An Examination of the Relationship between Competitive Trait Anxiety and Athlete Burnout

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Abstract

Aims**:** The current research study sought to investigate the relationship between competitive trait anxiety and athlete burnout while controlling for gender, age, and sport type. The relationships between gender, age, sport type and burnout were also investigated. Gender differences in burnout levels were examined, as well as sport type (team vs individual) differences.

Method**:** The sample consisted of 41 females and 97 males (N = 138). Age ranged from 18 to 60, mean age *(M)* = 32.5 and standard deviation *(SD)* = 12.05. A convenient snowball sampling technique was used to gather participants. Competitive trait anxiety was measured using the Sport Anxiety Scale-2 (SAS-2). Athlete burnout was measured using the Athlete Burnout Questionnaire (ABQ). Age, gender, and sport type were included in a general demographics questionnaire.

Results**:** A significant, moderate, positive relationship was found between competitive trait anxiety and athlete burnout ($r = .40$, $p < .001$). Only anxiety was displayed unique predictive power of burnout to a significant level ($\beta = .41$, $p < .001$). No significant differences between male ($M = 38.04$, $SD = 7.50$) and female ($M = 37.95$, $SD = 10.03$) burnout scores was found. Team ($M = 38.01$, $SD = 8.44$) and individual ($M = 38.02$, $SD = 7.98$) sports also showed no significant difference in burnout scores. Further analyses were conducted to investigate sub-factors within anxiety and burnout.

Conclusion**:** Employing traditional methods (e.g., goal-setting, visualisation) in sport psychology may be successful in reducing anxiety. However, mindfulness and cognitive-behavioural therapies present more empirically based methods for lowering competitive anxiety and athlete burnout levels.

Contents

Introduction

Much research in the realm of sports psychology indicates there is an increase in burnout occurring among athletes (Raedeke & Smith, 2009; Moen, Myhre, Klockner, Gausen, & Sandbakk, 2017). Burnout has been correlated with a broad range of negative outcomes that include illness/injury, loss of focus, fatigue, self-doubt, feelings of incompetence, and mood disturbances (Cresswell & Eklund, 2006; Dubuc-Charbonneau & Durand-Bush, 2015), with estimations indicating that between one and five percent of athletes suffer from burnout (Dubuc-Charbonneau & Durand-Bush, 2015). Usually, the occurrence of athlete burnout is associated with the demanding work athletes need or feel they need to complete in order for them to become competitive in their particular sport (Perna, Antoni, Baum, Gordon, & Schneiderman, 2003; Moen et al., 2017). The explanation for burnout occurring has traditionally focused on this physical training load as well as psychological stressors experienced by the athlete in a competition situation (Goodger, Gorely, Lavallee, & Harwood, 2007; Gustafsson, Kentta, & Hassmen, 2011; Moen et al., 2017). The construct of athlete burnout originates from Smith's (1986) cognitive-affective model. This model emphasises the athlete's cognitive interpretation of stress, failure, and setbacks as key to whether or not burnout is experienced. In some cases, athletes may withdraw from their sport entirely for a period of time due to the stress that they associate with the activity. Often the only perceived way to escape that stress is to withdraw (Raedeke, Granzyk, & Warren, 2000; Raedeke & Smith, 2001, Cremades & Wiggins, 2008). According to Smith (1986), there are four subsequent stages that lead to burnout occurring. First, the demands of the situation cause stress. Second, this stress is cognitively appraised – this is the interpretation phase. Third, the athlete's body responds physically, for example, if burnout does occur muscles may be fatigued and the athlete could suffer from disrupted sleep. Finally, behavioural responses such as decreased task performance or even complete

withdrawal from engaging in tasks occur if the stress is not coped with or managed (Smith, 1986). The current study focuses on the second interpretation phase of this model. It is inevitable that a competitive sport environment will induce stress, therefore the interpretation of this stress is key to helping athletes avoid suffering burnout. Ostensibly, stress is not what causes decline in performance, it is an athlete's perception or appraisal of stress that results in damaging outcomes (Smith, 1986; Nicholls, Polman, & Levy, 2012). A common result of stress is anxiety (Sapolsky, 2004) which can be detrimental to an athlete's performance both short term and long term (Weinberg & Gould, 2003). The purpose of this study is to determine how significant competitive trait anxiety's role is in causing athlete burnout in comparison to other factors, such as age, gender, and sport type (team vs individual sports). The research emphasises the importance of anxiety as a causal factor in burnout, in fact, previous research suggests that an athlete's interpretation of stress (i.e., whether they experience anxiety or not) is the one dimension that separates elite performers and non-elite performers. Elite athletes possess the ability to perceive stress in a positive manner, making facilitative (positive) rather than debilitative (negative) interpretations of performance-related anxiety symptoms, and thus improving the athlete's chance of reaching optimal arousal levels for performance in competition (Jones, Hanton, & Swain, 1994; Jones & Swain, 1995; Cremades & Wiggins, 2008). Kremer and Moran (2013) also state that it is this interpretation that allows anxiety to either help or hinder performance. The bodily reactions to anxiety are automatic – rapid heartbeat, increased blood pressure, a release of glucose into the bloodstream - these happen regardless. This is our 'fight or flight' response to a situation that can be perceived as threatening or dangerous, leading to a state of arousal or alertness. Kremer and Moran (2013) point out that these automatic reactions that occur in the body under stress can actually be desirable in certain competition situations. They suggest that, if perceived in a positive way, these sensations create an optimised state of arousal, allowing an

athlete to perform to their potential. There is literature that argues the opposite; lowering heart rate makes heart functioning more efficient and allows for greater endurance (Hewett, Ransdell, Gao, Petlichkoff, & Lucas, 2011). While this may be true, the point becomes redundant when one accepts the largely automatic nature of the body's response to stress. It is often impossible to decrease heart rate in a stressful environment, fighting against these reactions can cause or increase anxiety and ultimately hinder performance levels (Moore, 2009).

Anxiety

The American Psychological Association define anxiety as an emotion characterized by feelings of tension, worried thoughts, and physical changes such as increased blood pressure (Kazdin, 2000). Individuals suffering from anxiety often avoid situations that induce these worried thoughts, and may experience physiological responses such as sweating, trembling, dizziness or a rapid heartbeat. From this definition one can see how anxiety can arise in both physiological and psychological symptoms. These symptoms are caused by a sense of apprehension of a perceived threat and the severity of the symptoms often differ from person to person (McCanny, 2014). The setting or environment obviously plays a role too, for example, in a sport setting, different levels of anxiety may be felt depending on the sport being played, or the level of competition (Palacios-Huerta, 2003). If the competitive environment is the situation causing worry and other anxiety symptoms, it can lead to the athlete avoiding this situation – withdrawing from sport, a factor in athlete burnout. Anxiety in this context is competitive trait anxiety.

Competitive Trait Anxiety.

Competitive trait anxiety has been defined by Weinberg & Gould (2003) as perceived anxiety symptoms that cause an athlete to interpret a situation as threatening. Trait anxiety

refers to more innate characteristics – or traits – that an individual experiences throughout their life. In this way, it is often described as a personality trait (Spielberger, 2010). For this study it is important to understand the difference between 'state' anxiety and 'trait' anxiety in sports. Both forms of anxiety surface in response to any perceived threat. Trait anxiety is the tendency or frequency that an individual experiences this perceived anxiety, specifically the differences between individuals' ability to deal with the anticipation of threat (Meyers & Martin, 1974). State anxiety on the other hand, is simply an emotional state caused by being in a particular situation (Spielberger, 2010). For example, a footballer may feel anxious when taking a penalty kick. Early general conceptualisations of anxiety defined it in terms of cognitive, physiological, and behavioural components (Ellis, 1994). The concept was only transferred completely into sports psychology by Martens, Burton, Vealey, Bump, and Smith (1990) when they developed the Competitive State Anxiety Inventory-2. Smith, Smoll, Cumming, and Grossbard (2006) later suggested competitive trait anxiety to be multidimensional (cognitive and physiological), including facets such as somatic anxiety, worry, and concentration disruption. Somatic anxiety refers to symptoms experienced physically in the body that are related to stress, for example, nervousness and tension. Somatic anxiety is theorized to have an inverted-u relationship with performance (Cremades & Wiggins, 2008), meaning that as somatic anxiety increases so does performance, but only to a certain point. At this point, increases in physical sensations become overwhelming to the athlete causing a subsequent decrease in level of performance. Somatic anxiety is often used synonymously with arousal and originates from Yerkes and Dodson's (1908) Inverted-U hypothesis, which posits that there is an optimal level of arousal for every type of human behaviour. Experiencing this optimal level of arousal maximises performance (Larner, 2008). Sports psychologists often tend to confuse the concept of anxiety and the construct of arousal, despite them being measured differently (Gould & Krane, 1992; Larner, 2008). Simply,

