

Anxiety and Its' Effect on Sport Performance

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Abstract

As the mental health aspect in sport have become an increasingly important topic, the importance of the effect it has on the athlete and their performance has come into focus. Analysis of previous research shows that anxiety is present in athletes and can have an impact on their performance. It has been suggested that the type of sport an athlete participates in may play a part of their cognitive anxiety levels. It has also been suggested that anxiety relieving techniques should be advised and implemented into athletes' daily routine to help limit anxiety and promote sport performance. Performance-based anxiety can have a detrimental impact on the athlete. The purpose of this synthesis project is to review the literature on performance-based anxiety and its effect on the athlete.

Chapter 1 – Introduction

Everyone is at risk of experiencing some sort of psychological disorders at each stage of life. These disorders include stress, depression, and anxiety (Hasanah et al, 2019). It is well known that sport can potentially cause high levels of anxiety, and coaches, players, and doctors have employed a variety of strategies to help mitigate anxiety (Correia & Rosado, 2018). Practicing and developing a variety of strategies to combat anxiety within the athlete has become an integral part of the athlete's preparation (Ford et al, 2017). The relationship between competitive anxiety and sport performance has been one of the most discussed topics in recent research (Kalinin et al, 2019).

Being physically active is important to not only an athlete's physical health, but also their mental health. Sport psychologists have long believed that high levels of anxiety during competition can be harmful to an athlete's performance (Parnabas et al, 2014). Those working with the athletes and the athletes themselves must be mindful of identifying anxiety. Leaving performance anxiety unaddressed can have a negative impact on performance during practice and competition (Ford et al, 2017). Research has also indicated that the more important the competition, the higher anxiety level in athletes (Munoz et al, 2017).

Past research studies have defined anxiety in a variety of ways. There are multiple types of anxieties that an athlete can face. These include competitive anxiety, pre-competition anxiety, performance anxiety, cognitive, and somatic anxiety. Somatic anxiety is the physiological element which has negative symptoms such as feelings of nervousness, high blood pressure, sweaty palms, muscular tension, rapid heart rate, and butterflies in the stomach (Parnabas et al, 2014). Cognitive anxiety is the mental component. Symptoms of this type of anxiety can be expressed by negative expectations of success or self-evaluation, negative self-talk, images of failure, worries about performance, and inability to concentrate (Parnabas et al, 2014).

Another key aspect in recent research is the types of sports which cause the most anxiety and the types of sport that promotes lower levels of anxiety. Research studies have indicated that athletes who participate in team sports are more likely to have lower levels of anxiety compared to athletes who participate in individual sports (Pluhar et al, 2019). Team sports encourages important mental and social skills and promotes athletes to learn how to work with others. Feeling a part of a team can also be important for an athletes' mental well-being. Pluhar and others have found that athletes who participate in team sports mainly play for fun compared to athletes who participate in individual sports who tend to play for more goal-oriented reasons.

There have been many different strategies developed and discovered through research that may help an athlete mitigate their anxiety levels. Self-talk has been an increasing research topic amongst sport psychologist and plays a key role in performance and self-regulation (Latinjak et al, 2016). Self-talk has been linked to treat multiple emotional disorders including anxiety. Recent studies have exemplified how self-talk strategies can be implemented to have a positive impact on athletes' anxiety levels (Latinjak et al, 2016). Another method that is popular amongst athletes when trying to mitigate their anxiety is progressive muscle relaxation (Parnabas et al, 2014). When athletes perform this relaxation technique, they are making each individual group of muscles as tight as possible, then progressively relaxed to their previous state. Another technique that athletes use to help themselves relax is breath control or deep breathing (Parnabas et al, 2014). Goal setting can also have a positive impact on limiting anxiety in an athlete. These types of goals include mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance (Stenling et al, 2014). The techniques provided by research studies must be further investigated to determine whether what effect it has on an athletes' performance.

Statement of the Problem

Athletes who participate in sport are becoming more aware of the importance of their mental well-being. Anxiety is often experienced by athletes, either young or old, and by both amateur and elite sport athletes (Hasanah, et al, 2019). It is important to continue the exploration of various types of anxieties so coaches, athletes, and doctors can diagnose and treat each type. Anxiety can occur at any point in time and can cause cognitive and physiological responses from the athlete (Ford et al, 2017).

Performance-based anxiety can have a detrimental impact on the athlete. The ever-increasing pressure to achieve a great performance will inevitably create anxiety and fear of failure in athletes (Correia & Rosado, 2018). Fear of failure prohibits growth and enjoyment within sport. This makes developing, creating, and implementing strategies to cope and mitigate anxiety in the sport setting extremely important.

Purpose of the Synthesis

The purpose of this synthesis project is to review the literature on performance-based anxiety and its effect on the athlete.

Operational Definitions

1. Performance anxiety – an unpleasant psychological state in reaction to perceived stress concerning the performance of a task under pressure (Ford et al, 2017).
2. Athlete – person who participates in sport.

Research Questions

1. What effect does anxiety have on an athletes' performance?
2. Does the type of sport factor in to anxiety levels of an athlete?
3. What are techniques that can help mitigate athletes' anxiety levels?

Delimitations

1. The articles used in the literature review of the synthesis were both peer reviewed and full text.
2. The review included articles between 2012-2022.
3. The articles reviewed in this synthesis were limited to studies on anxiety in sport.
4. The ages looked at in this synthesis ranged between 13-38 years old.

