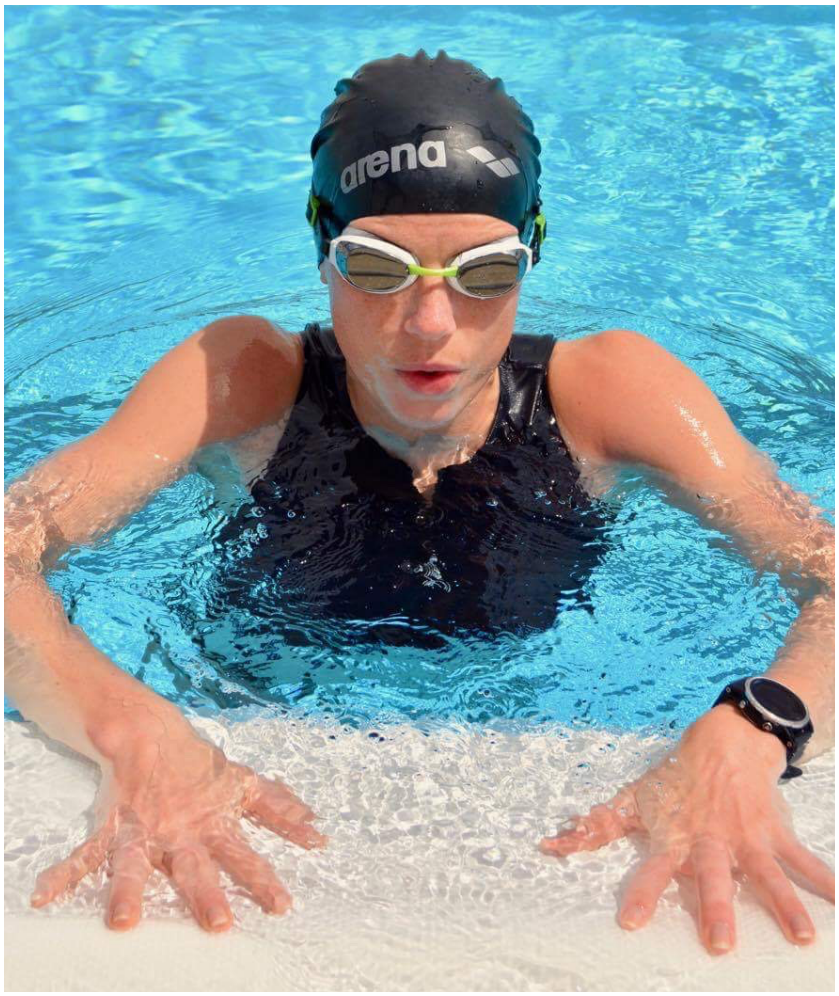
The influence of personality on creating effective mental skills training for athletes



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Thesis in psychology
Aalborg University
August 1. 2017

Thesis collective characters (with spaces and notes): 178.609
Number of pages: 74,4

Abstract

Background: Today, sport is a multi-million industry, where optimising performance of athletes has led to a great interest for mental skills training. It is interesting how mental training can assist an athlete in ensure optimal performance, while not burning out in the process – attaining and maintaining their personal Athletic Optimum. Often, many resources are wasted on expensive training programmes, coaches, and sport psychological interventions, without a beneficial outcome for the athlete. This might be because of a failure to consider individual differences in personality, prior to initialising mental skills training programmes. Moreover, training programmes are often based on performance outcomes, without thinking about the important aspect of burnout risk.

Objective: To investigate how knowledge of advantageous personality traits, and corresponding mental skills, could create more effective mental skills training of athletes, aiming to assist them in attaining and maintaining their Athletic Optimum.

Method: A systematic literature review was used to investigate how specific personality traits might be advantageous in achieving optimal performance, and maintaining lowest possible risk of burnout.

Results: Conscientiousness, Adaptive Perfectionism, Optimism, Control, and low Trait Anxiety, were suggested advantageous for an athlete in reaching and maintaining their Athletic Optimum. Underlying characteristics of the five personality traits were uncovered, aiming to find which mental skills, related to each personality trait, would be advantageous to work with. Mental skills training interventions were proposed, based on different levels of proposed personality traits, with the techniques self-talk, activation, imagery, and goal setting.

Conclusion: It is deduced that sport psychological interventions could be most advantageous, in assisting an athlete in attaining and maintaining their Athletic Optimum, when based upon knowledge of the athlete's level of Conscientiousness, Optimism, Adaptive Perfectionism, Control, and Trait Anxiety

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1. Introduction

With a push towards efficiency and value for money, in the major industry of sports, psychological characteristics associated with optimal performance is of great interest (Golby & Sheard, 2003, p. 933). It is suggested that certain personality traits might influence an athlete's likelihood of advancing to higher levels in sports while other traits have an inhibitory effect (Cox, 2007, p. 37). When transitioning from regular sport performance to elite level, appropriate psychological attributes help facilitate the adjustment (Sheard & Golby, 2010, p. 162). As described by a professional football player during an interview "*it's a rough shift from semi to professional so you got to have the mental strength to handle the pressure if you want to make the cut"*.

Being part of the elite places an athlete in a competitive, stressful and demanding environment where demands of performance are high (Sheard & Golby, 2010, p. 165). The elite environment is unique in that it provides considerable stressors to the modern-day athlete (Thomas et al., 2013, p. 317). Often these very high demands can result in negative effects making it difficult for some athletes to persist. In the interest of value for money it would be of great importance to ensure that an athlete not only performs to the best of their ability, but also with long-term consistency.

Research has shown burnout to be one of the common inhibitory factors of consistent performance (Cox, 2007, p. 427). It is believed to be one of the more critical consequences of a demanding elite environment as it develops gradually thereby making it difficult to notice in time (Gustafsson et al., 2007, p. 21). As described by the Dalai Lama; *"If you feel burnout setting in, if you feel demoralized and exhausted, it is best, for the sake of everyone, to withdraw and restore yourself. The point is to have a long-term perspective"*. For an elite athlete, simply pulling the plug for a few weeks is not always an option, as performance must be maintained. Being an elite athlete entails structured training and demanding competitions that are scheduled and immoveable. Constantly having to ensure performance makes it difficult for an athlete to take unscheduled breaks if burnout sets in. Therefore, it seems imperative to prevent the occurrence of athlete burnout (Gustafsson et al., 2007, pp. 21-22) while still maintaining optimal performance. Research in this relationship has suggested that having a hardy personality and being able to cope with stressful circumstances are key elements (Thomas et al., 2013, p. 316). Others believe in the benefits of optimism (Gustafsson

& Skoog, 2012, p. 183), mental toughness (Crust & Clough, 2005), extraversion (Elumaro, 2016), and conscientiousness (Kaiseler et al., 2012). Thus, various personality traits might be influential of an athlete's optimal potential.

So, with differences in personality in mind, how can sports psychologists assist an athlete in optimising performance and minimising burnout? It is suggested that different types of mental skills are of importance and can be enhanced if an athlete does not possess advantageous mental skills (Cox, 2007, p. 328). This is where mental skills training techniques have been suggested, for example interventions including imagery, goal setting, emotional control etc. (Lyngsø, 2016). An issue when creating mental skills training programmes for athletes, is often the failure to address individuality to attempt to save money and time (Hassmén et al., 2016, p. 244), making these interventions less successful (Cox, 2007, p. 328). In my literature review on mental toughness and mental skills training (Lyngsø, 2016) I deduce that it is important to consider individual differences before initiating mental skills training, as not all strategies are equally beneficial to every athlete. As pointed out by Woodman et al. (2010) *'...it is insufficient simply to apply performance strategies without first taking into consideration the personality of the athlete'* (p. 194). As some personality traits and characteristics are suggested to influence performance and burnout, working with an athlete in achieving their full potential, would be effective taking these differences into account.

1.1 Aim of thesis

This thesis is based on the notion that a successful long-term sports career is dependent upon an athlete performing to the best of their ability, while not burning out in the process. Personality traits that influence the peak point, where optimal performance is attained, with the lowest possible risk of burnout, are the point of interest. The term *Athletic Optimum* will be used to characterise this ideal state of optimal performance, and low burnout risk for athletes. Athletic Optimum is believed to be a state an athlete must strive to reach and maintain. It is likely that Optimum states exist for other groups as well, for example an Occupational Optimum for optimal job performance and low burnout risk, but the current thesis addresses only the idea of an Athletic Optimum.

Though other factors, for example physical fitness (Cox, 2007, p. 36), social support (DiFiori et al., 2014, p. 2), and interest (Moen, Myhre & Sandbakk, 2016) have been proposed to influence an athlete attaining Athletic Optimum, the interest for the

current thesis is on the influence of personality differences. Assisting an athlete in attaining their Athletic Optimum, sport psychological interventions is suggested to be most beneficial when based on these influential personality traits and their underlying characteristics (Lyngsø, 2016; Clough & Strycharczyk, 2012). As Athletic Optimum is suggested to comprise of the ability to attain optimal performance, while having lowest possible risk of burnout, it is proposed that mental skills training of athletes should be based upon knowledge of personality traits found to be advantageous for optimal performance and low burnout risk.

It is not suggested that mental skills training of athletes would change their general personality disposition, which is why underlying characteristics of advantageous traits are interesting. It is suggested that by addressing underlying characteristics of specific personality traits, it is possible to enhance advantageous mental skills (Cox, 2007, p. 328). For example, if being neurotic is found debilitating for an athlete in achieving their Athletic Optimum, it is not suggested that mental skills training would make an athlete non-neurotic. It is however suggested that by exploring characteristics of neuroticism, realising that neurotics tend to have a high anxiety level (Boyle, 2008, p. 3), mental skills training would assist a neurotic athlete in enhancing the mental skill of anxiety control, by utilising the technique of imagery (Cox, 2007, p. 328). In this way, a relationship is posited where personality traits comprise specific characteristics that correspond to specific mental skills, that are possible to enhance with mental skills training techniques. Proposed is therefore a direct and relatively stable relationship from personality traits, to specific mental skills.

1.1.1 Hypotheses

Following main hypothesis is the focus of this thesis:

> **H1: Knowledge of specific advantageous personality traits, would make mental skills training of athlete more effective, and assist them in achieving and maintaining their Athletic Optimum.**

To prove/disprove H1 hypothesis, following research hypotheses are addressed in working order:

> RH1: There are specific personality traits, that are advantageous for optimal athletic performance.

RH2: There are specific personality traits, that are advantageous for a low risk of athlete burnout.

RH3: RH1 and RH2 hypotheses will not contradict each other in the proposed advantageous personality traits.

If RH hypotheses are proven to be true, it would be possible to create more effective mental skills training, based on knowledge of the identified personality traits and their characteristics, assisting the athlete in achieving Athletic Optimum. This matter will be explored in the second part of this thesis (section 4) if RH hypotheses are proven.

1.2 Thesis philosophical framework

This thesis is based upon Critical Rationalism as proposed by Karl Popper. In their book, *Rethinking Sport and Exercise Psychology Research,* Hassmén et al. (2016) have extensive addressed how a critical rationalistic approach would be highly applicable for sport psychological research. Popper formulated his theories as opposing thoughts to the predominant idea of *induction,* arguing that since there will always the possibility of something that can disprove a theory, one cannot simply expect the future to follow the past (ibid., p. 7). Hassmén et al. (2016) provide a great statement about the view point of Popper's fallibilisme: *'So, if scientific theories are testable, in spite of being unprovable, we are left with knowledge that is fallible, but which can be improved (or made more 'truth-like') through rigorous theory testing and the elimination or errors'*. Thus, Poppers main idea is that every theory is a suggested solution to a problem, and should be formulated in a way that is falsifiable, i.e. possible to disprove (Hassmén et al., 2016, p. 6). The practical method for this work is Popper's *hypothetico-deductive* method. This method is a way to develop theories to solve problems, deducing solutions, and testing the predictions (ibid., p. 7). Data of the thesis will therefore be considered, from this critical realistic perspective, where the basic assumption is that human beings are reasonable (Christensen, 2011, p. 104), making it possible to create hypotheses. Popper formulated this method in four stages:

- Problem situation (P^1)

The problem situation for this thesis is, as addressed in the introductory section, that sport psychologists fail to address the importance of personality traits, when creating

mental skills training programmes, to assist an athlete in achieving their Athletic Optimum.

- Tentative solution (TS)

The solution is suggested to be to base mental skills training of athletes upon knowledge of personality traits that are beneficial for achieving Athletic Optimum.

- Error elimination (EE)

The error elimination stage is the main part of this thesis, and comprise an extensive literature review addressing hypotheses RH1, RH2, and RH3. The created hypotheses are constructed with fallibilisme in mind, seeking to make them falsifiable, as proposed in critical rationalism (Hassmén et al., 2016, p.250). Creating theories that are falsifiable, through rigorous re-testing and elimination of errors, are the way to ensure scientific development. A theory is never really proven, as any re-test could falsify the theory (ibid.). This is an interesting thought, as this way of thinking allows for creating new, creative, and powerful theories. This however requires the researcher to dare bring attention to possible mistakes and inconsistencies, rather than try to conceal them to make data fit with the hypotheses (ibid.). Throughout this thesis, I therefore include critical discussions about my process, and the data obtained, aiming for transparency and fallibility.

- New problems (P^2) (Hassmén et al., 2016, p. 7).

This stage is the final part of the thesis, aiming to bring attention to new discovered problems and indications for future research.

By choosing a critical rationalistic approach, there are some limitations to be aware of. The deductive method would entail some form of reductionism, to be able to make assumptions based on included data. As critical rationalism invites researchers to falsify every proposed theory (Hassmén et al., 2016, p. 250), I aim at making this thesis transparent and falsifiable in both methodology and data analysis.

As a final remark, I do acknowledge that the notion of an Athletic Optimum has a low level of corroboration in that the concept has not yet been subjected to serious criticism (Hassmén et al., 2016, p. 8). I do however invite other researchers to test this theory.

1.3 Thesis methodology

As briefly mentioned, the thesis method, for working with proposed hypotheses, is a literature review. This method is chosen as the purpose of the thesis is to investigate existing literature about the influence of personality traits upon optimal performance and athlete burnout. The specific type of review for this thesis is the *systematic* literature review. As critical rationalism would advocate, it is important to aim at transparency for others to be able to falsify the work. This makes the systematic approach relevant, in that this type of review is proposed for gathering and synthesising data, while attempting to eliminate potential bias (Thomsen & Krogh, 2010, p. 152). The systematic literature review entails thorough descriptions of a search protocol, inclusion criteria, and account of data handling (ibid., p. 154), all methods to aim for high transparency.

To conduct a systematic literature review it is firstly necessary to limit the scope to a specific population (Johannsen & Pors, 2013, p. 42), in this case athletes. Furthermore, the scope is limited to investigations of only personality traits. As it would not be possible, within the frame of this thesis, to investigate every conceivable personality traits, an initial wide search is conducted to bring forward personality traits that would be interesting to address (Thomsen & Krogh, 2010, p. 154). This initial wide literature search (burnout AND personality; performance AND personality) was performed to call attention to possible personality traits that might assist an athlete in achieving Athletic Optimum.

These initially identified traits will be the basis of further investigation in this thesis.

- Perfectionism
- Optimism
- Trait Anxiety
- Big Five
- Narcissism
- Hardiness/Mental Toughness

The focus is only upon these personality traits but I do recognise the possibility of other influential personality traits than initially proposed. Furthermore, the focus of

this thesis is initially upon bivariate relationships only, for example Optimism – athlete burnout, therefore not addressing possible mediator/moderator variables between proposed personality traits and performance or burnout.

The structured literature review comprises five steps. Step 1 is the framing of research scope (Khan et al., 2003, p. 118). The literature review is divided into two main foci based on hypotheses RH1: There are specific personality traits, that are advantageous for optimal athletic performance; and RH2: There are specific personality traits, that are advantageous for a low risk of athlete burnout. Thus, the purpose of the systematic literature review is uncovering how specific personality traits influence either athletic performance, or athlete burnout. Step 2 is the identification of relevant work, i.e. the search process. This process consists of multiple steps, which will be explained in the search segment (3.1). Step 3 is assessing the quality of the studies, which include a critical appraisal checklist, aiming at eliminating studies of poor research quality (ibid.). Step 4 is the synthesis of collected data. This step consists of tabulation of study characteristics, methods, and results, as well as an exploration of similarities and differences of studies (ibid.). At the end of step 4 a critical analysis of RH1 and RH2 will prove/disprove these research hypotheses. Step 5 is the interpretation of findings (ibid.). This final step concludes the systematic literature review by addressing RH3 hypothesis: RH1 and RH2 hypotheses will not contradict each other in the proposed advantageous personality traits.

Thesis structure

This thesis comprises firstly a brief clarification of terms used throughout the thesis, followed by a theoretical, consisting of relevant theoretical material for understanding and analysing the collected data. Each theoretical segment will end with a critical discussion of set theory. Secondly, will be the literature review addressing research hypotheses RH1, RH2, and RH3. Thirdly, if these hypotheses are proven, the possibility of creating mental skills training programmes, based upon proposed personality traits, will be discussed. Lastly, will be a section attending to limitations of the thesis and suggestions for future research.

1.4 Clarification of terms used

This section consists of short definitions of terms used throughout the thesis. Not included in this clarification, are the main concepts of athlete burnout, and proposed personality traits, which are thoroughly described in the theory section (section 2). Clarification of mental skills and mental skills training will be briefly addressed in section 4.1.

It is assumed that the basic sense of the concepts used is similar. This assumption is found necessary to be able to compare results found through the literature search though I do recognise this as a potential bias due to reduction.

Personality

Since various theories of personality are proposed through literature, it seems imperative to clarify in what frame of reference I view personality and thus in which context I investigate the field of study.

Personality psychology was, until the 70ies, one of the main areas of psychological research and theory. At this point much attention was instead directed towards situational factors, which some researchers felt accounted for more variance in individual behaviour than personality (McAdams & Pals, 2006, p. 204). However, research pointed to the stability, psychobiological foundation, and predictive nature of individual differences in characteristics, which ensured the survival and privileged status of personality psychology (ibid.).

For this thesis, personality is viewed in the framework of trait theory, which consider the individual to possess stable, enduring and consistent personality dispositions (Cox, 2007, p. 24). These dispositions predict a likelihood for the individual to respond in a specific manner, thus making it possible to form theories about prospected behaviour, emotions, attitudes. Social influences are not disclaimed in general from a trait theoretical view, but thought to influence behaviour alongside personality dispositions (ibid.). The strength of trait theory is allowing for easy measure of personality through inventories. Trait theory might not be able to encompass the entire complexity of personality (ibid., p. 25), but for the present thesis the trait theoretical view of personality is optimal. This because the aim of this thesis is to assess specific characteristics of personality traits and their influence on performance and/or athlete burnout risk.

Optimal performance

Optimal performance implies that the athlete is performing to the best of their physical and mental ability (Cox, 2007, p. 37). The level of performance is thus highly subjective and related only to that individual. Furthermore, optimal performance relates to both the daily training activities and direct competitive situations.