anxiety is a negative emotional state involving feelings of nervousness and worry. Arousal is the activation of the nervous system, and this activation may or may not result in anxiety. Anxiety is generally accompanied by high arousal, but arousal can be experienced with an absence of anxiety symptoms (Spielberger, 2010). Worry refers to self-doubt, thoughts of doing poorly, concern about others being disappointed with your performance, worry about reaching your goal, and concern about choking under pressure (Smith et al., 2006). "Choking" refers to an athlete's failure to perform well in a competition of importance, or losing from a seemingly unbeatable position (Hall, 2004). Concentration disruption refers mostly to distraction from being present during competition. The mind wandering and thinking about unrelated things during competition is an example of concentration disruption. Not paying attention or lapses of concentration due to nervousness can also cause disruption of concentration (Smith et al., 2006).

Theoretical Conceptualisations of Anxiety in Sport.

Many changes in anxiety measures have emerged over the years due to the development of a range of theories of anxiety. Major theories such as Reversal Theory (Apter, 1982), Individual Zones of Optimal Functioning (Hanin, 2000), and Catastrophe Theory (Hardy & Fazey, 1987) have contributed to the advancement of better strategies for combatting anxiety in sport.

Reversal Theory.

Apter (1982) developed reversal theory on the basis than an individual's anxiety interpretation is key to their emotional experience (Larner, 2008). Apter suggested one's present state effects how their anxiety is interpreted. He categorises this into two states: telic state (goal-motivated behaviour i.e., extrinsic motivation), and paratelic state (behaviour derived from carrying out a specific activity i.e., intrinsic motivation). In telic state, one

avoids arousal. Relaxation indicates low arousal and anxiety indicates high arousal. Paratelic state is described as a playful state, where low arousal is experienced as boredom and increased arousal is experienced as excitement instead of anxiety. 'Reversal' occurs when there is a shift from one state to the other, which can occur quite rapidly, subsequently affecting performance (Hardy, Jones, & Gould, 1996; Larner, 2008). Kerr (1987) suggested that reversals can controlled or moderated to improve performance through using imagery or cognitive restructuring. However, the uni-dimensional basis of this theory makes it difficult to test (Smith, Smoll, & Ptacek, 1990). It has also been noted that the relationship between emotions and performance is not adequately explained within reversal theory (Humara, 1999).

Individual Zones of Optimal Functioning (IZOF).

Derived from the previously mentioned Inverted-U hypothesis (Yerkes & Dodson, 1908), the IZOF model propounds different individuals will achieve peak performance at different levels of arousal or zones of anxiety (Hanin, 2000). When one goes beyond their unique zone of optimal anxiety, they suffer a decline in performance levels. This theory provides us with reasoning for the broad variance that is observed in the effects of anxiety on performance (Larner, 2008). Again, this theory is based off a uni-dimensional conceptualisation of anxiety, limiting its use when attempting to measure anxiety.

Catastrophe Theory.

Catastrophe theory is also based off Inverted-U theory. Simply, Hardy and Fazey (1987) proposed that increases in arousal would predict performance to a certain point. However, unlike Inverted-U theory, where decrease in performance drops steadily after this point, they suggested a 'catastrophic' or dramatic decline in performance would occur. This drop was predicted to occur specifically in relation to one's cognitive anxiety levels. They

suggest that when there is a combination of high arousal and high cognitive anxiety, there will be a catastrophic change in performance and a significant decline in ability to return to optimal performance levels (Larner, 2008). Catastrophe theory has come in for some criticism for its complexity and failure to fully explain how cognitive anxiety and arousal affect performance (Gill, 1994) but has been supported by a relatively limited amount of research (Hardy & Parfitt, 1991; Hardy, Parfitt, & Pates, 1994).

Each of these theories have considerably improved our understanding of how anxiety can effect athletes on an emotional and physical level and have added to the accuracy of measures as they have developed over the years. The discovery that anxiety predicts burnout is one specific finding of many that has been a result of the constantly improving research in sports psychology.

Burnout

All athletes are also susceptible to burnout, whether competing in an individual or team sport. Before tackling what Athlete Burnout *is*, it is important to state what it is *not* (DeFreese, Raedeke, & Smith, 2015). For example, although research has been conducted on the link between depression and burnout, they are distinct from one another. To explain further, depression is not mainly caused by burnout, and burnout is not mainly caused by depression, but is more linked to the sport experience (Cresswell & Eklund, 2006; DeFreese et al., 2015). However, a longitudinal study by Hakanen & Schaufeli (2012) did find that athletes suffering from burnout may be at a higher risk of experiencing depression. They are related, but not interchangeable. Dropping out of sport is also often confused with burnout. Rather, they are both separate potential outcomes of sport involvement (Smith, 1986). Like depression, dropout can be caused by burnout, but burnout is not the singular cause. Other reasons may include time constraints, switching sports, or pursuing alternative activities

(DeFreese et al., 2015). Distinguishing athlete burnout from other maladaptive experiences that athletes may suffer from is vital to help us understand when, how, and why burnout is occurring, and thus aid us developing preventions and interventions for it.

Early definitions of burnout were mostly related to the work domain rather than in a sports setting, and as such, definitions we now have of burnout are based somewhat on the concept of burnout in the work place. This is evident from the similarities between Maslach and Jackson's (1984) definition of general burnout and Raedeke's (1997) definition, which was adapted specifically for use with athletes in a sport environment. Maslach and Jackson identified three defining factors within burnout; emotional exhaustion, reduced sense of accomplishment, and depersonalization. This is an attractive description, targeting prominent symptoms of burnout. However, it was developed to be applied to workers in the field of human services, which has different social and environmental contexts than sport (Raedeke & Smith, 2001; Li, Wang, Pyun, & Kee, 2013). The dimension of depersonalization is not salient in athlete burnout, and as such, Raedeke replaced it with 'sport devaluation', which refers to negative attitudes an athlete may have towards sport, or feelings of detachment they may develop towards sport (Raedeke, 1997; Li et al., 2013).

Raedeke's final definition stated that athlete burnout is "a syndrome of physical/emotional exhaustion, sport devaluation, and reduced athletic accomplishment" (1997, p. 398). These three factors are subscales of burnout in Raedeke's Athlete Burnout Questionnaire (ABQ). Vealey, Armstrong, Comar, & Greenleaf (1998) share a similar outlook on burnout in relation to sports psychology, defining it as a psychological, emotional, and physical withdrawal from activities. Other research also backs up these characteristics as being strongly associated with burnout (Smith, 1986; Weinberg & Gould, 2003; Cresswell & Eklund, 2003; Goodger, Gorely, Lavelee, & Harwood, 2007). The relationship between anxiety and burnout was investigated by Vealey, Udry, Zimmerman, and Soliday (1992),

with results showing trait anxiety to be the strongest predictor of burnout. Not only was trait anxiety the strongest predictor, but many factors that would be expected to effect burnout had no relation to it. The amount of time spent doing the sport, the type of sport, the level of competition, and personal status were not related to burnout at all. However, more recent literature disagrees with the notion that trait anxiety is the sole or strongest predictor of burnout, with an amalgamation of factors said to influence its occurrence, rather than just an individual or environmental problem. According to De Freese et al. (2015), many key antecedent variables fall under four "athlete burnout perspectives": 1) Overtraining, 2) Psychosocial Sport Stress, 3) Self-Determination Theory, and 4) Sport Entrapment (p. 13). DeFreese et al. state that burnout is a reaction to chronic stress, and that each of these four factors contribute either on an individual basis or an organisational (team) basis, or both, to the maladaptive syndrome of burnout.