Chapter 2

Methods and Procedures

The purpose of this chapter is to review the methods and procedures used to determine performance-based anxiety and its effect on the athlete. An extensive search of previous research was orchestrated to obtain necessary information in order to complete the synthesis. This chapter specifically describes the methods used in obtaining the relevant information for the synthesis.

The studies collected for this synthesis were located using the EBSCO database from SUNY Brockport's Drake Library. Within the EBSCO database the following databases were searched: SPORTDiscus and Academic Search Complete. Google scholar was also used to assist in finding studies mentioned in existing research found in the database searches. Researching across these three databases resulted in thousands of articles returned depending on the keywords used.

In order to trim the results from thousands to a more reasonable amount, keywords were used to assist in doing so. These keywords included *anxiety*, *sport performance*, *precompetition*, *confidence*, *relaxation techniques*, and *self-talk*. These keywords were chosen based on their relevance to the research questions, purpose statement, and from articles that were found early on in this process. *Anxiety* and *sport performance* were the most important keywords used search the literature. These keywords resulted in a broad set of articles to start the research with, before adding more keywords like *precompetition*, *relaxation techniques*, *self-talk*, and *cognitive anxiety*. *Precompetition* was identified as a keyword because the purpose of synthesis is to examine the relationship between anxiety and the athletes' performance. Anxiety comes first and then the performance is measured after competition. The keywords *relaxation techniques*, *self-talk*, *confidence* was important because they targeted articles that were vital to the effects on athletes' performance.

The first search within the Academic Search Complete database used the keywords *anxiety in sport*. This search resulted in 3,570 articles. Two limiters were then applied to produce only results with full text and peer reviewed journals. Another limiter that was applied was a published date limiter which ranged from 2010-2022. This dwindled the results down to 1,761. One of the first five articles that were shown fit the criteria for use in the synthesis. Additional keywords *cognitive anxiety* was applied resulting in 299 articles shown. Of those 299 articles, four more were used for the synthesis review. Following the addition of those articles, the keywords were replaced by the keywords of *self-talk*. This search resulted in 9 articles in which one article fit the criteria used for the synthesis.

The second search conducted with Google Scholar data base imposed the same limiters of full text, peer reviewed journals, and a published date between 2010-2022. The keywords used in this search were *relaxation techniques*, *anxiety* and *sport performance*. The search revealed 104 results. Of the 104 results, two article was found for use in the synthesis, while another two were deemed duplicates.

The third search completed within SPORTDiscus database. This search had the same limiters as the previous, but the keywords used were *self-talk* and *sport performance*. The search revealed 207 results. Of those 207 articles, one was used for the synthesis. Adjusting the keywords to *anxiety*, *confidence*, and *precompetition* resulted in 21 articles. Of those 21 articles, one article was found for use in the synthesis.

Ten total articles were selected through the refined search process. The articles obtained in the databases were gathered from several professional journals. The journals utilized included: *Journal of Human Kinetics*, *Universal Journal of Psychology*, *Journal of Applied Sport Psychology*, *Health, Sports & Rehabilitation Medicine*, *Journal of Sports Science and Medicine*,

Journal of Sport Psychology, and European Journal of Sport Science. Each one of these journals contributed at least one scholarly article for this synthesis.

The critical mass for this synthesis is comprised of 2,218 individuals, the vast majority of whom were white males. The majority of participants ranged from 18-23 years old. All the participants were either current or former athletes. Demographic regions included the United States, Portugal, Spain, Romania, Malaysia, Sweden, and Slovenia.

The articles selected for this synthesis included a mix of qualitative and quantitative approaches. Seven out of the ten articles were quantitative and the other three articles were a combination of quantitative and qualitative methods. These studies gathered data in a variety of ways. The researchers analyzed the data into valuable information in a variety of ways. Interviews, questionnaires, and surveys were the most common methods used to gather data. The most common ways to analyze the data were descriptive analysis and Sport Anxiety Scale-2. The studies that used a combination of both methods collected data through interviews and questionnaires to draw conclusions on the athletes' anxiety levels and self-reported performance evaluation. Between the recommendations from the authors' data that was presented in the critical mass, a discussion on how anxiety effects athletes' performance were formed.

Chapter 3 – Review of Literature

The purpose of this chapter is to present a review of literature on performance-based anxiety and its effect on the athlete. In particular, the following topics will be explored: types of sport-related anxieties, team sport vs. individual sport athletes and anxiety levels, and anxiety relieving techniques and the effect on performance. These topics emerged as a result of reviewing 10 peer-reviewed articles. Many people have experienced the feeling of anxiousness at a certain point of their athletic careers or personal life. What many people do not understand is that they are different types of anxiety they may experience depending on personal characteristics, circumstances, teammates, coaches, etc.

Types of Sport-Related Anxieties

Anxiety is a common emotional state experienced by athletes at all levels of performance. In sport there are various of types of anxieties an athlete can experience. It is essential for an athlete to be aware of the types of anxieties so they can implement techniques to help reduce that anxiety. It is also essential for a coach or sport psychologist to identify where the anxiety is coming from within their athletes so they can assist and limit the anxiety's effect on performance.