Athlete burnout

Athlete burnout is suggested to be characterised by the three subscales proposed in the theory section of this thesis: Emotional and/or Physical Exhaustion, Sport Devaluation, and Reduced Sense of Accomplishment (theory section 2.1).

Athlete

Defined in the Oxford Dictionary, an *athlete* is *'a person who is proficient in sports and other forms of physical exercise'*[1]. Different levels of athletes are proposed progressing from beginner to ultimate skilled. Levels are defined as: entrance, scholastic, collegiate, national, Olympic, and elite. It is suggested that as athletes move up the ranks their personality and psychological traits become more alike, as the field narrows. Therefore, greater differences in personality of athletes might be seen at entry level as opposed to elite level (Cox, 2007, p. 37).

2. Theory

To ensure a profound understanding of the fundamentals of this thesis, it is important to make a clear theoretical framework. This section is therefore comprised of the theoretical concepts used throughout the thesis. An exception is however theory on mental skills and training techniques, which is found in section 4.1, since it is first relevant if proposed hypotheses are proven.

2.1 Athlete burnout

In a psychological context, burnout was first mentioned by Freudenberger in his 1974 paper, based on observations from his work at a Free Clinic in New York (Schaufeli

[1] https://en.oxforddictionaries.com/definition/athlete

& Enzmann, 1998, pp. 2f). Meanwhile in California, Maslach and her colleagues adopted the burnout term, applying it to their research in occupational psychology. Indeed, an occupational setting was, for many years, the primary focus point of burnout research (Alarcon et al., 2009; Schaufeli & Enzmann, 1998). Maslach's research would in time lead to the construction of their psychometric instrument Maslach Burnout Inventory (MBI), which has been validated numerous times and is now one of the most widely used measures of burnout (Schaufeli & Enzmann, 1998, p. 7). The MBI is interesting since it does not derive from an existing theory, but is instead a product of several years of extensive research in the occupational area (Maslach, 1993, p. 2). In burnout research, the MBI has since been extensively used in the areas of work (Alarcon et al., 2009; Schaufeli et al., 2008), and sports (Berengüí et al., 2013). From the viewpoint of the MBI model burnout is described as *'a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment, which can occur among individuals who work with other people in some capacity'* (Maslach, 1993, p. 2). However, since the current focus is on athlete burnout, a sports related extension of the MBI, is chosen as the basis of burnout definition.

This thesis supports the definition of athlete burnout syndrome proposed by Raedeke as an extension of the MBI; *'...athlete burnout can be defined as a syndrome of physical/emotional exhaustion, sport devaluation, and reduced athletic accomplishment'* (Raedeke, 1997, p. 398). When an athlete experiences burnout, the defining characteristics of the multidimensional syndrome are proposed by Raedeke (1997) to be reflected in three main areas; emotional/physical exhaustion, reduced sense of accomplishment, and sport devaluation. These three defining elements of athlete burnout have been utilised in many research studies investigating athlete burnout (Cresswell & Eklund, 2004; Goodger et al., 2007; Cox, 2007, p. 427; Gustafsson et al., 2008; 2013; Isoard-Gautheur et al., 2013; De Francisco et al., 2016;).

Emotional and Physical Exhaustion (Ex)

Ex is suggested to involve the athlete's depletion of emotional and/or physical energy. This is a possible consequence of the high demands the athlete often experiences during both training and competition (Lemyre et al., 2008, p. 221f). The Ex subscale is therefore associated with intense training and competition (Goodger et al., 2007, p. 128).

Reduced sense of Accomplishment (Ra)

The key indicator of Ra is an athlete's perception of reduced accomplishment because their goals are unfulfilled of seem unobtainable (Lemyre et al., 2008, p. 222). Ra is related to skills and abilities since the subscale is based on goal achievement and feelings of performing to set expectations (Goodger et al., 2007, p. 128).

Sport Devaluation (De)

The sub scale of De entails the athlete's decreased interest in their performance and devaluation of their sport. In great parts, this is because of a feeling that their achievement striving brings little reward (Lemyre et al., 2008, p. 222). De is related to performance and sport in its totality and involves a resentment or general lack of interest in performance and the sport (Goodger et al., 2007, p. 128).

Measurement of athlete burnout

The Athlete Burnout Questionnaire (ABQ) is proposed by Raedeke and Smith (2001) as a psychometrically measure of athlete burnout. The ABQ is comprised of 15 questions related to the three sub scales of athlete burnout Ra, Ex and De (Hughes, 2014, p. 48). It's a 5-point Likert scale, ranging from 'almost never' to 'almost always'. The ABQ measure has undergone much research into its validity and reliability (Raedeke & Smith, 2001; Chen et al., 2008) and is used in most of the research included in this thesis.

Another measure of athlete burnout used by researchers in literature of this thesis is the *Eades Athlete Burnout Inventory* (EABI). The EABI consists of 36 statements on a 7-point Likert scale. The measure is comprised of six sub scales: negative self-concept of athletic ability, emotional and physical exhaustion, psychological withdrawal from and devaluation of sport participation, depersonalisation by coach and teammates, congruent athlete-coach expectations for and evaluations of the athlete's performance, and personal and athletic accomplishment (Aoyagi et al., 2011, p. 5).

One of the included studies of athlete burnout literature used a Spanish adaptation of the MBI, *Inventario de Burnout para Deportistas* (IBD). The 5-point Likert scale measure is composed of 26 items based on the three MBI scales Emotional Exhaustion, Depersonalisation, and Reduced Efficacy (Berengüí et al., 2013, p. 15).

Critical discussion of athlete burnout theory

Investigations of burnout in sports has developed from earlier theories based upon occupational settings. Today, important differences between work related and sports related burnout are recognised (Gustafsson & Skoog, 2012, p. 192). Even though Freudenberger in 1975 noted that athletes are especially susceptible to burnout it is not until the turn of the century that a systematic approach was adopted in this field of research (ibid., p. 184). Often it is assumed that burnout in sports and occupational settings have the same theoretical foundation, but newer research into the matter suggest that there are essential differences (ibid., p. 192). Though there might be some comparable characteristics between burnout in work and sports, there is also important differences to be aware of (Gustafsson et al., 2007, p. 19). As an athlete, high physiological stress is an inevitable part of everyday life. The athlete undergoes constant evaluation, both in training and competition and the fear of deselection is often present. Having a career as a professional athlete typically has a lot shorter span of 10-15 years therefore adding the stressor of time and ageing (ibid.). Therefore, it seems imperative to separate athlete burnout from burnout in work since there are different demands and core elements from occupational settings to athletic settings (Raedeke, 1997, p. 397). Though it presents some limitations in available research for the literature review it is important to only include studies researching athlete burnout.

Furthermore, researchers have argued whether athlete burnout is a unidimensional or multidimensional construct. Those who advocate for a unidimensional view of athlete burnout criticise the idea of three dimensions since the subscale Ra seems to develop individually and not be as strongly correlated as Ex and De subscales. Oppositely, the unidimensional view is critiqued for reducing burnout to be nothing more than exhaustion (Gustafsson & Skoog, 2012, p. 192). I have chosen to adopt the multidimensional view of athlete burnout based on extensive research providing evidence for the multidimensional view of athlete burnout (Wyner, 2004, p. 18).

Additionally, though some core characteristics of athlete burnout seems universal, it is worth mentioning that research has pointed to individual and often quite different experiences of burnout (Smith et al., 2007, p. 339). One could speculate that the experience of burnout differs because of social, situational and/or individual personality factors. It is therefore imperative to acknowledge that research in this area has some limitations.

2.2 Big Five

A trait theoretical way of viewing personality is in terms of broad, general linear and bipolar traits (McAdams & Pals, 2006, p. 204). In research, the Five-Factor model, often called *Big Five*, and the appertaining psychometric model NEO-PI, created by Costa & McCrae & Costa (2003) are generally accepted as prominent measures of personality in trait theory (Terracciano et al., 2006; Cox, 2007; Jarvis, 2006; Judge & Ilies, 2002). Big five constitutes the basic understanding of personality for this thesis and organises personality into five general factor-based characteristics: Extraversion, Neuroticism, Conscientiousness, Agreeability and Openness to experience (McAdams & Pals, 2006, p. 204).

Neuroticism (N)

Neuroticisme is understood from Eysenck's Neuroticism/Emotional stability dimension and represents the individual differences in experiencing worry and suffering. The typical behaviour associated with Neuroticism is nervousness, depression, worry and insecurity (Wang & Erdheim, 2007, p. 1494). Neurotics tend to view themselves negatively, be defensive and often engage in self-blame (Clark & Watson, 1991, p. 222).

Extraversion (E)

Extraversion is seen from Eysenck's dualistic Extraversion/Introversion model. The typical behaviour of an extrovert is outgoing and talkative (Wang & Erdheim, 2007, p. 1494). Individuals high in Extraversion tend to show positive thoughts patterns as well as optimistic views of the future. They show high tolerance for distraction and is less afflicted by the pressure of competition (Zweig & Webster, 2004, p. 1696). Extroversion is also shown to predict an ambitious and persistent attitude (Clark & Watson, 1991, p. 235).

Openness to Experience (O)

Openness to Experience is related to creativity and fantasy. Individuals high in Openness to Experience show high levels of curiosity, inventiveness and intellect (Wang & Erdheim, 2007, p. 1495). Individuals high in this Big Five trait, tend to be appreciative of variation, learning and intellectual stimulation (Zweig & Webster, 2004, p. 1698).

Agreeableness (A)

The human aspects of an individual, e.g. caretaking and empathy, are explained by Agreeableness. Individuals high in this Big Five trait tend to be cooperative, tolerant and courteous (Wang & Erdheim, 2007, p. 1495). Individual low in Agreeableness are inclined to be competitive and have a need to prove themselves (Zweig & Webster, 2004, p. 1699).

Conscientiousness (C)

This Big Five trait is reflected by a trustworthy and responsible attitude. Individuals high in Conscientiousness is typically hardworking, performance oriented and persistent (Wang & Erdheim, 2007, p. 1495). Conscientious individuals tend to be self-disciplined, organised and scheduling (Zweig & Webster, 2004, p. 1698). Opposite this, individuals low in Conscientiousness are inclined to be undisciplined, unorganised and unscrupulous (ibid.).

Measurement of Big Five

In measuring Big Five traits in research included in this thesis, three psychometric measures were identified. One of the areas of measurement, Costa & McCrae, is comprised of three different but significantly correlated measures (Piedmont et al., 1999; Conway, 2016; Hoyt, 2009).

Firstly, the *Eysenck Personality Inventory Form A* using a yes/no design measuring Extraversion, Neuroticism, and possible faking (Lie scale) to assess potential bias (Eagleton et al., 2007).

Secondly, one of the main areas of big five psychometrics is created by Costa & McCrae. This research team has made numerous scales identifying big five traits. In this thesis three of these scales are represented: Bipolar adjective scale, NEO-PI-R, and NEO-FFI. According to Costa & McCrae (2003) each of the Big Five factors is comprised by six underlying traits corresponding to the main trait. This segmenting is the framework of their models (Hoyt, 2009, p. 566).

Neuroticisme	Extraversion	Openness to Experience	Agreeableness	Consciousness
N1 Anxiety	E1 Warmth	O1 Fantasy	A1 Trust	C1 Competence
N2 Hostility	E2 Gregariousness	O2 Aesthetics	A2 Straightforwardness	C2 Order
N3 Depression	E3 Assertiveness	O3 Feelings	A3 Altruism	C3 Dutifulness
N4 Self-Consciousness	E4 Activity	O4 Actions	A4 Compliance	C4 Achievement Striving
N5 Impulsiveness	E5 Excitement Seeking	O5 Ideas	A5 Modesty	C5 Self-Discipline
N6 Vulnerability	E6 Positive Emotions	O6 Values	A6 Tender-mindedness	C6 Deliberation

Figure 1 - Big Five characteristics

The *Bipolar adjective scale* (BAS) is an 80-item scale with a 7-point Likert design (Piedmont et al., 1999, p. 772). *NEO-PI-R* is a revised model of the NEO-PI and include 240 items (Conway, 2016, p. 32). Another revised version is the *NEO-FFI* which is also represented in research included in this thesis. The NEO-FFI is likewise based on the Big Five traits of personality and is comprised of 60 items (Mirzaei et al., 2013, p. 440). All the above-mentioned scales correlate with the same basic understanding of Big Five traits (Conway, 2016, p. 32).

Thirdly, another measure used in research included in this thesis is the *Big Five Inventory* (Conway, 2016, p. 47). The BFI measures based on the same big five traits as described above and correlates significantly with the NEO-PI (Soto & John, 2009; Conway, 2016). The BFI scales of 44 items and it is therefore shorter and more simplistic that NEO-PI-R. Research have not found this to be of hindrance (Conway, 2016, p. 49).

Critical discussion of Big Five theory

The Big Five is based on a static perception of personality with the idea of a relatively stable construct (Costa & McCrae, 1999, p. 145). Conversely, some researchers report that the Big Five traits are subject to vast changes over the lifespan of an individual, placing uncertainty about the stability of the five factors (Boyle, 2008, p. 4). Namely Agreeableness and Conscientiousness have been shown to increase with age meanwhile decreases in Neuroticism, Extraversion and Openness to Experience have been indicated (ibid.). Oppositely, Terracciano et al. (2006) proved relatively small changes in levels of Big Five traits through a lifespan and suggest a consistency of as much as 80 % in personality trait levels (p. 1008). Other researchers furthermore support the belief that Big Five traits are relatively stable through a lifespan (McAdams & Pals, 2006; Conway, 2016). This calls attention to the notion that age should be considered when researching personality traits through Big Five though it is not clear to which extent age is influential in the stability of traits.

Assessing the five factors separately, Extraversion and Neuroticism seem to be universally accepted in many personality theories (Boyle, 2008, p. 6). Openness to Experience, Agreeableness and Conscientiousness have all been subject to critical reports about their relevance and theoretical basis (ibid.). It is suggested that some of the reliability concerns is due to a simplification of the factors. Conscientiousness is for example proposed to embody six different facets while Openness to Experience is to entail three sub-dimensions (ibid., p. 16). On the other side, the simplification of Big Five might also be the strength in that the model only includes the very core characteristics found through extensive research and analyses (Judge & Ilies, 2002, p. 798).

It seems that Big Five is a good model for assessing general, broad traits but that the construct might fail as a measure of the complexity of personality (Block, 1995, p. 209). The Big Five model is however a useable way to address if these five specific traits influence a field of research. Capturing the whole essence of an individual is not a focus of this thesis therefore big five is deemed applicable in this explicit research. Since the aim of thesis is to address if some Big Five traits are advantageous for performance and low burnout risk also cultural, lifespan, and gender-based differences are of little interest at this point. It is nevertheless important factors to reflect upon in assessing results of the literature review if sample groups differ.

2.3 Perfectionism

Perfectionism is acknowledged to be a multidimensional construct reflecting both a strong commitment to very high, often unrealistic, standards for accomplishment, and an inability to accept one's mistakes (Chang, 2012, p. 635). Through research, various subscales of perfectionism have been proposed aiming to bring attention to both adaptive and maladaptive aspects of the trait. Researchers suggest a division between *Socially Prescribed* and *Self-Oriented* Perfectionism. Socially Prescribed Perfectionism is interpersonal and based on the perception that others hold unrealistic high standards for the individual. Also, the individual tends to view others as critical and withholding of appraisal (Jowett et al., 2013, p. 49). Individuals high in Socially Prescribed Perfectionism are guided by a perception that acceptance from others are conditional on fulfilling excessively high standards (Aghdasi, 2014, p. 29). On the other hand, Self-Oriented Perfectionism is characterised by a tendency to be self-critical and setting very high standards for oneself (Jowett et al., 2013, p. 49). Individuals high in Self-Oriented Perfectionism are motivated by a strong personal need for perfection (Aghdasi, 2014, p. 29).

Expanding on these two definitions of perfectionism, research has proposed a division into *Perfectionistic Strivings* and *Perfectionistic Concerns*. Perfectionistic Strivings entail Self-Oriented Perfectionism, setting challenging standards and engaging in rigorous self-evaluation (Jowett et al., 2013, p. 49; Gotwals, 2011, p. 490). Perfectionistic Concerns are characterised by Socially Prescribed Perfectionism, concern over one's mistakes, and setting critical standards perceived as expectations of significant others (Jowett et al., 2013, p. 49; Gotwals, 2011, p. 490). Further analyses of perfectionism propose a division between Adaptive and Maladaptive Perfectionism. *Adaptive Perfectionism* is suggested to entail a positive attitude towards success, perseverance, and a desire for achievement with high standards (Chang, 2012, p. 635). This dimension furthermore includes both perfectionistic strivings and self-oriented perfectionism. Opposite, *Maladaptive Perfectionism* involves setting unattainable goals, having a fear of failure, and criticism. Maladaptive Perfectionism includes both perfectionistic concerns and Socially Prescribed Perfectionism (Stairs, 2009, p. 4). For the remainder of this thesis the terms Adaptive and Maladaptive Perfectionism will be used, except in results of the literature review that have only addressed proposed subcomponents of perfectionism.

Measurement of Perfectionism

In measuring perfectionism within a sport setting three measures were identified through the literature review for this thesis.

Firstly, *The Multidimensional Perfectionism Scale* (MPS) is a measure of perfectionism based on Socially Prescribed Perfectionism and Self-Oriented Perfectionism. The MPS is comprised of 30 items and the questionnaire is graded on a 7-point Likert scale (Aghdasi, 2014, p. 31).

Secondly, *The Sport Multidimensional Perfectionism Scale-2* (SMPS-2) is comprised on two main scales based on Perfectionistic Strivings and Perfectionistic Concerns. The Perfectionistic Strivings dimension entails two subscales: Personal standards, and Organisation. The Perfectionistic Concerns dimension contains four subscales: Concern Over Mistakes, Perceived Parental Pressure, Perceived Coach Pressure, and Doubts About Actions. The SMPS-2 is a 42-item instrument using a 5-point Likert scale (Gotwals, 2011, p. 495).

Thirdly, *The Multidimensional Inventory of Perfectionism in Sport* (MIPS) consists of 72 items on four scales assessed by a 6-point Likert scale: 1. Perfectionistic Aspirations During Training and During Competitions; 2. Negative Reactions to Non-Perfect Performance During Training and During; 3. Perceived Pressure from Coach, Teammates, and Parents; 4. Perfectionistic Pressure on Teammates and Negative Reactions to Non-Perfect Performance of Teammates (Stoeber et al., 2007).

Critical discussion of Perfectionism theory

As described in the theoretical segment, perfectionism is thought to be a multidimensional construct, though some earlier theorists have claimed that perfectionism is unidimensional (Safran et al., 2002). The reasoning for a unidimensional view is that multidimensional constructs of perfectionism includes more than pure perfectionism. These researchers believe that perfectionism only entails Self-Oriented Perfectionism but recognises that Socially Prescribed aspects might relate to perfectionism, just not an integrated part of the trait (ibid., p. 776). Oppositely, theorists with a multidimensional view of perfectionism advocate that perfectionism is an umbrella term for underlying separate traits (Stairs, 2009, p. 63).

