universität wien

DIPLOMARBEIT / DIPLOMA THESIS

Titel der Diplomarbeit / Title of the Diploma Thesis

„Depression among competitive athletes: Prevalence and its relation to perfectionism and sleep quality“

verfasst von / submitted by

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angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Magister der Philosophie (Mag. phil.)

Wien, 2020 / Vienna, 2020

Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet:	A 190 299 344
Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet:	Lehramtstudium UF Psycholgie und Philosophie UF Englisch
Betreut von / Supervisor:	Mag. Dr. Andreas Olbrich-Baumann

Acknowledgments

Considering the length of my time at the University of Vienna, I have met so many supportive people that would deserve to be acknowledged for accompanying me on my journey to this milestone. I know that I will forget many who should be mentioned here. Therefore, please excuse any omissions.

First and foremost, I would like to thank my family: Mom, Dad, and my sister Iris. Their patience, emotional support, understanding, and financial backing allowed me to pursue my coaching career. Without you, I would not have had the chance to live my dream. Thank you for allowing me to try my luck at coaching, while also motivating me to finish my degree at the same time.

I would also like to thank my fellow coaches, co-workers, and basketball friends who have supported me in finalizing this thesis in several ways, such as giving me time off, offering guidance, or providing me with participants for my study. Thank you, Aldin, Hubert, Stano, Robert, Raoul, Martin, Mike, Andi, Andi, Denis, Zimmi, Ritchie, and David. I would like to give a special mention to Christian, who saved me from my pit of SPSS despair by teaching me the necessary basics. Without your help, I would still be trying to import data. Thank you for your time and support!

Speaking of people who helped me with data, I am grateful for everybody who shared my questionnaires. There are too many names to list here. If you happen to read this and have forwarded or filled out my survey: THANK YOU!

Next, I would like to thank the *aki-Gang. I would have never expected to meet such genuinely caring and loving friends this late into my university career. Michael, Tanja, Helena, Nina, Sophie and Sofia – even if I had never finished this thesis, taking one year off to focus on my studies would have been a great decision. Why? Because I got to meet you.

While I met some lovely people during my time at the University of Vienna, I cannot omit my friends from “back in the day”. Lisa, Eva, Flo, and Carmelo: Thank you for being such great friends. I am so proud of the way we have tackled challenges in the last couple of years. I am also proud of seeing how we all have developed from our 15-year-old selves. But most importantly, I am super happy to know that we have

been friends for so long. Here's to many more years of friendship and (hopefully) many finished university degrees.

Before coming to my final thank you, I would like to voice my appreciation for my thesis supervisor Mag. Dr. Andreas Olbrich-Baumann. He actually advised me to write these acknowledgments. More important, however, was his part in the development of this project. Mag. Dr. Olbrich-Baumann's enthusiasm and interest in the topic was so infectious that it motivated me to dive deeper and deeper into the subject matter. I really enjoyed working on this topic under his guidance. In fact, I enjoyed it so much that I can see myself further researching the topic of depression among athletes in the future. Considering my narrow-mindedness in regards to my career pursuit, my consideration of continuing research in this field speaks volumes. Therefore, I would like to say thank you for being such an encouraging, supportive and motivating supervisor.

Last but not least, I would like to say thank you to my beautiful wife, Katharina. Thank you for being such a loving, understanding, supporting and – most importantly – patient spouse. I cannot imagine how annoying my constant self-doubts and my continuous whining must have been. Yet, you remained calm and showed your cheerful spirit every day. Without you, I would not have been able to write this thesis. Thank you for always having my back. No matter the obstacle, I know that I can climb it with you in my corner!

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List of abbreviations

A

ADM ..... *anti-depressant medication*
ASBQ ..... *athlete sleep behavior questionnaire*

B

BT ..... *behavioral therapy*

C

CBT ..... *cognitive behavioral therapy*
CES-D ..... *Center for Epidemiologic Studies Depression Scale*
CTE ..... *chronic traumatic encephalopathy*

D

DSM ..... Diagnostic and Statistical Manual of Mental Disorders

I

ICD ..... International Classifications of Diseases
IPT ..... *interpersonal psychotherapy*

M

MAC ..... *mindfulness-acceptance-commitment*
MAOI ..... *monoamine oxidase inhibitors*
MIPS ..... *multidimensional inventory of perfectionism in sports*

O

OTS ..... *overtraining syndrome*

P

PC ..... *perfectionistic concerns*
PS ..... *perfectionistic strivings*

R

RSES ..... *Rosenberg self-esteem scale*

S

SAS-2 ..... *sports anxiety scale – 2*
SMPS-2 ..... *sports multidimensional perfection scale 2*
SPIN ..... *social phobia inventory*
SSRI ..... *selective serotonin reuptake inhibitors*