Correia and Rosado (2018) conducted a study that was intended to examine the relationship between fear of failure and anxiety in sport contexts. This study surveyed 405 athletes in Portugal, both male and female. The age ranged between 12 and 20 years old. The athletes completed the Performance Failure Appraisal Inventory and the Sport Anxiety Scale-2. The measure assessed the strength of their beliefs about possible consequences of failure into five domains: experiencing shame and embarrassment, devaluing one's self-estimate, having an uncertain future, important others losing interest, and upsetting important others. This study found that fear of failure construct has a direct and positive influence on sport anxiety.

Ultimately, they found a relationship between fear of failure and anxiety, indicating that athletes with a higher level of fear of failure displayed a higher level of anxiety.

Over time, researchers have found new anxieties that are influenced by individual factors. Kalinin, et al (2019) investigated the relationship between mental toughness and competitive anxiety among student-athletes. 140 student-athletes from secondary sport schools, aged between 13 to 19 years old completed self-reports regarding their mental toughness (Sport Mental Toughness Questionnaire) and their competitive anxiety (Sport Anxiety Scale-2). The Sport Mental Toughness Questionnaire is a global measure of mental toughness with 14 items designed on three subscales: confidence, constancy, and control. The Sport Anxiety Scale-2 is a questionnaire that assess the competitive trait anxiety athletes experience before or during competition. This scale has 21 items and measures responses for three factors: somatic anxiety, worry and concentration disruption. The obtained results of latent regression analysis supported the influence of mental toughness, as a personality trait-like characteristic, on competitive anxiety. It was deduced that any intervention that will increase an athletes' mental toughness, will also contribute to reducing their sport anxiety levels.

Alternatively, Houlberg, et al (2018) examined how elite athletes profiled themselves and these profiles were compared on measures of psychological well-being (e.g., depression, anxiety, post-failure shame levels, and life satisfaction). This study consisted of 99 NCAA Division I athletes across the United States. The Performance Failure Appraisal Inventory was used to assess for general fear of failure. The researchers used The Sport Multidimensional Perfectionism Scale to measure perfectionism, The Competition-Contingency Self-Worth subscale, 10-item Rosenberg Self-Esteem Scale, Shame subscale from the State Shame and Guilt Scale and the five-item subscale of meaning in the Meaning in Life Questionnaire to gather data

from the participants. This study found that athletes with a performance-based narrative identity (high perfectionism, fear of failure, and contingent self-worth) demonstrated the highest levels of psychological disruptions, including anxiety. This study also found that athletes with purpose-based narrative identity (high purpose, global self-worth, positive view of self after sport) was associated with highest level of psychological well-being (lowest levels of depression, anxiety, and shame).

Latinjak, et al (2016) conducted research that analyzed anxiety during specific situations during competition. The intent of the research was to explore differences in occurrence and in the content of spontaneous and goal-directed self-talk in anger-eliciting situations. The researchers used unique methods and procedures to gather data from the 87 Catalan and Spanish athletes compared to the previous studies mentioned in this chapter. They implemented a seminar to educate and inform the athletes about emotions and thoughts in sport, and another seminar to describe self-talk in general psychology, as well as goal-oriented self-talk and spontaneous self-talk. After each seminar the participants answered a questionnaire and were asked to recall situations and list their thoughts. Participants self-evaluated their answers to the questionnaires and categorized their own thoughts as spontaneous or goal oriented. Additionally, two sport university lecturers with expertise in qualitative analyses analyzed the participants answers. The results showed that in anger-eliciting situations, spontaneous self-talk was generally negative and retrospective, whereas anxiety-eliciting situations, spontaneous was both positive and negative. It also found that goal-directed self-talk generally aimed at creating activated states, regulating behavior and focusing on positive predictions.

Alternatively, Stenling, et al (2014) looked closer into how an athletes views their own ability and what goal approach they possess and surveyed 163 females and 152 male athletes

about their implicit beliefs of sport ability, approach-avoidance goals and sport-related cognitive anxiety. The results of the questionnaires concluded that incremental beliefs of ability were positively correlated with both approach goals among males, but only with mastery-approach goals for females. The results also expressed that adopting mastery-avoidance goals was positively related to higher levels of cognitive anxiety and that incremental beliefs of ability seem to reduce athletes' cognitive anxiety through their effects on mastery-approach goals. This same study conducted by Stenling et al (2014) also divulged insight into team sport athletes and their belief of ability and cognitive anxieties.

Anxiety in Team Sport Compared to Individual Sport

The survey conducted by Stenling, et al (2014) brings to light the cognitive anxieties experienced by team sport athletes. The study examined a conditional process model with team sport athletes' approach-avoidance achievement goals as mediators between their implicit beliefs of sport ability and sport-related cognitive anxiety. Their research suggested that regardless of participating in team or individual sport, females are more prone to experience anxiety than males in competitive settings. Another significant finding this research displayed was that the underlying belief about athletic ability may orient female athletes towards avoidant and normative achievement goals resulting in higher levels of cognitive anxiety.

Pluhar, et al (2019) found through their cross-sectional study of child and adolescent athletes who underwent an injury prevention evaluation that team sport athletes and individual sport athletes varied in anxiety levels. The objective of this study was to determine whether the proportion of athletes with mental health diagnosis and athlete motivations for playing differ between team sports and individual sports. The researchers compared self-reported anxiety, depression, and reasons for participating in sports between athletes in individual sports and team

sports. The researchers categorized motivation for participating in sports as 1) for fun, with benefits of participation including, making friends and being part of a team, 2) goal-oriented reasons with benefits including motives such as receiving a scholarship or controlling weight. The study included 756 athletes between the ages of 6 and 18 years old. This research revealed that self-reported diagnosis of depression and/or anxiety were higher among individual sport athletes. Another significant finding this research displayed was that individual sport athletes had a higher proportion of athletes playing for goal-oriented reasons compared to team sport athletes. Additionally, individual sport athletes were significantly less likely to play for fun, more likely to train year-round, more likely to only participant in one sport, and more likely to carry a diagnosis of depression or anxiety.