Perfectionism is mostly treated as a global personality trait with no consideration for the notion that an individual might be perfectionistic in only some domains of life (Terry-Short et al., 1995). However, researchers (Stoeber, 2011, p. 129) have brought attention to the theory that an individual might for example be perfectionistic about their work while paying little attention to the tidiness of their home. Moreover, perfectionism was earlier thought to have only negative outcomes (Fleet & Hewitt, 2005, p. 14) but researchers today acknowledge the adaptive nature of at least part of the multidimensional construct of perfectionism (Stoeber, 2011, p. 128). It is however sensible to emphasise that perfectionism is not advantageous in all aspects of life (Canter, 2008, p. 7). Extreme perfectionism is shown to correlate with a wide range of psychological risk factors including eating disorder, social anxiety, chronic stress and clinical depression (Stoeber, 2011, p. 128). From a multidimensional view of perfectionism, it is however only Perfectionistic Concerns, Socially Prescribed Perfectionism and Maladaptive Perfectionism which places the individual at risk of these health issues (ibid., p. 129). Therefore, one might speculate that only Maladaptive Perfectionism, would show a positive correlation with athlete burnout.

2.4 Optimism

Generally, Optimism has been researched through two main theoretical viewpoints; either defined as a personality disposition (Gustafsson & Skoog, 2012, p. 184) or an explanatory style (Berengüí et al., 2013, p. 13). Being a dispositional optimist requires a pattern of consistent optimistic behaviour and thoughts in various contexts (Segerstrom & Nes, 2006). Having an optimistic personality trait is thus characterised by having 'positive outcome expectancies' which entails a tendency to have a positive outlook on life and having an expectation of good things happening in life (Chen et al., 2008, p. 693). Without manipulation, Optimism tends to remain the same over longer periods of time, if no major life changes occur. It is however suggested to be possible to adopt a more optimistic view in specific situations (Carver & Scheier, 2014, p. 297).

An optimistic explanatory style, as described by Seligman's learned helplessness theory, is an individual's reaction to, and expectation of, uncertain circumstances (Berengüí et al., 2013, p. 14). Put in a different way, dispositional Optimism expects opti-

mism to occur in the same manner through most aspects of an individual's interactions/experiences, while explanatory optimistic style is domain specific (Zullow, 1991, p. 46).

Generally, optimists tend not to dwell on problems or stressors, and show confidence in one's own ability to attain their goals. Optimism is likewise associated with a sense of control and confidence (Gustafsson & Skoog, 2012, p. 185). In an athletic context, Optimism is described as the athlete's tendency to have a positive respond under pressure. This tendency is suggested to influence how an athlete handles adversity and face difficulty (Berengüí et al., 2013, p. 14).

In studying Optimism, there is often a polar depiction of Optimism and Pessimism. Therefore, I will briefly assess two variations of Pessimism proposed in the literature. *Defensive Pessimism* refers to an individual's tendency to not expect a positive outcome even though they previously have experienced success (Gordon, 2008, p. 343). They tend to set very low expectations for their performance to protect themselves from potential failure (Wilson et al., 2002, p. 894). *Real Pessimism* is characterised by an expectation of a negative outcome of performance and success and achieving such an outcome (ibid.).

Measurement of Optimism

The most widely used measure of Optimism found through the literature review were *Life Orientation Test* (LOT). The LOT consists of 12 items assessed on a 6-point Likert scale of either negative or positive formation (Chen et al., 2008, p. 695). Also, a revised shorter 10-item version of the LOT, LOT-R, is represented in the chosen literature (Gustafsson & Skoog, 2012, p. 187).

Additionally, *The Attributional Style Questionnaire* (ASQ) is used in one of the studies (Gordon, 2008) to assess optimistic levels. The measure is divided into the dimensions of locus, stability, and globality, where subjects are asked to supply an explanation for negative and/or positive events followed by a rating on a 7-point Likert scale of the three dimensions (Gordon, 2008, p. 337).

Lastly, *The Defensive Pessimism Questionnaire* (DPQ) is included in one of the studies (Wilson et al., 2002) DPQ is an 11-item measure to assess cognitive orientation style based on Optimism, Defensive Pessimism, and Real Pessimism (ibid.).

Critical discussion of Optimism theory

It is possible that Optimism only has a positive effect when accompanied by less pessimism as proposed by Segerstrom & Nes (2006). Oppositely, it is suggested that positive and negative emotions can function independently, i.e. there is not necessarily a linear relationship between elevations in optimism and decreases in pessimism (ibid., 19). Therefore, knowledge of Pessimism might not be obligatory in understanding Optimism. In investigating Optimism, it is important to understand that even though dispositional Optimism and optimistic explanatory style are two different constructs, the two views of optimism share important factors, making it possible to address them collectively. Both conceptualisations of Optimism places strong value on the impact of an individual's expectations of behaviour and experiences (Carver & Scheier, 2014, p. 233). Since the aim of this thesis is not to predict behaviour across various domains it is advocated that both conceptualisations can be assessed simultaneously in the literature review. It is however a cause for attentiveness if results differ on a basis that might be explained by the two conceptualisations.

2.5 Narcissism

The trait of Narcissism derives from Freudian theories and is characterised by an exaggerated self-love, dominance and egocentric attitude where the individual tends to exploit others to satisfy their own need for superiority (Sabouri et al., 2016, p. 229). Features of a narcissist include a pervasive pattern of grandiosity and a need for admiration. Though narcissist have a high self-esteem it is also insecure and fragile as narcissists are dependent on positive evaluation from others, making the trait situationally bound (Geukes et al., 2012, p. 245). Narcissism is furthermore defined by a lack of empathy and feelings of entitlement (Roberts et al., 2013, p. 317). Being a narcissist is proposed to not only be maladaptive. Studies have shown narcissists to perform better during competition and worse during training situations. As only competitive situations hold the potential for glory one might expect narcissistic individuals to perform better in competition for this reason (Roberts et al., 2013, p. 317). Furthermore, a narcissistic person tends to be quite skilful at achieving their goals and utilises various strategies like denial, projection, and idealisation, in assistance of keeping their grandiose self-perception (Raskin & Terry, 1988, p. 890). These strategies serve the purpose of self-protection which might be advantageous in some situations.

Measurement of Narcissism

In measuring Narcissism, a 10-iteam subscale of *The German Personality Style and Disorder Inventory* (PSSI) is used in one of the included studies (Geukes et al., 2012). The subscale is labelled 'ambitious style and narcissistic personality disorder' and is of a 4-point Likert scale design (Geukes et al., 2012, p. 246).

The other measure identified in the included literature is the *Narcissistic Personality Inventory-40* (NPI-40) which is a 40-item inventory. The NPI-40 has an A/B design of forced choice between one narcissistic and one non-narcissistic statement. The number of narcissistic responses are summed to a total with a range of 0-40 (Roberts et al., 2013, p. 318).

Critical discussion of Narcissism theory

Studying Narcissism warrants caution. The field has been accused of lacking consistency in defining the term. Though the construct is extensively used in books and articles, it has been accompanied by little or no research-based foundation (Raskin & Terry, 1988, p. 891). However, newer research has addressed possible bias and included validation of Narcissism measures before research is conducted (Geukes et al., 2012; Roberts et al., 2013; Sabouri et al., 2016) Today there are more consensus about some of the features of Narcissism (described above) since more research into the specific dimensions of Narcissism has been properly investigated in creating inventories measuring Narcissism (Geukes et al., 2012; Raskin & Terry, 1988).

2.6 Trait Anxiety

Cattell introduced, in 1966, the distinction between state and Trait Anxiety. This division was expanded upon by Spielberger, who declared that State Anxiety is an emotional that varies in intensity and changes over time, while Trait Anxiety is a stable predisposition to experience State Anxiety more often. This tendency to experience anxiety is described as a personality trait (Grös et al., 2007, p. 369). A relationship between the two dimensions are thus proposed to exist, where higher levels of Trait Anxiety is predictive of a more intense experience of State Anxiety (Hashim et al., 2017, p. 142). Trait Anxiety is furthermore characterised as having a tendency towards a threatening view of situations while state anxiety refers to feelings of nervousness

and tension associated with arousal (Hashim et al., 2017, p. 142). Additionally, is proposed a directional view of anxiety where facilitative perception is considered to have a positive influence on performance while debilitative perception is suggested to decrease performance (Cremades et al., 2011, p. 22).

Moreover, the Trait Anxiety personality disposition is addressed by including a cognitive and somatic dimension. The *Multidimensional Anxiety Theory* (MAT) divides anxiety into cognitive and somatic anxiety. *Cognitive Anxiety* is defined as negative expectations and concerns about performing, while *Somatic Anxiety* is defined as bodily symptoms/feelings normally associated with stress (Cremades et al., 2011, p. 221). It is suggested that levels of Trait Anxiety guide the intensity and direction of cognitive and somatic anxiety (Elwood et al., 2012, p. 647). For example, an individual high in Trait Anxiety might avoid participating in events believed to risk experiencing state anxiety. As various competitive sport situations would hold some degree of tension, it would be expected that this threat perception would be maladaptive to athletic performance.

Measurement of Trait Anxiety

The *Sport Anxiety Scale* (SAS) is a measure of sport related Trait Anxiety which consists of 21 items recorded on a 4-point Likert scale. The SAS is divided into three subscales; Worry, Somatic Anxiety, and Concentration Disruption (Aoyagi et al., 2011, p. 5). In one study (Aoyagi et al., 2011) a directional measure was added to the SAS, rating on a 6-point Likert scale, the likelihood of a facilitative or debilitative impact on performance (ibid., 5). One study (Gomes et al., 2017) included a revised version of the SAS, SAS-2, which consists of 15 items measured on a 4-point Likert scale (Gomes et al., 2017, p. 4).

The Competitive Trait Anxiety Inventory 2D (CTAI-2D) consists of 27 items divided into three dimensions: Cognitive Anxiety, Somatic Anxiety, and Self-confidence. Responses are given on a 4-point Likert scale followed by a rating of each item being facilitative of debilitative (Cremades et al., 2011, p. 225).

The final measures identified in the research for this thesis is the *Sport Competition Anxiety Test* (SCAT). SCAT is a 15-item instrument measuring Trait Anxiety prior to competition (Judge et al., 2016, p. 5).

Critical discussion of Trait Anxiety theory

Investigating Trait Anxiety, it is suggested that Trait Anxiety correlates strongly with depressive symptoms (Grös et al., 2007, p. 376). When investigating this possible bias, it becomes apparent that Trait Anxiety correlates with elevated negative affect while depression correlates with decreased positive affect (ibid., 378). Therefore, it is advocated that measures of Trait Anxiety should only include items related to negative affect, to eliminate this potential bias of results overlapping into symptoms of depression (ibid.) Nevertheless, since Trait Anxiety is proposed to be a stable characteristic one would expect a good test-retest reliability if the properties of the measure are strong. Thus, ideal measures of Trait Anxiety ought to yield low correlation with symptoms of depression (Elwood et al., 2012).

Additionally, it is questionable that Trait Anxiety has the same adaptive or maladaptive features in different domains. Due to the competitive nature of sports a small amount of State Anxiety is proposed to be advantageous, while high levels become inhibitory (Cremades et al., 2011, p. 221). Choosing a strong measure of Trait Anxiety with domain specific items is thus warranted. Therefore, included in literature of this thesis are only measures created for research in sports.

It is advocated that whether an athlete perceives anxiety to have a facilitative or debilitative influence is a highly important moderator of performance outcome (Judge et al., 2016, p. 3). Since measures of Trait Anxiety, in both intensity and direction, relies on self-reports, this might be a bias. It requires the athlete to answer truthfully and have a realistic perception of their mental capacities. One might risk the athlete answering untruthful for self-protective reasons (Judge et al., 2016, p. 12). For example, athletes who are asked to rate themselves on 'I lack self-confidence', might provide an answer of 'almost never', as a protective strategy or in fear of being perceives as less of an ideal athlete. This is however the only present way to capture an individual's Trait Anxiety.

2.7 Hardiness/Mental Toughness

Hardiness has its roots in existential theory and is proposed to be a stable personality disposition (Sheard & Golby, 2010, p. 161). In the 70ies a group of researchers lead by Salvatore Maddi started a 12-year longitudinal study investigating managers in Illinois Bell Telephone Company (Maddi, 2002, p. 173). The research was based on

Hardiness which the team sought to clearly conceptualise through the study. Initially, Hardiness was described as having certain characteristics and behaviour, beneficial to feelings of stress. Furthermore, social support and physical activity is proposed to have long term positive effects on stress management (ibid., 174).
The specific conceptualisation of Hardiness consists of three main dimensions called *the 3 C's*: Commitment, Control, and Challenge (Maddi, 2002, p. 174).

1. *Commitment* is defined as the individual's tendency to be engaged in activities of life instead of being alienated (Sheard & Golby, 2010, p. 161). Committed individuals tend to not give up since being invested in self and environment (ibid.).
2. *Control* describes the individual's desire to be in control and assert ownership of situations rather than being passive (Maddi, 2002, p. 173). Individuals high in control tend to show feelings of influence over circumstances and have a realistic perception of their impact on their environment (Sheard & Golby, 2010, p. 161).
3. *Challenge* is related to the individual's drive and willingness to learn from both negative and positive experiences (Maddi, 2002, p. 173). Challenge characterises a tendency to expect the unpredictability of life thereby accepting that changes will stimulate personal development (Sheard & Golby, 2010, p. 161). Individuals high in Challenge view demanding situations as exciting and stimulating rather than threatening and therefore assesses circumstances as opportunities for growth (ibid.).

Developed based on the 3C definition of Hardiness a group of researchers expanded on the understanding of *Mental Toughness,* which was first introduced by Loehr (1986), and has since been described in many different contexts (Jones, 2002, p. 205). Mental Toughness is defined as," *...opening doors to opportunity and contentment and then having the psychological equipment to go through them."* (Clough & Strycharczyk, 2012, p. 227). The 4C model of Mental Toughness is conceptualised by Clough

et al. (2002) who added the dimension of *Confidence* to the 3C model of Hardiness. In the context of Mental Toughness, the subscales are defined as:

1. *Commitment* is defined as the individual's degree of persistence and willingness to stick to a goal or an assignment (Clough & Strycharczyk, 2012, p. 65). This dimension is highly related to goal setting and self-discipline (ibid., p. 67). Individuals scoring high on Commitment can perform under high-pressure circumstances (ibid., p. 64).
2. *Confidence* is defined as having a high self-belief and confidence in one's abilities. Individuals tend to view a difficult task as reachable despite it having the potential for setback. It's a measure of self-worth and to what degree an individual feels worthy (Clough & Strycharczyk, 2012, p. 83). The confidence dimension is proposed to consist of two subscales:
    a. *Confidence in abilities* refers to an individual's belief that they are worthy and tend to be less dependent of external validation (ibid., 82).
    b. *Interpersonal confidence* refers to an individual's tendency to be self-assure and confidence in handling of intimidation by others (ibid.)
3. *Control* is defined as the individual's belief of being in control of one's own destiny and actions. Control is correlational with stress management and the ability to handle pressure (Clough & Strycharczyk, 2012, p. 51). Control is comprised by two subscales:
    a. *Emotional control* refers to the individual's capability in controlling their feelings and levels of anxiety (ibid., 53).
    b. *Life control* refers to the individual's belief in their own abilities and their feeling of being in control of their own life (ibid.)

4. *Challenge* is defined as the individual's tendency to view a task as an opportunity rather than a threat. A challenge is defined as any activity that is out of the ordinary which involves a task that is perceived is challenging (Clough & Strycharczyk, 2012, p. 71). Individual's with a high Challenge score thrives under changing circumstances and tends to be competitive (ibid., p. 73).

Beside the abovementioned dimensions, being mentally tough is proposed to entail aspects of mental skills beneficial to performance, e.g. visualisation and attention. Furthermore, personality characteristics including resilience, self-confidence, discipline and persistence is suggested to influence Mental Toughness (Clough & Strycharczyk, 2012, p. 24).

Measurement of Hardiness/Mental Toughness

Through the literature search in this thesis four measures of Hardiness/ Mental Toughness were identified. Hardiness in this thesis is measured by two psychometric tests: Personal Views Survey iii-R (PVS-iii-R) and the Cognitive Hardiness Inventory (CHI). Mental Toughness is measured using either the *MTQ48* or *the Psychological Performance Inventory* (PPI).

PVS-iii-R is an 18-item psychometric measure with ratings on a 4-point Likert scale. The measure yields an overall Hardiness score, as well as scores on the three subscales of the 3C model of Hardiness: Commitment, Control, and Challenge (Golby & Sheard, 2003, p. 936)

The psychometric measure CHI is a 30-item inventory assesses attitudes and beliefs based on the dimensions of the 3C model of hardiness: Commitment, Control, and Challenge. Ratings are on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree' (Thomas et al., 2013, p. 318).

The *MTQ48* is one of the most acknowledged psychometric measures of Mental Toughness (Crust & Clough, 2005). The MTQ48 is comprised of 48 items rated on a 5-point Likert scale and divided into the four dimensions of the 4C model: Commitment, Confidence, Control, and Challenge (ibid., 192).

The PPI is a psychometric measure of Mental Toughness consisting of 42 items. The measure yields an overall mental toughness score as well as seven 6-item subscale scores: Self-confidence, Negative Energy Control, Attention Control, Visualisation and Imagery Control, Motivation, Positive Energy, and Attitude Control. All scales are rated on 4-point Likert scales (Golby & Sheard, 2003, p. 936).

Critical discussion of Hardiness/Mental Toughness theory

Since choosing to investigate Hardiness and Mental Toughness collectively, it is important to address the interplay between the two constructs. In creating the 4C model of mental toughness, Peter Clough states that the only essential difference from Hardiness is the inclusion of the Confidence subscale (Crust & Clough, 2005, p. 192). Furthermore, Golby & Sheard (2003) investigated the relationship between the two constructs and found a significantly positive correlation. By this account, it seems reasonable to address the two concepts simultaneously especially since focus is on the individual subscales.

One of the weaknesses of both Hardiness and Mental Toughness might be that it seems to entail every conceivable positive characteristic of human behaviour (Crust, 2007, p. 271) with little regard for how much variance the different subscales explains in each situation (Funk, 1992, p. 335). These issues are however partly addressed in mental toughness by the further division of the Control and Confidence subscales. It however remains unsolved which subscale is the strongest predictor of hardiness (Funk, 1992), and mental toughness (Clough & Strycharczyk, 2012). It might be that some subscales have a greater impact on job performance while another constellation is more valuable in competitive sports. Additionally, it is important to emphasise that much Hardiness and Mental Toughness research have focused on job performance and stress management (ibid., p. 137).

It is proposed that the Mental Toughness measure is more applicable to competitive sports than Hardiness, due to the inclusion of the Confidence subscale (Crust, 2007, p. 275). This potential bias is worth keeping in mind if the literature review yields confounding results between the two measures. Furthermore, as interest is upon the subscales of the constructs, a total Hardiness/Mental Toughness score, is of little interest to the current investigation. A total score would give no indications as to which parts of the constructs have their effect on performance or burnout.

3. Literature review

This section consists of the literature review for this thesis. It entails a detailed description of the methodological background of the structured literature review process as well as the literature review itself. This method ensures the reader's understanding of how the review was conducted, aiming for high transparency to facilitate falsification.

