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The Use of Mindfulness and Art-Based Interventions for Competitive Athletes in Treatment
of Sports-Related Injury, A Literature Review

Capstone Thesis

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Art Therapy Specialization

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Abstract

This thesis investigates the experience of sports-related injury in elite competitive athletes, and the roles and impact of traditional psychological coping and prevention strategies, compared to the approaches of mindfulness and various art-based interventions in the treatment of sports-related injury for competitive athletes. Literature revealed that current treatments for injured athletes in elite sport and competition more often incorporate aspects of goal-setting, guided imagery, and relaxation rather than mindfulness or art-based interventions. However, research is lacking significantly with regards to the use of mindfulness and art-based intervention as a combined methodology in helping athletes cope with a sports injury and the rehabilitation process. The aim of this research is to use the findings gathered from the review of literature to improve and increase awareness concerning the use of mindfulness and art-based interventions together in the treatment of this population, and with the intention that more research and interventions will be conducted in the future.

Keywords: sports, athlete, competition, injury, recovery, psychological coping, emotional healing, mindfulness, art-based interventions

The Use of Mindfulness and Art-Based Interventions for Competitive Athletes to Cope with Sports-Related Injury: A Literature Review

Introduction

This thesis will focus on the use and impact of art-based interventions and mindfulness as forms of treatment on top-tier competitive athletes, specifically those affected by sports-related injuries. Having been an athlete myself, I am no stranger to the many battles that come with participating in high levels of competitive sport – both when done individually, and when part of a collective team. Some of these obstacles may come to take a toll on the body by way of mental impairment, physical detriment, and/or emotional disturbance (Ansari & Lalani, 2014; Duncan, Gidron, & Lavalley, 2013; Ivarsson, Tranaeus, Johnson, & Stenling, 2017; Reese, Pittsinger, & Yang, J., 2012; Walker, Thatcher, & Lavalley, 2007). Impacting athletes' general wellbeing, such battles often come with far-reaching implications that can present in the form of severe psychological strain and distress, as well as potentially dangerous physiological exhaustion and injury (Ansari & Lalani, 2014; Duncan et al., 2013; Reese et al., 2012; Sheinbein, 2016). The true impact of obstacles such as these can be manifested through stress, fear, anxiety, tension, depression, loss of athletic identity, loss of independence, lowered self-esteem and lowered self-confidence (Ansari & Lalani, 2014; Curry & Strauss, 1994; De Pero, Minganti, Pesce, Capranica, & Piacentini, 2013; Duncan et al., 2013; Kim, Kim, & Ki, 2014; Mankad, Gordon, & Wallman, 2009; Reese et al., 2012; Richardson & Latuda, 1995; Sheinbein, 2016).

It is true that the perceived health benefits provided through regular participation in physical activity are vast, and are widely considered to offer imperative contributions to an individual's good health (Eime, Young, Harvey, Charity, & Payne, 2013). Participation in

individual and team sports has also been shown to provide many positive social and developmental benefits such as, helping youth to socialize, learn skills, foster relationships, and promote communication in healthy ways while additionally playing a significant role in family and peer connections, activities and interactions (Talebzadeh & Jafari, 2012). All of this is for naught, however, should there be a failure to recognize the value and importance of sport activities' psychological impact as well (Ansari & Lalani, 2014).

With the rise of a widening competitive sports culture and domain of both elite and professional athletic pursuits, one thing that has become a fairly common occurrence amid today's population of athletes and players is sports-related injury (Ansari & Lalani, 2014; Sheinbein, 2016). Athletes who partake in high calibers of sports competition face significant emotional and psychological obstacles that can severely affect their well-being, particularly when experienced or even been witness to a serious injury (Ansari & Lalani, 2014; Duncan et al., 2013; Ivarsson et al., 2017; Mankad et al., 2009; Reese et al., 2012; Roy, Kuan, & Chy, 2016; Sheinbein, 2016). It should thereby come as little surprise that, as the yearly rate of athletic injuries climbs (Sheinbein, 2016), so has the attention and concern of researchers for the psychological impact of such injuries (Ansari & Lalani, 2014). Reflecting on the current and still growing popularity and prevalence of elite competitive sport in today's society, the relevance of this field of literature is now more significant than ever (Reese et al., 2012).

Considerable thought has previously been dedicated to the development and practice of different psychological coping and prevention strategies catered toward the population of competitive athletes across various sport settings (Gaudreau & Blondin, 2002; Reese et al., 2012; Sheinbein, 2016). Interventions such as goal setting (Ansari &

Lalani, 2014; Podlog & Eklund, 2009; Reese et al., 2012; Sheinbein, 2016; Walker et al., 2007), guided imagery (Ansari & Lalani, 2014; Reese et al., 2012; Richardson & Latuda, 1995; Sheinbein, 2016), relaxation (Ansari & Lalani, 2014; Kim et al., 2014; Reese et al., 2012), mindfulness (Bühlmayer et al., 2017; Fogo, 2017; Gardner & Moore, 2017; Kabat-Zinn, 2003; Kampman & Lomas, 2017; Kim et al., 2014; Sheinbein, 2016; Wardi-Zonna, 2019), expressive writing (Ansari & Lalani, 2014; Duncan et al., 2013; Hudson & Day, 2012; Mankad & Gordon, 2010; Mankad et al., 2009), drawing (Gravestock, 2010) and other forms of art-making (Fogo, 2017; Kim et al., 2014; Roy et al., 2016; Wardi-Zonna, 2019) have all been shown to provide individuals with diverse therapeutic benefits in general and in a sports context. Recent exploration of the mind-body connection in sport has also brought about additional empirical findings, which effectively demonstrate successful outcomes associated with performance results and personal wellbeing (Bühlmayer et al., 2017; Duncan et al., 2013; Gardner & Moore, 2017; Gaudreau & Blondin, 2002; Gravestock, 2010; Ivarsson et al., 2017; Mankad & Gordon, 2010; Mankad et al., 2009; Podlog & Eklund, 2009; Reese et al., 2012; Richardson & Latuda, 1995; Roy et al., 2016; Sheinbein, 2016; Walker et al., 2007).