Research from Amado, et al (2019) relayed data that displayed an association between self-determined motivation, team potency, and self-talk in team sports. The aim of the study was to evaluate the determinant factors of athletes' internal positive self-talk that might lead to decreased anxiety and increased performance. A multiplicity of questionnaires was distributed to gather data from the 191 male and female athletes. They found that satisfaction of the basic psychological needs was the strongest predictor of positive self-talk or positive thoughts during competition. Also, perception of autonomy was the strongest predictor because it positively predicted concentration, anxiety control and instructions, followed by the perception of competence which coincided with confidence. This study revealed that the greater satisfaction the athlete felt in relation to autonomy, the higher their concentration, anxiety control, and self-talk of instructions during competition.

As noted by Amado, et al (2019), athletes are prone to experience some sort of anxiety throughout competition. They also have the ability to implement strategies and techniques to control and limit their anxiety to enhance their performance.

Techniques to Limit Anxiety & Increase Performance

Many athletic programs have used their resources to put an emphasis on the athletes' mental well-being. Several of the previously mentioned studies noted the importance of the intervention and implementation of anxiety relieving strategies and techniques to enhance sport performance (Amado et al., 2019; Stenling et al., 2014; Kalinin et al., 2019; Houlberg et al., 2018; Latinjak et al., 2017).

Amado, et al (2019) noted the importance of implementing techniques to help athletes control their anxiety and overall increase their performance. Results of this study showed a positive relationship between self-determined motivation, satisfaction of the basic psychological needs, team potency, and positive self-talk. The research shows that if the coach promotes autonomy by allowing athletes freedom of expression and performance, make their own decisions, the correct explanation of tasks and goals, as well as considering the athletes' preferences and opinions. Another significant finding was that athletes showed a predominance of positive self-talk when feeling autonomous. Essentially, athletes who have more freedom during competition, competence, confidence, and a higher feeling of relatedness, were more likely to express positive self-talk.

Munoz, et al (2017) noted in the discussion of their quantitative research that despite only surveying female athletes, that even at the highest levels of competition, athletes experience anxiety. This study was composed of 92 female Spanish athletes who were selected by the Royal Spanish Athletics Federation to represent Spain for international competitions during the years of

2014, 2015, and 2016. The women ranged from the U18 category to the senior national team, ranging from 18 to 36 years old. The purpose of this study was to evaluate how these athletes cope with pre-competition anxiety by examining three variables in the moments prior to the competition -cognitive anxiety, self-confidence, and somatic anxiety – and the way these variables impacted the results achieved by the athletes. They found that there is a significant difference between cognitive anxiety and self-confidence. Essentially, the more confidence an athlete has in oneself, the less cognitive anxiety they possess. Their research, which featured a 27-question questionnaire and resulting in quantitative analysis, stressed the importance of confidence and its' effect on performance.

Following the same line of research, Vodigar, et al (2012) conducted a study based on the athletes' pre-competition mental state. The aim of this study was to examine if mental preparation actually helps athletes' progress. The participants in this study were 11 Slovenian national league basketball players aged 17 to 27 years old. The researchers used multiple questionnaires to develop a quantitative analysis. This study was very unique in comparison to the other previously mentioned studies because these researchers created and implemented their own mental preparation program that they had the athletes participate in. The program was developed to improve athletes' pre-competitive states, i.e. anxiety, concentration and self-confidence. The program included relaxation techniques comprised of autogenic training, deep relaxation and breathing techniques. Each individual had their own personalized mental preparation program that consisted of 12 sessions; in both the first and final sessions, the athletes completed the questionnaires. Although the results did not show a significant lower level of cognitive anxiety, a decreasing trend in the cognitive aspects of anxiety was found and should be considered. Results did however show that mental preparation has a positive impact on lowering

pre-competitive somatic aspects of anxiety. This means that their bodies were more relaxed, breathing was calmer and more even, and their pulse is only slightly elevated. The results showed the high value of positive self-talk, breathing exercises, and visualization techniques.

In addition, Parnabas, et al (2014) conducted a study to find the correlation between different kinds of relaxation techniques and sports performance. The sample was made up of 122 athletes who competed in sports between universities. The age ranged from 18 to 27 years old. The participants completed the questionnaires of imagery, meditation, progressive muscle relaxation, and techniques of breathing. Sports performance questionnaire was also implemented in this research. The results of this study expressed a positive correlation between the usage of imagery and sports performance. Essentially, the higher the usage of imagery, the higher the level of performance during competition. The study also found a positive correlation between the usage of meditation, breathing techniques, progressive muscle relaxation and sport performance. The higher the usage of these relaxation techniques, the higher the level of sport performance is experienced. The implementation of relaxation techniques can have a positive impact on an athletes' performance.

Summary

Research has shown that many variables can cause an athlete to experience anxiety and express the different types of anxieties they may experience. Overall, all of the factors that may cause anxiety within the athlete can be dealt with in some way, shape, or form. Do all athletes respond the same to anxiety? No, of course not, and the research shows that. However, there are a multiplicity of ways an athlete can manage and cope from their anxiety as well as ask for assistance.