3.1 Literature search

This stage comprises the practical execution of selection and collection of research. In the search stage of the systematic review, relevant articles were found through a search protocol in three main databases (PsycNet, ScienceDirect and ResearchGate). The search was conducted by combining either burnout or performance with the previously proposed personality traits (table 1), by using the AND operator (Johannsen & Pors, 2013, p. 67). Also, sport was afterwards searched in combination with each of the identified traits. The search protocol was set to search title and abstract, focusing on articles. After the initial literature search the following two steps were taken:

1. Elimination of duplicates
2. A skim through of title and keywords to assess the relevance for the thesis

The process of literature search shown below illustrates the number of articles found through the combined searches in the three databases. The last row clarifies the number of articles advancing to the data evaluation stage. ScienceDirect and ResearchGate findings include a vast number of articles with no psychological focus which account for their elimination. Furthermore, many duplicates were found as well as commentary articles on other research.

Search combination	PsycNet	ScienceDirect	ResearchGate	Included for further assessment
Performance AND Big Five	978	662	1020	37
Performance AND Mental Toughness	144	1.790	155	64

Performance AND Hardiness	122	1.774	411	91
Burnout AND Perfectionism	96	237	121	34
Burnout AND Optimism	106	768	121	28
Burnout AND Trait Anxiety	140	1.334	112	88
Sport AND Big Five	145	35.178	122	92
Sport AND Mental Toughness	223	458	192	56
Sport AND Hardiness	89	349	41	14
Sport AND Perfectionism	329	656	176	22
Sport AND Optimism	236	3.242	134	34
Sport AND Trait Anxiety	1.090	5.603	306	41

Figure 2 - Search

3.2 Quality assessment of studies

Assessment of quality in this systematic review was quite comprehensive considering that various research designs each have their individual criteria and processes (Whittemore & Knafl., 2005, p. 549). Firstly, the studies were evaluated based on broad inclusion criteria, aiming to include only research of direct relevance to the scope of the thesis, in further assessment. With this scope in mind, only studies investigating performance and burnout in relation to sports, was accepted. This criterion was set to ensure critical assessment of the conducted research as well as minimising bias (Whittemore & Knafl, 2005). Much research has been done in the both fields in occupational settings but this research will not be included in the present thesis. The reason for this

exclusion is that there seems to be much difference in the fields of occupation and sports (see theory section 2.1). The demands of an athlete are of another kind than those found in specific jobs, and comparing research of the two might skew the results. Likewise, only research with a psychological focus was accepted, as relations with physical and social attributes are outside the scope of this thesis.

Secondly, the studies, which have met the inclusion criteria, were assessed by a critical evaluation checklist. For this thesis, a broader evaluation approach was chosen, using a critical appraisal checklist, created specifically for this thesis, to encompass the various research designs. I recognise that this approach makes the evaluation of quality more superficial. However, it might not be a disadvantage to include many different research designs. If various design methods point to the same relationships, this would make predictions more trust-like than if relationships were only investigated in the framework of one design (Hassmén et al., 2016, p. 119).

Inclusion criteria

Some preliminary criteria were set, all of which, must be met for the studies to be included for further assessment of quality. This is to ensure inclusion of relevant research only (Khan et al., 2003, p. 120). The inclusion criteria are not listed by importance but in chronological order, with the one that was easiest to screen for first, aiming to make the process of critical assessment as efficient as possible. The criteria for inclusion in the thesis were as follows:

1. Written in English
2. Investigating burnout and/or performance
3. Investigating one or more of the identified personality traits

    Mental Toughness/Hardiness
    Narcissism
    Optimism
    Perfectionism
    Big Five
    Trait Anxiety

4. Investigating athletes (all levels accepted)

Based on these inclusion criteria 30 studies advanced to further evaluation. Most of the studies that were excluded did not investigate athletes but instead occupational settings or the mentally/physically ill. Interestingly, many studies in burnout relations were performed in health care professions. This is of no surprise since burnout in this line of work is not uncommon (Schaufeli & Enzmann, 1998, p. 2). Additionally, numerous performance articles included no psychological aspect but instead had measures of physiology as their primary focus. As this would be outside the scope of thesis they were likewise excluded.

Critical evaluation

After assessing the identified studies through the inclusion criteria, a critical evaluation was performed to ensure that the included studies were of high quality (Whittemore & Knafl., 2005, p. 550). Since various types of studies were accepted for this systematic review, the checklist entails only general parameters of importance. The more questions answered with *yes*, the stronger the study is evaluated to be. Anything below five in total score, would be evaluated not strong enough to include. Only measures with Cronbach's alpha above .70 were included as this would indicate above an acceptable internal consistency (Furr & Bacharach, 2014, p. 138).

The critical appraisal checklist comprises seven questions:

1. Was the study based on clearly identified research question(s)?
2. Was the methodological design well-defined and clearly stated?
3. Were ethical concerns accounted for or did the study undergo ethical approval?
4. Were the participants included in any comparisons similar?
5. Were the results reliably measured?
6. Was appropriate statistical analysis used?
7. Was the study published in a peer-reviewed journal?

None of the studies were eliminated in this critical appraisal process. For data of study evaluation, see pages 37-38.

Study	Question 1	Question 2	Question 3	Question 4	Question 5	Question 6	Question 7	Total
Aghdasi, 2014	Yes	Yes	No	No	Yes	Yes	Yes	5/7
Aoyagi et al., 2011	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Appleton et al., 2009	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Berengüí et al., 2013	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Chen et al., 2008	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7
Conway, 2016	Yes	Yes	No	Yes	Yes	Yes	No	5/7
Cremades et al., 2011	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Crust & Clough, 2005	Yes	Yes	Yes	Yes	No	Yes	Yes	6/7
Eagleton et al., 2007	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7
Geukes et al., 2012	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7
Golby & Sheard, 2003	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Gomes et al., 2017	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Gotwals, 2011	Yes	Yes	Yes	Yes	Yes	No	Yes	6/7
Gordon, 2008	Yes	Yes	No	No	Yes	Yes	Yes	5/7
Gustafsson & Skoog, 2012	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Hill & Curran, 2015	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7

Jowett et al., 2013	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7
Jowett et al., 2016	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Judge et al., 2016	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7
Madigan et al., 2015	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Mirzaei et al., 2013	Yes	Yes	No	No	Yes	Yes	Yes	5/7
Piedmont et al., 1999	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7
Rasquinha et al., 2014	Yes	Yes	Yes	Yes	Yes	Yes	Yes	7/7
Sheard & Golby, 2010	Yes	Yes	Yes	No	Yes	Yes	Yes	6/7
Stoll et al., 2008	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7
Teshome et al., 2015	Yes	Yes	Yes	No	Yes	Yes	Yes	6/7
Thomas et al., 2013	Yes	Yes	No	No	Yes	Yes	Yes	5/7
Wilson et al., 2002	Yes	Yes	No	Yes	Yes	Yes	Yes	6/7

1. Was the study based on clearly identified research question(s)? 2. Was the methodological design well-defined and clearly stated? 3. Were ethical concerns accounted for or did the study undergo ethical approval? 4. Was full descriptive info about sample included, i.e. size, gender, age, type of sport, sport level? 5. Were the results reliably measured? 6. Was appropriate statistical analysis used? 7. Was the study published in a peer-reviewed journal?

3.3 Results

This section addresses the studies that was accepted after critical assessment of their quality. As various research designs were accepted, it is not possible to do a meta-analysis of results. Instead results will be addressed in a narrative synthesis (Mays et al., 2005, p. 4) the purpose of which is to organise, describe, explore, and interpret study findings. The narrative synthesis allows for the assessment of data from many different research designs (ibid., p. 5). For the specific results see pages 40-51.

The section is divided in three main parts. The two first segments are divided by personality trait, aiming to create a constrictive and clear analysis of results. The first segment (3.3.1) addresses studies related to research hypothesis RH1: There are specific personality traits, that are advantageous for optimal athletic performance. This segment only deals with the relation between investigated personality traits and athletic performance. The second segment (3.3.2) investigates studies related to research hypothesis RH2: There are specific personality traits, that are advantageous for a low risk of athlete burnout. This segment consists only of studies of possible relationships between specific personality traits and athlete burnout. The third segment (3.3.3) consists of an analytical approach to research hypothesis RH3: RH1 and RH2 hypotheses will not contradict each other in the proposed advantageous personality traits. This segment will be an in-depth analysis of the interplay between results of the two main strings, athletic performance and athlete burnout. This collective section will thus conclude the systematic literature review by either proving or disproving the research hypotheses

3.3.1 Athletic performance and personality traits

This segment is based on the personality traits initially posited to influence athletic performance: big five, perfectionism, optimism, narcissism, trait anxiety, and hardiness/mental toughness. The segment is divided into subsections of each personality trait analysing results from the literature review. The segment will lastly entail a critical discussion related to research hypothesis RH1: There are specific personality traits, that are advantageous for optimal athletic performance.

Study	Sample	Investigated relationship	Purpose	Methodology	Results
	N = number of participants *M* = male *F* = female *A* = age range *T* = type of sport *L* = level				
Aghdasi, 2014	*N* = 123, *A* = youth, *T* = handball, *L* = national	**Burnout & perfectionism**	Research of relationship between socially prescribed perfectionism and self-oriented perfectionism and athlete burnout	**Design:** Correlational study, questionnaires **Method:** Multidimensional Perfectionism Scale, The Perception of Success questionnaire, ABQ	• Weak positive significant relationship between socially prescribed perfectionism and the three burnout dimensions of the MPS: decrease performance (r = .29, p = .01), emotional and physical exhaustion (r = .29, p < .01), fatigue (r = .30, p < .01). • Self-oriented perfectionism was shown to have a weak but significant negative correlation with two of the ABQ subscales: decrease performance (r = -.18, p < .01), athletic fatigue (r = -.16, p < .01)
Aoyagi et al., 2011	*N* = 153, *M* = 58, *F* = 95, *A* = 10-22, *T* = soccer and	**Burnout, personal control & trait anxiety**	Research of correlation with competitive trait anxiety, personal	**Design:** Correlational study, questionnaires **Method:** Eades Athlete Burnout Inventory (EABI),	• Positive relationship between competitive trait anxiety and total athlete burnout (r = .645, p = < .01) • Negative self-perception of athletic ability (r = .695, p < .01) • Emotional and physical exhaustion (r = .638, p < .01)

	swimming, *L* = scholastic and collegiate		control and burnout in young athletes	Sport Anxiety Scale (SAS), Control Over Ones Work Environment scale	• Moderate negative correlation between personal control and athlete burnout (r = -.433, p < .01). The worry subscale showed strong correlation with negative self-perception of athletic ability (r = .742, p < .01) and emotional and physical exhaustion (r = .662, p < .01).
Appleton et al., 2009	*N* = 201, *M* = 201, *A* = 11-21, *T* = various, *L* = elite	**Burnout & Perfectionism**	Research into goal orientations moderation of association between self-oriented and socially prescribed perfectionism and athlete burnout	**Design:** Correlational study, questionnaires **Method:** Multidimensional Perfectionism Scale, The Perception of Success questionnaire, ABQ	• Socially prescribed perfectionism showed a weak significant correlation with burnout (RA, r =.27, p < .01; Ex, r = .27, p < .01; De, r = .29, p < .01) • Highly significant weak negative relationship between socially prescribed perfectionism and perceived satisfaction with goal attainment (r = -.20, p < .001). • Weak but significant negative relationship between self-oriented perfectionism and reduced accomplishment (r = -.19, p < .01) and sport devaluation (r = -.17, p < .01) • Self-oriented perfectionism showed a highly significant weak positive correlation with task orientation (r = .24, p < .001) and ego orientation (r = .32, p < .001)
Berengüí et al., 2013	*N* = 227, *M* = 165, *F* = 62, *A* = 15-31, *T* = wrestling, *L* = national	**Burnout & optimism**	To analyse the relationship between optimism and pessimism with burnout in competitive wrestlers	**Design:** Correlational study, one time of questionnaires **Method:** (IBD) Inventario de Burnout para Deportistas (adaptation of MBI), Life Orientation Test	• Low Ex and low De scores showed a correlation with higher scores on Optimism (p = .001; p = 0.44) and Tendency toward optimism (p = .000; p = .000) • Relationship between high scores on Pessimism and high scores on Ex and De (p = .070; p = .000) • Low Ra was correlated with low scores on Optimism (p = .000) and Tendency toward optimism (p = .000).

Chen et al., 2008	*N* = 139, *M* = 93, *F* = 46, *A* = 16-18, *T* = volleyball, *L* = elite	**Burnout & optimism**	To assess the relationship between optimism and burnout in elite volleyball players	**Design:** Correlational study, two questionnaires four months apart **Method:** Life Orientation Test (Time 1), ABQ (Time 2)	• Optimism at Time 1 was negatively correlated with Total burnout at Time 2 (r = -.26, p < .01) as well as dimensions of ABQ (Ra, r = -.14, p < .10; De, r = -.19, p < .05; Ex, r = -.22, p < .01)
Conway, 2016	*N* = 27, *M* = 27, *A* = 15-20, *T* = hockey, *L* = national	**Performance & big five**	To assess personality traits for hockey players and hockey performance	**Design:** Correlational study **Method:** Questionnaire: BFI, and collection of game statistics	• Extraversion explained 22 % of the variance in games played (p = .029) • Conscientiousness explained 32 % of the variance (p = .006) in plus/minus scores.
Cremades et al., 2011	*N* = 157, *M* = 72, *F* = 85, *A* = 18-25, *T* = various, *L* = collegiate	**Burnout & trait anxiety**	Investigation into if combining intensity and direction of anxiety would strengthen prediction of burnout	**Design:** Correlational study, questionnaires **Method:** The Competitive Trait Anxiety Inventory 2D and ABQ	• Self-confidence direction had a moderate negative correlation with all three subscales of ABQ (Ra, r = -.45, p < .001; Ex, r = -.43, p < .001; De, r = -.49, p < .001) • Intensity of cognitive anxiety showed moderate correlation with Ra (r = .46, p < .01) and Ex (r = .39, p < .01) • Intensity of somatic anxiety showed moderate correlation with Ra (r = .51, p < .01) and De (r = .36, p < .01) and weak correlation with Ex (r = -.34, p < .05) • The multiplicative variable for cognitive anxiety (intensity and direction) was a significant strong predictor of Ra (r = -.56, p < .01) • Self-confidence direction was a strong significant predictor of Ex (p < .001)

Crust & Clough, 2005	*N* = 41, *M* = 41, *A* = 21 (mean), *T* = various, *L* = collegiate	**Performance & mental toughness**	To assess if scores on MT is a significant predictor of endurance performance	**Design:** Experimental correlational study and questionnaire **Method:** MTQ48 questionnaire and endurance task with lifting a dumbbell for maximum time	• Total MT score was a significant predictor of isometric endurance time ($r = .34$, $p < .05$). • The sub scales Control ($r = .37$, $p < .05$) and Confidence ($r = .29$, $p < .05$) moderately predicted endurance time, but not Challenge ($r = .22$) and Commitment ($r = .23$).
Eagleton et al., 2007	*N* = 90, *M* = 43, *F* = 47, *A* = 18-22 *T* = various, *L* = collegiate	**Performance & big five**	To assess Extraversion and Neuroticism of athletes in team sport, individual sport and non-athletes	**Design:** Between subject, between group and over time, questionnaire **Method:** Eysenck Personality Inventory Form A and questionnaire about sport activity	• Team participants scored higher on Extraversion than individual and non-sport participants ($p < .001$) • No significant difference was found between participants of individual sport and non-participants. • No differences between the three groups on Neuroticism.
Geukes et al., 2012	*N* = 55, *M* = 21, *F* = 34, *A* = 19-41, *T* = handball, *L* = collegiate	**Performance & narcissism**	To investigate the relation between narcissism and public self-consciousness with high-pressure performance	**Design:** Experimental correlational study with questionnaire **Method:** Questionnaires: Self-Consciousness Scale, German Personality Style and Disorder Inventory, German variation of the Sport	• No significant difference between performance in the low or high pressure conditions when controlling for differences due to characteristic differences. • Public self-consciousness showed a significant relationship with high-pressure performance ($p = .03$) explaining 8% of the variance. • No relation between low-pressure performance and public self-consciousness was found. • Narcissism significantly predicted high-pressure performance ($p = .01$) explaining 12% of the variance.

