

Examining Anxiety in Early Specialization Athletes:  
Mindfulness Interventions to Improve Anxiety Management in Competition

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## Abstract

This research sought to find information about anxiety levels in early specialization athletes and to determine if mindfulness interventions can improve how athletes manage their anxiety during competition. It was predicted that after using mindfulness interventions, participant athletes would feel less anxiety during high-pressure situations. The Sport Anxiety Scale (SAS) and Pre/Post Mindfulness Intervention survey were used to assess anxiety levels based on three trait categories: somatic, worry, and concentration disruption. A review of literature suggested that using mindfulness interventions can help regulate emotions and yield positive effects in sport, social, and academic settings. The researcher used mindfulness interventions at the beginning, middle and end of each of six total soccer practice sessions with eight participants with relatively competitive sport experiences, primarily focused on soccer. A paired samples t-test indicated that the athletes' reported stress levels (SAS scores) were significantly lower after they participated in mindfulness activities during training sessions ( $t = 3.362, p < .012$ ). Therefore the null hypothesis was rejected. Pre- and post-intervention total SAS scores were also noted to correlate statistically significantly and positively, indicating there was a high degree of association between participant's relative positions on the pre and post SAS score distributions ( $r = .758, p < .029$ ) The small sample size and virtual nature of the competitive environments created by the researcher may have impacted results. Future research should examine more specifically how single or multi-sport experiences and types of competitive environments impact the efficacy of mindfulness interventions for reducing athletes' anxiety levels.

# CHAPTER I

## INTRODUCTION

### Overview

In the world of sport psychology, there is a great deal of information on best practices to help athletes of all ages perform in high-pressure situations. Some athletes have natural tendencies to deal with stress during competition and others rely on learned strategies to help them. National Collegiate Association of America (NCAA) Institute of Sport Science notes that almost 85 percent of certified athletic trainers believe anxiety disorders are currently an issue with student-athletes on campus (Goldman, 2014). Research on how athletes can improve focus is investigating ways to improve athletes' states of mind during competition and techniques that coaches can use to help their athletes manage stress that interferes with concentration. In the text "Emotions in Sport", Hann (2000) noted that of all the psychological factors thought to influence sport performance, anxiety is often considered the most important. Two decades later, there is still much to be learned about the most effective methods to help manage athletes' performance anxiety in high-pressure situations.

The purpose of this study was to gain a greater understanding of how athletes experience stress in competition how to reduce their anxiety and enhance their performance. The researcher is a former athlete who specialized in soccer at a young age. No matter the level of competition, anxiety was felt during high-pressure situations, which extended into other areas of life. This study may benefit those with similar feelings by serving as an opportunity to learn about the impact of mindfulness, a tested practice, to manage anxiety and stress during athletic competition. In particular, this study aims to help participants learn the importance of managing anxiety and build resilience through mental preparation for competition.

## Statement of Problem

Hann (2000) concluded that sports psychologists have long believed that high levels of anxiety during competition are harmful and that they worsen performance and can even lead to athletes dropping out of sports. Many early-specialized athletes suffer from performance anxiety in high-pressure situations within their sport simply from competing in their sport consistently without ample rest and recovery for the body and mind. This study aimed to determine if mindfulness interventions would help a group of early-specialized athletes improve their sense of focus, mental well-being, and ability to cope with high-pressure situations.

## Hypothesis

Based on his review of literature, the researcher hypothesized that using consistent mindfulness techniques in competitive situations in virtual practice sessions (due to the pandemic) would have the effect of lowering player's stress and anxiety levels. The null hypothesis tested was that the athletes' reported stress levels would not change after they participated in mindfulness activities during training sessions.

$$H_0: \text{Mean post-mindfulness intervention total Sport Anxiety Survey score} = \\ \text{Mean pre-mindfulness intervention total SAS score}$$

## Operational Definitions

- **Early specialization in sport** is defined as focusing only on one sport during early adolescence and primarily participating in this sport throughout youth into secondary school.
- **The independent variable, Mindfulness intervention techniques** are activities in which individuals take time to focus in on the task at hand when thinking about OR during an actual moment of stress or pressure.

- **The dependent variable, Anxiety in sport** can be described as panic-like feelings that happen during decision-making moments in sport. This can affect athlete's ability to perform at their highest potential during intense competition. For this study, the players were asked to close their eyes and imagine themselves succeeding in moments of pressure to aid in performing the tasks in reality. These interventions were integrated in each session along with sport-specific techniques.
- The **Sport Anxiety Scale** was developed to assess the competitive trait anxiety experienced by athletes during competition. **The SAS** contained 18 items with responses options ranging from one to five on a Likert-type scale and assessing participants' anxiety in competition. Ratings reflected anxiety in three categories: Worry, Concentration Disruption, and Somatic Anxiety. Worry was assessed by items 3,5,9,13,17, and raw Worry scores could range from 5-25. Concentration Disruption was assessed by items 2,8,13,18, and raw Concentration Disruption scores could range from 4-20. Somatic Trait Anxiety was assessed by items 1,4,10,11,14,16, and raw Somatic Trait Anxiety scores could range from 6-30.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