Athletes who participate in a variety of different sports, may be better off mentally. Team sports promote comradery, sense of belonging, and building relationships which is a key component to ones' mental well-being. Individual sports lack the ability to create team building skills and are usually not a social environment for the athlete. Physical activity in any form will be beneficial to an individual's physical and mental state. Some sports can have a more positive impact on an athletes' anxiety state than others.

The implementation of relaxation techniques is essential for an athlete to have a more successful performance. The research shows that athletes who have more control of their anxiety and/or lower levels of anxiety, perform better. Techniques such as imagery, positive self-talk, progressive muscle relaxation, and breathing techniques can go a long way for an athlete. Also, having a higher sense of autonomy, competence, confidence, and relatedness can be crucial for an athletes' mental state and attitude.

Regardless of the situation, it's important for an athlete to be in control of their mind and take care of it. Many factors are involved in an athletes' performance but having a peace of mind can be the ultimate performance measuring stick.

Chapter 4

Results, Discussion and Recommendations for Future Research

The purpose of this chapter is to present the results of the review of literature on performance-based anxiety and its effect on the athlete and how these results align with the purported research questions which guided this synthesis project. In addition, recommendations for future research as it relates to anxiety in sport are presented.

The results of this review of literature displayed multiple conclusions. First, there are a variety of anxieties an athlete can experience. Deciphering each type of anxiety and why they may experience that anxiety is vital. Second, the athlete may experience different levels of anxiety depending on the sport they play. Team sports and individual sport athletes experience different levels of anxieties while competing. Third, there are a variety of techniques an athlete can implement to limit and control their anxiety. These techniques may decrease anxiety and increase sport performance.

Discussion

Interpretations

As part of this literature review, several research questions were posed. The first research question synthesized was, what effect does anxiety have on an athletes' performance? The results of previous literature reviewed showed a positive correlation between anxiety levels and performance. For example, in Correia and Rosado (2018), the research showed through data analysis that fear of failure had a significant impact on worry, concentration disruption and somatic anxiety. The research conducted by Kalinin, et al. (2019) also indicated that competitive anxiety was and is one of the most important individual factors that influence sport performance. Houlberg, et al. (2018) demonstrated the importance of the perception an athlete possesses of themselves and how it may factor into their sport anxiety levels and performance. Munoz, et al.

(2017) provided evidence that the less confidence an athlete has the more pre-competition anxiety that can be a detrimental impact on their performance.

The second research question that was examined was, does the type of sport factor into anxiety levels of an athlete? The results showed throughout several studies displayed that the type of sport an athlete participates in can have an effect on their mental well-being. Amado, et al. (2019) demonstrated that team sports can lead to lower levels of anxiety due to the sense of belonging, teamwork, and type of motivation for participating compared to individual sport athletes. Although the results did not show a significant difference, the study conducted by Pluhar et al., (2019) similarly displayed individual sport athletes possess higher anxiety and depression levels opposed to team sport athletes. Stenling, et al. (2014) demonstrated that the types of goals an athlete has within a team setting are different compared to an athlete in an individual sport and factors into their anxiety levels. This research also showed that females exhibit higher anxiety levels especially females who participate in an individual sport.

The final research question explored was, what are techniques that can help mitigate athletes' anxiety levels? The results of this literature reveal a variety of ways an athlete can mitigate their anxiety which can lead to an increase in performance levels. Paranabas et al. (2014), showed that relaxation techniques such as imagery, breathing techniques, and progressive muscle relaxation can all assist with an athletes' anxiety. Amado, et al. (2019) demonstrated that positive self-talk during competition can lead to lower anxiety levels, while Latinjak, et al. (2016) showed that self-talk during anger-eliciting situations lead to higher anxiety levels. Amado et al. (2019), also demonstrated the importance of the satisfaction of the basic psychological needs has a positive correlation with anxiety levels an athlete experience. Munoz, et al (2017) demonstrated that an increase in self-confidence leads to lower anxiety

levels, while Kalinin, et al. (2019) showed that an increase in an athletes' mental toughness will lead to lower anxiety levels. Vodigar et al, (2012), also found that deep relaxation and breathing techniques lead to an increase in confidence and lower anxiety levels.

Implications

The literature review performed in this synthesis provide a variety of perspectives that give coaches, athletes, and sport psychologists a greater basis of knowledge regarding anxiety in sport and anxiety among athletes. These perspectives also allow researchers to see how anxiety can affect an athlete and their performance. The results of this synthesis offer practical implications which can benefit the mental health aspect of the athlete and attempt to increase sport performance.

Overall, the conclusions coincide with previous research. There are multiple types of anxieties that need to be identified and treated as necessary. Athletes who are experiencing anxiety that is impacting their performance need to implement strategies to limit their anxiety whether it is something they do themselves, or something that a coach or psychologist suggests. Coaches and team psychologists are primary options to seek help and guidance for dealing with sport related anxiety. The majority of athletes experience sport related anxiety and their performance is affected by it.