T

TDA ..... *tricyclic anti-depressants*

W

WADA ..... World Anti-Doping Agency
WHO ..... World Health Organization

1. Introduction

On November 10th, 2009, attention was brought to a rarely discussed issue in professional sports and athletics. That day, Robert Enke, the goalkeeper of the German soccer national team, then aged 32, took his own life, having been suffering for many years with severe depression (Reng, 2010). At the time, it was unfathomable that a professional athlete – let alone a goalkeeper, the last line of a soccer team's defense – could fall into such a state of despair that he would end his own life. Enke's tragic suicide proved this assumption wrong. Despite two fellow German Bundesliga athletes – Sebastian Deisler and Robert Biermann (Stier, 2010) – previously admitting to their own struggles with mental health, it took Enke's decision to take his own life to ignite discussion among the public, athletes, and coaches about the mental health of professional athletes. However, the speech of then-DFB president Theo Zwanziger at the memorial service for Robert Enke epitomized the lack of understanding of the topic in the world of sports. While the intention behind the call for "a bit more humanity" in the world of professional soccer was noble and well-intended, the speech indirectly attributed Enke's suicide exclusively to the harshness of the world of professional sports (Klemm, 2019). Zwanziger's speech entirely neglected the medical roots of Enke's illness, indicating that the goalkeeper had broken down under the pressure of his profession and not due to the illness from which he was suffering.

Ten years later, depression and other mental health-related issues are being widely discussed in wider society. According to a factsheet published by the World Health Organization (WHO) (2018), over 300 million people suffer from depressive disorders and close to 800,000 suicides result from them annually. Furthermore, depressive disorders are identified as the second most common cause of mortality among 15 to 29-year-olds and the most prominent cause of disabilities worldwide (World Health Organization, 2017). Taking these numbers into account, it is highly unlikely that professional or otherwise competitive athletes would be exempt. However, despite the cases of Biermann, Deisler, and others, as well as the alarming figures from the WHO, change has been slow. Jensen, Ivarsson, Fallby, Dankers, and Elbe (2018) highlight the finding of Gouttebarge and Aoki (2014) that medical care and the accompanying support systems still focus almost exclusively

on the physical well-being of the athlete – a finding echoed by Markser (2020). Hence, support in and documentation of mental health-related issues remains insufficient. Furthermore, athletes fear being stigmatized as a result of asking for help with mental health-related issues (Bauman, 2016; Delenardo & Terrion, 2014; Markser, 2020) – an understandable fear, considering the ideal characteristics of the world-class athlete: disciplined, stress-resistant, relentless, and most importantly, strong. This image of an indestructible force on the pitch, court, or track does not permit any signs of weakness. Mental illnesses, being seen as a symbol of failure and weakness, do not fit the performance narrative of professional sports (Rasenfunk, 2017). Nevertheless, as Dr. Karsten Henkel argues on the Rasenfunk podcast, there is no reason to believe that professional athletes are less susceptible than any other social group to mental health problems. Challenging these still highly prevalent stereotypes, numerous high-level athletes from a multitude of sports have, over the last decade, shared their struggles with mental health-related issues. Elite boxer Tyson Fury (Barr, 2019), NBA player DeMar Derozan (NBA.com, 2018), Italian soccer legend Gianluigi Buffon (The Player's Tribune, 2019), and even the most decorated Olympic athlete of all time Michael Phelps (Matthews, 2018) are among the notable examples of performance athletes who have opened up about their struggles with mental illnesses such as anxiety disorders and depression**.** Through these personal accounts, combined with new research findings, attention on the subject of mental health-related issues among elite athletes has been growing.

Looking back to Zwanziger's speech and taking the aforementioned stereotypes into account, there is reason to believe that while sports psychologists, researchers, and so on, are more familiar with the topic, most coaches and athletes are not well educated on the subject, let alone able to seek or provide supportive measures. Dr. Valentin Markser, Robert Enke's psychiatrist, argues that the system of professional sports has not changed in the last decade in regards to mental health support (Brauckmann, 2019; Markser, 2020). Through my own work as a professional basketball coach, I have had many conversations with colleagues about depressed athletes and how to best support their recovery and help them to succeed at their sport. These conversations have confirmed Dr. Markser's assumption. The most common reaction to the topic of athletes

struggling with mental health is, “I do not feel sufficiently educated on the issue to have an opinion, much less to propose a solution.” Even though I have been struggling myself with depression for the better part of a decade, when I was working with a depressed athlete last season, I was unable to create an environment that would have allowed him to succeed in his field despite his ailment. This experience, as well as my own history with mental health issues, has increased my interest in the topic, leading to the decision to focus my research on the topic of depression among competitive athletes.