There seems to be significantly fewer considerations, however, directed at the potential psychological consequences due specifically to the occurrence of an athletic injury (Walker et al., 2007); though as pointed out by Ansari and Lalani (2014), a beginning change in this tendency has already been observed. More and more sport injury recovery programs have begun to incorporate psychological interventions into athletic injury treatment regimens as a way to accelerate the player's psychical and psychological healing (Reese et al., 2012). It is my belief that the methods of mindfulness and art-based

interventions (ABI) can be successfully deployed together in the treatment of highly competitive athletes; specifically, those who may be dealing with the emotional disturbances and possible psychological damage brought on by a serious sports-related injury.

Literature Review

In this literature review, I examine the current perspectives of injury in the world of sports (Ansari & Lalani, 2014; Duncan, et al., 2013; Gardner & Moore, 2017; Ivarsson et al., 2017; Mankad & Gordon, 2010; Mankad et al., 2009; Podlog & Eklund, 2009; Reese et al., 2012; Sheinbein, 2016; Walker et al., 2007); the athlete's experience and psychological effects of severe or career-ending injury (Ansari & Lalani, 2014; Curry & Strauss, 1994; De Pero et al., 2013; Duncan, et al., 2013; Gardner & Moore, 2017; Ivarsson et al., 2017; Mankad & Gordon, 2010; Mankad et al., 2009; Reese et al., 2012; Richardson & Latuda, 1995; Sheinbein, 2016); and the methods and effectiveness of traditional psychological interventions and prevention strategies (Ansari & Lalani, 2014; Duncan, et al., 2013; Kim et al., 2014; Podlog & Eklund, 2009; Reese et al., 2012; Sheinbein, 2016). Next, I explore the historical context of the practice of mindfulness and ABI as individual approaches in the treatment of sports-related injury for competitive athletes (Ansari & Lalani, 2014; Duncan, et al., 2013; Fogo, 2017; Gardner & Moore, 2017; Gravestock, 2010; Hudson & Day, 2012; Kabat-Zinn, 2003; Kampman & Lomas, 2017; Kim et al., 2014; Mankad & Gordon, 2010; Mankad et al., 2009; Reese et al., 2012; Sheinbein; Wardi-Zonna, 2019).

Through this investigation, I aim to shed light on some of the methods incorporated in each approach, as well as their perceived benefits and current limitations. I will then join this research with various other findings that are in connection with sports-related injuries

specifically. My goal is to demonstrate how the combination of these two methods contributes to a more inclusive, widespread, and well-rounded approach to helping athletes cope with and recover from the experience of a sports-related injury. The research provided here will attempt to fill the gap in the literature regarding not only those limitations found as the result of incorporating just one method alone, but also the potential benefits to be gained through a combined methodological approach.

Athletic Injury in Sports

Sports-related injury in an elite competitive athlete's career is an extremely stressful experience (Mankad et al., 2009), and can cause significant psychological distress (Duncan, et al., 2013) along with lasting consequences affecting athletes' health and likelihood of returning to play (RTP) (Ivarsson et al., 2017; Reese et al., 2012; Sheinbein, 2016). It is unfortunate then, that the risk of athletic injury and subsequent costs of prolonged involvement in high-level competition are such common, if not unavoidable, aspects of reality for elite athletes (Ansari & Lalani, 2014; Ivarsson et al., 2017; Sheinbein, 2016; Walker et al., 2007). As of just four years ago (Sheinbein, 2016) in the United States alone, there were an estimated seven million athletic- and sports-related injuries recorded per year; this was not including sport injuries that may have gone unreported (e.g., sprains and concussions).

Much attention has been, and continues to be, paid towards focusing on the physiological aspects of athletic injury – especially those factors that impact onset and recovery of a sports-related injury (Walker et al., 2007). However, compared to the amount of consideration given to the physical factors impacting the occurrence and recovery of sports-related injuries, considerably less empirical attention has been lent to exploring the

psychological issues and processes of the athletes RTP and competition following a sports injury (Podlog & Eklund, 2009). Few medical professionals are conscious of the psychological interventions that have aided athletes' coping with the psychological effects of injury (Sheinbein, 2016), and only a limited number of athletes are effectively trained or even educated on how to successfully cope with such extreme emotional experience (Mankad & Gordon, 2010; Mankad et al., 2009).