The problem of interest for this review of literature is to explore and improve upon methods that involve early specialization athletes in order to learn how to help them compete without repetitive injuries or signs of burnout throughout their careers. Over the years, there has been much debate regarding the benefits of young athletes specializing in one sport versus competing in multiple sports. Recent studies suggest that multi-sport athletes have less overuse injuries because of the wide range of muscles playing different sports demands. This begs the question, are there methods that help prevent overuse injuries and stress? Can early-specialized athletes use these particular methods to enable them to continue to compete at the highest level? A summary of findings addressing these questions follows.

#### **The Early-Specialized Athlete**

In order to explore methods to improve the experience of sport for early-specialized athletes, one must define what an early-specialized athlete is. This type of athlete can be described as one that has only played one sport from an early age. According to Waldron, et al (2020), there is a growing trend toward specialization in American youth sport, evident in the number of elite youth competitions and position statements from major medical organizations. In the past, the majority of young athletes played multiple sports until they had to pick one on which to focus, but with the development of elite youth competitions, more and more children are opting to focus on one sport at a young age. Researched benefits of early specialization from the performance perspective, pathways of both specific and multiple sport participation, psychosocial and physical health risks of sport specialization, ethical concerns, and methodological issues are all issues to consider which are connected with early sport specialization (Waldron et al., 2020). The



correlation between early specialization athletes and overuse injuries is focused on in the aforementioned study, however, the authors did not elaborate on methods that could to reduce these injuries in specialized athletes.

The article, "Early Sport Specialization: Roots, Effectiveness, Risks" outlines five main risks of early specialization. These are: social isolation, overdependence, burnout, injury, and compromised growth and maturation (Malina, 2010). Each of these five risks occur on some occasions, but Malina notes overwhelming rates of specialized athletes experience burnout, and explains burnout develops over time and is associated with perceptions by the athlete that they cannot meet the physical or psychological demands placed on them. Malina notes that there are three primary factors involved in burnout: negative performance evaluations, inconsistent feedback from coaches, and overtraining.

The next section will reviews the types of risks athletes experience and methods to help prevent potential risks.

### **Stress and Burnout in Athletes**

In order to understand and reduce the impact of the risks early-specialized athletes may face, certain terms must be defined. According to Moen, Hrozanova, Stiles, and Stenseng (2019), stressors in sport can be categorized into competitive and organizational stressors that are an ongoing transaction between an individual and environmental demands associated primarily and directly with athletes' performance. Burnout in athletes can be defined as chronic stress that normally leads to exhaustion, which can lead to loss of motivation in their sport.

Athletes who experience stress during competition are triggered by stressors such as concern about making mistakes, fear of not being good enough or perfectionism. According to Fender (1989), individuals with certain personality dispositions, such as perfectionism, are at

increased risk of experiencing stress and subsequent burnout. These stressors impact an athlete's ability to stay motivated, so it is important for coaches and athletes to be aware of potential risks. Garinger, Chow, and Luzzi (2018), found that multiple sport athletes showed lower levels of stress compared to specialized athletes, perhaps suggesting that early specialization athletes are experiencing more stress and burnout than multi-sport athletes due to constant pressure to perform and over training of the same sport-specific actions which can impact them psychologically as well as physically.

### **Mindfulness**

In an effort to combat these stressors for specialized athletes, research has been conducted to explore the best practices to address them. To help athletes cope with stress and high-pressure situations, mindfulness has been found to be a helpful tool that involves one's ability to remain focused, still, and "in the zone". According to Kabat-Zinn (2003), mindfulness can be defined as the awareness that occurs by paying attention deliberately, presently, and nonjudgmentally to experience each moment. The article, "Mindfulness-Based Interventions in Context" notes "mindfulness is often spoken of synonymously as "insight" meditation, which means a deep, penetrative, non-conceptual seeing into the nature of mind and world" (Kabat-Zinn, 2003, p.146).

This definition can be applied as a method for athletes to focus on a particular moment, improving upon skills that require concentration and breathing techniques. McMillen's article, "The Mediation of Perfectionism and Rumination on Mindfulness and Burnout in Collegiate Athletes" noted that perfectionism can be affected by levels of mindfulness that could lead to preventing feelings of burnout (2018). McMillen's conclusion describes how to effect mindfulness in order to diminish levels of burnout, which can be helpful in developing methods

for improvement in athletes.