This diploma thesis is intended to educate coaches about the problems faced by depressed athletes, as well as the general and athlete-specific causes of depressive episodes, and to propose possible approaches to support. The paper comprises three parts, looking at the topic from three different points of view. The first segment presents the theoretical knowledge necessary for the following parts. The essential information on how depressive illnesses and their symptoms can be qualified and characterized is discussed in this section. The surrounding problems, symptoms, and causes of depressive disorders that are specific to competitive and professional athletes are dealt with in this section. In the next segment, the discussion focuses on possible methods of support for athletes experiencing mental health problems. In the final part, the results of an empirical study of competitive athletes from three different sports (soccer, basketball, and individual endurance disciplines) are presented. This study is a continuation of the research conducted by Jensen et al. (2018). The results of the expansion study in this thesis examine the correlation and connection between depression among athletes and athlete-specific risk factors (i.e., poor sleep quality, perfectionism, competitive anxiety, low self-esteem, and social phobia).

2. Depression

Before diving into the theoretical discussion about depression and its symptoms, causes, and treatment methods, it is necessary to discuss why mental health-related issues have increasingly become a topic of public discussion in the last decade. A glance at the numbers and factsheets released by the WHO in 2017 and 2018, respectively, reveals that depression has become a global problem, affecting more than 300 million people (World Health Organization, 2017, 2018), or approximately 4.4% of the population. The research indicates that depression is more common among females, with an estimated prevalence of 5.1%. An estimated 3.6% of the male population is affected. The figures suggest that women have a higher development risk of depression, in addition to having an earlier age of onset. Furthermore, numerous studies have found that women are more prone to longer depressive episodes and are at a higher probability of relapses (Kuehner, 2003).

The figures for the demographic context of this diploma thesis give an indication of the prevalence rates in Europe. According to the 2017 WHO, 12.2% of the 322 million depressive patients (40.3 million) are located in the European region. The gender split of European patients mirrors that of the global totals, with approximately 5% of women affected and 3.5% of men.[1] In terms of prevalence among athletes, studies have provided a variety of figures in the last 10 years. Nixdorf (2018) indicates a prevalence among European elite athletes of 4-45%, depending on the study. While this is a broad range, it clearly shows that, compared to the general population, depression among athletes is prevalent at a similar or even elevated rate (Nixdorf, 2018; Reardon & Factor, 2010; Stillman, Ritvo, & Glick, 2013).

While there are psychological and pharmaceutical means of treating depressive disorders, less than 50% of people receive appropriate forms of treatment. In some countries, this figure is closer to 10% (World Health Organization, 2018). If untreated, depression can lead to suicide (World Health Organization, 2018). The

[1] The figures for Austria and Germany are as follows: overall prevalence (AUT = 415,916 cases or 5.1%; GER = 4,116,728 cases or 5.2%); number years lived with disability (AUT = 71,493 total years or 7.6%; GER = 694,409 total years or 7.5%)

WHO (2017) found that, in 2015, an estimated 778,000 global suicides were associated with depressive disorders. This figure accounted for approximately 1.5% of all global deaths in 2015. The actual number of unrecorded attempted suicides is believed to be significantly higher. Individuals aged 15-29 are at an especially elevated risk, with suicide being the second most prevalent cause of death for this group (World Health Organization, 2017). This is unsurprising if one considers that the teenage years and early adulthood are the most likely period for the onset of depression (Hankin, 2006; Kim-Cohen et al., 2003). According to Angst, Gamma, Rössler, Ajdacic, and Klein (2009), an earlier onset can lead to a more chronic form of the illness. Furthermore, Sutin et al. (2013) indicate that the prevalence of depressive symptomology is highest during young adulthood. In addition to onset statistics, as well as prevalence and suicide numbers, the WHO (2018; 2017) states that depressive disorders are the leading contributor to work disabilities. Figures gathered in 2015 indicate that approximately 7.5% of all years lived with a disability were due to depressive illnesses (World Health Organization, 2017). This suggests that, in addition to putting a strain on the lives of the patients and their close relatives, depression has become a global economic burden.

While an older set of statistics published in 2012 (World Federation for Mental Health) predicted that this stage would not be reached until 2030, the more recent estimates show that the actual rate of increase has already surpassed predictions. Based on the finding that the global prevalence of depression increased by 18.4% between 2005 and 2015, the factsheet provided by the World Health Organization (2017) suggests that patient numbers and disability rates are only going to increase going forward. There is no denying that depressive illnesses have become a non-refutable phenomenon and part of society. However, in addition to depression being perceived negatively (Wood, Birtel, Alsawy, Pyle, & Morrison, 2014), it seems as if there is still a severe lack of knowledge about it. For example, depression is far too often misconceived as plain sadness (Lim, 2008). Therefore, the following pages will address the definition of depression, its categorization, and its typical symptoms and causes.