Burnout Differences between Genders and Sport Type.

The relationship between gender and athlete burnout is still unclear with studies producing contrasting results. Lai and Wiggins (2003) reported slightly lower athlete burnout scores for females than males, however, numerous other studies found the opposite, that female athletes experienced burnout more than male athletes (Caccese & Mayerberg, 1984; Kelley, Eklund, & Ritter-Taylor, 1999; Lee & Cremades, 2004; Pastore & Judd, 1993; Cremades & Wiggins, 2008). Interestingly, Cremades and Wiggins (2008) found gender to be the only variable that predicted burnout, in a study that included variables such as anxiety and sport type. They also found that athletes involved in team sports suffered less burnout than those who participated in individual sports. Once again, other research did not find any significant differences in burnout levels between team sports and individual sports (Gustafsson, Kentta, Hassmen, & Lundqvist, 2007). It is clear, however, that social support increases one's resilience to burnout (Raedeke & Smith, 2004), and there is no reason why

this should not be transferred to a sport setting where team athletes experience a more socially supportive environment than individual athletes. More recent research supports this. According to DeFreese and Smith (2013), athletes being satisfied with the support they themselves perceive to be receiving is an important correlate of burnout, regardless of whether support is actually received or not.

Perhaps our best indication of the gender differences in burnout comes from a five-year long study conducted by Isoard-Gautheur, Guillet-Descas, Gaudreau, & Chanal (2015). A sample of handball players (n=895) reported burnout measures twice a year, examining developmental and gender factors. Aspects of burnout tended to increase more so for females over the five-year period. This result, being found through a large sample and using multilevel modelling techniques, is a solid indication of the role gender plays in a burnout (Eklund & DeFreese, 2015).

The majority of studies investigating gender differences in burnout have observed higher burnout levels among females. The current study will investigate these differences again, either consolidating or contradicting past findings. Burnout differences between team and individual sports is less researched with more conflicting findings, therefore warranting further research. In conducting this study, the aim is to add to previous findings, and hope that the contribution brings us closer to a conclusion on the role of sport type in athlete burnout.

Theoretical Conceptualisations of Burnout in Sport.

Smith's (1986) early model, as previously discussed, suggested that burnout is a stress-based syndrome that is influenced by personality and motivation. An alternative model was proposed by Coakley (1992), who argued that stress is a symptom of burnout rather than a cause. He refers to the social organisation of sport leading athletes to experience a lack of

control over their sport participation as a cause of athlete burnout. However, research only partly supports Coakley's idea (Black & Smith, 2007; Raedeke, 1997; Gustafsson, DeFreese, & Madigan, 2017). Sport commitment has also been proposed as an alternative factor in athlete burnout occurring (Schmidt & Stein, 1991). It is suggested that athletes who feel they 'have to' participate rather than they 'want to' are more likely to experience burnout. This is referred to as sport entrapment and has received empirical support (Raedeke, 1997; Gustafsson et al., 2017). Another more recent conceptual theory of athlete burnout is Self-Determination Theory (SDT; Ryan & Deci, 2000). According to Gustafsson and colleagues (2017), SDT suggests "the satisfaction of the core human needs of autonomy (perceptions of control and self-endorsement of an activity), competence (perceptions of proficiency), and relatedness (connection with others), are fundamental for optimal psychological wellbeing and human functioning" (p. 110). Neglect of these needs will result in negative outcomes, one of which is burnout (Li, Wang & Kee, 2013). Research investigating SDT has found high levels of amotivation (lacking motivation to engage in an activity) to be associated with higher levels of athlete burnout, and conversely found high intrinsic motivation (engaging in an activity because you enjoy it) to be associated with lower athlete burnout levels (Lonsdale & Hodge, 2011; Lemyre & Hall, 2008).

Gustafsson et al. (2011) created an Integrated Model of Athlete Burnout, perhaps the most complete to date. It incorporates aspects from all the aforementioned models within it. Antecedents and environmental factors, early signs, and consequences for personality and coping are included in the model, all represented in a holistic conceptual framework aimed at bettering our understanding of athlete burnout.

Rationale

In carrying out this study, the effect anxiety has on athlete performance is being investigated, specifically if it causes or increases the chances of athlete burnout occurring. In addition to anxiety, the roles of age, gender, and sport type will be investigated in an attempt to provide a better understanding of the topic. With greater understanding, athletes could be helped deal with and interpret their competitive trait anxiety from a different perspective, allowing this negative energy to have a positive effect on performance, and in doing so, lessening the prevalence of burnout. This study attempts to gauge the role of anxiety in sports; to define how much it effects an athlete and how it can be regulated in a manner that helps prevent athletes from suffering burnout and also help them consistently perform to their potential.

Research Aims and Hypotheses

The aim of this study is to investigate the relationship between competitive trait anxiety and athlete burnout in an effort to further our understanding in an area that has thus far yielded varying results.

Research questions include:

- Is there a relationship between competitive trait anxiety and athlete burnout?
- Does competitive trait anxiety predict higher levels of athlete burnout?
- Does gender play a role in burnout occurring?
- Does sport type (team/individual) play a role in burnout occurring?

It is hypothesised that there will be a relationship between sports anxiety and athlete burnout (H1), and that sports anxiety will be the strongest predictor of athlete burnout (H2). It is also hypothesised that females will display higher levels of athlete burnout than males (H3), and that team athletes will be less susceptible to burnout than individual athletes (H4).

The similarity of females' and males' burnout scores, as well as team and individual athletes' burnout scores will also be investigated in an attempt to answer the research questions. Previous research suggests that anxiety increases the likelihood of burnout occurring and decreases level of performance. Therefore, the primary hypothesis for this study states that anxiety has a causal, directional effect on athlete burnout. Research also points towards gender and sport type playing a role in burnout, but with varying and less consistent results, thus providing impetus for these avenues to be further explored.

Methods

Participants

The sample consisted of 138 athletes, 97 (70.3%) of which were male and 41 (29.7%) of which were female (males labelled "1" and females labelled "2"). The age of the participants ranged from 18 – 60 years old (Mean = 32.51, Standard Deviation = 12.05). Sports participated in by athletes in the sample included hurling (n =31), gaelic football (n = 21), football/soccer (n = 16), field hockey (n = 8), rugby (n = 11), basketball (n = 13), swimming (n = 27), and an "other" category (n = 11), which consisted of one kayaker, two boxers, three track and field, one sailor, one tennis player, one golfer, one cyclist, and one rower. Hurling, gaelic football, football, field hockey, rugby, and basketball were included as team sports, while swimming, boxing, track and field, sailing, tennis, golf, cycling, and rowing fell under individual sports. Team sports (n = 100, 72.5%) were labelled "1" and individual sports (n = 38, 27.5%) were labelled "2".

Design and Data Analysis

A quantitative cross-sectional multivariate design was implemented to investigate the relationships anxiety, age, gender, and sport type had with athlete burnout. Independent (predictor) variables were anxiety, age, gender, and sport type and athlete burnout was the

dependent (criterion) variable. Anxiety subscales of worry, concentration disruption, and somatic trait anxiety were also manipulated as predictor variables to examine their relationships with burnout and its three subscales; reduced sense of accomplishment, emotional/physical withdrawal, and sport devaluation. Descriptive statistics were run to calculate the mean, standard error mean, median, standard deviation, and range for all variables. Further inferential statistics gave a more in depth analysis of the data. A Pearson Product Moment correlation was conducted to determine relationship between competitive trait anxiety and athlete burnout. Standard multiple regression was then conducted to determine the predictive power of each predictor variable on the criterion variable in two blocks. Block one contained anxiety, age, and gender and block two contained the same three variables plus sport type. A separate regression analysis was conducted to determine the predictive power of the three anxiety subscales (worry, concentration disruption, and somatic trait anxiety) on global athlete burnout. Further regression analyses were carried out to investigate the three anxiety subscales predictive power for each burnout subscale. Two independent samples t-tests were also conducted to compare the difference in mean burnout scores between males and females and in mean burnout scores between team sport athletes and individual sport athletes.

Materials

Anxiety Measure.