				Anxiety Scale, Task: Throwing accuracy resembling a penalty throw under low or high pressure	• Scores on public self-consciousness significantly separated athletes who choked under high-pressure from those who performed well under both low- and high-pressure (p = .004).
Golby & Sheard, 2003	N = 115, M = 115, A = 18-35, T = rugby, L = national and elite	**Performance & mental toughness/hardiness**	To assess the correlation between playing standard, MT and hardiness in rugby players	**Design:** Correlational study **Method:** Questionnaires: Psychological Performance Inventory (PPI), Personal Views Survey iii-R (PVS-3R)	• International players scored significantly higher than Super League and Division One players on Commitment (p < .001), Control (p < .001), Challenge (p < .001), Negative energy control (p < .01) and Attention control (p < .05). • The PVS-3R subscales Commitment and Challenge successfully discriminated 81% of subjects according to playing standard. 46%, 35% and 19% of the variance in playing standard were explained by the three hardiness subscales commitment, control and challenge, respectively
Gomes et al., 2017	N = 673, M = 588, F = 85, A = 12-19, T = various, L = national	**Burnout & trait anxiety**	To test if cognitive appraisal serves as a mediating variable between trait anxiety and burnout	**Design:** Correlational study **Method:** Questionnaires: Sport Anxiety Scale-2 (SAS-2), Cognitive Appraisal Scale (CAS) and ABQ	• ABQ sub scales revealed significant correlation with sub scales of SAS-2. Somatic anxiety showed correlation with Ex (r = .36, p < .001), Ra (r = .17, p < .001) and De (r = .24, p < .001) • Worry showed significant relationship with Ra (r = .09, p < .05) and Ex (r = .14, p < .001) • Concentration disruption showed significant correlation with Ex (r = .32, p < .001), Ra (r = .29, p < .001) and De (r = .28, p < .001) • Threat perception had significant relationship with Ex (r = .23, p < .001), Ra (r = .31, p < .001) and De (r = .29, p < .001) • Challenge perception showed significant negative correlation with Ex (r = -.13, p < .01), Ra (r = -.24, p < .001) and De (r = -.20, p < .001)

Gotwals, 2011	*N* = 117, *M* = 69, *F* = 48, *A* = 18-27, *T* = various, *L* = collegiate	**Burnout & perfectionism**	To assess the correlation between healthy and unhealthy perfectionism and athlete burnout	**Design:** Correlational study **Method:** Questionnaires: Sport Multidimensional Perfectionism Scale-2 (SMPS-2) and ABQ	• Four clusters were identified: Cluster 1 = Parent-Oriented Unhealthy Perfectionists; Cluster 2 = Doubt-Oriented Unhealthy Perfectionists; Cluster 3 = Non-perfectionists; Cluster 4 Healthy Perfectionists. • Cluster 4 showed lower scores on all three ABQ sub scales (Ex, Ra, De) than Cluster 2 and 3 and lower scores on Ex than Cluster 1. • Effect sizes ranges from .75 to 1.62 indicating meaningful differences. • Descriptive statistics of Cluster 4 show characteristics of moderate-to-high levels of perfectionistic striving and low levels of perfectionistic concerns.
Gordon, 2008	*N* = 20, *M* = 20, *A* = x, *T* = soccer, *L* = collegiate	**Performance & optimism**	To assess relationship of optimism/pessimism with performance	**Design:** Experimental study with questionnaire **Method:** Attributional Style Questionnaire (ASQ), Passes completed and passes attempted as measure of performance	• A highly significant strong relationship between overall optimism score on the ASQ and performance was proven ($r = .77$, $p < .0001$) • Internal, global attributions for positive outcomes showed a moderate positive relation with performance ($r = .50$, $p < .026$) • Internal, global attributions for negative outcomes were negatively related to performance ($r = .47$, $p < .036$)
Gustafsson & Skoog, 2012	*N* = 217, *M* = 139, *F* = 78, *A* = 16-19, *T* = , *L* = various	**Burnout & optimism**	To investigate the mediating role of stress in the relationship between optimism and athlete burnout	**Design:** Correlational study **Method:** Questionnaires: LOT-R, ABQ and Perceived Stress Scale (PSS)	• A moderate significant negative relationship between optimism and Ra ($r = -.40$, $p < .001$) and De ($r = -.27$, $p < .001$) and a weak significant relationship with Ex ($r = -.17$, $p < .05$) • Optimism was moderate negatively correlated with perceived stress ($r = -.44$, $p < .001$) • Perceived stress was a significant mediator of the relationship between Optimism and: Ex (95% CI, -.24 to -.09) and De (95% CI, -.28 to -.10)

					• Perceived stress was a partial mediator with Ra (95% CI, -.31 to -.13) in that optimism still explained 3% of the variance in burnout when perceived stress was added to the hierarchical regression analysis.
Hill & Curran, 2015	*N* = 43 studies	**Burnout & perfectionism**	Investigate the correlation of Perfectionistic strivings and Perfectionistic concerns with athlete burnout	**Design:** Literature review **Method:** Meta-analysis using overall effect sizes	• Perfectionistic striving had a small negative relationship with overall burnout, De and Ra and a non-significant relationship with Ex. • Perfectionistic concern was found to have a moderate-to-high positive correlation with overall burnout and a moderate positive relationship with the three subscales.
Jowett et al., 2013	*N* = 211, *M* = 161, *F* = 50, *A* = 15,6 (mean), *T* = various, *L* = various	**Burnout & perfectionism**	To examine the relationship between perfectionistic strivings and perfectionistic concerns with athlete burnout and if motivation acts as a mediator	**Design:** Correlational study **Method:** Questionnaires: ABQ, SMPS-2), The Multidimensional Perfectionism Scale (MPS) and The Behavioural Regulation in Sport Questionnaire (BRSQ)	• Athletes' generally scored moderate-to-high on perfectionistic strivings and moderate-to-low on perfectionistic concerns. • Athletes' also demonstrated moderate-to-low levels of burnout symptoms. • Perfectionistic concerns had a significant effect on burnout if subject showed pattern of using controlled motivation (*r* = .15, 95% CI) but not when using autonomous motivation (*r* = .05, 95% CI) • Perfectionistic strivings showed an effect on burnout if mediated by autonomous motivation (*r* = -.22, 95% CI) but not with controlled motivation (*r* = -.02, 95% CI)

Jowett et al., 2016	*N* = 222, *M* = 98, *F* = 124, *A* = 16.01 (mean), *T* = various, *L* = various	**Burnout & perfectionism**	To investigate the correlation between perfectionism and burnout with basic psychological need satisfaction as possible mediator	**Design:** Correlational study **Method:** Questionnaires: ABQ, The Athlete Engagement Questionnaire (AEQ), Sport Multidimensional Perfectionism Scale (SMPS-2), Multidimensional Perfectionism Scale (MPS), The Basic Need Satisfaction in Sport Scale (BNSSS) and The Psychological Need Thwarting Scale (PNTS)	• Athletes' generally scored moderate-to-high on perfectionistic strivings and moderate-to-low on perfectionistic concerns. • They also showed high levels of need satisfaction and moderate-to-low levels of need thwarting. High levels of engagement and moderate-to-low levels of burnout was also demonstrated. • Perfectionistic concerns shared positive associations with need thwarting (r = .42, p <.01) and Athlete burnout (r = .36, p <.01) • Perfectionistic strivings shared positive associations with need satisfaction (r = .44, p <.01) and Athlete engagement (r = .41, p <.01) • Need Thwarting had a positive correlation with Athlete burnout (r = .52, p <.01) and negative associations with need Athlete engagement (r = -.37, p <.01)
Judge et al., 2016	*N* = 36, *M* = 26, *F* = 10, *A* = 19.9 (mean), *T* = powerlifting, *L* = regional	**Performance & trait anxiety**	To test the relationship between competitive trait anxiety and powerlifting performance	**Design:** Experimental study with questionnaires **Method:** Questionnaires: Sport Competition Anxiety Test (SCAT) and data sheets of powerlifting performance	• SCAT scores had a significant moderate negative correlation with athletes' percentage of best total achieved in the competition (r = -0.397, p = .02) • Total SCAT score had a significant moderate negative relationship with percentage of personal best for bench press (r = -.368, p = .03) and deadlift (r = -.280, p = .05) • No statistical significance between SCAT score and percentage of personal best for squat (r = -.182, p = .27)

Madigan et al., 2015	*N* = 103, *M* = x, *F* = x, *A* = x, *T* = x, *L* = x	**Burnout & perfectionism**	To investigate the relationship between perfectionism and burnout over time	**Design:** Longitudinal correlational study **Method:** Questionnaires: Sport Multidimensional Perfectionism Scale (SMPS), Multidimensional Inventory of Perfectionism in Sport (MIPS) and ABQ	• Perfectionistic strivings had a significant moderate negative correlation with athlete burnout at Time 1 (r = -.31, p <.01) and Time 2 (r = -.20, p <.05) • Perfectionistic concerns were positively, but weakly and not statistically significant, correlated with athlete burnout at Time 1 (r = .08) and Time 2 (r = .08) • Perfectionistic concerns predicted longitudinal increases in burnout (p <.001) and perfectionistic strivings predicted longitudinal decreases (p <.001)
Mirzaei et al., 2013	*N* = 229, *T* = soccer,	**Performance & big five**	To assess the correlation between personality traits and football performance	**Design:** Correlational study **Method:** Questionnaire: NEO-Five Factor Inventory (NEO-FFI) and Coach's ratings of player performance	• Conscientiousness had a significant but weak positive correlation with coach's ratings of performance (r = .18, p <.01)

Piedmont et al., 1999	*N* = 79, *F* = 79, *A* = 18-21, *T* = soccer, *L* = collegiate	**Performance & big five**	To investigate the relationship between personality traits and performance	**Design:** Correlational study **Method:** Questionnaires: Bipolar Adjective Scale, Coach's ratings and collection of game statistics	• Conscientiousness was significant and moderately correlated with coachability ($r = .33$, $p < .01$), work ethic ($r = .39$, $p < .01$), and coaches' overall rating ($r = .33$, $p < .01$) • Conscientiousness had a highly significant moderate relationship with number of games played ($r = .47$, $p < .001$) as well as a moderately significant and weak with overall performance parameters ($r = .30$, $p < .05$) • Conscientiousness was the only predictor of actual game performance ($r = .30$, $p < .02$) explaining 8% of the variance. • Neuroticism has a significant negative correlation with Coach's ratings ($r = .50$, $p < .001$) • Coach's ratings of the athlete's game performance ($r = -.45$, $p < .01$), athletic ability ($r = -.40$, $p < .01$), and coachability ($r = -.31$, $p < .01$) were all negatively correlated with levels of neuroticism.
Rasquinha et al., 2014	*N* = 383, *M* = 138, *F* = 245, *A* = 20.99 (mean), *T* = various, *L* = various	**Performance & perfectionism**	To test the possible relationship between perfectionistic strivings, perfectionistic concerns and competitive sport level	**Design:** Cross-sectional correlational study **Method:** Sport Multidimensional Perfectionism Scale-2 (SMPS-2) and Multidimensional Inventory of Perfectionism in Sport (MIPS)	• Perfectionistic strivings had a highly significant positive correlation with level of competitive sport, explaining 11% of the variance ($p < .001$) • Perfectionistic concerns, including the subscale of negative reactions to imperfection, showed no influence with level of sport.

Sheard & Golby, 2010	*N* = 1566, *A* = 17-42, *T* = various, *L* = various	**Performance & hardiness**	To investigate the correlation of hardiness components with sport performance	**Design:** Correlational study **Method:** Questionnaire: Personal Views Survey iii-R (PVS-3R)	• International athletes showed significantly higher scores on Commitment (p <.001) and Control (p <.001) than national and club performers. • No significant differences for Challenge.
Stoll et al., 2008	*N* = 112, *F* = 53%, *A* = 21-35	**Performance & perfectionism**	To assess the relationship between perfectionism and performance	**Design:** Correlational experimental study **Method:** Questionnaire: Multidimensional Inventory of Perfectionism in Sport (MIPS) and throws with a ball	• Perfectionistic striving showed strong significant moderate correlation with negative reactions to imperfection (r = .30, p <.001). The combination of the two yielded a significant positive effect on performance across four series of throws. • Regression analysis point to a relationship where levels of perfectionistic striving and negative reactions to imperfection are beneficial for performance only when at similar high or low score.
Teshome et al., 2015	*N* = 47, *M* = 47, *T* = soccer, *L* = national	**Performance & big five**	To investigate the relationship between personality traits and sport performance	**Design:** Cross-sectional correlational study **Method:** Questionnaires: NEO-Five Factor Inventory (NEO-FFI) and Coach's ratings	• Moderate negative relationship between neuroticism and performance for soccer players (r = -.338, p < .05) as rated by their coaches. • Agreeability and performance was found significant moderately correlational (r = .380, p <.01) in a coach rated questionnaire. • Significant strong positive relationship between conscientiousness and sport performance (r = .897, p <.01)
Thomas et al., 2013	*N* = 63, *M* = 63 *T* = motorcycling, *L* = various	**Performance & hardiness**	To assess the relationship between levels of sport and hardiness	**Design:** Cross-sectional correlational study **Method:** Questionnaire: The Cognitive Hardiness Inventory (CHI) and mean points	• Higher mean hardiness scores for elite professional riders than for club riders. • Positive significant difference between CHI scores of top 10% and bottom 10% of elite riders.

				total for motorcycling competition	
Wilson et al., 2002	*N* = 74, *M* = 35, *F* = 39, *A* = 17-22, *T* = track and field, *L* = collegiate	**Performance & optimism**	To assess the correlation of optimism and pessimism with performance and competition anxiety	**Design:** Correlational study **Method:** Questionnaires: Defensive Pessimism Questionnaire (DPQ) and State-Trait Anxiety Inventory (STAI-Y1)	• Defensive pessimists performed somewhat better than optimistic athletes (91.2% vs. 90,5% respectively) but real pessimists showed the lowest performance percentage of 88,4%. • Optimistic athletes possessed highly significant lower predicted and actual, pre-competition anxiety than real pessimists (p =.001). The same tendency was illustrated between optimistic athletes and defensive pessimists (p <.05), though only of weak significance.

Big Five

A total of five studies, investigated the relationship between Big Five and athletic performance. They are based upon the Big Five framework of personality research, though Eagleton et al. (2007) only assessed Extraversion and Neuroticism from Eysenck Personality Inventory.

The found studies indicated a relationship between how a coach rated an athlete in terms of game performance, coachability and athletic ability (Teshome et al, 2015; Piedmont et al., 1999) with the Big Five characteristics; Neuroticism and Agreeability. The studies found a negative correlation with Neuroticism and performance, as the coaches tended to have a more negative assessment of the athlete's game performance, athletic ability and coachability (Piedmont et al., 1999, p. 773). Agreeability is suggested by one study (Teshome et al., 2015) to have a positive influence on coaches' ratings of performance. Thus, it is the coach's evaluation of the athletes' level of sport performance which serve as a basis for this correlation (ibid., p. 28).

Eagleton et al., did not reveal a significant relationship with Neuroticism and performance and this might be because no coach ratings were included in the study (Eagleton et al., 2007). Neuroticism and Agreeability were therefore not proven to have an influence on actual athletic performance, only on the coach's evaluation of the athlete. Neuroticism furthermore showed a close to statistical significance correlation with games played (Piedmont et al., 1999, p. 773). This might lead to the speculation that because a coach perceived the athletic ability and game performance to be lower for those athletes high in Neuroticism, they tended to choose them more infrequently. This was however not a significant correlation. On the other hand, Extraversion was proven, by Conway (2016) to explain 22 % of the variance in games played, suggesting a more influential effect of Extraversion on how many games an athlete participates in. Eagleton et al. (2007) showed indications that team sport athletes had higher levels of Extraversion than individual athletes and non-athletes. When Extraversion was assessed in relation to performance no difference was found in the included studies. Extraversion therefore does not seem to influence actual athletic performance based on the included studies. The same result was given regarding performance and Openness to Experience, suggesting that this personality trait might not influence athletic performance.

Conscientiousness was shown to have a weak but significant positive relationship with both coaches' ratings of performance (Mirzaei et al., 2013; Piedmont et al., 1999)

and a strong significant influence on actual game statistics (Teshome et al., 2015; Conway, 2016). Conscientiousness was the only reported personality trait to influence actual athletic performance. Conscientiousness explained 32 % score and 8 % actual game performance in the studies by Conway (2016) and Piedmont et al. (1999), respectively. Piedmont et al. (1999) revealed that Conscientiousness was a moderate predictor of how a coach would rate the athlete regarding coachability and work ethic.

When reading through research in big five and performance I cannot help wondering why there were so many correlations between coach's ratings on performance and characteristics but so few with actual performance. Speculations could be that the methods for measuring actual game performance were not reliable and maybe performance in terms of points, assists, goals etc. was not a fair measure since not every performance parameter related to those statistics. Piedmont et al. (1999) suggested that football players who held defensive positions with no direct measure for performance might be so important to the team's collective performance that their coach gave them high ratings despite no statistically measurable performance. Conway (2016) on the other hand, was successful in showing strong predictive relations from Conscientiousness to game performance, only including actual game statistics, though she suggested other correlations might have been proven by including other measures of performance (ibid., p. 59). She also acknowledged that her relatively small sample size of 27 participants might have been the reason for the strong proven relationship (ibid.). Piedmont et al. (1999) included 79 participants and this study only showed Conscientiousness to explain 8 % of variance in game performance.

Relating to the present thesis, I focus only on actual performance measures and the implications of relations between coach's rating and big five characteristics are therefore not considered of highest relevance in the present investigation. In this light, only Conscientiousness was shown to have a direct correlation with actual game performance.

Perfectionism

Combining the results of the two studies, i.e. Stoll et al. (2008) and Rasquinha et al. (2014), Adaptive Perfectionism showed strong correlation with actual performance and level of sport. Negative Reactions to Imperfection was shown by Stoll et al. (2008) to correlate with Perfectionistic Strivings. Rasquinha et al. (2014) found no significant relationship with competitive level and Negative Reactions to Imperfection. They did

however not measure Negative Reactions to Imperfection alone, only in combination with Concern over Mistakes. This might explain why the two studies differed in this regard. Furthermore, Stoll et al. (2008) conducted an actual experiment with a performance measure while Rasquinha et al. (2014) investigated relation with level of competitive sport and thus not actual performance. They did however underline the valid point of a correlation between performance and level of sport, suggesting that higher performance equals higher level of competitive sport (ibid., p. 664). Rasquinha et al. (2014) also showed no correlation between level of sport and Perfectionistic Concerns suggesting that only Perfectionistic Strivings are related to the level of sport an athlete competes at (ibid.). Striving for perfection might be a strong motivational factor in achieving a high competitive level of sport and Negative Reactions to Imperfection might be beneficial to performance when at similar level as perfectionistic strivings. However, Negative Reactions to Imperfection did not explain any significant variance in performance when controlling for impact of Perfectionistic Strivings (Stoll et al., 2008). In fact, Negative Reactions to Imperfection alone displayed a negative relation with points scored on the first of four trials (ibid., p. 624). This might point to a relationship where high levels of Perfectionistic Strivings, accompanied by high levels of Negative Reactions to Imperfection, are beneficial to performance. However, Negative Reactions to Imperfection might have an inverse effect if levels of perfectionistic strivings are low. Interestingly, Stoll et al. (2008) showed that the least beneficial combination were high levels of Perfectionistic Strivings and low Negative Reactions to Imperfection and that participants with low levels on both scales performed better. This points to the possibility that perfectionistic strivings and Negative Reactions to Imperfection have a positive combined effect on performance when at same level.

It is reasoned that level of competitive sport might not be directly related to actual performance. This because there might be various reasons why a person either does or does not achieve highest competitive level, e.g. age, opportunity, social network, upbringing, priorities etc. It might not be the best performer who reaches the highest level of a specific sport. I believe research into this relationship is warranted and thus, I would use the indication of a direct relationship with caution.

Furthermore, since Negative Reactions to Imperfection is included as a combined measure of Perfectionistic Concerns with Concern over Mistakes in Rasquinha et al. (2014) and a single measure in Stoll et al. (2008) I speculate this to also account for some of the variance in the results found. Maybe results would have been different if

Rasquinha et al. (2014) has provided statistical analysis of Negative Reactions to Imperfection and Concern over Mistakes separately. Nonetheless, from the viewpoint of the two studies I find it reasonable to suggest Adaptive Perfectionism to have an advantageous effect upon athletic performance. I find Negative Reactions to Imperfection correlations to be contradictory and unclear and will consequently not include Negative Reactions to Imperfection in further analysis at this point.

Optimism

The two included studies showed a positive relationship between Optimism and athletic performance (Gordon, 2008; Wilson et al., 2002). Having an optimistic explanatory style was predictive of success in actual game performance (Gordon, 2008, p. 341). Oppositely, internal, global attributions for negative outcomes, i.e. a pessimistic explanatory style, had a negative influence on performance (ibid.). Somewhat arbitrary of this tendency, Wilson et al., 2002 found that defensive pessimists performed somewhat better than optimistic athletes (91.2% vs. 90,5% respectively) but that real pessimists showed the lowest performance percentage of 88,4% (Wilson et al., 2002, p. 899).

Suggestions of abovementioned research imply that having an optimistic predisposition is more advantageous than having a pessimistic trait. Wilson et al. (2002) did however show a slightly higher percentage in performance for defensive athletes compared to optimistic. This tendency is proposed to exist because defensive pessimism is a strategy an individual can deploy to protect the self from the negative impacts of failing to attain performance goals (ibid., p. 894). An example might be the runner who sets low expectations for a marathon as to not risk disappointment. This strategy is not necessarily maladaptive in that it protects the self from let-down, but if higher performance results than expected are not achieved the outcome would lead to real pessimism, having a further negative impact on future performance (Wilson et al., 2002, p. 894).