2.1. What is depression? A historical examination

Before evaluating the definitions of depression, the history of the condition should be considered. More accurately, depressive disorders will be investigated in terms of their conceptualization, assumptions about symptomology, and treatment approaches throughout history.

Despite the lack of knowledge of depression among laypeople in recent times, the ancient cultures of Greece, Rome, and Egypt were familiar with the concept (Lim, 2008). Descriptions of depression ranged from a condition stemming from melancholic humor and the liquid black bile affecting the brain to a mere condition characterized by sadness and restlessness (Lawlor, 2012; Lim, 2008). Greek philosophers named this ailment "melancholia" or "black bile." However, melancholia was not conceptualized as an individual condition, but rather as an imbalance of the four humors ("wind," "phlegm," "yellow bile," and "black bile"). It occurred whenever "an excess of melancholic hum[u]ors [was] being burnt by heating processes such as overexcitement of the passions, poor diet, or a fever" (Lawlor, 2012, p. 28). Roman philosophers and physicians such as Galen and Aurelianus connected melancholia with fear and anxiety as well as hatred for people and life itself. At worst, this hatred could be redirected at oneself, eventually leading to suicidal and self-harming behavior (Lim, 2008).

Moving away from the theory of bodily fluids affecting the composition of the human personality (i.e., the four humors), Greek and Roman physicians began to connect mental ailments to external environmental influences, such as excessive alcohol consumption and disturbed sleep patterns, as well as disturbances of the soul. Robert Burton shared this assumption in his textbook on the anatomy of melancholy in 1621 (Lim, 2008). While the idea of bodily fluids shaping the human personality and mood persisted into the 19th century (Lawlor, 2012, p. 43), French psychiatrist Jean-Philippe Esquiroll described depressive conditions as disturbances of mood and negated any connections to bodily fluids – a crucial step towards the current ideas with which depressive illnesses are described. In the mid to late 19th century, emphasis was placed on the maintenance of one's "nerve force" (Lawlor, 2012). Not unlike the assumptions of ancient physicians, environmental factors – such as excessive sex and alcohol, as well as too little

sleep – were seen as detrimental to the body's vital force. Hence, in line with the work ethic promoted during the industrial revolution, self-discipline was seen as vital to maintaining a healthy mind. However, over time, another factor detrimental to the nervous force of people was identified: overworking. Within the context of the industrial revolution and the changes it brought, maintaining one's nerve force was perceived as a balancing act. As social life and the economic landscape changed rapidly, there was a sense of complications unless all aspects of life were carefully managed (Lawlor, 2012, pp. 106-108).

Shortly after the turn of the 20th century, two important figures made key contributions to the characterizations and treatment of depressive illnesses: Emil Kraepelin and Sigmund Freud (Lawlor, 2012). Kraepelin, a German psychiatrist and head of department at the University of Heidelberg, adopted a biomedical approach to depressive illnesses. According to him, mental illnesses mainly stemmed from damages to and diseases of the physical organ of the brain. Furthermore, Kraepelin argued that depressive illnesses could be distinguished through their severity – an idea already present in the previous century and still relevant today (Lawlor, 2012, p. 138). However, in contrast to previous assumptions, he located most causes within the individual person, as opposed to attributing them to external factors. Through his belief that a patient's mental illness could be recognized by observing symptoms, crucial strides were made in diagnosing and classifying depressive illnesses. In fact, his body of work still serves as an important foundation for current forms of diagnosis and classification (Lawlor, 2012, p. 141). Freud, on the other hand, located the roots of depressive illnesses within mental causes, such as "unconscious drives, hidden desires and conflicts in the psyche" (Lawlor, 2012, p. 143). If repressed by the individual, these conflicts can manifest themselves as mental illnesses, such as depression. Alongside his student Karl Abraham, Freud found that unresolved unconscious conflicts caused depression and resulted in aggression turned inwards onto the self (Lawlor, 2012; Lim, 2008). Both positions continue to shape the manner in which depressive disorders are diagnosed to this day (Wasserman, 2011).

The biomedical model was at the conceptual forefront from the mid to the late 20th century. In particular, during the 1990s, depressive disorders were mainly treated using pharmaceutical anti-depressants (Lawlor, 2012, p. 157). However, after the

turn of the millennium, the approaches of Freudian psychoanalysis re-emerged. The vulnerability-stress model serves as the predominant explanatory approach in modern depression research. It takes both the biomedical approach of Kraepelin and the Freudian stance of locating the causes of depressive disorders in past mental and social trauma into account and acknowledges their close links (Wasserman, 2011).