According to Mankad et al. (2009), there are several psychological factors that have been recognized as being instrumental to either the success or failure of an athlete's recovery experience. For instance, the realization that during recovery, injured athletes experience symptoms including negative mood states, depression, frustration, and lowered self-esteem (Mankad et al., 2009). Yet, only in the past decade have we started to see a gradual rise in interest regarding how athletes' psychological factors influence the recovery process and later outcomes of rehabilitation following the injury (Duncan, et al., 2013; Ivarsson et al., 2017; Reese et al., 2012). As of just ten years ago (Mankad et al., 2009), availability to interventions that aimed to mitigate the psychological experience of athletic injury was rather limited. So too was the scarcity of empirical evidence establishing that such interventions either reduced negative psychological repercussions or expanded emotional coping (Reese et al., 2012).

Ansari and Lalani (2014) emphasize that: "the aftermath of a sporting activity can cause both physical and grave psychological distress" (p. 34). Sheinbein (2016) describes how an injured athlete's experience of distress often becomes even more incapacitating when longer periods of recovery are required. Other research (Mankad et al., 2009) heeds further warning that exclusive attention to physical rehabilitation alone may even conceal

potential difficulties affiliated with an athlete's psychological recovery, some of which persist long after physical recuperation (Sheinbein, 2016).

With this sentiment in mind, it is no surprise that athletes, coaches, and medical staff involved in the treatment of injured players are beginning to adjust their methods for healing accordingly (Ansari & Lalani, 2014), implementing psychological interventions alongside protocols of standard physical rehabilitation and recovery (Duncan, et al., 2013; Gardner & Moore, 2017; Reese et al., 2012; Sheinbein, 2016). While there are a number of theoretical models that detail the psychological processes related to injury and recovery, limited work has yet to be done to investigate how exactly athletes come to deal with the emotional traumas experienced during the rehabilitation of injury (Mankad et al., 2009).

As players, coaches, and athletic trainers alike become more familiar and equipped with this budding arsenal of information, there continues to be an ever-growing professional accountability that tasks them with protecting the physical and psychological health of those who may be directly effected (Gardner & Moore, 2017). In other words, the inherent ethical responsibility to both spread and utilize this knowledge leaves us with no other choice but to come together – as a team, if you will – and face-off against this newfound shared opposition.

The Injured Athlete's Experience

“After an injury, an athlete typically undergoes a sequence of predictable psychological reactions similar to those of a person who encounters a personal loss. Athletes frequently respond to an injury by denying that there is physical damage, but when reality sets in, feelings of anger and depression take over. They may not

understand the injury, or they may be apprehensive about their ability to attain the skill level they had before their injury” (Richardson & Latuda, 1995, p. 11).

Ansari and Lalani (2014) expound that the reason why athletes struggle to meet the same level of performance strength that they held prior to their injury is due to psychological turmoil, rather than the result of a physical factor alone. In other words, if an athlete is not yet psychologically ready to meet the expectations required of them for training and competition, a RTP could intensify the experience of emotional trauma (Mankad et al., 2009) and greatly increase the player’s vulnerability for re-injury; regardless of whether they are fully recovered physically (Ansari & Lalani, 2014; Duncan, et al., 2013).

A psychological wound, like that of any other physical injury – if untreated and uncared for – can result in very serious consequences, some of which can block regular healing processes from occurring and act as hindrances to future performance (Duncan et al., 2013; Reese et al., 2012; Sheinbein, 2016). Present innovations in the medical treatment of physical injury have greatly lowered the amount of time needed for healing, which may give rise to the RTP of athletes who are physically recovered but who are also not yet psychologically healed (Reese et al., 2012). Should an athlete fail to address the psychological effects felt after experiencing a sports injury, the stress that occurs as a result will continue to negatively affect them (Ansari & Lalani, 2014), and can have damaging long-term consequences (Mankad et al., 2009; Sheinbein, 2016). According to Reese et al. (2012), this possible disparity between mental and physical recovery warrants an extended consideration to the process of rehabilitation for injured athletes.

Inadequate psychological recovery in athletes is hence made more dangerous due to the perceived “emotionally inhibitive climate of sport and the nature of the accepted norms within this competitive environment” (Mankad et al., 2009, p. 193). Team physicians, in some professional sports, have been pressured excessively by coaches and administrators not to do what is in the best interests of the athlete, but rather act in favor of the team’s interests instead (Curry & Strauss, 1994). When universities offer medical attention with immediate availability and coaches and athletes play down the import of injury, it furthermore demonstrates the normalization of injuries in sport and additionally motivates continued involvement (Curry & Strauss, 1994). Such participation could be disputed by those concerned with the “long-term effects of ‘playing with pain’” (p. 195).

An athlete’s readiness to undergo great amounts of hurt and injury is habitually lauded by the media (Curry & Strauss, 1994). “When the norms of sport promoting stoicism in the face of injury are taken to the extreme, ignoring pain and injury becomes defined as a type of positive deviance” (p. 196). Individuals who overtly respond the least amount to pain and injury are then exalted or advertised as suitable standards to model (Curry & Strauss, 1994).

During a study (Mankad et al., 2009) that surveyed athletes’ perceptions of injury-related emotions, interviews revealed that players were not likely to reveal or talk about emotions related to their injury. It was indicated that athletes reported seeing their sport environment as being “emotionally inhibitive, which led them to strive for a stoic, non-emotional response” (p. 183). They also described feeling obligated to take on in-group standards of positivity and mental toughness through the employment of thought suppression, in spite of the emotional trauma felt as a consequence of their sports-injury.

Attempting to conceal their negative emotions, the athletes partook in avoidance behaviors, additionally using suppressive coping strategies during their rehabilitation (Mankad et al., 2009).

