, future studies could introduce a log book or worksheet to create a greater level of accountability for engaging with the intervention.

Lastly, the timing of the present study may have also presented a limitation. The study took place over the summer, when the participants had fewer demands on their time. Additionally, the mindset of each athlete could have changed because the athletes were competing on a club team, rather than their regular season team that is associated with their high school. Because of this, there is no added pressure of the win-loss record, making playoffs, etc. Further studies should

take this into account, and implement an intervention when a complete understanding of a student-athlete mindset can be evaluated.

Because of the study's limitations, the results must be interpreted with caution. Regardless, many positive outcomes occurred as a result of this research study. To start, student-athletes were introduced to mindfulness via a cell phone application. Given the hectic lives that adolescents currently experience, helping them to be focused in the present moment and accept all thoughts and emotions without judging them has benefits far beyond sport. Further, the researcher improved his understanding of mindfulness and how to use technology to potentially assist athletes in their pursuit of peak performance. This knowledge has already become, and will continue to be, a part of the researcher's practice when working with athletes in applied sport psychology settings.

### Conclusion

In summary, though there were no statistically significant differences in self-confidence scores or mental readiness when comparing the pre- and postintervention scores, some results of the interview data analysis suggest that male travel baseball players may benefit from engaging in mindful meditation. Because MBI's are a relatively new concept in sport, specifically for increasing self-confidence, additional studies are needed. It appears a smart phone app could present a convenient, fun, and effective means of practicing mindful meditation, but 2 weeks may not be enough time to elicit significant changes in sport-specific cognitive processing. Using a technology-based MBI for student-athletes can present a new alternative for applied sport psychology practitioners as well. The time needed to complete a mindfulness session using the Headspace app is merely

10 minutes. An MBI of this sort can be implemented in a team setting, or on an individual basis.



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## APPENDICES

APPENDIX A: ASSENT FORM



ASSENT FORM

Dear Baseball Player:

You are invited to participate in a project directed by Blake Costalupes, a graduate student at California State University, Fresno under the supervision of Dr. Jenelle N. Gilbert. The purpose of this project is to explore pre-competition mindsets in travel baseball players.

If you choose to participate in the 4-week program, you will complete a short questionnaire three times. The questionnaire will be given to you approximately 60 minutes before the start of a competition and should take roughly 10 minutes. You may also be asked to use a smart phone application 3-4 times per week for the purpose of mindfulness or self-talk training. Your involvement in the study each week would be a maximum of one hour.

You have been chosen to participate in this project because you currently compete on an under 17-year travel baseball team. Your parent or guardian has also been asked to provide consent for you to participate in this project. *Participation in this project is not required and you will not be penalized if you choose not to participate.* Your participation is voluntary and you can decide to stop participating at any point during the project. All of your information will be kept confidential, which means that only the research team will see your questionnaire scores.

If you have any questions please ask Blake Costalupes (209-988-1171 or [bcostalupes@mail.fresnostate.edu](mailto:bcostalupes@mail.fresnostate.edu)), or Dr. Jenelle N. Gilbert (559-278-8902 or [jgilbert@csufresno.edu](mailto:jgilbert@csufresno.edu)) or your teacher/coach. Questions regarding the rights of research participants may be directed to Dr. Kris Clarke, Chair, Fresno State Committee for the Protection of Human Subjects (559) 278-2985.

**AFTER READING THIS CAREFULLY, IF YOU WOULD LIKE TO PARTICIPATE IN THIS STUDY, PLEASE SIGN BELOW:**

\_\_\_\_\_  
Student Name (please print clearly)

\_\_\_\_\_  
Student Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
Date

APPENDIX B: CONSENT FORM

**CONSENT FORM****TO:** Parent or legal guardian of participant**FROM:** Blake Costalupes, California State University, Fresno**SUBJECT:** Consent Form – Pre-competitive Mindsets in Baseball Players

Whenever a research project is undertaken with human participants, the written consent of the participants must be obtained. This does not imply, of course, that the project in question necessarily involves a risk. In view of the respect owed the participants, California State University, Fresno made this type of agreement mandatory.

*The Project:* The purpose of this project is to explore pre-competition mindsets in travel baseball players. If you choose to allow your son to participate in the 4-week program, he will be asked to complete a short questionnaire three times. The questionnaire will be given to him approximately 60 minutes before the start of a competition and should take roughly 10 minutes. He may also be asked to use a smart phone application 3-4 times per week for the purpose of mindfulness or self-talk training. Your son's involvement in the study each week would be a maximum of one hour.