The Sport Anxiety Scale-2 (SAS-2; Smith, Smoll, Cumming, & Grossbard, 2006) is an adaptation of the Sport Anxiety Scale (Smith, Smoll, & Schutz, 1990). It measures individual differences between somatic trait anxiety and two types of cognitive trait anxiety (worry and concentration) in a sport performance environment. Reliability and validity was demonstrated by Smith et al. (2006), who conducted a study solely “to provide researchers

with a reliable and valid multidimensional measure of sport performance anxiety that would mirror the factor structure of the original SAS, but measure its dimensions more precisely" (p. 482). The SAS-2 questionnaire contains a total of 21 questions. There are 3 subscales within it; questions 3, 5, 9, 10, 13, 16, and 18 measure Worry, questions 2, 6, 7, 14, and 20 measure Concentration Disruption (CD), and questions 1, 4, 8, 11, 12, 15, 17, 19, and 21 measure Somatic Trait Anxiety (STA). A global anxiety score can be calculated through the sum total of all the questions. Global anxiety refers to the total competitive trait anxiety score, as calculated from the SAS-2. No questions need to be reverse scored. Higher scores indicate higher levels of competitive trait anxiety. Participants were asked to answer questions based on how they felt before or during competition using a four point Likert scale; 1 = not at all, 2 = somewhat, 3 = moderately so, and 4 = very much so. The internal reliability for the total measure of anxiety was measured using Chronbach's Alpha (.93), as well as for each subscale; worry (.88), CD (.76), and STA (.91). All showed acceptable Chronbach alpha levels.

Burnout Measure.

The Athlete Burnout Questionnaire (ABQ) consists of three subscales: Reduced Sense of Accomplishment (RA), Emotional/Physical Exhaustion (E), and Sport Devaluation (D) (Raedeke & Smith, 2001). The ABQ contains 15 questions in total, with 5 questions measuring each subscale. Questions 1, 5, 7, 13, and 14 measure RA, questions 2, 4, 8, 10, and 12 measure E, and questions 3, 6, 9, 11, and 15 measure D. Each subscale's questions can be added to obtain a total score for that subscale that can range from 5 to 25, and all 15 scores can be added to acquire a global athlete burnout score that can range from 15 to 75. Higher scores are indicative of higher burnout levels. Items were scored on a Likert scale of 1 to 5; 1 = I almost never feel this way, 2 = I rarely feel this way, 3 = I sometimes feel this way, 4 = I frequently feel this way, and 5 = I feel that way most of the time. Items 1 and 14 need to be

reverse scored. The scale that has been shown to be empirically sound in terms of reliability and validity (Eklund & Cresswell, 2007; Lonsdale, Hodge & Rose, 2009; Quested & Duda, 2011). Previous studies have reported an internal consistency of more than .70 in the measure's subscales, with test-retest reliability ranging from .86 to .92 on the three scales (Raedeke & Smith, 2001; Cremades & Wiggins, 2008). Internal reliability measures were calculated in this study using Cronbach alpha coefficients for internal consistency. All three subscales in the ABQ for this study were at acceptable Cronbach alpha levels, except for RA (RA = .39, E = .87, D = .80). The Chronbach alpha score for the measure as a whole was also acceptable at .80.

Procedure

Participants were collected from an array of different sports. The SAS-2 and the ABQ were converted from written reports to digital reports through google forms in order for them to be more easily distributed online. A non-probabilistic convenience snowball sampling technique was used; the questionnaires were first distributed to athletes known personally to the researcher, and those athletes distributed the questionnaires further to other athletes they knew, and so on and so forth. Participants were supplied with an information sheet to read and were required to give their informed consent before answering the two questionnaires. They were asked to confirm they were currently participating in at least one sport and that they were over 18 years of age. Participants were also asked for their age and their preferred sport to participate in. They were assured of the anonymous and confidential nature of the study. The first questionnaire, the SAS-2, was given to measure competitive trait anxiety experienced before or during competition. Participants were asked to answer questions based on how they felt before or during competition and were given a written description of what the questionnaire measured, as well as how the scoring system worked. Upon completion of this, participants took the ABQ. Before taking the questionnaire, directions instructed

participants to answer the items based on the how often they feel this way about their sport participation. A description of the questionnaire and how it is scored was also supplied. All information was collected online through Google Forms and stored safely by the researcher until the sample size was sufficiently large enough to begin data analysis in SPSS, as described in the Design section.

Results

Descriptive Statistics

The results in table 1 below show the mean, standard error mean, median, standard deviation, and range for global anxiety, global burnout, age, and the three constructs within global anxiety (worry, concentration disruption, and somatic trait anxiety). The descriptive data suggests moderately strong levels of burnout among the sample of athletes, with slightly higher levels of anxiety observed. Worry was the highest scoring subscale, followed by STA, then CD.

Histograms were initially inspected for each variable to check for kurtosis and skewness. Global burnout was found to be normally distributed while global anxiety and age were negatively skewed and found to be non-normally distributed upon further examination of Kolmogorov-Smirnov tests, probability plots, and boxplots. Worry was normally distributed while CD and STA were negatively skewed and found to be non-normally distributed through inspection of the same aforementioned tests and plots. RA was the only subscale of athlete burnout found to be normally distributed. E and D were negatively skewed. Further details of descriptive data are shown below in Table 1.

Table 1

Descriptive statistics for all continuous variables (N = 138)

Variable	Mean (95% Confidence Intervals)	Std. Error Mean	Median	SD	Range
Global Anxiety	45.38 (43.31-47.46)	1.05	44	12.34	23-83
Global Burnout	38.01 (36.62-39.41)	.71	38	8.29	19-60
Age	32.51 (30.48-34.54)	1.03	29	12.05	18-60
Worry	17.51 (16.69-18.34)	.42	17	4.90	7-28
Concentration Disruption	9.01 (8.52-9.51)	.25	9	2.96	5-20
Somatic Trait Anxiety	18.86 (17.74-19.97)	.56	18	6.62	9-36
Reduced Sense of Accomplishment	14.67 (14.21-15.14)	.23	14.5	2.75	8-22
Emotional/Physical Exhaustion	11.24 (10.54-11.94)	.36	11	4.17	5-24
Sport Devaluation	12.10 (11.37-12.84)	.37	12	4.36	5-24

Inferential Statistics

Correlation.

H1, the relationship between athlete burnout (measured by ABQ) and competitive trait anxiety (measured by the SAS-2), was investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. There was a statistically significant, moderate, positive correlation between the two variables ($r = .40$, $n = 138$, $p < .001$). This indicates that the two variables share approximately 16% of variance in common.

Results indicate that higher levels of competitive trait anxiety are associated with higher levels of athlete burnout.

Multiple Regression Analyses.

Multiple regression analysis was performed to test H2. How well athlete burnout levels could be explained by four variables including gender, age, global anxiety, and sport type (team vs. individual) was investigated.

Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity. The correlations between the predictor variables and the criterion variable included in the study were examined. Out of the four predictor variables, only global anxiety was significantly correlated with the criterion variable ($r = .40$). The correlations between the predictor variables were also assessed with r values ranging from -.15 (age and gender) to .62 (sport type and age). The collinearity Tolerance values for the predictor variables were as follows: global anxiety = .99, age = .98, gender = .97, and sport type = .59. The VIF (variation inflation factor) values for the predictor variables were as follows: global anxiety = 1.01, age = 1.02, gender = 1.04, and sport type = 1.67. These results indicate that there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

Since no *a priori* hypotheses had been made to determine the order of entry of the predictor variables, a direct method was used for the analysis. Two blocks were entered; block one's predictor variables included global anxiety, age, and gender, and block two included the same, as well as sport type. The three predictor variables from block one explained 16.2% of variance in athlete burnout levels ($F(3, 134) = 8.65$, $p < .001$), with an adjusted variance of 14.4%. With the extra predictor variable of sport type in block two, 16.5% of variance in athlete burnout was explained ($F(4, 133) = 6.56$, $p < .001$), with an

adjusted variance of 14%. Out of the predictor variables in either block, only global anxiety was found to uniquely predict athlete burnout scores to a statistically significantly level: Block one: $\beta = .40$, $p < .001$, Block 2: $\beta = .41$, $p < .001$. See tables 2 and 3 below for full details.