It is of high importance to discuss the different backgrounds from which the two studies have investigated optimism. Wilson et al. (2002) sought to explore cognitive orientation of optimism i.e. where the individual has either optimistic or pessimistic expectations of upcoming events. Gordon (2008) however, pursued knowledge of the attributional and explanatory style of Optimism, i.e. how an individual describes past

events in modes of negative or positive terms. This very different view of the characteristic might account for some variance in the findings but I do advocate that the two concepts are not that far from each other when taking a closer look.

How an individual tends to describe a situation is proposed to be linked to the formation of internal, stable and global negative or positive attributions for events i.e. their explanatory style (Gordon, 2008, p. 338). Conversely, an individual's cognitive orientation is their responds to a specific situation (Wilson et al., 2002, p. 894). Thus, explanatory- or attributional style is suggested to be retrospective while cognitive orientation is prospective. The relationship between the two is furthermore proposed to be related, with the attributional style predicting the cognitive orientation, but further research into the relationship is advocated (Zullow, 1991, p. 45). For example, an individual with a tendency to have a pessimistic attributional style would show concurrent cognitive orientation. For now, this is the viewpoint I adopt for this thesis, maintaining the caution of other possible correlations with further research. With this notion of attributional style predicting cognitive orientation I find it reasonable to include both variations in further analysis. Thus, Optimism, i.e. both optimistic attributional style and dispositional Optimism, is included for further research in section 3.4.4 aiming to bring attention to correlations and/or contradictions between what is advantageous for performance, and athlete burnout.

Narcissism

Geukes et al. (2012) investigated how Narcissism and Public Self-Consciousness might influence high-pressure performance of handball players. They found that Public Self-Consciousness explained 8% of the variance in high-pressure performance. No relation between low-pressure performance and Public Self-Consciousness was found (Geukes et al., 2012, p. 247). Also, Narcissism significantly predicted high-pressure performance, explaining 12% of the variance. Public Self-Consciousness significantly separated athletes who choked under high-pressure from those who performed well under both low- and high-pressure.

This was the only study of Narcissism and performance, and investigate a relationship between Narcissism and performance in high-pressure situations. Geukes et al. (2012) found a relationship between Public Self-Consciousness and high-pressure performance, though this relationship did not achieve statistical significance when con-

trolling for the influence of Narcissism (p. 247). Public Self-Consciousness successfully predict 7 % of the variance in performance changes (p = .047) from low-pressure to high-pressure situations while Narcissism did not reach statistical significance in this regard (Geukes et al., 2012). High-pressure situations are defined by the presents of a crowd of fans when attempting to score points during in handball (ibid., pp. 247f). For this reason, high-pressure is proposed to be directly related to the presents of others. This study therefore does not assess the potential high-pressure individuals might put on themselves. Narcissist might have more optimal and well-known conditions with a crowd present than their counterparts, thus performing better (ibid.).

Since the current section is centred around athletic performance and Narcissism, it seems unclear if there is a direct correlation between Narcissism and performance. Results seem to indicate an influence of Public Self-Consciousness more than Narcissism. It is however suggested that narcissist tend to seek athletic performance at elite level, striving to maintain their grandiose self-perception and need for admiration (Geukes et al., 2012, p. 248). In the discussion section of Geukes et al. (2012) I find that their assessment as to why Narcissism and Public Self-Consciousness to some extend help an athlete with high-pressure performance more likely resemble characteristics of anxiety control than levels of Narcissism. Geukes et al. (2012) advocate that individuals with higher levels of Public Self-Consciousness and Narcissism can create a state of non-distraction and self-protection to allow them to cope with the pressure of public situations (ibid., 248). Though Geukes et al. (2012) did not find differences in anxiety levels for individual of high or low Narcissism they do propose that the way an individual interprets anxiety related symptoms and thoughts may influence if performance related anxiety serves as facilitating or debilitating in high-pressure situations (ibid., 249). Thus, I find that evidence, for the relationship between Narcissism and athletic performance, are somewhat unclear and contradictory. Also, proposed explanations for an influence can be reasoned to stem from other characteristics such as Hardiness, Mental Toughness, and Trait Anxiety.

Trait Anxiety

Judge et al. (2016) was the only study found measuring the performance/Trait Anxiety relationship in sports. This study investigated 36 female and male powerlifters during competition. Results show a moderate negative relationship between Trait Anxiety and

percentage of personal best achieved during the competition for bench press and deadlift, but not for squat (Judge et al., 2016, p. 7). This indicate that there might be a relationship between how generally angst an athlete was and how they performed during two of the three exercises.

Since there is just a single study investigating the relationship between Trait Anxiety and athletic performance this would have to show very clear results to base suggestions upon. However, the study included a small sample of 36 athletes and show just moderate negative correlation with two of three exercises. This serves as little basis for suggesting an influence on performance. The literature provides much more evidence of a correlation between athlete burnout and Trait Anxiety. This study is however interesting in that it proposes high competition Trait Anxiety to be facilitated by the perception of chances of success in a competition and that this again directly influences performance (Judge et al., 2016, p. 2). Therefore, the study provide support for the suggestion that cognitive Optimism might assist in facilitating performance.

Hardiness/Mental Toughness

Crust & Clough (2005) found that the Mental Toughness sub scales Control and Confidence moderately predicted endurance time, but not Challenge and Commitment. Golby & Sheard (2003) showed that International players scored significantly higher than Super League and Division One players on Commitment, Control, Challenge, Negative energy control, and Attention control. Commitment and Challenge successfully discriminated 81% of subjects according to playing standard (Golby & Sheard, 2003). The study furthermore show that 46%, 35% and 19% of the variance in playing standard were explained by Commitment, Control and Challenge, respectively (Golby & Sheard, 2003, p. 940). Somewhat similar, Sheard & Golby (2010) found that International athletes showed significantly higher scores on Commitment and Control than national and club performers, though they found no significant differences for Challenge. Thomas et al. (2013) showed higher mean Hardiness scores for elite professional riders than for club riders. The study also found a positive significant difference between CHI scores of top 10% and bottom 10% of elite riders (Thomas et al., 2013, p. 319).

When assessing the results from the studies it becomes apparent that there are som inconsistencies. The total Mental Toughness score, along with the subscales of Control and Confidence were correlated with performance on an isometric task (Crust &

Clough, 2005). This study was the only to measure actual performance as three other studies assessed level of Mental Toughness/Hardiness and level of sport participation, suggesting that a higher level of competitive sport equals higher level of overall Mental Toughness and Hardiness (Thomas et al., 2013; Golby & Sheard, 2003; Sheard & Golby, 2010). Furthermore, the study by Thomas et al. (2013) indicated that there was a significant difference in level of total Hardiness between top 10 and bottom 10 performers at a World Championship of motorcycling (p. 318). Due to the very small sample size (n = 16) in the study, analysis of each subscale of Hardiness was not performed (p. 320). The literature assessing total Mental Toughness and Hardiness are thus only able to provide an idea of an overall possible correlation but not the detailed account of the sub scales needed for this thesis. Often, I have come across Mental Toughness research where the total score seems influential until further analysis show one or two of the subscales to be the only ones correlated with differences in performance level (Sheard & Golby, 2010). Therefore, it is of greater interest to assess the subscales to specify the ways in which the subscales of the constructs might influence performance.

Commitment is proposed to account for 46% of variance in competitive level (Golby & Sheard, 2003) in an assessment of 115 male Rugby players, and higher levels of Commitment is reported in international athletes when compared with club level (Sheard & Golby, 2010) and Division One (Golby & Sheard, 2003). Interestingly, Sheard & Golby (2010) only showed Commitment to account for 5% of variance in competitive level based on 1566 both gender participants from a wide variety of sports (p. 162). Furthermore, Commitment did not show relevance to performance in the Crust & Clough (2005) trial implying that Commitment might not be relevant in a one-time endurance task. It might be that Commitment relates to level of competitive sport, but not directly to performance. Reaching a higher level in a specific sport requires the athlete to be committed to all areas of the sport which might be where Commitment has its influence. Commitment is therefore suggested to be of importance to an athletic career, but might not be related to a specific performance task. The influence of Commitment thus seems unclear.

Golby & Sheard (2003) proved higher levels of Control in International players than lower levels. Likewise, they did a later study (Sheard & Golby, 2010) pointing to the same differences in Control from international to club level performers. This is suggested to be due to a feeling of being able to influence the outcome of matches allowing the athletes to keep their emotions in control. Also, International players are

suggested to more efficiently regain psychological control after being exposed to unforeseen events (ibid., 939). Regarding specific performance Crust & Clough (2005) also reported Control to be positively correlated to endurance performance (p. 193).

Golby & Sheard (2003) propose that higher levels of Challenge allow for a more opportunistic view of a potentially threatening situation and showed International players having a higher score on the challenge subscale (ibid., 939). The same research team did however fail to support this finding in a later study (Sheard & Golby, 2010). This difference might be explained by the sample in that their first study (Golby & Sheard, 2003) only included male Rugby players while the sample of their second study (Sheard & Golby, 2010) consisted of both gender athletes from a wide variety of sports. However, when including the findings of Crust & Clough (2005) who showed no relationship between Challenge and endurance performance, it might be, that challenge is not related to an athletic performance task. Challenge did however account for some variance in the included studies and might have a beneficial effect but it is not clear to which extent. Additionally, it might instead be the trait of Optimism and the effect on threat perception which have the strongest influence.

Related to Confidence, Crust & Clough (2005) provided an indication of a relationship with endurance performance. Those participants with higher levels of Confidence performed better on the task than those with lower levels (ibid., p. 193). Since Confidence is a subscale of Mental Toughness and not Hardiness, this study is the only to provide indication of this relationship. Due to the relatively small sample size of only 41 male participants, there is no clear suggestion of a beneficial influence of Confidence to athletic performance but neither is there account pointing to the opposite. Thus, Confidence might have a positive effect on athletic performance but at this point it is not clear to which extent. It might be that other traits act as antecedents of Confidence rather than this being a predictive and stable personality trait.

Considering this, only Control is suggested to be clearly related to actual athletic performance, though I do not negate the possible beneficial influences for an athlete of the other subscales. Commitment might be relevant in achieving elite level in the chosen sport and Challenge could likewise be beneficial in this process. Confidence might as well be related but the evidence is not strong enough to suggest a clear relationship.

Summary

This segment addressed studies that investigated the influence of specific personality traits on athletic performance. After thorough analysis of the studies, some traits have been suggested to influence how well an athlete performs. The personality traits Conscientiousness, Adaptive Perfectionism, Optimism, and the Hardiness/Mental Toughness scale of Control, have been identified as characteristics of importance to athletic performance. By this, research hypothesis RH1 (There are specific personality traits, that are advantageous for optimal athletic performance) is proven.

3.3.2 Athlete burnout and personality traits

This segment comprises subsection-divided analysis of results from the literature review. Subsections are based on the personality traits initially posited to influence athlete burnout: Perfectionism, Optimism, and Trait Anxiety. The segment will conclude with a critical discussion related to research hypothesis RH2: There are specific personality traits, that are advantageous for a low risk of athlete burnout.

Perfectionism

A total of seven studies investigated the relationship between Perfectionism and athlete burnout. Gotwals (2011) identified high levels of Perfectionistic Strivings and low levels of Perfectionistic Concerns predicted low burnout. In the same way, Hill & Curran (2015) in their literature review, concluded that Perfectionistic Strivings had a small negative relationship with overall burnout, De and Ra and no relationship with Ex. Additionally, Perfectionistic Concerns was found to be positively related to indicating that athletes who showed a tendency to have Perfectionistic Concerns felt more burnout (Hill & Curran, 2015, p. 23). Madigan et al. (2015) showed that Perfectionistic Concerns predicted longitudinal increases in burnout and Perfectionistic Strivings predicted longitudinal decreases. Likewise, two studies with the same research team (Jowett et al., 2013 & 2016), showed that athletes who scored moderate-to-high on Perfectionistic Strivings and moderate-to-low on Perfectionistic Concerns also exhibited moderate-to-low levels of burnout symptoms.

One of the main subsections of Perfectionistic Concerns, Socially Prescribed Perfectionism, was further investigated in two of the included studies. Aghdasi (2014) and

Appleton et al. (2009) both showed a weak positive significant relationship between Socially Prescribed Perfectionism and the three burnout dimensions. Appleton et al. (2009) furthermore illustrated a highly significant weak negative relationship between Socially Prescribed Perfectionism and perceived satisfaction with goal attainment. The subsection of Perfectionistic Strivings, Self-oriented Perfectionism, was likewise assessed by the same studies. Self-Oriented Perfectionism was shown by Aghdasi (2014) to have a positive influence on an athlete's feeling of decrease performance and athletic fatigue. In line with this, Appleton et al. (2009) found that athletes with high Self-Oriented Perfectionism felt less reduced accomplishment and sport devaluation.

All the included thus studies provided indications that striving for perfection has a positive influence on the risk of burnout for athletes. Gotwals (2011), Hill & Curran (2015), and Madigan et al. (2015) show Perfectionistic Strivings to be negatively correlated with the total athlete burnout. Hill & Curran (2015) furthermore showed the relationship to be comprised of only the subscales De and Ra, therefore not Ex. Similar correlations were found be Appleton et al. (2009) investigating Self-Oriented Perfectionism and found this trait to have a negative relationship with Ra and De only. Jowett et al. (2013; 2016) confirmed a relationship where athletes who exhibited high levels of Perfectionistic Strivings showed low to moderate burnout. All these studies taken together provide a foundation for assuming a positive influence of Adaptive Perfectionism on athlete burnout.

Optimism

Berengüí et al. (2013) proved that low Ex and low De scores showed a correlation with higher scores on Optimism and Tendency toward Optimism. Furthermore, their results show a relationship between high scores on Pessimism and high scores on Ex and De. Additionally, low Ra was correlated with low scores on Optimism and Tendency toward optimism. Likewise, Chen et al. (2008) provided further support to the beneficial effect of optimism showing that Optimism at Time 1 was negatively correlated with Total burnout at Time 2 as well as the three dimensions of ABQ. Gustafsson & Skoog (2012) also proved a significant negative relationship between optimism and the three dimensions of ABQ. Optimism was furthermore negatively correlated with stress. Regression analysis show perceived stress to be a significant mediator of the relationship between Optimism and the subscales Ex and De. Perceived stress was a partial mediator with Ra in that Optimism still explained 3% of the variance in burnout when perceived

stress was added to the hierarchical regression analysis. Stress showed significant correlation with ABQ in the Gustafsson & Skoog (2012) study, suggesting perceived stress as an antecedent of athlete burnout.

Each of the three studies provide evidence for at positive influence of Optimism on athlete burnout. Theoretically, optimism would be suggested to correlate the strongest with Ra since Optimism relates to the feeling of efficacy and confidence in future events. Ex and De are proposed to be more related to stress (Gustafsson & Skoog, 2012, p. 186). Both Gustafsson & Skoog (2012) and Berengüí et al. (2013) showed the subscale Ra (reduced efficacy) to have the strongest correlation with Optimism. Because Berengüí et al. (2013) used an adaptation of the MBI measure it is important to note that a low score on the subscale Reduced Efficacy is an indicator of athlete burnout (p. 496) whereas the corresponding subscale Ra of the ABQ is the opposite, i.e. a high score indicates higher levels of burnout (Chen et al., 2008, p. 695). The subscale Reduced Efficacy, being based on the MBI and therefore an occupational view, might not be directly transferable to the Ra subscale which is developed for athletic purposes. However, the researchers did add an athletic perspective to their measure IBD when translating it to Spanish therefore addressing the issue of athletic practicality (Berengüí et al., 2013, p. 15). Chen et al. (2008) showed a relationship between Optimism and Ra but it was not of statistical significance. Gustafsson & Skoog (2012) pointed out that this might partly be due to psychometric difficulties in that study (p. 186). Chen et al. (2008) did however show significant relationships between Optimism and the subscales Ex and De, along with total burnout. So, regardless of differing results on one subscale, Optimism is suggested to have a positive effect on athlete burnout.

Trait Anxiety

Aoyagi et al. (2011) showed a positive relationship between competitive Trait Anxiety and total athlete burnout, negative self-perception of athletic ability and emotional and physical exhaustion. Furthermore, they demonstrated that athletes with a high degree of personal control tended to report less burnout. The Worry subscale showed the strongest correlation with both total burnout and the EABI subscales. Much in the same way, Gomes et al. (2017) proved that Worry had a relationship with an athlete's feeling of reduced accomplishment and emotional and physical exhaustion, though only of weak significance. This study also revealed that somatic anxiety had a relationship with the three ABQ subscales. Furthermore, Gomes et al. (2017) provided evidence for a

moderate relationship between concentration disruption and athlete burnout. The last study (Cremades et al., 2011) demonstrated that Self-confidence Direction and intensity had a moderate negative correlation with all three subscales of ABQ, with the strongest relationship with Ra. Also, the intensity of both cognitive and somatic anxiety showed moderate correlation with all three ABQ subscales. The multiplicative variable for Cognitive Anxiety (intensity and direction) was a significant strong predictor of Ra. No significant predictors of Ex or De was found except self-confidence direction (Cremades et al., 2011).

Differing results and significance in the studies might stem from the use of different measures. Aoyagi et al., 2011 utilised the EABI measure of athlete burnout while the two other studies used the ABQ measure. Thus, results might not be directly comparable since EABI is comprised of three more subscales than ABQ. The EABI subscale negative self-perception of athletic ability (Aoyagi et al., 2011) is however proposed to be comparable with the ABQ subscale Ra (Cremades et al., 2011) making is possible for all three studies to be directly compared on this scale. Likewise, EABI and ABQ both include a subscale for emotional and physical exhaustion. It is therefore suggested that results from the two measures can be compared both in total score and in these subscales. All three studies show correlations between both total burnout, and an athlete's reduced feeling of accomplishment and athletic ability, and Trait Anxiety. Interestingly, all three studies found the least significant relationships to be between De and subscales of Trait Anxiety measuring worry, and cognitive anxiety intensity.

Though the significance and magnitude of the correlations between trait anxiety and athlete burnout vary, it seems that having low trait anxiety is beneficial to an athlete's feeling of accomplishment and belief in athletic ability. Also, relationships were found indicating a negative influence of worrying, on an athlete's emotional and physical vigour.

Summary

This segment analysed personality traits initially proposed to relate to athlete burnout. Adaptive Perfectionism, Optimism, and low Trait Anxiety, have been suggested to have a positive influence on athlete burnout risk. Thus, research hypothesis RH2 (There are specific personality traits, that are advantageous for a low risk of athlete burnout) is proven.

3.3.3 Interplay of proposed personality traits

This final segment comprises an analysis of how proposed personality traits of the two previous sections interact. The aim of this segment is to provide indications of how these traits work together or potentially oppose each other. The purpose is to address research hypothesis RH3: RH1 and RH2 hypotheses will not contradict each other in the proposed advantageous personality traits. This stage aims to move from describing correlations and patterns to a higher level of abstraction forming general ideas (Whittemore & Knafl, 2005, p. 551). This final segment of the literature review includes other research to support findings. Only studies assessing burnout and performance in relation to sport, will be included so to not mix areas that might differ in results. The segment is divided into each proposed personality trait from the two previous segments aiming to unify and analyse relations of both athletic performance and athlete burnout.