Mankad et al. (2009) recounted how the participant athletes engaged in strategies of emotional labor, such as acting, in which they concealed felt emotions and instead presented emotions otherwise considered to be more appealing in order to present the image of positivity and confidence. For these individuals especially, repression of authentic feelings and jurisdiction over their external appearance acted as a central coping mechanism vital to regulating “acceptable overt behavior within the team environment” (p. 183). It was further revealed that an intense cultural bias existed towards the athletes who sought out psychological counseling to deal with their emotions, often deemed by fellow competitors as being “mentally weak” (Mankad et al., 2009, p.184).

Due to the harsh judgments imposed on them by their own athletic community, the injured players frequently concealed the nonphysical part of their recovery “in favor of superficially discussing physical rehabilitation in a positive manner, so as to avoid negative evaluations from others” (p. 193). Nevertheless, any accessible opportunities that would allow the athletes to process or discuss their injury-related emotions were found to be scarce or inadequate (Mankad et al., 2009).

Psychological Impact and Effects of Injury

The stark reality that bodily injury can leave behind both physical and psychological scarring (Ansari & Lalani, 2014) is grim, at best, and yet it is inarguable nevertheless. Numerous reports have demonstrated that athletes’ mental health is verily impacted by the occurrence of sports-related injury, and can become subject to several negative emotional

stress outcomes (Ansari & Lalani, 2014; Duncan, et al., 2013; Gardner & Moore, 2017; Mankad et al., 2009; Sheinbein, 2016). Examination of psychological elements and reactions of competitive athletes similarly ascertains that injured players often experience a deterioration of resulting health outcomes following an injury-causing event (Ansari & Lalani, 2014; Mankad et al., 2009; Sheinbein, 2016).

A systematic review and meta-analysis (Ivarsson et al., 2017) of psychological responses to injury and rehabilitation in competitive athletes demonstrated that a player's negative psychological response to injury can in turn decrease the overall chance of that athlete being able to successfully return to play. Podlog and Eklund (2009) bring further support to this notion, pointing out that similar psychosocial variables play a significant role impacting the onset, recovery, and RTP after recuperating from athletic injury. Based on these and other findings, we can reasonably suspect that the process of injury-recovery is decidedly impacted by athletes' response to psychological strain, and that a pronounced negative relationship exists between wound healing and psychological suffering (Ansari & Lalani, 2014; Duncan, et al., 2013; Ivarsson et al., 2017; Sheinbein, 2016).

Research findings (Ansari & Lalani, 2014; Duncan, et al., 2013; Gardner & Moore, 2017; Mankad et al., 2009; Sheinbein, 2016) present the following psychological reactions as typically involved in the treatment of athletic injury: feelings of anger, anxiety, depression, tension, and fear; frequent mood swings; periods of low energy and decreased self-esteem; loss of athletic identity and independence; denial or inability to accept reality; failure to organize jumbled thoughts; incapacity to restructure, reform, or reorganize; as well as difficulty exacting appropriate focus or sporting coordination, concentration, or attentions to trainings. De Pero et al. (2013) echo these determinations, explaining that an

athlete's fear of injury, if unaddressed, can lead to problems including denial or inability to perform certain technical actions, mental blockings, and even abandonment of a contest, competition, or sport all together.

Grief responses have also presented as a common psychological feature amongst long-term injury sufferers (Mankad & Gordon, 2010; Mankad et al., 2009). The destabilizing consequences of withdrawal from training and competition, as stated by Duncan et al. (2013), can produce an atmosphere of "extreme anxiety and isolation which researchers and practitioners liken to a grief process" (p. 1). Richardson and Latuda (1995) too draw similar connections, as they relate the former to effects often felt by an individual after having faced a personal loss. In another study that surveyed athletes' perceptions of injury-related emotions (Mankad et al., 2009), the symptoms described by the injured players were those consistent with grieving, as well as traumatic stress.

Despite the current data offered as of yet, there still exists a pertinent need to investigate how sports-related injury influences the psychological nature of elite competitive athletes, as well as gain a better understanding of how these high-caliber players respond to being injured and the period of rehabilitation that follows (Mankad et al., 2009; Walker et al., 2007).

Psychological Interventions and Prevention Strategies

In spite of various advancements endeavoring to decrease the frequency of injuries in sport, such as sporting equipment, coaching techniques, and sport-specific conditioning, the occurrence of athletic-injuries continues to rise (Sheinbein, 2016). As a result, sports medicine professionals and others within the community are now more often recognizing the significance of athletes' psychological factors during the recovery process from a

sports-related injury (Reese et al., 2012). Helping athletes manage the different situational and sport-specific elements confronted following a physical injury, including the processing of their cognitive and emotional distress, is fundamental for successful rehabilitative treatment and ultimate recovery (Ansari & Lalani, 2014; Duncan, et al., 2013).

Any practice that functions to help an athlete cope with their stress (e.g., goal setting, guided imagery, and relaxation) can also contribute in decreasing the overall physical and psychological after-shocks that result from a sports-related injury (Ansari & Lalani, 2014; Sheinbein, 2016), including self-critical thoughts, inattention, anxiety, and pain (Reese et al., 2012; Sheinbein, 2016). Consciousness of these repercussions has therefore led to an increase in the implementation of psychological interventions alongside the more traditional procedures of physical rehabilitation and recovery (Duncan, et al., 2013). Various psychological interventions including goal setting, guided imagery, and relaxation are frequently linked with outcomes of reduced negative psychological effects, improved coping, increased pain tolerance, and decreased re-injury anxiety (Kim et al., 2014; Reese et al., 2012; Sheinbein, 2016).