As a result, a more holistic approach to depression treatment has emerged, where patients are not seen as a "biochemically deficient machine," but rather as human beings embedded in a social context (Lawlor, 2012, p. 202). However, the ongoing changes in diagnosis and treatment approaches indicate that challenges remain for the articulation and identification of the causes of depressive illnesses. While past definitions (especially the ones in ancient history) sometimes had only vague ideas about the composition and causes of depressive illnesses, they did capture the essence of the patients' experiences and the symptoms from which they suffered (Beck & Alford, 2009). To provide more accurate diagnostic tools, expert commissions working after World War 2 compiled and revised guides on the study of mental illnesses and other ailments. Official classifications such as the "International Classification of Diseases" (ICD) and the "Diagnostic and Statistical Manual of Mental Disorders" (DSM) describe official diagnosis criteria, which aid in diagnosing depressive disorders (Lim, 2008). With these more accurate descriptions now available, it is logical to describe the symptomatic manifestations of depressive illnesses before arriving at relevant and accepted clinical definitions.

Before moving onto depressive symptomology and its phenomenology, one point should be addressed here: depressive disorders are often perceived to have a paradoxical nature, especially when observed from an outsider's perspective. Beck and Alford (2009) argue that contrasts between self-image and objective reality are stark among patients. This contrast often makes patients seem irrational or illogical in their self-hating or hopeless and joyless behavior (Hammen & Watkins, 2018). In fact, this conflict can make it difficult to grasp how someone as successful as Bruce Springsteen, for example, could struggle with depression (Patel, 2017). In more onomatopoeic imagery, one struggles to understand how a person could want out of their own skin, when so many others want to be in said skin (Hainey, 2018). Considering the focus of this diploma thesis, a more fitting

example than “The Boss” is found in Michael Phelps. The most-decorated Olympic athlete of all time has struggled with depression to a degree that he has even contemplated taking his own life (Matthews, 2018). From the outsider’s perspective, one is tempted to ask what Michael Phelps has to be depressed about. Elite athletes are often idolized and perceived to be indestructible. This perception stems from the predominant assumption that only the mentally toughest of athletes are capable of competing at the highest levels (Hammond, Gialloreto, Kubas, & Davis IV, 2013). Hence, elite-level athletes are often assumed to be immune to mental illnesses (Reardon & Factor, 2010). While an athlete with depression may seem paradoxical, it is crucial to rebuff this notion and the negative connotations attached to it (Bauman, 2016; Wood et al., 2014). Depressive disorders among athletes are not paradoxical, nor are they illogical or irrational (Hammen & Watkins, 2018).

2.2. General symptomology and effects of depression

In general, the symptoms of depressive disorders can be distinguished into four categories: affective, cognitive, physiological, and behavioral. These categories are discussed in the following sections.

2.2.1. Affective symptoms

As depression is conceptualized as an affective disorder, it is unsurprising that the following symptoms are those the general public most often associates with depressive disorders. Beck and Alford (2009) conceptualize this symptom type as “emotional manifestations,” referring to changes in emotional states and actions that can be directly attributed to said alterations (e.g., crying spells). Among laypeople, the most commonly cited affective symptoms (emotional manifestations) are a depressed mood, sadness, and a feeling of despair (Hammen & Watkins, 2018). According to Beck and Alford (2009), these symptoms can be summarized under the term “dejected mood.” Subsequently, not unlike the disorder itself, the symptoms can then be distinguished in terms of their severity. Mild affective symptoms tend to fluctuate throughout the day and can be

alleviated rather quickly, whereas moderate symptoms have a more persistent nature. Severe symptoms manifest themselves as states of hopelessness and despair that cannot be shaken off (Beck & Alford, 2009).

However, while depression is often conceptualized as sadness, many patients experience irritability, loss of interest, feelings of emptiness, and even apathy. Furthermore, Beck and Alford (2009) found that loss of gratification was the most prominent symptom among their control groups, with 92% of participants reporting this (Beck & Alford, 2009). These symptoms most commonly affect activities that the patients had previously enjoyed carrying out. The pleasure and joy of taking part in sports, for example, gives way to a loss of interest (Hammen & Watkins, 2018). Even biological needs – such as hunger and sexual drive– can be affected (Beck & Alford, 2009). Again, the reduction of gratification can present itself as mild, moderate, or severe. It can range from a loss of joy in activities that require some degree of effort to a complete loss of interest in once enjoyable activities (Beck & Alford, 2009). This loss of satisfaction is often accompanied by a decrease in emotional attachment to other people. Patients often experience a loss of interest in social activities, alongside a decrease in affection and concern for other people (Beck & Alford, 2009). Finally, Beck and Alford (2009) note that patients can also experience an inability to react positively to humor, even reacting aggressively and with hostility towards interactions with humorous intent.