Table 2

Multiple regression model predicting Athlete Burnout scores (Block 1)

	R^2	β	*B*	*SE*	CI 95% (B)
Model	.14*				
Global Anxiety		.40*	.27	.05	.17 / .38
Age		-.03	-.02	.06	-.13 / .09
Gender		-.05	-.99	1.46	-3.86 / 1.89

Note. N = 138; Statistical significance: *$p < .001$

Table 3

Multiple regression model predicting Athlete Burnout scores (Block 2)

	R^2	β	*B*	*SE*	CI 95% (B)
Model	.14*				
Global Anxiety		.41*	.28	.05	.17 / .39
Age		.01	.01	.07	-.13 / .09
Gender		-.05	-.95	1.46	-3.86 / 1.89
Sport Type		-.07	-1.20	1.96	-4.97 / 2.57

Note. N = 138; Statistical significance: *$p < .001$

As global anxiety was the only variable to predict athlete burnout to a significant level, further regression analysis was conducted to inspect the predictive power of the three subscales within the SAS-2. The three subscales are worry, CD, and STA. The correlations between the subscales and the criterion variable were examined. The r values gauging the strength of the relationships between them are as follows: worry, r = .29 (small to moderate correlation), CD, r = .41 (moderate correlation), and STA, r = .34 (moderate correlation). The collinearity Tolerance values for the subscales were as follows: worry = .56, CD = .66, and STA = .57. The VIF (variation inflation factor) values for the subscales were as follows: worry = 1.78, CD = 1.52, and STA = 1.76. These results indicate that there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

The three subscale variables were entered into the regression model at the same time. The three subscale variables explained 19.2% of variance in athlete burnout levels ($F(3, 134) = 10.63$, $p < .001$), with an adjusted variance of 17.4%. CD was the only subscale variable deemed to make a statistically significant unique contribution to predicting athlete burnout ($\beta = .31$, $p = .001$). See full details in Table 4.

Table 4

Multiple regression model for SAS-2 subscales predicting Global Athlete Burnout

	R^2	β	B	SE	CI 95% (B)
Model	.17*				
Worry		.02	.04	.18	-.31 / .36
Concentration Disruption		.31**	.87	.27	.34 / 1.40
Somatic Trait Anxiety		.17	.21	.13	-.05 / .47

Note. N = 138; Statistical significance: *$p < .001$, $p < .05$**

Multiple regression analysis was also conducted to inspect the predictive power of the three anxiety subscales of worry, CD, and STA on the three dimensions of athlete burnout. First, the correlations between worry, CD, and STA and the RA dimension of burnout were examined. The r values gauging the strength of the relationships between them are as follows: worry, r = .38, CD, r = .35, and STA, r = .32, all showing moderately strong correlations. The collinearity Tolerance values and VIF values were checked and results indicated there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

Worry, CD, and STA were entered into the regression model at the same time. The three subscale variables explained 17.8% of variance in RA levels ($F(3, 134) = 9.68$, $p < .001$), with an adjusted variance of 16%. Worry was the only anxiety subscale variable deemed to make a statistically significant unique contribution to predicting RA ($\beta = .23$, $p = .03$). See full details in Table 5.

Table 5

Multiple regression model for SAS-2 subscales predicting Reduced Sense of Accomplishment

	R^2	β	*B*	*SE*	CI 95% (B)
Model	.18*				
Worry		.23**	.13	.86	.02 / .25
Concentration Disruption		.18	.17	.09	-.01 / .35
Somatic Trait Anxiety		.08	.03	.04	-.05 / .12

Note. N = 138; Statistical significance: *$p < .001$, $p < .05$**

Second, the correlations between worry, CD, and STA and the E dimension of burnout were examined. The r values gauging the strength of the relationships between them are as follows: worry, r = .25, CD, r = .31, and STA, r = .35, all showing moderately strong correlations. The collinearity Tolerance values and VIF values were checked and results indicated there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

Worry, CD, and STA were entered into the regression model at the same time. The three subscale variables explained 14.2% of variance in E levels ($F(3, 134) = 7.42$, $p < .001$), with an adjusted variance of 12.3%. STA was the only anxiety subscale variable deemed to make a statistically significant unique contribution to predicting E ($\beta = .25$, $p = .02$). See full details below in Table 6.

Table 6

Multiple regression model for SAS-2 subscales predicting Emotional/Physical Exhaustion

	R^2	β	B	SE	CI 95% (B)
Model	.14*				
Worry		.01	.01	.09	-.17 / .19
Concentration Disruption		.18	.25	.14	-.02 / .53
Somatic Trait Anxiety		.25**	.12	.07	.02 / .29

Note. N = 138; Statistical significance: *$p < .001$, $p < .05$**

Finally, the correlations between worry, CD, and STA and the D dimension of burnout were examined. The r values gauging the strength of the relationships between them are as follows: worry, r = .07 (small correlation), CD, r = .26 (small to moderate correlation), and STA, r = .12 (small correlation). The collinearity Tolerance values and VIF values were

checked and results indicated there was no violation of the assumption of multicollinearity and that the data was suitable for examination through multiple linear regression analysis.

Worry, CD, and STA were entered into the regression model at the same time. The three subscale variables explained 7.7% of variance in D levels ($F(3, 134) = 3.72$, $p < .013$), with an adjusted variance of 5.6%. CD was the only anxiety subscale variable deemed to make a statistically significant unique contribution to predicting D ($\beta = .31$, $p = .003$). See full details in Table 7.

Table 7

Multiple regression model for SAS-2 subscales predicting Sport Devaluation

	R^2	β	B	SE	CI 95% (B)
Model	.08*				
Worry		-.10	-.11	.10	-.29 / .10
Concentration Disruption		.45*	.31	.15	-15 / .75
Somatic Trait Anxiety		.02	.03	.07	-.12 / .16

Note. N = 138; Statistical significance: $p < .05$*

Independent Samples t-Tests.

Independent samples t-tests were carried out to test investigate H3 and H4. The first independent samples t-test was conducted to compare the athlete burnout scores between males and females. There was no significant difference in scores between the two groups, $t(59.72) = .05$, $p = .96$, two-tailed, with males ($M = 38.04$, $SD = 7.50$) scoring higher than females ($M = 37.95$, $SD = 10.03$). The magnitude of the differences in the means (mean difference = .09, 95% CI: -3.39 to 3.57) was small (Cohen's $d = .01$).

A final independent samples t-test was conducted to compare athlete burnout scores between athletes participating in a team sport and athletes participating in an individual sport. There was no significant difference in scores between the two groups, $t(136) = -0.01$, $p = .99$, two-tailed, with team athletes ($M = 38.01$, $SD = 8.44$) scoring lower than individual athletes ($M = 38.02$, $SD = 7.98$). The magnitude of the differences in the means (mean difference = -0.02, 95% CI: -3.15 to 3.12) was small (Cohen's $d = .001$).

Discussion

There is still much to be discovered relative to our understanding of the concept of athlete burnout (Eklund & DeFreese, 2015). The broad intention of this study was to deepen this understanding by investigating the effects certain variables have on burnout in the realm of sport. Taking a partially different perspective from previous studies which often focus on the relationship between stress and burnout, this study was carried out on the premise that stress is neither inherently good nor bad (McGonigal, 2016), but it is our learned interpretation of stress that can lead to outcomes like anxiety that invariably will increase burnout. In understanding this, more attention can be given to anxiety preventions and interventions, which it is hoped will in turn decrease the prevalence of burnout among athletes.