Goal Setting

Sheinbein (2016) explains goals as reaching a certain standard or degree of competence on a task, typically within a specified period of time. Goal setting is considered to improve an individual's ability to complete a given task by offering them a sense of direction to concentrate their efforts, as well as generate a rise in self-efficacy and/or self-confidence as a product of achieving a set goal during the recovery process (Reese et al., 2012).

The greater number of goal setting interventions incorporate setting goals that offer structure, steps, and motivation for reaching particular benchmarks during an injured athlete's recovery, and tailoring the goals to fit the precise needs of that individual (Reese et al., 2012; Sheinbein, 2016). It has been shown that during the course or recovery, injured athletes who modified their goals based upon their rate of progress described feeling more successful in the course of their return to sport in contrast to other injured athletes whose goals went unadjusted (Podlog & Eklund, 2009; Sheinbein, 2016).

Guided Imagery

Sheinbein (2016) relates imagery as "a psychotherapeutic intervention defined as creating sensory rich images within one's mind" (p. 9). The practice of imagery has been traditionally defined as the "process of imaging the performance of a skill with no related overt actions" (Reese et al., 2012, p. 77). More recently, imagery has been explained as "the creation or re-creation of an experience that is under the control of the imager and may occur without the stimulus antecedents associated with the experience" (p. 77).

Athletes, coaches, and sport psychologists often utilize motivational imagery (e.g., imagining a sports performance or outcome being successful) combined with diaphragmatic breathing as a way to improve skill acquirement (Sheinbein, 2016). Practiced imaging of an experience without finishing the task physically is maintained to increase the imager's ability to prepare psychologically by visualizing a successful accomplishment (Reese et al., 2012). Cognitive specific imagery (e.g., imagining oneself successfully performing in game situations and in the setting in which they were previously injured) has also proven to be successful in lessening injured athletes' anxiety of re-injury

and experience of pain, boosting general rate of physical recovery, and increasing overall self-confidence in level of fitness and in returning to play (Sheinbein, 2016).

In a modified study (Reese et al., 2012) on athletes with sports injury, participants were taught how to mentally link their mind with the injured part of their body, visualize recovery happening, and imagine their body operating excellently and performing their desired activities ably. Findings demonstrated that the general mood of the injured athletes improved following the intervention (Reese et al., 2012); showing a meaningful reduction in anxiety related to re-injury among the athlete participants who received a relaxation and guided imagery intervention compared to the athletes in the placebo and control groups.

Relaxation

Another traditional psychological approach, relaxation has been used to decrease stress, anxiety, and mental/physical pressure (Reese et al., 2012). Athletes educated on deep breathing as a method of relaxation can use this strategy to assist in lowering anxiety and reducing emotional distress related to sports-related injury (Reese et al., 2012); as well as decreasing negative symptoms, including depression, oversensitivity to stimulus, headache, fatigue, and even muscle tension (Kim et al., 2014).

Breath training, which can be applied alongside other techniques or simply by its self, is keenly successful in supporting the psychological or physical health of those who practice it (Kim et al., 2014). By building athletes' awareness of their cognitive and physical levels of arousal, relaxation practices can aid injured athletes in managing their arousal levels for reaching ideal results (Reese et al., 2012). Acting as a pathway that links the conscious with the sub-conscious, breath becomes impactful in enhancing positive

awareness and subjective wellbeing by developing the ability to “look into one’s inner self” (Kim et al., 2014, p. 525).

A critical review on the effectiveness of psychological intervention following sport injury (Reese et al., 2012) cited research concerning strategies of deep diaphragmatic breathing, rather than simply breathing from the lungs, used by athletes. This was done as a way to help athletes calm down and/or refocus their awareness on the immediate experience of the here-and-now. Findings suggested that by means of the refocusing, “injured athletes are better prepared to face the challenges that may cause unwanted pressure and anxieties due to the injury” (Reese et al., 2012, p. 77). This is supported by findings put forth by Kim et al. (2014), who advocate that through breath work, an individual is able to “examine dispassionately how things are going in everyday life, to maximize inner peace, to eliminate pain and to meet the real self” (Kim et al., 2014, p. 525).

Art-Based Interventions and Sports Injury

Interventions rooted in art therapy emphasize the significance of art making, immersion in the creative process, and act of bearing witness to self-discovery (Wardi-Zonna, 2019). Many art-based therapies can be helpful in expressing negative emotion and fostering positive thinking (Kim et al., 2014). Ansari and Lalani (2014) suggest that ‘creative expressionism’ (p. 32) helps to decrease athletes’ emotional stress and treat the physical impairment caused by a sports-related injury as well. Group art therapy in particular is productive for self-awareness and self-acceptance, improved relationships and subjective wellbeing (Kim et al., 2014).

The activities in art, “which extract sub-consciousness naturally and express images for injuries” (Kim et al., 2014, p. 520), are successful for uncovering sub-consciousness as

well as latent thoughts and emotions (Kim et al., 2014). Practicing the craft and techniques grounded in creativity and art making, one begins to develop the artistic tools that can otherwise serve as therapeutic coping mechanisms (Ansari & Lalani, 2014) and enables a moment-to-moment experience (Wardi-Zonna, 2019). In discussing their finished art, individuals can increase their self-awareness and self-acceptance, while also perceiving themselves in a positive way. Through positive self-perception, positive changes in behavior and thinking are stimulated (Kim et al., 2014).