*Analyzing and Reporting Results:* Quantitative data will be collected from the results of questionnaires, however, results will remain completely anonymous. All participants will be assigned a code, in place of names, to ensure that data is kept uniform and organized. All of the information will be stored confidentially at California State University, Fresno. All of your information will be kept confidential, which means that only the research team will see your questionnaire scores. We plan to disseminate the results of this study at academic conferences as well as through one or more journal publications. We will report the results in terms of group averages, and will not report the results for individual athletes.

*Benefits and Risks:* There are no risks associated with participation. Benefits may include your son's increased awareness about his pre-competition mindset. Also, your son may receive access to a mindfulness or self-talk training application at no cost.

*Participation is Voluntary:* Your child's participation in this study is completely voluntary and he may withdraw from the study at any time without prejudice. You are not required to participate, and there are no negative consequences for not participating. If you choose to participate, please sign below and return this form to Blake Costalupes (Email: [bcostalupes@mail.fresnostate.edu](mailto:bcostalupes@mail.fresnostate.edu)). If you choose not to participate, you need not do anything.

*Contact Information:* For more information, feel free to contact Dr. Jenelle N. Gilbert, CC-AASP, the Principal Investigator, at 559-278-8902 or [jgilbert@csufresno.edu](mailto:jgilbert@csufresno.edu).

These procedures were approved by the Institutional Review Board of California State University, Fresno. Questions regarding the rights of research participants may be directed to Dr. Kris Clarke, Chair, Fresno State Committee for the Protection of Human Subjects (559) 278-2985.

\*\*\*\*\*

BY SIGNING BELOW, YOU ARE AGREEING TO ALLOW YOUR CHILD (insert child's name \_\_\_\_\_) TO PARTICIPATE IN THE STUDY.

\_\_\_\_\_  
Parent/Legal Guardian

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness Signature

\_\_\_\_\_  
Date

## APPENDIX C: DEMOGRAPHICS

### Demographics

Age: \_\_\_\_\_

Race (circle one):

1-African-American

2-American Indian

3-Asian

4-Hispanic

5-Pacific Islander

6-White

7-Unknown

Other: \_\_\_\_\_

Academic Classification as of August 2017 (circle one)

1-Freshman

2-Sophomore

3-Junior

4-Senior

Primary position: \_\_\_\_\_ Secondary position: \_\_\_\_\_

How many years have you played baseball? \_\_\_\_\_

Do you plan on pursuing baseball in college? \_\_\_\_\_

Have you ever participated in any form of meditation or yoga in the past? If so, please explain.

Have you ever worked with a sport psychologist before, or been exposed to mental skills training? (i.e. imagery, self-talk etc.). If so, please explain the nature of your interaction.

## APPENDIX D: SPORT CONFIDENCE INVENTORY

## Self-Assessment Inventory (SCI-4)

Athletes need many different abilities to succeed (e.g., physical skills, mental focus, optimal fitness). In this survey, you are asked to assess many of **your abilities as an athlete**.

Read the example item listed below, and then decide **how certain you are** that you can **successfully** do what is described in that item.

Consider "**success**" to be whatever you define as successful for you (your **personal definition of success**).

**Respond to each item based on how you TYPICALLY FEEL about your abilities in your sport.**

Use the continuum shown below to guide your self-assessment.

7                      6                      5                      4                      3                      2                      1  
|                      |                      |                      |                      |                      |                      |



---

<b>Totally Certain</b>	<b>Very Certain</b>	<b>Fairly Certain</b>	<b>Maybe I Can</b>	<b>Fairly Uncertain</b>	<b>Very</b>	<b>Can't Do</b>
<b>It</b>						
(Absolutely Sure	(Very Sure	(I Feel Like		(I Have Doubts)	<b>Uncertain</b>	<b>At All</b>
I Can Without	I Can)	I Can)			Pretty Sure	
(Absolutely						
a Doubt)					I Can't	Not At All

Keep in mind that 7 and 1 represent **absolute levels** in which you are totally certain that you can do this or absolutely sure that you cannot.

On the following page, read each item and **circle the number** that represents **HOW CERTAIN YOU FEEL** that you can do what is described in that item.