Understanding the mental health of athletes and the correlation it has with their performance is key. Athletes who lack confidence will experience more anxiety during competition and that will directly affect their performance. Athletes who have a positive perception about themselves will exhibit more confidence and experience less anxiety. Self-talk can have both positive and negative effects on an athletes' anxiety levels depending on how they use it and when they use it. Techniques must implemented and utilized as needed in order for an

athlete to control their anxiety and not let it impact their overall performance. Coaches and sport psychologists who have been trained properly can teach their athletes these techniques to help enhance their mental well-being as well as sport performance. Anxiety can have an immense impact on an athletes' mental well-being as well their performance, so it is very important that they control and limit anxiety to increase mental health as well as performance.

Recommendations for Future Research

In reviewing the data base on anxiety and its' effect on sport performance the following limitations were noted regarding the studies under review. The studies surveyed and sampled only a certain number of individuals over a specific length of time. Another limitation of the work previously displayed is that the study only included participants within a specific age range. Additionally, a limitation of the research was that participants may not have been completely honest with their responses due to the subject in question. Even if the study is anonymous, people may be reluctant to share their mental health status.

Based on these limitations and other insights related to the literature, the following recommendations for future research should be considered:

1. Future research should continue to develop studies that extend over longer periods of time to determine what anxiety relieving strategies work the best. More strategies and techniques may be developed over time and other techniques may take longer to have an effect.
2. Future research should look to involve a larger sample size in their studies to gain as much data as possible. More data brought in by a more diverse demographic will create more generalizable results for future use.

3. Future research should create a way to generate more honest responses from their participants in their studies. One possible way of doing this is to articulate how their honest information could be impactful on future athletes. Researchers can identify the problem clearly and create a solution if the responses and information is honest and true.

Summary

The purpose of this literature review was to determine anxiety and its' effect on sport performance. Delimiting variables were used to do an exhaustive data-based search which yielded 10 articles. These articles were then systematically used to determine the effect of anxiety on sport performance.

Research revealed anxiety effects athletes and their performance while competing. The more anxiety an athlete experiences, the more their performance decreases. Anxiety is experienced cognitively and somatically. Team sport athletes experience less anxiety than individual sport athletes. There are many techniques that can be practiced in order to gain control of anxiety. It is clear that implementation of anxiety relieving techniques can be very beneficial to an athletes' performance.

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Appendix A

Synthesis Article Grid

Author	Title	Source	Purpose	Methods & Procedures	Analysis	Findings	Discussion/ Recommendations Research Notes – Commonalities/Differences
Pluhar et al. others	Team Sport Athletes May be Less Likely To Suffer Anxiety or Depression than Individual Sport Athletes	Academic Search Complete.	To determine whether the proportion of athletes with mental health diagnosis and athlete motivations for playing differ between team sports and individual sports.	756 athletes between ages 6 – 18 years old. Male and female. Can make assumptions about adolescent females and males.	Quantitative + qualitative. Participants selected each sport they participated in, allowed to write in. Participants who exclusively participated in individual sports were considered individual sport athletes. If any athlete participated in a team sport throughout any season, was considered a team	Higher proportion of female athletes participated in individual sports. Self-reported diagnosis of depression or anxiety were higher among individual sport athletes and among female athletes.	Youth who engage in sports have lower levels of self-reported diagnoses of anxiety and depression than those reported by the general population. Individual and team sports seem to help mediate the presentation of psychological disorders in adolescents and serve as effective treatment measures. Physical benefits of exercise as well as the sense of accomplishment and self-esteem youth gain by playing sports may contribute to fewer mental health issues. Higher proportion of individual sport athletes suffered from anxiety or

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					<p>sport athlete. Reasons for playing were categorized by playing for fun, or goal-oriented. Statistical analyses were performed using Stata software version 14.</p>		<p>depression. It is important to consider how coupling the gender and sport type may affect risk for mental health issues. Sense of community and the relationships that youth build on teams with peers and adults promote feelings of comfort and acceptance and may reduce emotional problems and insecurities. Benefits of individual sports are evident, they may be grounded in the general effects of physical activity rather than the culture of teamwork in which group athletes train and compete.</p>
Kalinin et al. others	Relationship between competitive anxiety	Academic Search Complete	To investigate the relationship between	140 athletes from secondary sport schools,	Quantitative. Sport Mental Toughness Questionnaire with	Competitive anxiety was found to be one of the most	Competitive anxiety is influenced by a lot of individual factors such as the psychological

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	and mental toughness: a latent regression analysis		mental toughness and competitive anxiety among athlete students.	handball players, aged between 13 to 19 years old. 92.9% females and 7.1% male.	Likert scale. Sport Anxiety Scale-2 was also used for analyses (questionnaire). Data collection occurred during a team meeting or practice session.	important individual factors that influence sport performance. The influence of mental toughness, as a personality trait-like individual characteristic, on competitive anxiety. Any intervention that will increase athletes' mental toughness will also indirectly contribute to reducing the sport anxiety level.	coping mechanism, motivation, and more recently found to be related to mental toughness. Mentally tough individuals are characterized by high levels of control, commitment and constancy, even under adverse circumstances, and tend to interpret problems as challenges. This type of motivational and cognitive approach could explain why mentally tough athletes usually experience less anxiety. Mentally tough individuals are less inclined to interpret ambiguous information or high-pressure competitive situations as threatening and to respond with dysfunctional

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							thoughts and maladaptive behavior. Being in control of one's emotions might be the benefit of athletes while competing.
Munoz et al. others	Female Spanish athletes face pre-competition anxiety at the highest levels of competition	Academic search complete	Study evaluates how these athletes cope with pre-competition anxiety by examining three variables in the moments prior to competition- cognitive anxiety, self-confidence, and somatic anxiety- and the way these variables	92 women between ages 16-38 years old. Data was collected from individuals an hour before their warm-up exercises prior to each event in which they were to compete.	Quantitative. Questionnaire comprised of 27 items that assess three different variables: cognitive anxiety, self-confidence, and somatic anxiety. Likert-scale. Means and standard deviation were calculated.	Significant difference was found between self-confidence and cognitive anxiety. Significant difference between self-confidence and somatic anxiety as well. There were differences between U18-category female athletes and U20 category, as well as U23	There is significant difference between the types of anxiety (cognitive and somatic) and self-confidence. Top-level female athletes have a high degree of self-confidence, which helps them reduce symptoms caused by an increase of cognitive and somatic anxiety. The more self-confident an athlete is, the less effected they are by pre-competition anxiety.