Arguments made by Duncan et al. (2013) pull forward attitudes that liken the process of writing to that of being a “vehicle for the emotional and cognitive processing necessary for psychological adjustment to and recovery from injury” (Duncan, et al., 2013, p. 2). The act of expressive writing offers injured athletes the opportunity to build narratives describing their emotional experience, as well as participate in “a self-regulatory process facilitating an increased sense of control over their emotions” (Reese et al., 2012, p. 77). Improvement in physical and psychological outcomes through the practice of expressive writing has also been observed in various clinical populations including cancer patients, coronary patients, patients undergoing surgical procedure, individuals who suffer from chronic pelvic pain, as well as individuals who have rheumatoid arthritis (Duncan, et al., 2013).

Gravestock (2010) asserts that the application of drawing might also offer gains for sport and exercise. Art activities help moderate fear or emotional distress by giving rise to physiological feedback to reshape and calm feelings (Kim, et al., 2014). Drawing, more specifically, is supported as a way to “facilitate new encounters with the external world” as a means to “reveal and create new embodied knowledge” (Gravestock, 2010, p. 1). And yet,

drawing as a therapeutic tool has not been sufficiently researched in the context of sport and injury (Gravestock, 2010).

Expressive Writing as Intervention

The intervention of expressive or creative writing, also referred to as “written disclosure” (Duncan, et al., 2013, p.1), involves the act of writing about experiences that were either emotionally upsetting and/or traumatic within a fixed period of time (Duncan, et al., 2013). Based in the arts, this intervention involves a practice-oriented structure that allows individuals who are physically and psychologically distressed to dictate their lives more easily (Ansari & Lalani, 2014). Other reports have also shown that there are positive psychological and physical effects generated through the process of writing about one’s emotionally traumatic experiences (Mankad et al., 2009), and that written disclosure often yields similar cognitive benefits (for instance, decreased stress and intrusive thoughts), along with strengthened immune function and lasting improvements in mood and wellbeing (Duncan, et al., 2013; Mankad et al., 2009). This is particularly true for studies that offer the participants support on what to write about (Duncan, et al., 2013).

A kind of coping mechanism considered to be intrinsic within the techniques of narrative and storytelling is expressive writing (Ansari & Lalani, 2014). The latter comes into play when a person employs their verbal and critical thinking skills to communicate thoughts and feelings that may be self-repressed via a well-ordered narrative (Ansari & Lalani, 2014). Previous research (Mankad et al., 2009) validates the significance of this story making process indicating, that “forming narratives around traumatic events allows one to disinhibit emotions and consolidate disorganized thoughts associated with the event” (p. 183). In a qualitative study, Hudson and Day (2012) explored athletes’

experiences of expressive writing about competitive sport stressors. Results of the study demonstrated expressive writing to be an approachable and relatively cost efficient way to benefit athletes' coping. Though not limited to sports-related injury necessarily, outcomes of the study did help athletes to reframe their sport stressors and better manage their emotions.

Hudson and Day's (2012) examination maintains the suggested need for expressive writing as intervention for athletes to promote cognitive restructuring and reappraisal, improve self-efficacy, and ease emotional processing on the stressful event, resulting in deep emotional processing. The study determined that the athletes were better able to "confront, re-evaluate and change perspective on their stressor, solve problems, manage emotions, experience self development and, practice a preparation strategy" (p. 805) through the process of expressive writing. Additionally, two other particular studies directly connect the recovery of sports-related injury in athletes with the incorporation of written disclosure as therapeutic intervention (Mankad & Gordon, 2010; Mankad et al., 2009).

In one single case study design (Mankad & Gordon, 2010), written disclosure was used to assist in athletes' coping and psychological response to severe injury. The participants, nine elite long-term-injured athletes, partook in a repeated measures design of three separate 20-minute sessions of writing. Results of the study established that written emotional disclosure was successful in improving athletes' psychological recovery by adding to a richer personal understanding of the injurious event and decreasing athletes' grief-related responses. A linguistic text analysis showed the athletes effectively

working through their grief-related responses by means of amended cognitive processing and the dis-inhibition of both positive and negative affect (Mankad & Gordon, 2010).

In another repeated measures design, Mankad et al. (2009) asked their athlete participant, a male gridiron football player, to write about his negative thoughts and feelings related to his injury and recovery process. Over the course of three consecutive days, the footballer reported reduced levels of stress and mood disturbance and improved self-esteem. Linguistic word count analysis of the athlete's writing revealed less grief responses to injury across each of the writing days. Narrative analysis emphasized that the writing produced was not only saturated with emotion, but a solid cognitive awareness regarding his injury as well (Mankad et al., 2009).

Drawing as Intervention

The execution of drawing within the area of sports science is seldom appreciated as a visual method of inquiry, perhaps as the consequence of a developed impression that practice of the arts "lays false claim to objectivity" (Gravestock, 2010, p. 3). With the proper education and setting, the opportunity to repeat and engage in the process of drawing, and an emphasis on the experience as opposed to the outcome, participants could be free to liberate their own bodymind and make visible what is invisible (p. 11).