This study was carried out with the purpose of testing four athlete burnout based hypotheses; (1) an athlete's competitive trait anxiety will be related to burnout levels, (2) this competitive trait anxiety will be the strongest predictor of athlete burnout levels, (3) females will display higher levels of athlete burnout in comparison to males, and (4) team athletes will be less susceptible to burnout than individual athletes. Results from the present study support the first hypothesis that competitive trait anxiety is related to athlete burnout. Results found a medium positive correlation in anxiety's relationship with athlete burnout; the more

athletes experienced anxiety, the more they experienced burnout. Results also supported the hypothesis that competitive trait anxiety is the strongest predictor of athlete burnout while controlling for age, gender, and sport type, which had little or no predictive power on burnout. Based on these findings, H1 and H2 are accepted, while H3 and H4 are rejected. Past research has shown anxiety to be the strongest predictor of burnout among other factors, in which sport type is included (Vealey et al., 1992). However, contrary to the findings of the current study, Raedeke and Smith (2004) suggest that sport type does predict burnout and state receiving social support from team mates may increase an athlete's resilience to burnout. Cremades and Wiggins (2008) also reported higher levels of burnout in individual-sport athletes, as well as finding females to be more likely to suffer from burnout than males. Other studies also agree females display higher levels of burnout than males (Lee & Cremades, 2004; Isoard-Gautheu, Guillet-Descas, Gaudreau, & Chanal, 2015). Further investigation in the current study in differences between gender on burnout found that neither group scored significantly higher than the other. Results also showed no difference in burnout scores between team and individual athletes. These results further solidify the rejection of H3 and H4 for the current study but are in contrast with most past findings. Thus, more research is warranted.

Due to results from the current study showing competitive trait anxiety to be the strongest predictor of athlete burnout, we delved deeper into which particular aspects of anxiety (worry, concentration disruption, and somatic trait anxiety) predicted burnout. Interestingly, concentration disruption was a stronger predictor than worry or somatic trait anxiety, despite it having a lower mean score. This suggests that although worry and somatic trait anxiety might be experienced more often, they are less likely to cause burnout. This provides us with a path forward to aid athletes in preventing burnout; improving the ability to concentrate during competition is likely to decrease burnout levels. This especially captures

the role one's cognitions play in burnout, as damaging physiological responses (somatic anxiety – nervousness, tension) are less significant than concentration in predicting burnout. Moran (2016) supports this finding, stating concentration as a vital cognitive prerequisite to performing successfully in any sport. The importance of concentration is not to be underestimated; the ability, potential, or physical prowess of an athlete cannot be compensated for if the athlete consistently fails to concentrate in a sport environment (Moran, 2016). Theories such IZOF (Hanin, 2000) and Catastrophe Theory (Hardy & Fazey, 1987) also support the notion that cognitive anxiety (e.g., concentration disruption) decreases performance levels. The implications of this may imply that an intervention that improves concentration would be worthwhile pursuing as a method of lessening burnout levels. Certainly, as stated by Moran (2016), there is a need for more academic research devoted to the skill of concentration in athletes. The lack of research in this area does indeed seem peculiar when one considers the relationship between performing optimally and the ability to concentrate. The current study also found concentration disruption to be stronger than worry or somatic trait anxiety in predicting the sport devaluation dimension of athlete burnout. Although it was not the strongest predictor of reduced sense of accomplishment or emotional/physical withdrawal (worry and somatic anxiety were, respectively), concentration disruption did have a stronger association with sport devaluation than worry did with reduced sense of accomplishment or than somatic trait anxiety did with emotional/physical withdrawal.

Future Implications

The results of the current study suggest that anxiety has a strong influence on whether burnout is experienced or not. Therefore, our focus should lie in developing strategies for athletes to prevent anxiety occurring, as, theoretically, this would cause a decrease in an athlete's burnout levels. Engaging in cognitive-behavioural therapies (CBTs) or mindfulness-

based therapies (MBTs) are potential methods of decreasing anxiety (Chen, Berger, Manheimer, Forde, Magidson, Dachman, & Lejuez, 2012). However, it is with hesitation that MBTs are suggested as a means of intervention. Mindfulness is defined as "the awareness that emerges through paying attention on purpose, in the present moment and non-judgementally to the unfolding of experience moment to moment" (Kabat-Zinn, 2003, p. 145). The hesitation is due to MBTs inviting the individual to bring their full awareness to what they are currently experiencing; anxious arousal may be a difficult experience for one to accept or attend to when one is not practiced in mindfulness (Strauss, Cavanagh, Oliver, & Pettman, 2014). Skills acquired through therapies such as Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 2003) or Mindfulness Based Cognitive Therapy (MBCT; Segal, Teasdale, Williams, & Gemar, 2002) take frequent practice and are best utilised when applied longitudinally to equip individuals to regulate emotions such as anxiety when they do arise. Strauss et al. (2014) suggest CBT as a more suitable approach, as its objective is to change negative thoughts rather than accept them. Murphy (2017) provides also evidence to suggest Rational Emotive Behaviour Therapy (REBT; Ellis, 2004), which is a form of CBT, may have more short-term benefits in reducing anxiety levels in a sports setting. REBT has been found to significantly moderate negative interpretations of anxiety to a greater extent than traditional methods such as goal setting, pre performance routines, self-talk, arousal control/relaxation strategies, or visualisation (Larner, 2008). Traditional methods and more recently investigated mindfulness methods will be discussed further below.

Traditional Methods for Reducing Anxiety in Sport.

The preceding methods mentioned are still widely applied by sport psychologists and competitors in a bid to manage competitive anxiety. Vealey (2007) states they are the most popular mental training techniques among practitioners. Athletes, too, report these techniques as favoured when managing anxiety (Gould, Eklund, & Jackson, 1993; Larner 2008). It has

also been suggested that classical conditioning techniques such as flooding and exposure or systematic desensitisation can be used as anxiety management strategies for athletes (Smith & Smoll, 2004). As presented by Larner (2008), Vealey's (2007) framework for understanding mental skills training is highly useful when evaluating the efficacy of any technique that proposes to improve mental skills. Her framework is shown in Figure 1.

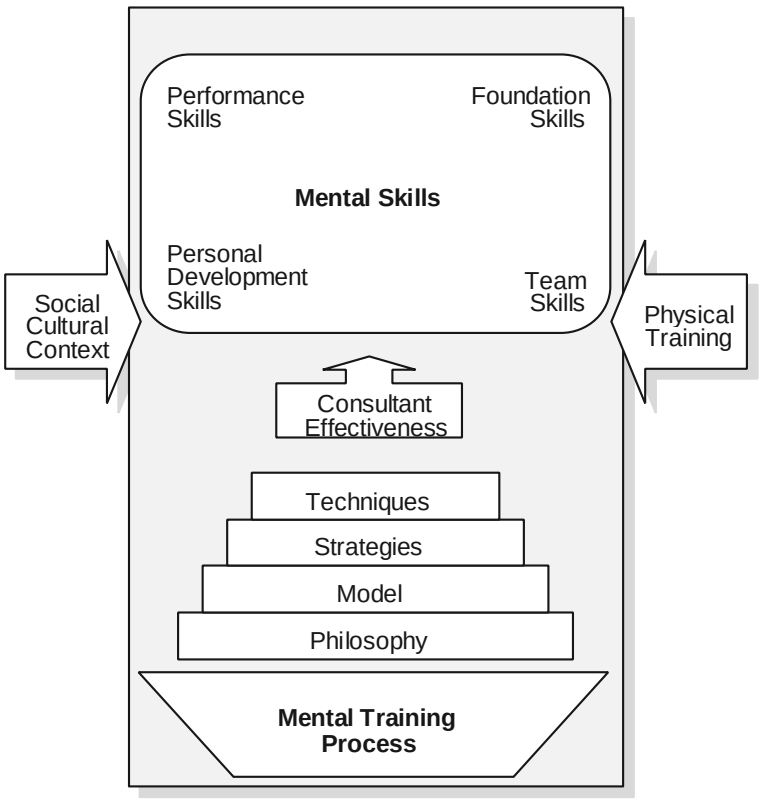

Figure 1. Vealey's (2007) Framework for Understanding Mental Skills Training (p. 291).

The model depicts the mental training process as including philosophy, model, strategies, and techniques, which are used by the consultant to improve mental skills (e.g., concentration), and are mediated by the effectiveness of the consultant's approach. The arrows either side of the framework represent the impact physical training and social culture influences have on the process. Vealey (2007) states the importance of testing the effectiveness of specific techniques from the standpoint of particular strategies and models instead of viewing each theory independently.

Mindfulness Methods for Reducing Anxiety and Burnout.