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			impacted the results achieved by these athletes.			category and the senior national team.	
Latinjak et al. others	Goal-Directed and Spontaneous Self-Talk in Anger and Anxiety-Eliciting Sport Situations	Academic Search Complete	To explore differences in the occurrence and in the content of spontaneous and goal-directed self-talk in anger and anxiety-eliciting situations.	62 male and 25 female athletes. The mean age was 19 years old. First-year students were the target group. Participants listened to a seminar and then answered personal descriptive questions. After the seminar, they filled out the main questionnaire. They listened to another	Qualitative study. Researchers asked the participants to analyze their own answers to the questionnaires. The participants were given categories to place their written responses into and had a researcher present at all times to answer any questions. Once the data was collected, they	Anger-eliciting situations usually included negative events with important negative consequences for the athletes, caused either by oneself or others, such as coaches, teammates, opponents, or referees. Anxiety-eliciting situations usually included important upcoming	Spontaneous statements were rated as more positive in the anxiety-eliciting compared to the anger-eliciting situations. Positive and negative statements in the anxiety-eliciting situations seem to coincide with the directional approach to anxiety interpretation, that anxiety states can be perceived as either facilitative or debilitating depending on individual characteristics and situational states. In anger-eliciting situations, spontaneous self-talk was generally negative and retrospective,

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				seminar on self-talk this time and filled out another questionnaire.	contacted two sport science university lecturers, specialized in sport psychology, with expertise in qualitative data analyses. They analyzed the participants answers using the same guidelines the participants used when analyzing themselves.	events, with significant other watching, and a high uncertainty regarding goal-attainment. Participants reported more spontaneous than goal-directed self-talk.	whereas in anxiety-eliciting situations, spontaneous self-talk was positive and negative as well as anticipatory. Goal-directed self-talk generally aimed at creating activated states, regulating behavior, and focusing on positive predictions. Recommendation: Practitioners should take into consideration the role of emotions when addressing issues related to self-talk of their athletes.
Parnabas et al. others	The Relationship between Relaxation Techniques and Sport	Google Scholar	Aim of this research was to find the correlation between different	122 athletes. 71 male, 51 female. Mean age was 22.22 years old. Questionnaire of	Quantitative research. (This article does not really explain the analysis...)	The relationship between the use of imagery and sports performance was significant	The higher the usage of imagery, the higher the level of sports performance. The higher the use of meditation, the higher levels of sports

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	Performance		kinds of relaxation techniques and sports performance. s	imagery, questionnaire of meditation, questionnaire of progressive relaxation and questionnaire of techniques of breathing were used. Sports Performance Questionnaire was used as well.		. The relationship between the use of meditation and sports performance was significant . The relationship between the use of progressive muscle relaxation and sports performance was significant . The relationship between the use of breathing techniques and sports performance was significant .	performance. The practices of meditation, not only relax the mind and body, but also enhance concentration. Breathing techniques can enhance sports performance as well. Even though the breathing method is the simplest technique of relaxation, not many athletes practice it due to the lack of knowledge on it. Progressive muscle relaxation can enhance sport performance as well. Relaxation techniques have the tendency to enhance performance by reducing stress, anxiety and enhance sports performance. Recommendation: Sports psychologists and coaches should apply various kinds

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							of relaxation on athletes.
Stenling et al. others	Implicit beliefs of ability, approach-avoidance goals and cognitive anxiety among team sport athletes	Academic Search Complete	This study examined a conditional process model with team sport athletes' approach-avoidance achievement goals as mediators between their implicit beliefs of sport ability and sport-related cognitive anxiety.	315 team sport athletes. 163 females and 152 males. Mean age for females was 19 years old. Mean age for males was 20 years old. Multiple questionnaires was used to collect data. Data was collected during the second half of their seasons.	Two separate analysis were conducted. First they examined the direct effects and moderated effects of implicit beliefs of ability on approach-avoidance goals and the direct and moderated effects of approach-avoidance goals on cognitive anxiety. Second, they examined the indirect effects of implicit beliefs on cognitive anxiety	Incremental beliefs of ability were positively correlated with both approach goals among males, but only with mastery-approach goals for females. Among males, entity beliefs were positively correlated with both avoidance goals, while among females entity beliefs were negatively correlated with mastery-	Athletes with incremental beliefs of ability who are viewing ability as something they can develop, and change seem to adopt mastery-approach goals to a higher extent than performance-approach goals. They are being more inclined to focus on effort and self-referenced improvement rather than comparison to others. Females, regardless of whether they are individual or team sport athletes, are more prone to experience anxiety than males in competitive settings. Women in team sport settings with mastery-avoidance goals seem particularly prone to experiencing anxiety. Female