2.2.2. Cognitive symptoms

Individuals suffering from depression typically have negative patterns of thought about themselves and their surroundings (Hammen & Watkins, 2018). Feelings of incompetence and worthlessness, as well as low self-evaluation, self-blame, and a generally distorted self-image are common. Patients tend to ascribe adverse life-events to deficiencies within themselves (Beck & Alford, 2009; Hammen & Watkins, 2018). As a result, patients often show low levels of self-esteem (Orth & Robins, 2013). At worst, they may express the view that their life has been a failure (Beck & Alford, 2009). In addition to negative self-perceptions in regards to their decisions and life events, patients have also been shown to have distorted body images, ranging from concerns about their physical appearance to a

persistent belief in their unattractiveness (Beck & Alford, 2009; Olivardia, Pope Jr, Borowiecki III, & Cohane, 2004).

Depressed individuals do not only negatively evaluate their current life, but often also have a negative outlook of their own future and that of the world (Beck & Alford, 2009). Patients usually perceive these gloomy predictions to be irreversible and unavoidable. In contrast to anxiety disorder patients, who believe in the potential to avoid adverse outcomes, individuals suffering from depressive disorders tend to accept and succumb to their fate (Beck & Alford, 2009). Depending on the severity of the symptom, patients may either misinterpret ambiguous situations or adopt a general bleak and hopeless outlook. At worst, these negative expectations can influence the patient's wish to die and increase their risk of suicidal tendencies, which is discussed later in this thesis (Beck & Alford, 2009; Hammen & Watkins, 2018). In addition to negative self-evaluation and an insecure outlook on life, depressed patients often have difficulties with mental processes, such as memory or concentration. The individual might also find it difficult to make even seemingly mundane life decisions. Hence, depression patients often experience grave problems with decision making (Hammen & Watkins, 2018). Furthermore, the theory suggests that the deterioration of cognitive capacities tends to ignite further self-doubt and worry (Hammen & Watkins, 2018).

2.2.3. Physiological symptoms

Although depression is an affective disorder, it often also manifests itself in physiological symptoms. Among the most common are a general loss of energy, changes in appetite, and loss of sleep (Hammen & Watkins, 2018; Nutt, Wilson, & Paterson, 2008; W. K. Simmons et al., 2016). While a change in activity level can go hand in hand with the aforementioned apathy or loss of positive motivation (Beck & Alford, 2009), and changes in appetite can also have a relationship with coping mechanisms (Konttinen, Männistö, Sarlio-Lähteenkorva, Silventoinen, & Haukkala, 2010), sleep disturbance is a unique and important symptom in itself.[2] In particular, patients with unipolar depressive disorders tend to experience a lack

[2] In addition to this section, the relationship between sleep and depression among athletes is also discussed in a later section.

of sleep quality, a loss of restfulness, and a decrease or increase in sleep duration. Typically, depressed individuals find it difficult to fall asleep and struggle with getting out of bed in the morning (Hammen & Watkins, 2018). Lustberg and Reynolds (2000) indicate a bidirectional relationship between depression and sleep disturbance, which shows that the maintenance of a healthy sleeping routine and mental health are closely interrelated. Depression can also lead to a significant change to libido. In worst cases, depressed individuals show limited to no reaction to sexual stimuli (Beck & Alford, 2009). Depression can also alter the structure of the brain. Brain scans of individuals with major depressive disorder have shown reductions in hippocampus volume (McKinnon, Yucel, Nazarov, & Macqueen, 2009). These size alterations were depression-state-dependent, which means that hippocampus decreases are reversible but can also be progressive as a byproduct of recurrent depressive episodes and chronic depression (Ahdidan et al., 2011).

2.2.4. Behavioral symptoms

Lastly, behavioral symptoms should be adressed. Behavioral symptoms are most easily observable in the context of social interaction (Hammen & Watkins, 2018). In conversation, changes to psychomotor activities can become apparent. Slowed down speech and movement, diminished facial animation, in addition to drooping eyes, all point to psychomotor retardation (Hammen & Watkins, 2018). Psychomotor agitation, on the other hand, is characterized by more restless behavior such as sudden movements, excessive gesturing, and self-touching, and it is more common among depressed patients who also suffer from anxiety disorder (Hammen & Watkins, 2018).