Based on the current study's findings concerning concentration disruption, it seems prudent to address different ways in which an athlete's ability to focus can be improved. Unfortunately, the aforementioned traditional practices that are theorised to do this are less based on empirical evidence and more derived from practical experiences and intuition (Moran, 2016). Techniques such as goal setting, pre performance routines, self-talk, arousal control strategies, and visualisation are often implemented to improve concentration. These techniques all work towards the athlete achieving a more focused state where their mind "is cleared of irrelevant thoughts, the body is cleared of irrelevant tensions, and the focus is centred only on what is important at that moment for executing the skill to perfection" (Orlick, 1990, p. 18). This state of concentration has also been described as 'flow' (optimal performance), so it can be said that these techniques all work towards achieving a state of flow (Jackson & Csikszentmihalyi, 1999). Upon closer inspection of this definition, a link can be seen between the outcomes of practicing mindfulness, flow, and the aim of all these techniques – to increase concentration levels (Kee & Wang, 2008; Aherne, Moran, & Lonsdale, 2011; Cathcart, McGregor, & Groundwater, 2014). Jackson & Csikszentmihalyi's (1999) definition of flow even includes a distinct characteristic referring to concentration (Bernier, Thienot, Codron, & Fournier, 2009). There is also research that states mindfulness and flow are connected (Komagata & Komagata, 2010). Below is a brief examination of how mindfulness and flow are associated with concentration. There are different levels of concentration, two of which are relevant to the relationship between anxiety and burnout: the first level is weak concentration, which refers to one's mind wandering aimlessly, as it often does without one even noticing. Through an activity that involves focusing on a certain object (e.g., meditation) one can increase the ability to concentrate, or be *selectively attentive* (Kremer & Moran, 2013; Komatoga & Komatoga, 2010). The second level is referred to as

access concentration and when achieved, the mind becomes highly focused on the object, and distractions become greatly subdued. It is in this state that flow is experienced. One can practice reaching this level of concentration through mindfulness techniques (meditation), and in theory, decrease levels of concentration disruption and thus lower burnout levels. Research conducted by Gustafsson, Davis, Skoog, & Kentta (2015) on mindfulness and its relationship with burnout produced promising evidence. They found higher levels of mindfulness were indicative of lower burnout levels.

It may be of benefit in future research to conduct longitudinal studies investigating the effects practicing mindfulness has on burnout. Eklund and DeFreese (2015) state well designed longitudinal studies are required to continue to develop our understanding of burnout. It is recommended that future studies investigate the efficacy of specific mindfulness programmes such as MBSR (Kabat-Zinn, 2003) and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999) as interventions for burnout. Adding more carefully considered psychological constructs is needed to gather further knowledge. Gustafsson and colleagues (2015) suggest that mindfulness has promising implications for potentially decreasing athlete burnout based on prior studies (Jouper & Gustafsson, 2013; Walker, 2013), as well as on their own results which point to a significant negative relationship between mindfulness and all dimensions of burnout. Mindful athletes were capable of interpreting stress in a more positive manner than less mindful athletes. As highlighted in the introduction to this study, the second phase of Smith's (1986) cognitive-affective model emphasises the athlete's cognitive appraisal or interpretation of stress as key in whether burnout is experienced or not. As stated above, more recent evidence reiterates the importance of this interpretation and points to mindfulness as a propitious avenue for changing athletes' stress perceptions.

Strengths and Limitations

Several limitations must be taken into consideration when discussing the findings of the current study. First, the cross sectional nature of the study limits us in making casual inferences. As participants took both questionnaires simultaneously, it cannot be known if different results would have been obtained had they been taken at separate time points (Levin, 2006). A cross-sectional design was implemented because of the limited time frame and funds available to the researcher. Second, the relatively small sample size (N = 138) limits the generalisability of results; findings should be discussed within the context of the sample. However, the sample did reach acceptable size according to Tabachnik and Fidell's (2013) formula for using standard multiple regression – $N > 50 + 8m$, where m equals the number of independent variables used. The maximum number of variables used in any regression analysis in the current study was four. Third, the non-probabilistic strategy used to gather the sample (convenience, snowball) most likely incurred some bias in results and may also damage generalisability. Once again, these methods were used due to lack of time and funding. Many sports were under-represented, or not represented at all in the sample, and thus findings should be interpreted with caution for any sport not included in the study. Females were also under-represented in the sample (97 males, 41 females) so findings may be less relevant to them and more accurate for male athletes. A strength of this study is the average age of the participants in the sample (M = 32.5). Most research conducted on athlete burnout has focused on a specific group of people with a limited age range (adolescents, college athletes), whereas the current study's youngest participant was 18 and the oldest was 60. While this gives a broader view on burnout across different ages, the sample was not split into different categorical groups based on age. In hindsight, this may have been a useful approach to take to learn more about burnout over the lifespan, and it is recommended that future studies attempt to implement something similar. However, what is most needed in the

area of burnout research is longitudinal studies to further establish what the causes of burnout are over a set time period. The limitations of this study do however, contribute to the current body of literature by providing a catalyst for future researchers to perpend when investigating the relationship between anxiety and athlete burnout.

Conclusion

Upon review of the findings of the present study as a whole, some conclusions have been arrived at. Anxiety was the only variable found to strongly predict burnout, and as such, athletes who work on dealing with this anxiety should ultimately alleviate symptoms of burnout and produce more consistent performances within their sport. An attempt to specify which exact construct within anxiety was most prevalent in those with high burnout levels led to the discovery that concentration disruption had the strongest predictive power over any factor of burnout. Therefore, teaching athletes to improve their ability to focus should decrease concentration disruption, and lower burnout levels in athletes who manage to do this. This information is relevant to athletes, coaches, and practitioners alike. Top athletes have been observed to possess this ability, or have at least found ways to interpret the anxiety that they inevitably feel in a way that allows them to perform to such a high level. Here are two quotes from elite athletes that show their techniques for concentrating and interpreting anxiety: Michael Johnson, a three time Olympic gold medallist states he has "learned to cut out all the unnecessary thoughts…I simply concentrate on the tangible - on the track, the race, on the blocks, on the things I have to do. The crowd fades away and the other athletes disappear and now it's just me and this one lane" (Kremer & Moran, 2013, p. 72). The idea of selective attention is prominent here; the athlete is choosing where to point their focus until nothing else matters but the object of focus. It seems likely that Johnson has also reached access concentration levels through much practice. The parallels between this quote and mindfulness are quite apparent. Meditation itself is not much more than the practice of

exactly what Johnson is describing here; focusing on something (the breathe, or an object) until the mind is clear of thoughts. With such focus, there is no room in the mind for distracting thoughts, or disruption of concentration. Jack Nicklaus, the most successful golfer of all time, inevitably has a completely different technique. Such focus as Johnson's is not practical throughout an entire golf tournament, as intense concentration cannot be held for hours, or days, on end. When discussing how he deals with intense pressure Nicklaus simply said, "Sure, you're nervous but…I never look on it as pressure. I look on it as fun and excitement. That's why you're doing it" (Kremer & Moran, 2013, p. 63). We can learn from great athletes, for clearly, whether meaning to or not, they have developed methods enabling them to interpret their anxiety, to focus, and to perform to a high level for many years. The findings of the present study indicate that the previously discussed traditional methods and techniques in sport psychology, and more recent mindfulness methods would be useful to help athletes manage anxiety, reduce burnout levels, and reach their highest potential level of performance. This study emphasises the importance of the role cognitive anxiety plays in athlete burnout, and provides future researchers with impetus to further explore avenues that are efficacious in preventing burnout.

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Appendices

Appendix A

Sport Anxiety Scale-2

The Sport Anxiety Scale-2 is a questionnaire that assesses the competitive trait anxiety experienced by athletes before or during competition. There are 21 questions, with no time limit for completion. The scale uses a four-point Likert scale for the responses: 1 (not at all), 2 (somewhat), 3 (moderately so), and four (very much so). The statements relate to how you feel before or during competition, e.g: Q1) I feel nervous (before or during competition).