Jekauc, Kittler, and Schlagheck (2017) explain further that mindfulness can be regarded as a type of psychological training to optimize performance. They found that using the Berlin Mindfulness-based Training for Athletes (BATL) as an intervention for high performance athletes improved mindfulness in athletes and potentially reduced their stress and anxiety levels. The researchers conducted this study by selecting a random sample and were randomly selected into two groups, the experimental and control group. The researchers measured the dependent variable on three occasions during the study and were asked to practice mindfulness or other sport psychological techniques for two thirds of the session. The experimental group participated in the Berlin Mindfulness-based Training for Athletes (BATL) and results were measured using the Mindful Attention Awareness Scale that consisted of 15 questions connected with a six point Likert Scale. The findings of this study lead to effective increases in the practice of mindfulness, however the study concluded that further intervention studies with meditation analyses is needed to determine if the BATL has an influence on performance.

### **Mindfulness to Improve Stress and Burnout**

In order to improve upon methods to help early specialized athletes, research should gather information on which practices work best. Since these types of athletes suffer from burnout, stress, and loss of interest, the following studies were reviewed to provide further insight regarding which methods work most effectively. According to Holden, Forester, Williford, and Reilly (2019), stress has negative health consequences and excessive stress can impede performance athletically and academically. It was further explained that educating student-athletes on how to cope with their stressors might prevent them from becoming overwhelmed in pressure situations. The findings of this study are related to the problem

statement prompting this literature review because of the method used to discover levels of stress and how it affects athletes. Holden et al. (2019) provided athletes with the Perceived Stress Scale and the Sport Locus of Control surveys to assess stress levels of athletes in normal and pressure situations. They concluded that student-athletes "who have an external locus of control feel that they have little control over their circumstances, and those athletes that believe they are powerless to change their circumstance perceive more stress than those who feel in control" (p.4).

The article, "Mindfulness and its Relationship with Perceived Stress, Affect, and Burnout in Elite Junior Athletes" (2015), explains "the relationship between mindfulness and athlete burnout was partially mediated by both positive and negative affect, whereas positive affect fully mediated the link from mindfulness to the subscale of sport devaluation" (Gustafsson et al., 2015, p.263). In a study developed by Zhang, Chung, and Gucciardi (2016), Chinese junior athletes completed self-report measures of mindfulness, experiential avoidance, and athlete burnout. Results suggested that experiential avoidance mediated the inverse association from mindfulness to each of the three-burnout dimensions (2016). The researcher concluded that athletes that avoid present moment thoughts and struggles have difficulty in successful use of mindfulness techniques, which can ultimately lead to one of the three reasons for burnout. Further conclusions link between mindfulness and athlete burnout that could yield positive or negative outcomes based on self-perceived stress by not practicing concentration techniques or feelings of low self-confidence in a particular moment.

According to Anshel, and Delany's qualitative analysis in 2001, the most common sources of acute stress for specialized athletes include receiving negative comments from coaches and opponent cheating. The authors of this study use the "COPE" Instrument (Carver,

Scheier, & Weintraub, 1989), to assess a broad range of coping responses while examining athletes' levels of perceived stress. These studies investigated and identified sources of stress and the methods athletes used to combat these stressors. The results of these studies and assessment tools indicate that more research is warranted to help early-specialized athletes improve their overall well-being in competitive environments using techniques that exist and possibly new ones.

### **Summary**

With the results of past research, the process of identifying specific methods to help early specialized athletes can continue by using the data and deciphering which methods are practical and works best for particular groups of athletes. With trends indicating early specialization in sports is on the rise, and knowledge that this has potential risks for injuries and stress, developing ways to keep athletes healthy and manage their emotions associated with sports is important and worthy of investigation.

## **CHAPTER III**

### **METHODS**

#### **Design**

A one group, pre-test post-test quasi-experimental design was implemented to determine the impact of a mindfulness intervention on stress related to competition experienced by male high school athletes. Pre- intervention athletic stress levels were determined by obtaining information from a pre-intervention survey and the Sport Anxiety Scale (SAS) from all invited participants. The survey assessed the participants' experience in specific sports. The SAS assessed participants' experiences of anxiety before or during competition with items using a five-point rating scale. This enabled the researcher to better understand the respondents' experiences in youth sport and how anxiety affected them.

The group then participated in 30 minutes of virtual (due to the pandemic) soccer training exercises twice a week for three weeks. The sessions were led by the researcher over Zoom and included mindfulness interventions at the beginning, middle and end of each session. After the sessions, the SAS and survey were re-administered to all participants and their pre-intervention and post-intervention SAS results were compared to see if they differed significantly. Anxiety sub-scores were also compared using charts to see whether and how they changed over the course of the intervention.

#### **Participants**

Eight males ranging in ages from 15 to 18 participated in the study. All had experience playing team sports during their youth sport careers. The participants are from the same city but attend different high schools or colleges. All participants are naturalized American citizens who have been in the United States for at least three years. Each participant is a member of a recently

formed soccer academy, which provides free soccer training in the summer. By being a part of this soccer academy, the participants were selected to participate on a club team that has partnered with the soccer academy to provide support and opportunities to play in competitive matches.