Affected by the previously mentioned loss of joy in activities, individuals who suffer from depression also often struggle to find the positive motivation to carry out specific tasks. In fact, depressed individuals tend to seek out goals that are in contrast to those of their pre-depressed selves (Beck & Alford, 2009). As a sport-specific example, whereas a pre-depressed athlete loved going to practice, that same athlete prefers to stay in bed when experiencing a depressive episode. Beck and Alford (2009, p. 28) characterize this phenomenon as a so-called “paralysis of the will.” Patients might begin to experience difficulties with seemingly mundane

everyday tasks, such as regular sporting activities, cooking, and maintaining their hygiene. According to Beck and Alford (2009, p. 28), the essence of this phenomenon lies within the patients' inability to experience the internal stimuli to carry out a task. This often happens even when the patient correctly identifies what they should do. Furthermore, motivational symptoms in depression patients have a regressive nature, since patients tend to turn to activities that are more commonly associated with the role of a child. Conversely, patients avoid behavior that is socially attached to the role of an adult. An example of this is the aforementioned lack of motivation to get out of bed in the morning, even when the individual is already awake (Beck & Alford, 2009; Hammen & Watkins, 2018).

Similarly, depression patients tend to show avoidant and escapist behavior. Individuals might avoid aspects of their day-to-day routine associated with workplace realities. They see their routines as dull, unfulfilling, burdening, or terrifying. As a result, they seek changes that promise some sort of refuge (Beck & Alford, 2009). An example in the context of this study are team-sport athletes who actively look to change clubs or are permanently dissatisfied with their roles.[3] Another example could be a promising young talent who refuses to move to a higher competition level because it is more comfortable to remain in their current place (Beck & Alford, 2009). However, avoidant behavior can also extend to leisure time activities and social interactions (Beck & Alford, 2009; Hammen & Watkins, 2018). Severely depressed individuals might become reclusive and avoid all types of social interaction. In the most extreme cases, suicide is contemplated as the final escape from undesirable situations.

2.2.5. Suicide and self-harming behavior

As evidenced, suicidal actions can be attributed to multiple symptom types – both cognitive and behavioral. Regardless of its classification, suicide is the most extreme manifestation of depressive symptomology (Nixdorf, 2018). In addition, suicidal actions are the only directly fatal symptom of depressive disorders (Beck & Alford, 2009). Suicidal thoughts can occur in a passive, daydream-like form ("I wish I were dead") or an active form ("I want to end my life"), with the latter comprising repetitive thoughts that might hint at already conceived plans (Beck &

[3] Of course, this does not mean that every "journeyman" is depressed, but it can be an indication.

Alford, 2009). Deliberate self-harm has a close connection to depressive disorders. In the past, researchers have grouped suicidal tendencies and self-harming tendencies together, as the latter was considered the less fatal form of the former. However, not every self-harming action has suicidal intent (Vogel, 2012). G. Parker et al. (2005) suggest that, despite the connection between self-harm and depression, individuals hurt themselves to alleviate stress and anxiety levels. Furthermore, they found no correlation between depression severity and an increased occurrence in self-harming tendencies.

2.2.6. Comorbidity

Another symptom-based phenomenon of depressive disorders is their high rate of comorbidity with other physical and psychological illnesses. Depression is particularly common among patients suffering from chronic physical diseases (Aragonès, Piñol, & Labad, 2007). For example, Kang et al. (2015) highlight the connection between severe physical disorders (such as cancer, strokes, and acute coronary syndrome) and depressive disorders. In particular, terminal illnesses must be accounted for in terms of depression comorbidity (Fine, 2001). Depression, in turn, impairs recovery processes and life quality, leading to higher mortality rates (Kang et al., 2015). Depression can also lead to physical problems. Aragonès et al. (2007) found that physical comorbidities were common among depressed patients in primary care. These comorbid physical problems include arthritis, angina, back and neck problems, respiratory problems, and renal failure (Gabilondo, Vilagut, Pinto-Meza, Haro, & Alonso, 2012; Park et al., 2018). Furthermore, a meta-study (in developing and emerging countries) by Daré et al. (2019) and a population survey (Korea) by Kim et al. (2016) identified mental health patients as being at an increased risk of developing chronic diseases, such as asthma, cardiovascular disease, peptic ulcer, gastrointestinal disease, diabetes mellitus, obesity, and musculoskeletal disease, among other comorbid diseases. One reason for the high comorbidity of depression and physical ailments may be the poor maintenance of a healthy lifestyle as a result of the depressive disorder (Park et al., 2018). Particularly interesting for this thesis are the findings of Staner (2010) on the possibility of insomnia being comorbid with depression. Neurological diseases have also been found to be comorbid with depression. Evidence points

to the loss of cognitive abilities and the onset of dementia, as well as Alzheimer's disease, as a possible result of depressive disorders (Jorm, 2000a; Ownby, Crocco, Acevedo, John, & Loewenstein, 2006).