Q.		Not At All	Somewhat	Moderately So	Very Much So
1	I feel nervous	1	2	3	4
2	During competition, I find myself thinking about unrelated things	1	2	3	4
3	I have self-doubts	1	2	3	4
4	My body feels tense	1	2	3	4
5	I am concerned that I may not do as well in competition as I could	1	2	3	4
6	My mind wanders during sport competition	1	2	3	4
7	While performing, I often do not pay attention to what's going on	1	2	3	4
8	I feel tense in my stomach	1	2	3	4
9	Thoughts of doing poorly interfere with my concentration during	1	2	3	4
10	I'm concerned about choking under pressure	1	2	3	4

11	My heart races	1	2	3	4
12	I feel my stomach sinking	1	2	3	4
13	I'm concerned about performing poorly	1	2	3	4
14	I have lapses of concentration during competition because of nervousness	1	2	3	4
15	I sometimes find myself trembling before or during a competitive event	1	2	3	4
16	I'm worried about reaching my goal	1	2	3	4
17	My body feels tight	1	2	3	4
18	I'm concerned that others will be disappointed in my performance	1	2	3	4
19	My stomach gets upset before or during a competitive event	1	2	3	4
20	I'm concerned I won't be able to concentrate	1	2	3	4
21	My heart pounds before competition	1	2	3	4

Scoring

To calculate your score, add up all the numbers that were circled, then combine them using the following categories to get a score for each of the scales. Add up all results for the Trait Anxiety Score.

- **Worry Score**: add up questions 3, 5, 9, 10, 13, 16, 18.
- **Concentration Disruption Score**: 2, 6, 7, 14, 20.
- **Somatic Trait Anxiety Score**: add up questions 1, 4, 8, 11, 12, 15, 17, 19, 21.

Appendix B

Athlete Burnout Questionnaire

Please read each statement carefully and decide if you ever feel this way about your sport participation. Your sport participation includes any training you are participating in. Please indicate how often you have had this feeling or thought by selecting a number 1 to 5, where 1 means "I almost never feel this way", 2 = "rarely", 3 = "sometimes", 4 = "frequently" and 5 means "I feel that way most of the time." There are no right or wrong answers, so please answer each question as honestly as you can. Note that where "[sport]" is inserted indicates your preferred sport that you participate in.

Please read each statement carefully and decide if you ever feel this way about your current sport participation. Your current sport participation includes all the training you have completed during this season. Please indicate how often you have had this feeling or thought this season by circling a number 1 to 5, where 1 means "I almost never feel this way" and 5 means "I feel that way most of the time." There are no right or wrong answers, so please answer each question as honestly as you can. Please make sure you answer all items. If you have any questions, feel free to ask.

	How often do you feel this way?	Almost Never	Rarely	Sometimes	Frequently	Almost Always
1.	I'm accomplishing many worthwhile things in [***sport***]	1	2	3	4	5
2.	I feel so tired from my training that I have trouble finding energy to do other things	1	2	3	4	5
3.	The effort I spend in [***sport***]would be better spent doing other things	1	2	3	4	5
4.	I feel overly tired from my [***sport***] participation	1	2	3	4	5
5.	I am not achieving much in [***sport***]	1	2	3	4	5
6.	I don't care as much about my [***sport***] performance as I used to	1	2	3	4	5

7.	I am not performing up to my ability in [***sport***]	1	2	3	4	5
8.	I feel "wiped out" from [***sport***]	1	2	3	4	5
9.	I'm not into [***sport***] like I used to be	1	2	3	4	5
10.	I feel physically worn out from [***sport***]	1	2	3	4	5
11.	I feel less concerned about being successful in [***sport***] than I used to	1	2	3	4	5
12.	I am exhausted by the mental and physical demands of [***sport***]	1	2	3	4	5
13.	It seems that no matter what I do, I don't perform as well as I should	1	2	3	4	5
14.	I feel successful at [***sport***]	1	2	3	4	5
15.	I have negative feelings toward [***sport***]	1	2	3	4	5

Athlete Burnout Questionnaire Guide

Item Number	Subscale	Item Text
1	RA	I'm accomplishing many worthwhile things in [*sport*]
2	E	I feel so tired from my training that I have trouble finding energy to do other things
3	D	The effort I spend in [*sport*] would be better spent doing other things
4	E	I feel overly tired from my [*sport*] participation
5	RA	I am not achieving much in [*sport*]
6	D	I don't care as much about my [*sport*] performance as I used to
7	RA	I am not performing up to my ability in [*sport*]
8	E	I feel "wiped out" from [*sport*]
9	D	I'm not into [*sport*] like I used to be
10	E	I feel physically worn out from [*sport*]
11	D	I feel less concerned about being successful in [*sport*] than I used to

12	E	I am exhausted by the mental and physical demands of [*sport*]
13	RA	It seems that no matter what I do, I don't perform as well as I should
14	RA	I feel successful at [*sport*]
15	D	I have negative feelings toward [*sport*]

Notes. Response set is a 5-point Likert-type scale of: (1) "almost never", (2) "rarely", (3) "sometimes", (4) "frequently", (5) "almost always". Items 1 and 14 are reverse scored. RA = reduced sense of accomplishment, E = emotional/physical exhaustion, D = devaluation

Appendix C

Participant Information Sheet

INVITATION

You are being asked to take part in a research study on the effects trait anxiety may have on athlete burnout. We are asking if competitive trait anxiety predicts burnout in athletes and if so how large is its effect. Colm Boran, a final year undergraduate Psychology student in National College of Ireland is conducting this investigative experiment which has been approved by the Psychology Research Ethics Committee.

WHAT WILL HAPPEN

In this study, you will be asked to complete two questionnaires, one that measures anxiety in sport and one that measures athlete burnout. You will first take the Sports Anxiety Scale which will require you to answer 21 items on a scale of 1-4. This measures competitive trait anxiety levels prior to or during performance on three different subscales; somatic trait anxiety, worry, and concentration disruption. It also gives us a global trait anxiety score. The Athlete Burnout Questionnaire measures burnout using three sub-measures; reduced sense of accomplishment, sport devaluation, and emotional/physical withdrawal. There are 15 items to be answered on a scale of 1-5. This will also give us a global burnout score.

TIME COMMITMENT

The questionnaires typically take 5 minutes to complete and you will only have to do each questionnaire once.

PARTICIPANTS' RIGHTS

You may decide to stop being a part of the research study at any time without explanation. You have the right to ask that any data you have supplied to that point be withdrawn/destroyed. You have the right to omit or refuse to answer or respond to any question that is asked of you. You have the right to have your questions about the procedures answered (unless answering these questions would interfere with the study's outcome). If you have any questions as a result of reading this information sheet, you should ask the researcher before the study begins.

BENEFITS AND RISKS

There are no known benefits or risks for you in this study. However, participation in this study involves completion of some psychological tests which are routinely used to measure anxiety and burnout in sports, which may unveil psychological impairments that you may not have been aware of before. Scores from these tests would not be sufficient basis for clinical decisions or diagnosis, contain substantial margins of error, and are not used for diagnostic purposes in this study. Though it is not possible to provide feedback of individual scores to participants, these scores might hint at health problems that some people would want to discuss with an appropriate health professional.

COST, REIMBURSEMENT AND COMPENSATION

Your participation in this study is voluntary.

CONFIDENTIALITY/ANONYMITY

No one will link the data you provided to any identifying information you supplied. The data will be used in a presentation for a thesis, although no personal information will be identifiable.

FOR FURTHER INFORMATION

Colm will be glad to answer your questions about this study at any time. You may contact him at x15354666@student.ncirl.ie. If you want to find out about the final results of this study, you should use the email address provided to request a copy of the final draft.

Appendix D

Informed Consent Form and Demographic Information

I have read and understood the Participant Information Sheet

- Yes
- No

All questions about my participation in this study have been answered satisfactorily

- Yes
- No

I am aware of the potential risks that may come with my participation in this study

- Yes
- No

My participation in this study is voluntary and I give my informed consent

- Yes
- No

I am aware that my participation in this study requires me to complete two questionnaires, one that measures anxiety in sport (The Sport Anxiety Scale) and one that measures athlete burnout (Athlete Burnout Questionnaire). I understand that scores from these tests are not sufficient for, and will not be used for diagnostic purposes. I also understand that the researchers cannot inform participants of individual test scores.

- Yes
- No

I understand that if I have any queries/problems upon completion of the assessments that I can contact the researcher at any time with the contact details provided.

- Yes
- No

Demographic Questions

I am currently participating in at least one sport

- Yes

I confirm I am aged 18 or over

- Yes

Age:____

Gender

- Male
- Female

What is your preferred sport that you participate in?

_____