### **Instruments**

The surveys were developed by the researcher to assess sports history, anxiety during competition and reactions to the mindfulness interventions. Copies are found in Appendices A-C respectively. The first survey (Pre-intervention Sport History Survey, located in Appendix A) included a series of questions that asked how many years respondents were involved in youth sport, which sports, and if they were experienced in multiple sports or one sport.

As described in Chapter I, the SAS (Sport Anxiety Survey, located in Appendix B) was developed to assess the competitive trait anxiety experienced by athletes during competition. The SAS contained 18 items with responses, which ranged from one to five on a Likert-type rating scale and assessed participants' anxiety in competition. Higher scores reflected higher degrees of reported anxious symptoms related to competition. Total scores reflected anxiety levels during competition and could range from 18 to 90. Ratings reflected anxiety in three categories: Worry, Concentration Disruption, and Somatic anxiety. Worry score items were numbers 3, 5, 9, 13 and 17, with possible raw scores ranging from 5-25. Concentration Disruption items were numbers 2, 8, 13 and 18 with possible raw scores range from 4-20. Somatic Trait Anxiety score items were numbers 1, 4, 10, 11, 14 and 16, with possible raw scores ranging from 6-30. Total scores on the SAS from before and after the mindfulness intervention were compared to see if they differed significantly. The three pre- and post-intervention SAS subscale scores (Worry, Concentration Disruption and Somatic Trait Anxiety)

were summarized in charts to visually depict changes in them.

At the end of the study, the participants were asked to complete a final brief survey, the Post Mindfulness Intervention Survey; a copy of which is located in Appendix C. This included a series of short-answer questions that assessed whether participants found the interventions helpful in improving their anxiety, which specific methods they might use again and whether they would recommend these methods to other athletes.

## **Procedure**

### **Pre-intervention phase**

The pre survey (found in Appendix A) and the SAS (found in Appendix B) were administered via e-mail to all participants before the intervention started. Their responses helped determine the sports histories and baseline competition-related anxiety of the participants.

### **Intervention phase**

Practice soccer sessions were scheduled and monitored by the researcher. The group met via Zoom, for a thirty-minute session, twice a week for three weeks. The group participated in high intensity training exercises and members were asked to participate in mindfulness interventions at the beginning, middle, and end of each session. The mindfulness interventions each lasted approximately one minute and emphasized focus and concentration in a quiet setting. To complete the mindfulness intervention, players were asked to imagine them selves succeeding in a moment of pressure performing the targeted skill to aid them in performing the task later in real competition. These interventions were integrated in each session along with sport-specific skills such as running or dribbling with the ball and passing.

The specific mindfulness intervention that was used during the sessions was visual rehearsal and slow, steady breathing to encourage deliberate attention to tasks performed under pressure.



(As an example, a description of a mindfulness intervention related to a dribbling exercise is found in Appendix D.)

### **Post-intervention phase**

After the six sessions using mindfulness interventions were completed, participants were asked to complete the SAS again, as well as a brief survey about their perceptions of the intervention (found in Appendix C) via e-mail. Participants were asked if and in what ways they found the mindfulness interventions to be effective. The results of each phase were compared to determine if the participants noted any improvements in their anxiety levels during competition and their feelings about the interventions were summarized. Results follow in Chapter IV.

## CHAPTER IV

### RESULTS

#### Changes in Anxiety (SAS) Scores

Based on his review of literature, the researcher hypothesized that consistently using mindfulness techniques in virtual practice competitions would have the effect of lowering player's stress and anxiety levels. Stress in competition was assessed using the 18-item **Sport Anxiety Survey (SAS)** survey developed by the researcher, found in Appendix B. The null hypothesis tested was that the athletes' mean reported stress levels would not change after they participated in mindfulness activities during training sessions. Descriptive Statistics of the mean pre-and post-intervention SAS scores follow in Table 1. They indicated that the mean pre-intervention total SAS scores were higher and more varied than the post-intervention mean.

Table 1

*Descriptive Statistics of the pre-and post-intervention SAS scores*

<b>TOTAL SAS Scores</b>	<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
Pre-intervention	34.125	8	9.891	3.497
Post-intervention	25.625	8	4.406	1.558

The results of the paired samples t-test, which was run to test the null hypothesis, follow in Table 2 and indicated that the mean post-intervention SAS score was statistically significantly lower than the mean pre-intervention SAS scores (25.625 vs. 34.125 out of 90 possible points, mean difference= 8.5,  $t = 3.362$ ,  $p < .012$ ). Therefore, the null hypothesis was rejected. The pre-

and post-intervention total SAS scores were also noted to correlate positively and statistically significantly ( $r=.758$ ,  $p < .029$ ).