**Your answers will be kept strictly confidential.** Please answer as **you really feel** being totally honest (as opposed to answering as you would LIKE to feel or think that you are SUPPOSED to feel). All athletes are different in their abilities, and **there are no right or wrong responses**

**HOW CERTAIN ARE YOU THAT ...**

(CIRCLE ONLY ONE NUMBER FOR EACH ITEM)

- 7 **totally certain** (ABSOLUTELY sure I CAN without a doubt)
- 6 **very certain** (VERY SURE I CAN)
- 5 **fairly certain** (I feel like I CAN)
- 4 **MAYBE I can**
- 3 **fairly uncertain** (I have DOUBTS)
- 2 **very uncertain** (PRETTY SURE I CAN'T)
- 1 **can't do it at all** (ABSOLUTELY NOT AT ALL)

1	you can <b>execute</b> the <b>physical skills</b> necessary to succeed?.....	7	6	5	4	3	2	1
2	you can keep <b>mentally focused</b> throughout the competitive event? .....	7	6	5	4	3	2	1
3	you can <b>bounce back</b> from performing poorly to successfully execute your skills? .....	7	6	5	4	3	2	1
4	your <b>physical training</b> has <b>prepared</b> you enough to succeed? .....	7	6	5	4	3	2	1
5	you can successfully <b>make critical decisions</b> during competition? .....	7	6	5	4	3	2	1

- 6 you can **regain your mental focus** after a performance **error**? ..... 7 6 5 4 3 2 1
- 7 your **physical fitness level** will allow you to compete successfully? ..... 7 6 5 4 3 2 1
- 8 you can effectively **use strategy** needed to succeed? ..... 7 6 5 4 3 2
- 1

**HOW CERTAIN ARE YOU THAT...?**

(CIRCLE ONLY ONE NUMBER FOR EACH ITEM)

- 7 **totally certain** (ABSOLUTELY sure I CAN without a doubt)
- 6 **very certain** (VERY SURE I CAN)
- 5 **fairly certain** (I feel like I CAN)
- 4 **MAYBE I can**
- 3 **fairly uncertain** (I have DOUBTS)
- 2 **very uncertain** (PRETTY SURE I CAN'T)
- 1 **can't do it at all** (ABSOLUTELY NOT AT ALL)

9 you can **overcome doubt** after a poor performance? ..... 7 6 5 4 3 2 1

10 you can successfully **perform the physical skills** required in your sport? ..... 7 6 5 4 3 2 1

11 you can **maintain the mental focus** needed to perform successfully? ..... 7 6 5 4 3 2 1

12 you can **overcome problems and setbacks** to perform successfully? ..... 7 6 5 4 3 2 1

13 you have the **physical preparation** that is needed to compete successfully? ..... 7 6 5 4 3 2 1

14 you can successfully **manage your nervousness** so that it doesn't hurt your  
performance? .....

## APPENDIX E: INTERVIEW GUIDES

### **Interview Guide for Athletes**

- What does the word mindfulness mean to you?
- Do you think that mindfulness meditation is something that can benefit your performance on the field? Why or why not?
- How would you describe your personal experience using the headspace mindful meditation app? What would you change, if anything?
- Do you think this method of meditation (phone app) is a convenient and effective way to meditate? Why or why not?
- Did you experience any change in the way you approached the second game (after using the app) and the first game?
- How important to you is mental competition readiness?
- What are some things that you do to mentally prepare before a game?
- How ready to play do you feel before a typical game?
- Do you believe mindfulness can help you or your teammates with readiness to compete? Why or not?
- How confident do you generally feel before a game?
- Have your levels of self-confidence changed at all after using the app?

## Interview Guide for Coaches

- What does the word mindfulness mean to you?
- Do you think that mindfulness meditation is something that can benefit your player's performance on the field? Why or why not?
- What are some of your perceptions of the athletes who used the meditation app? Did their pre-game demeanor or approach change?
- What does mental readiness to compete mean to you?
- Did you notice any change in the mental readiness of your athletes from week 1 to week 2?
- Do you think this method of meditation (phone app) is a convenient and effective way to meditate? Why or why not?
- How important to you is mental competition readiness for your team?
- What are some things that you notice your players do to mentally prepare before a game? Did you notice any changes in the athletes after completing the two weeks of mindfulness training?
- How would describe your team's readiness to play before games? Do you think mindfulness meditation training could influence this if given more time to use the app?
- Would you recommend or continue using this form of mindfulness training with your athletes in the future for increased performance?

- What are your perceptions of your team or individual player's levels of self-confidence before a game? Has this changed?



## APPENDIX F: MENTAL READINESS CHECKLIST

## Athlete Readiness Checklist

**COACH NAME****RATING: 1=NOT AT ALL READY;  
10=OPTIMAL READINESS**

(NAME)	1	2	3	4	5	6	7	8	9	10
COMMENTS:										
(NAME)	1	2	3	4	5	6	7	8	9	10
COMMENTS:										