One ethnographic case study (Gravestock, 2010), conducted in art and design alongside the sport of figure skating, has presented drawing as an interdisciplinary research technique. Concentrating on illustrations depicting the performing body, Gravestock (2010) considers "the external visualization of an internal thought process through mark making" (p. 1). The author (Gravestock, 2010) argues that, when applied appropriately, the connection between the mind and the body established through the

continual practice of drawing thereby empowers the person drawing to “react and respond to external stimulus more effectively and efficiently” (p. 6).

Understanding Mindfulness

“Mindfulness is 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).

Originating from the practice and teachings of Buddhist monks (Fogo, 2017; Wardi-Zonna, 2019), mindfulness was initially fostered through forms of meditation such as *vipassana* (insight meditation) and yoga (Fogo, 2017; Wardi-Zonna, 2019). Such practices build mindfulness through a concentration on physical sensations including breath and movement, awareness of one’s surroundings, existing in the present moment, observation of internal states such as emotions and thoughts, and staying openhearted and non-judgmental of any thoughts, or feelings that might emerge during the course of the meditation, and (Davis & Hayes, 2011; Fogo, 2017; Gardner & Moore, 2017; Sheinbein, 2016). Mindfulness is often difficult to define entirely, not because it is complex, but rather because it is so simple and broad a concept (Fogo, 2017).

Deriving from the Pali word *sati* (Davis & Hayes, 2011; Fogo, 2017), mindfulness is understood as having focus, understanding, and recollection as well as a development of the mind (Dryden & Still, 2006; Fogo, 2017). Methods that are based in mindfulness observe the way in which a person reacts to internal conditions, for example cognitions, emotions, and physiological events (Fogo, 2017; Gardner & Moore, 2017). By engaging in mindfulness practice, an individual becomes better able to be conscious of and value experiences as they occur moment-to-moment (Fogo, 2017; Wardi-Zonna, 2019).

According to Gardner and Moore (2017), the main direction of intervention models based in mindfulness is to kindle a revised relationship with internal states (such as thoughts, feelings, and physical incidents), instead of trying to completely change the shape or regularity of such experiences.

Mindfulness also appears in Buddhist tradition as the word *samma-sati*, or 'right mindfulness' (Fogo, 2017; Wardi-Zonna, 2019). In traditional Buddhist psychology, mindfulness is related to an appreciation of curiosity, openness, compassion, and nonjudgmental attitude toward the different things that one may encounter in the present moment (Fogo, 2017, Walach et al., 2001; Wardi-Zonna, 2019). In contemporary psychology, however, mindfulness is typically abstracted as a two-part model underlining facets of (1) awareness and attention and (2) acceptance (Brown & Ryan, 2004; Fogo, 2017). The features of awareness and attention in mindfulness are commonly explained as having an enhanced or prolonged attention to and awareness of present events and experience (Brown & Ryan, 2004; Fogo, 2017).

It is important to note how the approaches in mindfulness distinctly differ from the more conventional, control-based psychological skills training (PST) approaches, as introduced by Donald Meichenbaum over 40 years ago (Gardner & Moore, 2017), the use of which has since been broadly implemented within the practice of sports psychology. The theoretical and treatment culture of mindfulness proposes a perspective different from that of the traditional PST interventions, which seek the achievement of an ideal internal condition and maintain the view that certain ideas and feelings are required in order to reach peak athletic performance (Gardner & Moore, 2017). In mindfulness-based models, the theoretical perspective that there are good or bad, positive or negative thoughts and

emotions is surpassed by the acknowledgment that what occurs as part of the human experience is but a broad collection of internal events collectively shared by each and every one of us (Gardner & Moore, 2017).

Mindfulness in Sports and Injury

In sport psychology, mindfulness-based models have amassed a durable foundation and empirical basis (Gardner & Moore, 2017). Practice models based in mindfulness were first conceptualized and employed in sport contexts in efforts to improve athletic performance and general wellbeing of players, and have since been effectively integrated into the practice domains of sport and performance on an international scale (Gardner & Moore, 2017). During the two decades following the inclusion of mindfulness within different sport contexts, empirical discoveries have revealed successful results in connection with performance and personal wellbeing (Gardner & Moore, 2017).

Practitioners and specialists whose practice is based in mindfulness possess the skills needed in order to provide interventions that are resilient, empirically sound, and that are capable of enriching one's quality of life, and/or relieving personal conflicts (Gardner & Moore, 2017). The popularity of mindfulness-based interventions in the day-to-day practice of sport psychology is perhaps most apparent when observed at the international level of competitive sport, wherein several national Olympic programs feature to different extents the theories of mindfulness into the work done with elite athletes and players (Gardner & Moore, 2017).

Acceptance and tolerance toward athletes' cognitions and emotions could help players to remain present and attentive to the task at hand (Kampman & Lomas, 2017), being that of injury rehabilitation. Over the past decade, coaches and sports researchers

have begun to suggest that incorporating the practice of mindfulness as part of athletes' PST could be advantageous (Gardner & Moore, 2007; Kampman & Lomas, 2017). Some researchers have also recently started investigating the influence of mindfulness on helping athletes with pain, stress and anxiety management, and attention (Sheinbein, 2016).

Combining Mindfulness and Art-Based Interventions

Mindfulness and the visual arts have each shown many positive results (Fogo, 2017; Kampman & Lomas, 2017; Wardi-Zonna, 2019), including the betterment of subjective wellbeing and management of negative emotions, for instance (Kim et al., 2014). However, there is still limited empirical research investigating the potential relationship between art and mindfulness (Fogo, 2017; Kampman & Lomas, 2017).