Table 2

*Results of Paired Samples t-test comparing mean pre- and post-intervention total SAS score*

	T	df	Sig	Mean Difference	s.d.	Std. Error Mean	95% Confidence Interval of the Difference	
							Lower	Upper
Pre-intervention SAS Total – Post-intervention SAS Total	3.362	7	.012	8.50	7.15	2.53	2.52	14.48

### SAS Subscale Scores

Participants’ SAS subscale scores (and total scores) were computed using the items for each which are listed, along with maximum possible scores for each, in column 1 in Table 3 below. The descriptive statistics regarding these scores follow and indicated that, in addition to the total SAS score difference noted above, all of the mean subscale scores were also lower on the post-intervention assessment.

Table 3

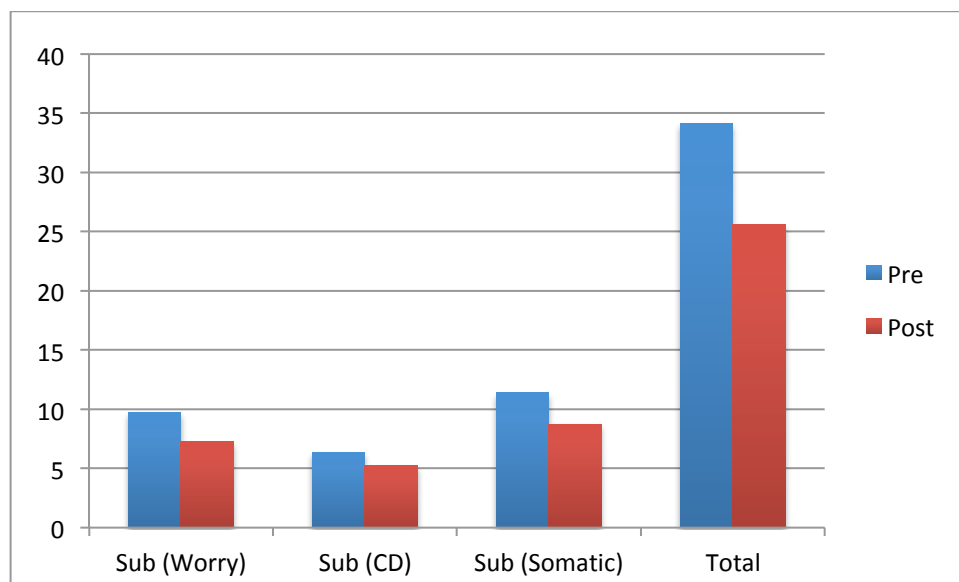
*Descriptive Statistics of SAS Subscale Scores: pre and post-intervention*

<b>Subscale (N=8)</b>	<b>Mean</b>	<b>Range</b>	<b>Std. Deviation</b>
<b>Worry:</b> Items 3,5,9,13,17 Possible score range: 5-25			
Pre	9.75	6-14	3.01
Post	7.25	5-9	1.16
<b>Concentration Disruption:</b> Items 2,8,13,18Possible score range: 4-20			
Pre	6.38	4-10	2.07
Post	5.25	4-7	1.04
<b>Somatic Trait Anxiety Items:</b> 1,4,10,11,14,16 Possible score range: 6-30			
Pre	11.38	6-16	3.78
Post	8.75	6-13	2.12
<b>Total Scores Items:</b> 1-18 Possible score range: 18-90			
Pre	34.13	21-48	9.89
Post	25.63	20-33	4.40

The mean scores on each subscale before and after the mindfulness intervention are presented in the bar chart below to more simply depict their differences.

Table 4

*SAS Subscale Mean Total Scores: pre and post-intervention*



### Survey Results

#### *Pre-Intervention Survey*

A brief survey regarding the participants' sports history was administered before the intervention. A copy is in Appendix A. The results are summarized in Table 5 below and indicated that all of the athletes reported they had specialized in soccer. The eight respondents reported they have played soccer for a mean of 9.25 years with a range of six-12 years of playing. Four respondents reported having played other sports than soccer, three did one other and one did both track and cross-country at ages 15-16. Additionally, four respondents reported taking one to two years off from soccer since they started it; three of them in grades six, 9/10, 11

and 12 and one of them in grades four and five.

Table 5

*Descriptive stats regarding sports history*

<b>Sport</b>	<b>Number who Played</b>	<b>Started at ages</b>	<b>Range of Years played</b>
Soccer	8	6-10	6-12
Basketball	2	13 and 14	1-3
Volleyball	1	16	2
Cross Country	1	15	1
Track	1	15	1

The pre-survey also asked respondents if they used any methods currently to help them cope with anxiety during competition. A list of responses follows in table 6.

Table 6

*List of pre-intervention coping techniques*

	<b>Frequency</b>
<b>Breathing techniques:</b> <ul style="list-style-type: none"> <li>• 3 Deep Breaths</li> <li>• Breaths for 5 seconds before game starts.</li> </ul>	<b>2</b>
<b>Start over by visualizing the task</b>	<b>1</b>
<b>Just try to focus</b>	<b>1</b>
<b>Music before games or practice</b>	<b>1</b>

<b>Drink water and think about tasks</b>	<b>1</b>
<b>None</b>	<b>2</b>

*Post-Intervention Survey*

Finally, participants were asked to complete a four-item post-intervention survey in Appendix C to describe how they felt about the mindfulness intervention and its impact on reducing their stress in competition. Responses are summarized in table 6 below. All eight participants responded that they found the intervention helpful.