Conscientiousness

As described in the above section of athletic performance, having high levels of Conscientiousness is proven beneficial. Further studies demonstrate that athletes show higher levels of Conscientiousness when compared to a non-athletic group (Egan et al., 2015, p. 107; Renfrow & Bolton, 1981, p. 90; Khan et al., 2016, p. 177), again providing evidence for the positive relationship of high levels of Conscientiousness with athletes. It is furthermore suggested that exercise behaviour is related to Conscientiousness as studies have found a correlation between conscientious individuals and time spend exercising (Hoyt et al., 2009, p. 570; Rhodes & Smith, 2006, p. 961). This suggests that Conscientiousness might be both beneficial to an athlete, and related to choosing an athletic pathway in the first place. Conscientiousness might be merely a personality characteristic that athletic performers possess in larger part, more than it is related to actual athletic performance. However, in line with what's shown in the present literature review, other studies likewise find that more Conscientious athletes perform better than athletes with a lower score of Conscientiousness (Khan et al., 2016, p. 185).

Achievement Strivings and Self-discipline, both traits proposed to have great value in an athletic career, falls under the characteristic of Conscientiousness (Hoyt et al., 2009, p. 570). The benefits of this personality trait might therefore be related to the span of an athletic career and thus have long term effects. Allen et al. (2011) show that athletes performing at elite levels demonstrated higher levels of conscientiousness than

non-elite athletes (p. 845). Conscientiousness might be the basic characteristic to assist in achieving elite level since conscientious individuals are characterised as hard-working, responsible and careful (Woodman et al., 2010, p. 185).

Allen et al. (2011) show that conscientious individuals tend to use more emotion-focused coping strategies. In another study, Conscientiousness is associated with more planning behaviour and rational decision making as opposed to avoidance and emotion-focused coping (Kaiseler et al., 2012, p. 64). Furthermore, research in non-athletic areas implicate more problem-focused coping for conscientious individuals (Bartley & Roesch, 2011, p. 1; Carver & Connor-Smith, 2009, p. 690). Implications for the contradictory results is suggested to be due to differences in definition and measure of emotion-focused coping. According to Allen, Greenlees & Jones (2011), emotion-focused coping entails relaxation, emotional control and cognitive restructuring (Allen et al., 2011, p. 847). These active skills are often shown to have a positive effect on anxiety levels during competition (Pineschi & Pietro, 2013; LaCaille, 2004) and therefore might be beneficial to an athlete. On the other hand, Kaiseler et al. (2012) includes self-blame as part of emotion-focused coping, thus emphasising the negative side of this coping style. It might be that active strategies, for the maintenance of emotional stability, are advantageous in a competitive situation, while for example self-blame serves no purpose in this context. A concluding remark on this matter is that very high levels of Conscientiousness might not equal low burnout risk. For example, if an athlete is extremely performance oriented and have a strong work ethic, this person might risk ignoring signs of burnout in pursuit of their set goals. Furthermore, this might explain why individuals high in Conscientiousness tends to use more emotion-focused coping in that this coping style is proposed to reduce anxiety levels. This would be an interesting relationship to investigate further.

So how might Conscientiousness benefit an athlete? Woodman et al. (2010) provide an indication of the personality trait having a positive effect on the quality of preparation in both training and competition. Kaiseler et al. (2012) additionally show that higher levels of Conscientiousness are related to better stress appraisal (p. 68), making it easier for the athlete to prepare and regulate performance accordingly. Having higher levels of Conscientiousness is proposed to assist in developing impulse control and focusing on specific goals (Khan et al., 2016, p. 186). Seeking more emotional support are shown to be associated with conscientious athletes (Kaiseler et al., 2012, p. 69; Allen et al., 2011, p. 842).

Adaptive Perfectionism

This dimension of Perfectionism is proposed in the literature review to have a beneficial influence on both athletic performance and burnout risk. Investigating Olympic champions, Gould et al. (2002) found higher levels of Adaptive Perfectionism than Maladaptive Perfectionism providing evidence for a positive influence of this characteristic in sports. Likewise exploring this relationship, Hamidi & Besharat (2010) show that striving for perfection had a positive correlation with the athletes' self-confidence. Furthermore, those athletes' exhibiting higher levels of cognitive anxiety also showed lower levels of striving for perfection (ibid., p. 815). Providing additional evidence for the positive influence of striving for perfection, Hill & Curran (2015) found that this dimension of Perfectionism had a moderate negative correlation with burnout. Expanding on this, they included Perfectionistic Concern which proved to have a medium to large positive relationship with burnout (ibid., p. 23). Likewise, Madigan et al. (2016) examined the effect of Perfectionism on athlete burnout in a three-month over-time study. Interestingly, they found that the advantageous effect Perfectionistic Striving had on athlete burnout was strongest when levels of Perfectionistic Concern were low (ibid., p. 38), thus advocating for a multidimensional assessment of perfectionism. They present evidence that striving for perfection acts as a buffer for the maladaptive effect of Perfectionistic Concern (ibid.), which would suggest that Perfectionistic Striving has the greatest effect on athlete burnout. In line with this, a systematic review on Perfectionism in sports, point to a clearer evaluation of the benefits of Perfectionistic Striving, when Perfectionistic Concern is considered (Gotwals et al., 2012, p. 274).

Though Adaptive Perfectionism is said to have a positive effect on burnout risk, Miller & Mesagno (2014) suggest that Self-Oriented perfectionists have a higher risk of becoming addicted to exercise. Exercise dependence is shown to correlate with Self-Oriented Perfectionism. Socially Prescribed Perfectionism is likewise moderately associated with exercise dependence, suggesting that having perfectionistic tendencies in general might drive an individual to become addicted to exercise (Miller & Mesagno, 2014, p. 375). Moreover, a general need for perfectionistic self-presentation is shown to correlate with tendencies for compulsive exercise behaviour (Fleet & Hewitt, 2005, p. 16). I do however find it worth questioning if levels of Perfectionism in general are

higher in people who find an interest in structured exercise. Individuals with this personality trait might be more likely to choose exercising at a more goal-oriented, planned and serious level.

So how is Adaptive Perfectionism proposed to be beneficial for both performance and athlete burnout risk? Athletes with high levels of Adaptive Perfectionism are suggested to be more likely to rely on a feeling of competence and control over their competitive sport situations, consequently reducing anxiety levels (Hamidi & Besharat, 2010, p. 816). Striving for perfection allows an athlete to take joy in their hard work and personal performance, driving them to perform with higher concentration and accuracy (ibid.), thus positively effecting performance and anxiety levels. Moreover, Jowett et al. (2013) propose motivational differences as they found that individuals with high levels of Perfectionistic Striving tended to use more autonomous motivation – a motivational style that reflects internal drive, personal goals and enjoyment (p. 50). This would suggest that athletes striving for perfection are driven by internal motivation rather than external pressure and shame. Also, differences in coping styles are suggested, with athletes' who tend to strive for perfection showing more problem-focused coping as opposed to avoidance coping (Hill et al., 2010, p. 425). Coping in competitive situations via a problem-focused style allow the athlete to feel a sense of control and competence.

Optimism

Through extensive assessment of burnout research, it seems that Optimism has the greatest impact on an athlete's feeling of emotional/physical exhaustion (White, 2008, p. 27), though associations with De and Ra subscales of the ABQ are likewise reported (Alarcon et al., 2009; Gustafsson & Skoog, 2012; Berengüí et al., 2013). The included studies also show significantly better task performance for optimists than pessimists. Furthermore, optimists were shown to cope better, and maintain performance, during a loss (Gordon, 2008, p. 337).

The beneficial influence of an optimistic orientation might be the positive effect optimism has on anxiety levels and stress perception (Wilson et al., 2002, p. 893). Alarcon et al. (2009) advocate that optimists tend to view stressful conditions as temporary and therefore cope better with competitive situations. Also, the perception of more permanent stressors is suggested to increase the risk of burnout (ibid., p. 248). Furthermore, it is suggested that two subscales of the ABQ, De and Ex, have a strong stress

related aspect, as a study show stress to mediate the relationship between optimism and burnout (Gustafsson & Skoog, 2012, p. 191). Perception of stress did however only partially mediate the relationship between optimism and the ABQ scale Ra (ibid.) showing that Optimism has a direct influence on an athlete's sense of accomplishment. This direct relationship might exist because optimists tend to have a positive outlook, thus might not report feelings of reduced accomplishment as they are oriented towards the possibilities of future success (White, 2008, p. 27). Having an optimistic tendency also ensures that the athlete is feeling confident in upcoming training and competition. This would give the best possibilities for optimal performance while maintaining lower anxiety levels and stress perception (ibid.).

Control

Golby & Sheard (2003) show that higher level of sport participation equalled higher scores on both Emotional Control and Life Control. The higher level of Life Control points to international athletes feeling more influential in their sport and thus hold a less stressful view of performance (ibid., p. 939). Having an internal core belief in one's ability to control and influence life events is linked to a lower risk of burnout (Alarcon et al., 2009, p. 251). This relationship is furthermore supported by Cresswell & Eklund (2004) where athletes high in perception of general control scored lower on all three subscales of the ABQ. The study by Alarcon et al. (2009) furthermore show that emotional stability, is one of the most influential factors in low risk of burnout (p. 257). The beneficial effect would be the ability to maintain composure and emotional stability under pressure. Furthermore, this aspect would lead an athlete to regain psychological control, if suddenly faced with unexpected and potentially threatening events (ibid.), thus being able to perform better under such circumstances. A study by Gould et al. (2002) found that emotional control was utilised more often, in a sample of Olympian elite athletes, in competition compared to practice (p. 182). It is advocated that emotional control might best be described as a mental strategy used under stressful events, as opposed to a psychological trait (ibid.). Emotional stability is described as advantageous for burnout and Emotional Control might be a mental skill assisting in maintaining an internal emotional stability with low levels of anxiety. Considering this, a general sense of control is proposed to be a stable personality trait, while Emotional Control is suggested to be a mental skill that could be part of a mental skills training programme.

Low Trait Anxiety

The final personality trait to address, low Trait Anxiety, is also one of the most extensively researched and debated, in a wide range of settings (DiFiori et al., 2014; Wang et al., 2004; Gould et al, 2002). High levels of anxiety have been proved correlational with burnout in young athletes (DiFiori et al., 2014, p. 11). Lower Trait Anxiety was observed in Olympic athletes (Gould et al., 2002, p. 181) suggesting that performance might be influenced by this trait. Gomes et al. (2017) proved that threat perception, i.e. high trait anxiety, had a positive relationship with all three subscales and the ABQ. Oppositely, challenge perception showed a negative correlation with Ex, Ra and De, suggesting that low Trait Anxiety equals a lower risk of burnout. Furthermore, studies have shown a direct relationship between poor performance under pressure, and high trait anxiety (Wang et al., 2004, p. 175). Additionally, it has been proposed that trait anxiety is a strong predictor of State Anxiety (ibid.) and that somatic Trait Anxiety directly linked to choking in high-pressure competitions (ibid., p. 181). It might be that somatic anxiety regulates attention inwards bringing focus to the athlete's physiological changes under pressure making them loose focus on the task at hand (ibid., p. 183). Oppositely, another study revealed that Somatic Anxiety is perceived to have a facilitating effect on performance, while worry and concentration disruption had debilitative effects (Aoyagi et al., 2011, p. 7), a relationship likewise demonstrated by Cremades et al. (2011). These conflicting results might call attention to individual differences, where internal attention is beneficial to some athletes while hindering to others. My investigation into this, points to a relationship where elite level individuals have a more positive effect of associative attention while non-elite or newcomers benefit more from a dissociative focus strategy (Lyngsø, 2016, p. 29).

One can speculate about the possible reasons for why individuals with low Trait Anxiety seem to perform better that high Trait Anxiety athletes. A possible explanation is that lower Trait Anxiety is correlated with a good sense of confidence (Cremades et al. 2011, p. 229), thus making it possible for an athlete to hold an optimistic view of the performance situation. Furthermore, high anxiety levels might impair cognitive functioning making it more difficult to focus during competition (Judge et al., 2016, p. 9). A calm mental state is suggested to be important for optimal performance and high anxiety levels is suspected to interfere with the perception of the situation as threatening as opposed to challenging (ibid., p. 10).

Summary

This segment investigated the personality traits proposed in the literature review to be advantageous to athletic performance or athlete burnout. Analysis and discussion of how each trait might have their effect was addressed, alongside possible contradictions between the research. The purpose was to address research hypothesis RH3: RH1 and RH2 hypotheses will not contradict each other in the proposed advantageous personality traits. This hypothesis was proven to be true, in that none of the proposed personality traits showed contradictions between advantageous effects on athletic performance and athlete burnout. This concludes the literature review, investigating *which* personality traits might be advantageous for an athlete in reaching and maintaining Athletic Optimum, by suggesting the relevance of Conscientiousness, Adaptive Perfectionism, Optimism, Control, and low Trait Anxiety.

4. Mental training for Athletic Optimum

As advocated throughout this thesis, mental skills training would be most effective if based on individual differences in personality. It is the focus of the last section of this thesis to explore characteristics of the five proposed personality traits, to propose relevant mental skill(s), and demonstrate how selected mental skills training techniques would be advantageous. This will show the practicality of creating mental skills training based upon Conscientiousness, Adaptive Perfectionism, Optimism, Control, and low Trait Anxiety. This section initially entails a segment describing mental skills and the training techniques; imagery, goal setting, activation, and self-talk.

Following structure clarifies the suggested process from initial assessment to actual training:

1. The athlete is assessed on the personality traits Conscientiousness, Adaptive Perfectionism, Optimism, Control, and low Trait Anxiety. To what degree an athlete is suggested to possess these personality traits would directly correspond to specific mental skills. Mental skills especially relevant for sports are proposed to be; anxiety control, self-confidence, work ethic, goal setting ability, optimism, competitiveness (Cox, 2007, p. 328).

2. Mental skills that might need enhancement are identified.
3. Relevant mental skills training techniques are proposed to enhance the specific mental skill(s). Advantageous techniques for sport psychological interventions are proposed to be: self-talk (Barwood, 2015), activation (Beckmann & Elbe, 2015), goal setting (Goudas et al, 2007), and imagery (Williams et al., 2013).
4. A mental skills training programmes, tailored to the specific needs of the athlete, is initialised.

4.1 Mental skills and training techniques

Mental skills are defined as innate or learned abilities relevant for the athlete to achieve success in their sport (Cox, 2007, p. 328). Important mental skills in sports are proposed to be; anxiety control, self-confidence, work ethic, goal setting ability, optimism, competitiveness (ibid.). These skills are suggested to be trainable (Thomas et al., 1999), making it possible for the sports psychological coaches to work with relevant areas to assist athletes in attaining Athletic Optimum. It is possible, and often advantageous, to combine mental skills training techniques, e.g. in adaptive routine sequences for competition (Beckmann & Elbe, 2015, p. 78). A brief clarification of mentioned mental skills is warranted before addressing mental skills training.

Mental skills

It is important to note that there is some confusion about where to place specific constructs. For example, imagery has by some researchers been described as a mental skill, which others suggest imagery to be a technique (Cox, 2007, p. 328). In this thesis, the divide between what techniques and mental skill are, is suggested to be that the former are practices that lead to the latter (ibid., p. 327).

Anxiety control

Being able to control anxiety levels is important for the athlete in that anxiety makes it difficult to maintain a relaxed mental state, which is suggested to be relevant for per-

formance (Brewer, 2009, p. 31). To facilitate anxiety control various training techniques can be utilised, in the form of meditation, relaxation, imagery, positive statements, and emotional- and thought control (ibid., p. 33).

Self-confidence

Being self-confident entails an internal belief about one' abilities and/or expectations about achieving success based on these abilities (Brewer, 2009, p. 43). In an athletic situation four key elements are proposed, effective in developing self-confidence (Cox, 2007, p. 105). 1. The athlete must experience success in their sport, which calls for setting realistic goals. 2. The athlete must be taught be example how to perform required tasks, such as a young golf player where the instructor assists in how to swing the club. 3. Verbal encouragement from coach, team, peers, crowds, or self, is important. 4. Emotional and physiological arousal needs to be optimal for an athlete to be ready for learning. By being able to direct attention properly aiding in learning a new skill and developing self-confidence (Cox, 2007, p. 106).

Work ethic

The work ethic ability is a multidimensional construct encompassing the capacity to postpone reward, be productive with time spend, tending to just/moral behaviour, having a strong drive toward task accomplishment. Hard work and the belief that it pays off, is at the heart of this ability (Meriac et al., 2015, p. 249).

Goal setting ability

The ability to set relevant, realistic, and facilitating goals, are important for an athlete (Cox, 2007, p. 274). Goals refer to motivation that effectively energises athletes in becoming more efficient. Set goals must correspond to one's abilities, to ensure setting the right goals (ibid.).

Optimism

The mental skill of Optimism is characterised as a style of describing and perceiving events in a positive manner. An athlete with this mental skill tends to attribute positive events to internal and stable factors, while attributing negative incidents to external and temporary factors (Yuan & Wang, 2016, p. 313).

Competitiveness

The mental skill of competitiveness entails the individual's desire to strive for success in sports competition, and an orientation towards winning. It is a strong internal motivation based on personal standards (Smither & Houston, 1992, p. 410).

Mental skills training techniques

In the process of changing or optimising behaviour, attitudes, emotions, thoughts and/or performance, *mental skills training* is suggested to be effective. This type of training is based upon enhancing relevant mental skills, by systematic, strategic and educational interventions with specific techniques. There exist many techniques and each technique has their own properties and efficiency, thus making it possible for mental skills training programmes to be tailored for specific needs (O'Donohue et al., 2003, p. 333). It is not possible, within the scope of thesis, to address the entire palette, therefore I will address the most identified; imagery, goal setting, activation/relaxation, and self-talk (Thomas et al., 1999, p. 707). Below mentioned are these four training techniques (Lyngsø, 2016), which will be used in practical cases, depicting the effectiveness of individually tailored mental skills training programmes.

Imagery

The mental skill of imagery is defined as *'using all the senses to re-create or create an experience in the mind'* (Cox, 2007, p. 293). Imagery is described as a powerful technique for an athlete to work with repeating, elaborating, intensifying, and preserving important athletic abilities. It is proposed that these internal images influence emotions which in turn effect performance (ibid.). Imagery can be utilised to adjust one's thoughts, feelings, and behaviour to prepare and enhance performance situations (Cumming & Williams, 2012, p. 213).

Goal setting

Goal setting is a technique often proposed in performance psychology both in relation to job and sports. The ability to set clearly defined realistic goals related to one's sport is the definition of strong goal setting. Goals are defined as internal standards aiming to specify demands, intensity, and direction of a specific task (Clough & Strycharczyk,

2012, p. 257). Goal setting has a strong effect on utilising resources, by directing attention to the task at hand (Cox, 2007, p. 277). Goal setting directs attention to goal relevant activities and activate cognitive abilities and techniques aiding in attaining set goals (Locke & Latham, 2002, pp. 706f). Explained are three types of goal setting. Outcome goals relate to competition and often involves social comparison. Performance goals are specific and often numerical, while process goals focus on demonstrating specific skills, or strategies that are related to the sport task (Brewer, 2009, p. 39).