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					through the approach-avoidance goals conditional of gender.	approach goals and positively correlated with performance-avoidance goals and cognitive anxiety.	athletes holding an entity view of ability are more at risk for high levels of cognitive anxiety because of their adoption of performance-oriented goals. Competitive athletes' implicit beliefs of sport ability are related to their approach-avoidance achievement goals as well as their self-reported competitive anxiety. Recommendation: Being aware of the underlying factors influencing cognitive anxiety may aid coaches and practitioners when working with team sport athletes.
Amado et al. others	Associations Between Self-Determined Motivati	SPORTDiscus	The current study aimed to evaluate the determin	191 athletes from three different sport modalities	Quantitative research. Statistical program SPSS 22.0 was used	There was a positive correlation between intrinsic, integrated and	Satisfaction of the basic psychological needs emerged as the strongest predictor of positive self-talk or positive thoughts

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	on, Team Potency, and Self-Talk in Team Sports		ant factors of athletes' internal positive self-talk that might lead to decreased anxiety and increased performance.	. 140 were male and 51 were female. Athletes were male and female ranging from 14 to 35 years old. Multiple questionnaires with Likert-scale. Participants completed the questionnaires in the changing room, individually and without the presence of the coach, in an adequate setting to avoid distractio	to conduct the analyses such as factorial analysis, reliability analysis, descriptive analysis, correlational analysis, regression analysis and multiple comparisons.	identified regulation, as well as satisfaction of autonomy, competence and relatedness and positive self-talk factors such as concentration, confidence and instructions. Amotivation had a positive relationship with negative self-talk factors and the neutral factor. Greater satisfaction of autonomy would lead to	during competition. The greater the athletes' satisfaction of autonomy, the higher would be their concentration, anxiety control and self-talk of instructions during competition. The more competence the athletes feel, the higher will be their confidence during competition. Athletes seem to show a predominance of positive self-talk when they feel more autonomous. Athletes with greater self-determined motivation will have less negative self-talk during competition and, therefore, less worry, somatic fatigue and irrelevant thoughts. Greater

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				n. Main researcher was always in the room to provide any assistance.		more anxiety control self-talk during competition.	autonomy predicts less negative self-talk, decreasing somatic fatigue and the appearance of irrelevant thoughts.
Vodica et al. others	Effectiveness of Athletes' Pre-Competition Mental Preparation	SPORTDiscus	To see if mental preparation actually helps athletes' progress.	11 participants ages 17 to 27 years old. Multiple questionnaires was used as well as the Sport Anxiety Scale. Completed the psychological questionnaires before and after the mental preparation. Relaxation techniques comprised	Quantitative research. Descriptive statistics for all of the assessed dimensions of precompetitive states and differences in the results prior to and following the mental preparation program (initial and final testing).	Precompetitive anxiety increases along with the growing importance of competitions. Mental preparation has a positive impact on lowering the precompetitive somatic aspects of anxiety. Anxiety as a precompetitive state was still similar	All the athletes who participated in our study in fact reported that they experience precompetitive anxiety. The mental preparation program successfully reduced the athletes' level of the somatic aspects of anxiety. The decrease in the somatic aspects of anxiety means the athletes are more relaxed prior to competitions, they experience less tension and anxiety, thus making their body more relaxed, and their breathing is calmer.

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				autogenic training, deep relaxation and breathing techniques.		after the mental preparation program had been completed.	
Houlberg, et al. others	Self-Narrative Profiles of Elite Athletes and Comparisons on Psychological Well-Being	SPORTDiscus	Examined whether specific profiles or narrative identities of athletes emerge through multiple self-narrative indicators; these profiles were compared on measures of psychological well-being.	99 athletes with median of age of 22 years old and 52.% males. 74% of participants reported being an NCAA Division 1 at some point. Only NCAA D1 athletes and elite noncollegiate athletes were recruited.	Quantitative research. Multiple questionnaires.	Athletes with a performance-based identity had the highest levels of anxiety, depression and post-event shame followed by athletes in the mixed-type profile class and athletes with purpose-based identity, had the lowest levels.	Athletes with a performance-based narrative identity demonstrated the highest levels of psychological disruptions (e.g., highest levels of depression, anxiety, and shame; lowest levels of life satisfaction), and athletes with the purpose-based narrative identity had the highest levels of psychological well-being. High standards have emotional consequences when accompanied by a self-narrative predicated on performance outcomes and

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							anticipated negative consequences of failure. Athletes with a purpose-based narrative identity reported feeling more satisfied in life and were more emotionally resilient after a disappointing performance.
Correia & Rosado, 2018.	Fear of failure and anxiety in sport	Academic Search Complete	Aimed to examine the relationship between fear of failure and anxiety in sport contexts.	405 athletes. 99 were female and 306 were male. Participants age ranged from 12 to 20 years old. All participants signed consent forms. Questionnaires were administered before training and	Quantitative research. Questionnaires with Likert scale.	General fear of failure showed a significant positive effect on sport anxiety. Fear of failure may undoubtedly trigger sport anxiety levels.	Fear of failure was the stronger predictor of worry subscale of sport anxiety. Fear of failure had a significant effect on concentration disruption and somatic anxiety subscales. Fear of failure can affect athletes by creating high levels of cognitive disruption, somatic anxiety, worry and overall sport anxiety.

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				everything was confidential.			