Table 7

*Reflections on Intervention*

<b>All 8 respondents replied “YES” to each item</b>	
<p>1. Did you find the mindfulness interventions during each practice session to be helpful?</p>	<p>If yes, please describe which part helped you most:</p> <ul style="list-style-type: none"> <li>- Helps improve how to breathe and focus</li> <li>- Helps focus on what you want to improve. Mindfulness part helped most</li> <li>- Helped me feel in the moment to open my mind to think about the competition, my skills and speed.</li> <li>- Helped me breath right and think about what I do well in the game.</li> <li>- Helped me get back to the moment before I got frustrated, meditating and breathing</li> <li>- Helped me break down tasks and really think. Because you can focus on breathing.</li> <li>- It was helpful because it made me able to concentrate better, meditating.</li> <li>- It was helpful because it made me be in the moment, meditation helped the most</li> </ul>
<p>2. Would you use these methods again?</p>	<p>Describe where you would use them again (during competition, school, or any other setting where anxiety could increase.</p> <ul style="list-style-type: none"> <li>- During games and moments I feel nervous</li> <li>- Can help in the future when learning new skills</li> <li>- Because It helps me think clearer, I would use again in competition</li> <li>- I would use again when playing to help focus and in school</li> <li>-I will use them between breaks and in the middle of games.</li> <li>- I would use again during practice, games, and in school.</li> <li>- On the soccer field for games or practices.</li> <li>- I will use this method in daily life, especially the meditation</li> </ul>
<p>3. After participating in this study, would you recommend the use of mindfulness interventions to others?</p>	<p>Describe which group of people could benefit the most (high school aged athletes, young athletes, siblings).</p> <ul style="list-style-type: none"> <li>- Because this could be helpful during anxious moments. Young athletes, friends, and artists.</li> <li>- It can help my friends and teammates focus better</li> <li>- It can help you understand how you feel and how to get better. Anybody that wants to pay attention to it</li> <li>- I would recommend to my team because it can help everyone stay focused</li> </ul>



	<ul style="list-style-type: none"> <li>- I would recommend for anyone who gets easily frustrated</li> <li>- I would recommend to my parents and brothers to feel more relaxed</li> <li>- High school aged athletes because they could concentrate easier to get better at their sport.</li> <li>- Because it makes me in the moment and forget all stress and work, high school aged kids would benefit the most</li> </ul>
<p>After participating in this study, would you say your anxious feelings have increased/decreased/stayed the same, while competing with your peers?</p>	<p>In a few words, describe how they changed and why?</p> <ul style="list-style-type: none"> <li>-Decreased because of focus on breathing helped feel better</li> <li>- Sometimes increased when against teammates but decreased when using the breathing</li> <li>- Decreased when I am competing. They changed by feeling more relaxed when I am competing.</li> <li>- Decreased because I am calmer during a game.</li> <li>- Decreased because I am now able to catch myself before I get really frustrated</li> <li>- Decreased because I feel more relaxed and confident</li> <li>- Decreased because I feel I can concentrate easier to focus on getting better. I don't feel as nervous when I am playing against my team.</li> <li>- My anxiety has decreased because I was so stressed about school now I start to feel better to manage everything</li> </ul>

Responses on the post-intervention survey indicated that each participant felt he benefited from participation in the intervention. Each participant found the intervention helped improve focus, control breathing, and concentration in a particular moment. The participants shared that the use of these techniques can be helpful when learning new skills and in other areas of life, such as school or work. The findings of the last item of the survey suggested that all of the participants' anxious feelings decreased during competition with peers and that mindfulness interventions can be overall helpful in managing their emotions.

## **CHAPTER V**

### **DISCUSSION**

The results of this study revealed that the mindfulness-based interventions employed had a positive effect on each participant. The researcher's hypothesis was supported by findings, which showed that after using mindfulness interventions the participants' anxious feelings regarding high-pressure situations decreased. The data revealed significant reductions in the Sport Anxiety Scale scores after the intervention and reflection questions supported those findings.

#### **Implications of the Results**

The results of the study imply that mindfulness interventions seemed to have a beneficial effect on this group of specialized athletes' experience of anxiety during high-pressure situations. The results of the pre-survey found that the participants had experience in primarily one sport with high levels of worry and somatic trait anxiety according to each category on the SAS: Somatic, Concentration Disruption and Worry. Comparison of the participants' pre-intervention total SAS mean score of 34 and post-intervention mean score of 25 supported the researcher's hypothesis that using mindfulness practices could improve athletes' ability to manage anxiety in competitive situations. The results also indicated that mindfulness interventions can be implemented in training relatively simply and in ways that seem likely to be well-accepted by athletes.