One study (Kim et al., 2014) did show that breath meditation with group art therapy was successful in improving the subjective wellbeing of youth suffering from depression and anxiety. In combination with breath meditation, group art therapy was examined to facilitate youth dealing with depression and anxiety. This was done through the suppression of undue behaviors, which enabled the adolescents to suitably express themselves, as well as the fostering of their personal wellbeing (Kim et al., 2014).

In a 2019 article (Wardi-Zonna), the author draws connection between the process of art therapy and the Buddhist-inspired teachings and practice of mindfulness through the use of clay. The literature promoted clay as a successful medium in the development of mindfulness, acceptance, and self-awareness. Wardi-Zonna (2019) further asserts that clay offers a hands-on style that aids a "present-moment experience that is particularly well suited to contemplative engagement" (p.1) compared to other art media. The strong tactile experience of touch associated with clay work forms a direct connection between the

potter and the clay product (Wardi-Zonna, 2019). The author continues that, because of the potential for clay to be worked and reworked, there is an enhanced sense of freedom to explore. Working with clay permits, through touch, the mindful engagement of thoughts, feelings, and one's experience of their internal world. Engagement with an earthy medium such as clay, a material that is quite literally right below our feet, increases the individual's acceptance of the present moment and helps them to ground themselves in the here and now (Wardi-Zonna, 2019).

Discussion

The purpose of this capstone thesis was to review the literature surrounding athletic injury in elite and competitive sport, the injured athlete's experience and psychological effect of sports-related injury, as well as the use and impact of traditional psychological coping and prevention strategies, compared to the approaches of mindfulness and various art-based interventions in the treatment of sports-related injury for competitive athletes. The therapeutic psychological strategies incorporated goal setting, guided imagery, and relaxation. The art-based interventions included expressive writing, drawing and other forms of art making, such as clay, alongside mindfulness and meditation.

Findings of this literature review show that sports injury in an elite competitive athlete's career can be an extremely stressful experience (Mankad et al., 2009), and can cause significant psychological distress (Duncan, et al., 2013) along with lasting consequences affecting athletes' health and likelihood of returning to play (Ivarsson et al., 2017; Reese et al., 2012; Sheinbein, 2016). The risk of sports injury in elite athletes with prolonged involvement in high-level competition is significant (Ansari & Lalani, 2014; Ivarsson et al., 2017; Sheinbein, 2016; Walker et al., 2007). Moreover, athletes who partake

in high calibers of sports competition face significant emotional and psychological obstacles that can severely affect their wellbeing, especially when experienced or been witness to a serious injury (Ansari & Lalani, 2014; Duncan et al., 2013; Ivarsson et al., 2017; Mankad et al., 2009; Reese et al., 2012; Roy, Kuan, & Chy, 2016; Sheinbein, 2016).

The aim of this review was to illustrate how the combination of art-based interventions and mindfulness can be successfully deployed together in the treatment of injury in elite athletes, and provide a more comprehensive approach in helping competitive athletes cope with and recover from the experience of a sports-related injury. Through my review of the current literature, I established that psychological coping and prevention strategies (Ansari & Lalani, 2014; Duncan, et al., 2013; Kim et al., 2014; Podlog & Eklund, 2009; Reese et al., 2012; Sheinbein, 2016), mindfulness (Bühlmayer et al., 2017; Fogo, 2017; Gardner & Moore, 2017; Kabat-Zinn, 2003; Kampman & Lomas, 2017; Kim et al., 2014; Sheinbein, 2016; Wardi-Zonna, 2019), and art-based interventions (Ansari & Lalani, 2014; Duncan et al., 2013; Fogo, 2017; Gravestock, 2010; Hudson & Day, 2012; Kim et al., 2014; Mankad & Gordon, 2010; Mankad et al., 2009; Roy et al., 2016; Wardi-Zonna, 2019) each have positive impacts on the wellbeing of athletes coping with a sports-related injury and the subsequent healing process. While present research is making great strides in the concentration of athlete recovery in competitive sport (Ansari & Lalani, 2014), there are still improvements to be made as far as expanding research on the topic.

While more and more sport injury recovery programs have begun to incorporate psychological interventions into athletic injury treatment regimens as a way to accelerate the player's psychical and psychological healing (Reese et al., 2012), much research has yet to be done on the combined use of mindfulness and art-based interventions with sports-

injury (Fogo, 2017; Kampman & Lomas, 2017; Podlog & Eklund, 2009). Furthermore, athlete accessibility to available treatment options outside of research settings is limited, as is adequate training or education on such coping strategies (Mankad & Gordon, 2010; Mankad et al., 2009). The research that does exist regarding the joined methodology of mindfulness and art with this population has shown to have significantly positive results (Fogo, 2017; Kampman & Lomas, 2017; Kim et al., 2014; Wardi-Zonna, 2019), and injured athletes would greatly benefit from further interventions. It would also be advantageous to conduct additional research, which investigates the short-term and long-term effects of these interventions within sport settings and with elite athletes coping with a sports-related injury.

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THESIS APPROVAL FORM

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In the judgment of the following signatory this thesis meets the academic standards that have been established for the above degree.

Thesis Advisor: _____ **Dr Tamar Hadar, MT-BC** _____