Self-talk

Self-talk is a skill where athletes perform inner- or outer speech to themselves and is utilised to regulate one's effort aiming to reach set goals (Anderson, 1997, p. 31). It is a way for the athlete to control and adjust their thought patterns. Three different types of self-talk are proposed positive, negative, and neutral self-talk. Positive self-talk is defined by affirmative statements about the current performance situation, e.g. 'I am strong', 'I've got this'. Oppositely, negative self-talk is characterised by negative statements in relation to the performance, e.g. 'I can't do this anymore', 'My legs hurt' etc. (Hamilton et al., 2007, p. 231). Lastly, neutral self-talk is any self-directed monologue not related to the current activity (Barwood, 2015, p. 167).

Activation

There are two types of activation; calming down, and psyching up. Calming down entails relaxation techniques, often described in combination with an associative style of attention, since this skill can assist the athlete in focusing on biological feedback signals. Relaxation techniques include abdominal breathing[2] and muscle tension release (Pineschi & Pietro, 2013, p. 183). Relaxation is used in combination with self-talk, where focus is upon positive, calming statements. Conversely, psyching up is utilised to get ready for competition, if an individual is too calm or not focused on the upcoming task (Beckmann & Elbe, 2015, p. 82). This type of mental technique comprises other techniques. Self-talk statements are used when positive activation statements like 'Let's go', 'You got this'. Imagery can also be an effective technique, creating the image of one self, excelling in the competition (ibid.). This technique allows an athlete to

[2] A deep and slow breathing technique

become more positive and expect success in competition, furthermore building up self-confidence (ibid.).

4.2 Personality traits and related mental skills

As advocated in the introductory section of this thesis, it is not suggested that mental skills training would change a personality trait, but knowledge of characteristics of the traits, would provide indications of which techniques would benefit the athlete in achieving and maintaining Athletic Optimum. Based on these underlying characteristics, it would be possible to clarify which mental skills might need training, and lastly which techniques should be utilised. To show this clearly, I have chosen to depict the structure in the following schema.

Personality trait	**Characteristics**	**Mental skill(s)**	**Technique(s)**
Conscientiousness	Competence, Order, Dutifulness, Achievement Striving, Self-Discipline, and Deliberation (Hoyt, 2009, p. 566). Performance orientation, persistence, hardworking (Wang & Erdheim, 2007, p. 1495).	Goal setting ability, work ethic, Competitiveness	Goal setting, imagery,
Adaptive Perfectionism	Persistence, desire for achievement (Chang, 2012, p. 635), a personal need to perform with excellence (Aghdasi, 2014, p. 29), goal orientation (Cox, 2007, p. 202)	Competitiveness, self-confidence, goal setting ability, work ethic	Goal setting, imagery, self-talk

Optimism	Control perception (Jackman et al., 2016, p. 63), positive expectations of outcome (Chen et al., 2008, p. 693), confidence in one's own abilities, sense of control and confidence (Gustafsson & Skoog, 2012, p. 185), ability to cope with anxiety and stress (Wilson et al., 2002, p. 893).	self-confidence, Optimism,	Imagery, self-talk, activation
Control	Ability to handle pressure and control anxiety, belief in one's own abilities (Alarcon et al., 2009, p. 251), management of stress (Clough & Strycharczyk, 2012, p. 51).	Anxiety control, self-confidence	Self-talk, imagery, activation,
Low Trait Anxiety	Good sense of confidence, optimistic view of situations (Cremades et al. 2011, p. 229).	Anxiety control, self-confidence, optimism,	Imagery, self-talk, activation,

Figure 3 - Relationships between personality trait and mental skills

Thus, this is the proposed path from knowledge of personality traits to mental skills training. The process would start with assessment of personality trait levels, next would correspond to specific characteristics, which again would relate to specific mental skills, that would be able to enhance through mental skills training.

4.3 Mental skills training for Athletic Optimum

It is important to note that even though focus is upon training of mental skills, levels in personality are suggested to influence the outcome of interventions. If for example an athlete scores low on Optimism, one could suggest positive self-talk as a technique to enhance the mental skill of Optimism. But this athlete would not reach the same level of optimistic predisposition as an individual with high score on Optimism. This is however not the point, as aim of this mental skills training is to assist athletes in achieving *their own* Athletic Optimum. To clarify implications, this thesis will end with my personal demonstration of mental Athletic Optimum training, with three fictional cases.

Fictional cases

Each case comprises different personality composites. The cases will serve as demonstrations of how knowledge of the athlete's levels of the five personality traits assist in creating effective mental skills training. Every individual possesses all five personality traits, though at different levels. As a psychometric measure, of the proposed advantageous personality traits, has not yet been constructed, the levels of the five personality traits will be addressed with *low, medium,* or *high* scores on each personality trait in this demonstration. A high score on Conscientiousness, Control, Adaptive Perfectionism, and Optimism is advantageous, as well as a low score on Trait Anxiety. By knowing these levels, it is possible to uncover where mental skills training is needed, as will be discussed in the fictional cases below.

The anxious athlete

Lou is a 19-year-old female athlete. She has high score on Trait Anxiety, medium score on Adaptive Perfectionism, Conscientiousness, and Optimism, and a low score on Control. This composite would suggest that she is somewhat goal oriented and persistent. She would have somewhat positive expectations for success but her high Trait Anxiety and low Control suggest she might lack confidence in her abilities. Lou would probably find it difficult to control anxiety in competitive situations and tend to have high threat perception.

Mental skills training with Lou would aim at working with the mental skill of anxiety control, to ensure that she does not risk burnout. There are proposed various

techniques for assistance in this regard. Firstly, it would be necessary to train Lou in how to deal with her high anxiety, installing in her a sense of control (Gould et al., 2002, p. 176). Imagery and goal setting techniques are suggested as the primary focus for this work.

It is suggested that using a dissociative imagery strategy, drawing attention away from her bodily signals, would help Lou deal with anxiety during competition (Okwumabua et al., 1983). Utilising the wrong technique, imagery is cautioned to be maladaptive for individuals of low Control (Lyngsø, 2016, p. 28). Creating a successful imagery training is suggested to start with a simple relaxation strategy (Beckmann & Elbe, 2015, p. 108). Being that Lou is high in Trait Anxiety this initial relaxation could be the key to a successful training. If imagery training was begun without prior relaxation training it might not have a beneficial effect, as anxiety would inhibit a calm mind, which is needed for imagery to be effective (Clough & Strycharczyk, 2012, p. 243). Furthermore, imagery would not be advantageous if the imagery creation does not correspond to the athlete's level of sport. It is suggested that imagery scripts for beginners of sport and elite are quite different, making assessing Lou's experience necessary. It is therefore warranted to tailor imagery to both Lou's personality and level of sport (Williams et al., 2013, p. 111).

Another technique for working with the mental skill of anxiety control, is goal setting. Goal setting can be an effective strategy for higher feelings of control to help the individual assert ownership of the performance situation (Clough & Strycharczyk, 2012, p. 257). Goal setting is furthermore proposed to be advantageous for maintaining low anxiety (Gould et al., 2002, p. 176). If an individual has low Confidence it is posited that setting easy goals with a good likelihood of success, would raise the individuals level of Confidence temporarily (ibid.). As Lou is low in Control, and high in Trait Anxiety, it might be that her lack of confidence would make it maladaptive to set high goals for performance (Clough & Strycharczyk, 2012, p. 261). This because, setting high goals would equal a greater risk of not attaining set goal, which would not help lower anxiety and develop a sense of control (Brewer, 2009, p. 39). In the case of Lou, process goals might be most beneficial as they would reduce the risk of competitive anxiety (Beckmann & Elbe, 2015, p. 84). Process goals, e.g. keeping a steady pace during a run, can aid in installing a higher sense of control for the athlete (Brewer, 2009, p. 39).

Assessing Lou's levels of the five personality traits, high levels of Trait Anxiety and low levels of Control, would be identified. This would make it possible to identify that the mental skill of anxiety control would be ideal to enhance. Moreover, an imagery technique with a dissociative focus, assisted by relaxation strategies, would be advantageous. Furthermore, goal setting would be beneficial if process oriented. Thus, it would be possible to create a mental Athletic Optimum training programme, based on imagery and goal setting techniques, assisting Lou in attaining and maintaining her Athletic Optimum.

The unfocused athlete

Mark is a 25-year-old athlete with low scores on Adaptive Perfectionism, Conscientiousness, Trait Anxiety, medium score on Control, and Optimism. Mark's scores on Adaptive Perfectionism and Conscientiousness would entail that he tends to set unrealistic goals, not be very task oriented, and lack persistence. He might not be very performance driven and have a hard time organising training, feeling that others have very high standards for him. He does have a fair self-confidence though it might depend upon the appraisal from others. He is reasonably optimistic and is not impeded by high anxiety, feeling he is rather in control of his own destiny.

By assessing Mark's levels on the five personality traits, the mental skills that would be advantageous to enhance are mainly goal setting ability and work ethic. In this regard, goal setting technique would be ideal to train. Individuals with a low achievement orientation is suggested to have a hard time setting constructive and realistic goals (Clough & Strycharczyk, 2012, p. 251). Aiding Mark in creating effective goals would be valuable as it would give him the necessary purpose.

As Mark does not exhibit high anxiety, and is oriented towards an optimistic expectancy, an outcome oriented goal type would be advantageous (Brewer, 2009, p. 39). An outcome goal would aim at maintaining motivating and ensure Mark's persistence over time (Beckmann & Elbe, 2015, p. 84) and with a fair amount of optimism he would have good confidence in his ability to attain the goal. A caution is warranted, in that Mark has low scores on Adaptive Perfectionism and Conscientiousness, he might not be very task oriented. Goals might need to focus on, for example social factors, money, or status, rather than actual performance, to facilitate ownership and a positive effect. Nevertheless, the type of goal would still be with an outcome focus. An outcome

goal alone is however not as effective as a combination of an outcome goal and a performance goal (Cox, 2007, p. 277). Adding a performance goal would allow Mark to achieve personal satisfaction even if outcome goal is not attained. Furthermore, performance goals aim a developing self-confidence (Beckmann & Elbe, 2015, p. 84), which would be advantageous as Mark is posited to have a need for progress in this area, as it might be based upon appraisal from others.

As Mark is not particularly task oriented he would need assistance in getting mentally ready for a competition. Investigations into elite level athletes indicate the importance of being able to direct attention to the task at hand, for successful performance (Gould et al., 2002, p. 199). Also, because Mark has low Trait Anxiety he would likely need some assistance in getting prepared for competition. This is where a psyching up technique is proposed. This could entail a combination of self-talk and imagery. Positive self-talk aimed at reminding Mark to generate necessary energy for performance would be advantageous. This could be as little as one-word cues like 'power', 'hit', 'explode' all serving as activators of energy resources (Cox, 2007, pp. 268f). Furthermore, adding imagery to the strategy, would create greater possibility for a positive effect. In Mark's case, the strategy should focus on images related to succeeding in upcoming performance. The strongest impact would be by incorporating his outcome or performance goal into the image (ibid.) with for example Mark imagining receiving a check upon winning the competition.

By initially identifying Mark's levels on the five personality traits, low Conscientiousness would be identified, making it possible to assess that it would be advantageous to aim mental skills training at enhancing his goal setting ability. Therefore, it would be possible to create a mental skills training programme, consisting of goal setting with outcome and performance focus, alongside a psyching up technique, to improve Mark's goal setting ability and readiness for competition.

The self-doubting athlete

Kate is a 22-year-old athlete scoring high on Adaptive Perfectionism, medium on Conscientiousness, Trait Anxiety, Control, and low on Optimism. Kate is defined as an individual with a fair ability to control anxiety, and with a tendency to attribute failure to internal, uncontrollable, stable factors, i.e. lack of ability. As she scores low on Optimism she might be inclined to expect negative outcomes and be pessimistic about future performance. She would have a hard time handling adversity and tend to dwell

on failure, being very self-critical because of High Perfectionism. Due to a medium score on Trait Anxiety and a low score on Optimism, it can be posited that Kate may not have high confidence in her abilities.

When initialising mental skills training with Kate, a beneficial focus would be upon enhancing the mental skills optimism and self-confidence while maintaining a low anxiety level. Kate is a tricky case in that she not only lacks Optimism, but furthermore has medium levels of anxiety and High Perfectionism. Working with Kate entails a balance between pushing for performance, setting attainable goals to build confidence, while keeping anxiety levels down, to ensure she maintains Athletic Optimum. In this case, it would for example be maladaptive to utilise activation techniques, as a psyching up technique would be advantageous for enhancing Optimism, but it would risk elevating anxiety levels (Cox, 2007, p. 264). Instead, mental skills training is suggested to be advantageous, with the techniques goal setting, self-talk, and imagery, focused on elevating Kates self-confidence, and installing a more optimistic attitude towards performance outcome.

Building confidence is not an easy task, and it takes time. Setting high, but attainable goals would be a way to enhance confidence for Kate (Cox, 2007, p. 105). She is achievement oriented, which would make it essential to set goals that she perceives as high, but still attainable, due to the caution of anxiety. For Kate, it would be ideal to combine performance goals with process goals, as the former strengthens self-confidence, and the latter is aimed at reducing competitive anxiety (Beckmann & Elbe, 2015, p. 84). Due to Kates scores on Adaptive Perfectionism and Conscientiousness, it could be expected that she would easily be able to set her own realistic and challenging goals after little coaching in the techniques (Lyngsø, 2016, p. 23). Therefore, working with self-talk and imagery techniques would be focus. The imagery script is suggested to be most advantageous with a motivational general focus (Cox, 2007, p. 300), where Kate imagines herself thinking positive thoughts while performing her sport. For example, if Kate is a swimmer, then her imagery script could be her imagining how she would think only positive thoughts as she steps on to the block. This is where an assisting positive self-talk technique is highly beneficial (Beckmann & Elbe, 2015, p. 94). In Kates imagery script, she would imagine thinking/saying specific positive statements to herself, and when she is in an actual performance situation, she can activate the rehearsed imagery script, by using these positive self-talk cues (Cox, 2007, p. 251). This

would assist in creating a more optimistic attitude towards performance and help facilitate higher self-confidence.

By knowing how Kate is positioned on the five personality traits it would be possible to uncover that she needed assistance enhancing the mental skills of optimism and self-confidence. A mental skills training composite would be utilised, consisting of performance and process goals, alongside an imagery intervention with assisting positive self-talk statements.

Concluding remarks

As shown in the imaginary cases, it would be highly advantageous to build mental skills training upon where athletes are positioned on the five personality trait scales. Furthermore, it is not only advantageous to base skills training upon knowing the athlete's personality, but it could be directly damaging otherwise. It has been reported that for example psyching up can be directly catastrophic to performance if an athlete has high Trait Anxiety (Cox, 2007, p. 264). By failing to address levels of proposed personality traits, prior to mental skills training, a coach might risk not being aware of for example high anxiety levels, therefore not prioritising calming down techniques. Moreover, as mentioned above, there are different types of goal setting, and installing a wrong type of goal, to an athlete, might be harmful. The same risk has been observed with imagery, where a high reduction in performance was seen after a flawed imagery intervention (Williams et al., 2013, p. 110). Thus, it is not only about choosing the right techniques for mental Athletic Optimum training, but also how the specific technique is utilised. Additionally, athletes typically have tightly packed schedules, wasting time with unproductive mental skills training, would therefore be ill advised, as time and energy would be spend with no beneficial outcome. This would be highly disadvantageous for an athlete aiming to maintain their Athletic Optimum.

Finally, I accept and acknowledge that proposed relations only represent a current view of things, and that alternative hypothesis might, at a later point, replace the current. As a critical rationalist would claim, a hypothesis is never really proven to be true (Hassmén et al., 2016, p. 81). Nevertheless, the thesis way successful in showing that knowledge of specific advantageous personality traits, could make mental skills training of athlete more effective, assisting them in achieving and maintaining their Athletic Optimum.

5. Limitations and future research

In the spirit of critical rationalism, I must bring attention to the possible bias of including research measuring physical activity of various kinds. As energy expenditure is different from running to cycling (Hassmén et al., 2016) it might be that differing results stem from measuring various types of sport. Future research would be constructive assessing proposed advantageous personality traits in a more controlled group, aiming to make assumptions in this group only.

One could suspect it to be a weakness that almost every included study used a different measure, also those investigating the same personality trait. However, I do advocate that this might be a strength instead. If many different measures point to the same correlation, this would mean that correlations are more truth-like, i.e. have been subjected for critical falsification (Hassmén et al., 2016, p. 119).

Proposed relationships were investigated with only quantitative research. Including qualitative research, for example interviews, could strengthening the likelihood of hypothesised relations being true, bringing new perspectives from mixed methods (Hassmén et al., 2016, p. 118).

It is recognised that initially limiting the literature search to the proposed six personality traits make it possible for other traits to go unnoticed. However, the timeframe of the thesis did not allow for inclusion of every possible personality trait. Furthermore, only bivariate relations were investigated and it is therefore possible that examined personality traits could predict or influence each other. An interesting area for future research would be to investigate possible mediator/moderator relationship between the five personality traits and their relation to Athletic Optimum.

Future research would be aimed at constructing a psychological model and corresponding psychometric measure for assessment of athletes prior to mental skills training. This model would be based upon the personality traits Conscientiousness, Optimism, Adaptive Perfectionism, Control, and Trait Anxiety. Additionally, it would be interesting to investigate if some characteristics of proposed traits, make it advantageous to combine them. For example, Control is often suggested to be the opposite of Trait Anxiety (Aoyagi et al., 2011), and Adaptive Perfectionism and Conscientiousness have been found highly correlated (Stairs, 2009; Boyle, 2008). It might then make sense to address them collectively, aiming to create an efficient and applicable model for working with athletes in attaining and maintaining their Athletic Optimum.

6. Conclusion

This thesis was based upon an interest in how knowledge of advantageous personality traits, might help create more efficient mental skills training programmes for athletes, assisting them in attaining and maintaining their Athletic Optimum, i.e. where optimal performance is ensured, with lowest possible burnout risk. In the investigative framework of a systematic literature review, Conscientiousness, Adaptive Perfectionism, Optimism, Control, and low Trait Anxiety, were demonstrated relevant for an athlete in reaching their full performance potential, while not burning out in the process. By addressing the composite of these five personality traits it was suggested that the traits are not likely to oppose each other in their advantageous effects on athletic performance, and athlete burnout risk. Underlying characteristics of these five personality traits were uncovered, aiming to find which mental skills, related to each personality trait, would be advantageous to enhance. Mental skills training interventions were proposed, based on the techniques self-talk, activation, imagery, and goal setting. Imaginary cases provided examples of how effective it could be to create mental skills training programmes based upon differences in the five proposed personality traits.

In this way, I have investigated how sport psychological interventions could be most advantageous, in assisting an athlete in attaining and maintaining their Athletic Optimum, when based upon knowledge of the athlete's level of Conscientiousness, Optimism, Adaptive Perfectionism, Control, and Trait Anxiety.

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