#### **Theoretical Consequences**

The researcher's hypothesis assumed that with the consistent use of mindfulness practices, anxious feelings in high-pressure situations could become more manageable. The theoretical logic of this is impacted by the fact that each individual is different and may experience stress and respond to mindfulness interventions in different ways. Chapter II mentions Fender's (1989)

study that individuals with certain personality dispositions are at increased risk of experiencing stress and burnout. As individuals experience stress in their own way based on their personality and environment, mindfulness interventions may work for many but not help everyone.

Therefore, continued research to support the evolution of coaching theories is warranted.

### **Threats to Validity**

Although this study revealed interesting and useful results, there were threats to its validity. The first is related to possible inaccuracy in self-reporting to yield scores for each survey. For example, if a participant does not want to share their true feelings, he may not accurately depict how he is feeling in that moment. This could lead to inaccurate results that ultimately diminish the validity of individual and combined scores. The second threat to validity was related to the setting created for the participants in order to compete and conjure moments of potential high anxiety. The practice sessions of the study were held via Zoom, which did not exactly replicate the same atmosphere and demand of an actual team practice or game. The participants were in their individual spaces and had opportunities to compete during each session, but there was a lack of true game-like scenarios and possibly the actual feelings of anxiousness during live, face to face competition as the study was not conducted on the field or in person. The duration of the study was also brief and the sample was very small and consisted of a select population of soccer players, so the result might not generalize to youth with other backgrounds or in other types of athletic programs.

The results reveal improvements in ability to manage anxious feelings from each participant; however, the aforementioned threats to validity and the fact that the focus was only on soccer could potentially compromise the ability to generalize these findings to other settings or sports.

### **Connections to Existing Literature**

Past studies have researched different personality types and how people with those types react in certain situations. According to Holden et al (2019), stress has negative health consequences and excessive stress can impede performance athletically and academically. Similar to this study, pre and post surveys were distributed and analyzed and items corresponded to a trait anxiety type: Somatic, Concentration Disruption and Worry traits. The article "Mindfulness-Based Interventions in Context" explained a study similar to this one, in which mindfulness-based interventions were used with athletes in high-pressure situations. The author explained that mindfulness, also referred to as insight meditation, could be useful for high trait anxiety athletes who regularly experience performance anxiety (Kabat-Zinn, 2003). Both studies have parallels with the researcher's study in that they investigated how mindfulness interventions can help athletes manage their emotions.

### **Implications for Future Research**

Future research should seek to minimize threats to validity while building on the findings of the current study. The most important implication is to create opportunities within the study in which participants are able to experience game and practice-like scenarios and reveal their feelings about that. This will provide the researchers opportunities to analyze the data shared by participants in settings that are comparable to real competitive situations. With this study being conducted over Zoom, opportunities for intense moments that potentially reveal anxious feelings likely did not occur as much they would in in-person practice or games. Another implication for future research is to increase the sample size and to seek participants with different backgrounds in a variety of sports. With the addition of these strategies, opportunities to analyze a bigger and more diverse sample size could reveal similar or different trends that will lead to greater validity

of the study and greater ability to apply results to specific and larger populations.

### **Summary**

The researcher's success in conducting this study was partly due to the participants' effort and desire to improve their mental and athletic skills. Many interesting points were revealed through out the study, the first being that the majority of the participants, who were Early Specialized Athletes, initially self-reported mild levels of anxious feelings. During the sessions, the researcher understood that communication through Zoom could be challenging, however competitive opportunities were presented to induce pressure and mindfulness exercises were administered to reduce participants' anxiety, whether that was high or low at the onset of the study. Comparison of pre and post-intervention SAS scores indicated there were improvements in managing anxiety after the six mindfulness interventions and the null hypothesis was rejected. The pre/post reflection questions revealed information about how anxiety levels improved over the course of the study and suggested participants felt the intervention was helpful. Knowing this, the researcher will be able to apply his knowledge and continue to refine his interventions to help his athletes' manage their emotions in high-pressure situations.

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## Appendix A

### Pre-intervention Sport History Survey

**Directions:** Check off the organized Sports you played in the "Played" Column - Add the number of years and ages when you played in the Years and Age Column.

**Note:** your responses will not be shared in any identifiable way, so please be honest

Name: \_\_\_\_\_

Sport	Played (X= yes)	Number of years played	Ages when you played
Soccer			
Basketball			
Baseball			
Football			
Other (please list)			

Please reply to these items:

1. An **Early Specialization Athlete** is an athlete that focuses and competes in primarily one sport starting at age 10 and throughout their youth sport careers. Would you describe yourself as having focused on primarily one sport since age 10? \_\_\_\_\_

2. Which sport did you specialize in: \_\_\_\_\_

3. If you focused on mainly one sport, how many years have you NOT played that sport after you started it? (List grades you did NOT play it below)

\_\_\_\_\_

4. Do you use any methods to currently help you cope with anxiety during competition? If yes, please describe.

\_\_\_\_\_

**Appendix B**  
**Sport Anxiety Survey**

**Please read and answer the follow items to the best of your ability using the scoring system below (1-5).**

**Note: your responses will not be shared in any identifiable way, so please be honest**

**Remember: Answer these items as if you are about to enter or are participating in a soccer competition.**

**Response Options**

- 1 - Not At All
- 2 - Just a little
- 3 – Neither yes or no
- 4 – Pretty much
- 5 - Extremely

<b>Items:</b>	<b>Answer:</b>
<b>When I am about to enter or participate in a competition:</b>	
1. I feel nervous	
2. During competition, I find myself thinking about unrelated things	
3. I have self-doubts	
4. My body feels tense	
5. I am concerned that I may not do as well in competition as I could	
6. I easily lose focus when there is pressure	
7. I feel tense in my stomach	
8. Thoughts of doing poorly interfere with my concentration	
9. I'm concerned about choking under pressure	
10. My heart races	
11. I feel my stomach sinking	
12. I'm concerned about performing poorly	
13. I have lapses of concentration during competition because of nervousness	
14. I sometimes find myself trembling before or during a competitive event	
15. I'm worried about reaching my goal	
16. My body feels tight	
17. I'm concerned that others will be disappointed in my performance	
18. I'm concerned I won't be able to concentrate	

**Appendix B continued.**

**Sport Anxiety Survey  
Scoring Instructions**

**Based on the sum of responses to specific categories yield sub scores. Each category is listed below with the items that comprise it and its range of possible raw scores.**

- Worry score items were numbers 3,5,9,13,17, raw scores range from 5-30.
- Concentration Disruption items were numbers 2,8,13,18, raw scores range from 4-20.
- Somatic Trait Anxiety score items were numbers 1,4,10,11,14,16, raw scores range from 6-30.
- Total raw scores range from 18-90.

**Appendix C**  
**Post Mindfulness Intervention Survey**

**Please circle Yes or No and use short answers to complete the questions below.**

**Please answer clearly to the best of your ability.**

**Note: your responses will not be shared in any identifiable way, so please be honest**

1. Did you find the mindfulness interventions during each practice session to be helpful?

Yes    No

Why or why not? \_\_\_\_\_

If yes, please describe which part helped you most.

\_\_\_\_\_

2. Would you use these methods again?

Yes    No

Why or why not?

If yes, please describe where you would use them again (during competition, school, or any other setting where anxiety could increase).

\_\_\_\_\_

3. After participating in this study, would you recommend the use of mindfulness interventions to others?

Yes    No

Why or why not?

If yes, describe which group of people could benefit the most (high school aged athletes, young athletes, siblings).

\_\_\_\_\_

4. After participating in this study, would you say your anxious feelings have increased/decreased/stayed the same, **while competing with your peers?**

Yes    No

Why or why not?

In a few words, describe how they changed and why?

\_\_\_\_\_

**Appendix D**  
**Sample Mindfulness Intervention Related to a Dribbling Exercise**

"Find a comfortable spot, close your eyes and breath in through your nose out through your mouth.

Breath in through your nose, out through your mouth and again, in....out....

Imagine yourself on the soccer field dribbling the ball, pay close attention to the part of your foot touching the exact part of the ball. See your foot touch the ball one after the other, each time a perfect touch.

Breath in....out...

Imagine yourself cleanly touching the ball with the outside of your foot, turning to change direction quickly and efficiently. See yourself continue that pattern using different parts of your foot at different parts of the ball. You feel calm and relaxed breath in...out...

Repeat these images again and again. Breath in...out..."

## Appendix E

### Note to Parents for Permission to Participate in Study

Dear \_\_\_\_\_

I am Andre Martins, Athletic Director of Connect Soccer Academy. I am currently working on a Masters degree at Goucher College and am completing an action research project to learn about research methods and help improve my coaching. I have developed a simple study to assess athletes' experience in youth sport and how anxiety may affect them during competition. Participation in this study is completely voluntary and involves completion of 3 brief surveys and working on some simple techniques to improve focus during our regular practices over three weeks. There is no risk to participating and the activities will not interfere with regular practice goals.

I would greatly appreciate you granting permission for your son to participate in this study and assure you that all individual responses of each participant will be kept completely confidential and anonymous.

**To indicate your permission for your son to participate in this study, please respond to Coach Andre at [andre.martins@goucher.edu](mailto:andre.martins@goucher.edu) and indicate your consent by Friday 2/26**

I will be happy to share my general findings with you upon completion of this project upon request.

Thank you again for your time. Please contact me via email or phone (contact information is below) by Friday if you have any questions at all, I look forward to completing this project and continuing to work with your son.

Sincerely,

Andre Martins  
[Andre.martins@goucher.edu](mailto:Andre.martins@goucher.edu)