Perhaps most logically, a multitude of psychological ailments can co-occur with depressive disorders. Among them are anxiety disorder, disruptive behavioral disorder, post-traumatic stress disorder, and social phobia (Hammen & Watkins, 2018; Hankin, 2006; Jensen et al., 2018; Krishnan, 2003). Unhealthy coping mechanisms can then lead to substance abuse disorders, such as eating disorders and alcohol and drug addiction (B. E. Miller, Miller, Verhegge, Linville, & Pumariega, 2002; Stefanescu, Chirita, Chirita, & Chele, 2009; Wasserman, 2011). In particular, personality disorders occur at an elevated rate among depression patients (Hammen & Watkins, 2018). Comorbid personality and anxiety disorders are also likely to contribute to a worsening of the course of depression (Hammen & Watkins, 2018).

2.2.7. Implications and summary

As the numerous possible symptoms indicate, depressive disorders have a multitude of facets. Hence, patients experience highly individual manifestations of the illness, differentiated in terms of severity, duration, and combination of symptoms. To accommodate this complexity, diagnostic manuals offer comprehensive sets of indications for the definitions of different depressive disorders (Hammen & Watkins, 2018).

2.3. Definition of depression

Having explored the plethora of possible symptoms, the next step is to define when one can actually speak of a "depressive disorder." An often overlooked difficulty in defining and diagnosing depressive illnesses lies within the semantics of the term "depression" (Beck & Alford, 2009). In everyday language, the terms "depression" and "depressed" do not necessarily mean "suffering from a depressive illness." Rather, they are often used to indicate temporary feelings of sadness or disappointment. On the other hand, they also describe symptoms or –

importantly for this thesis – an illness (Beck & Alford, 2009; Hammen & Watkins, 2018). Hence, it is important to distinguish between a temporarily depressed mood and a major depressive disorder:

> *"However, there are important distinctions between depressed mood and major depression. Depressed mood is a transient state of feeling sad or down, whereas major depression is a medical condition consisting of an array of symptoms beyond merely depressed mood" (Appaneal, Levine, Perna, & Roh, 2009, p. 61).*

Major depression is usually observably manifested in affective, cognitive, physiological, and behavioral symptomology (Hammen & Watkins, 2018). According to the DSM-IV-TR and DSM-V-TR, a (major) depressive episode is prevalent if five or more of the following symptoms are present over a two-week period and cause the individual clinically significant distress and social, occupational, or other impairment (American Psychiatric Association, 2013; Baron, Baron, Tompkins, & Polat, 2013, p. 66):

1. depressed mood most of the day, nearly every day
2. markedly diminished interest in or pleasure from all, or almost all, activities most of the day, nearly every day
3. significant weight loss (when not dieting), weight gain (e.g., a change of more than 5% of total body weight in a month), or decrease or increase in appetite nearly every day
4. insomnia or hypersomnia nearly every day
5. psychomotor agitation or retardation nearly every day
6. fatigue or loss of energy nearly every day
7. feelings of worthlessness or excessive or inappropriate guilt nearly every day

8. diminished ability to think or concentrate nearly every day

9. recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

For these symptoms to indicate depression, they cannot have been prevalent previously. Furthermore, one of the first two symptoms must be present.

Each of the symptoms is generally scaled in terms of intensity (Beck & Alford, 2009). Depending on the number and intensity of symptoms present, depressive episodes can be mild, moderate, or severe (Baron, Baron, et al., 2013). Beck and Alford (2009, p. 8) define depression[4] in terms of the following five attribute categories, which largely align with the nine symptoms mentioned in the DSM-IV-TR / DSM-V-TR (the aligning symptoms in brackets):

- a specific alteration in mood: sadness, loneliness, apathy [1; 2]
- a negative self-concept associated with self-reproaches and self-blame [7]
- regressive and self-punitive wishes: desires to escape, hide, or die [9]
- vegetative changes: anorexia, insomnia, loss of libido [3; 4]
- change in activity level: retardation or agitation [5; 6; 8]

Summarizing and classifying these symptoms, the ICD-10 defines depressive episodes as follows (World Health Organization, 2015, p. 302):

> "*In typical mild, moderate or severe depressive episodes, the patient suffers from lowering of mood, reduction of energy and decrease in activity. Capacity for enjoyment, interest and concentration is reduced, and marked tiredness after even minimum effort is common. Sleep is usually*

[4] General note: for the sake of brevity, whenever the terms “depression,” “depressive ailments,” and the like are used, they refer to (major) depressive disorder and not depressed mood.

disturbed and appetite diminished. Self-esteem and self-confidence are almost always reduced and, even in the mild form, some ideas of guilt or worthlessness are often present. The lowered mood varies little from day to day, is unresponsive to circumstances and may be accompanied by so-called 'somatic' symptoms, such as loss of interest and pleasurable feelings, waking in the morning several hours before the usual time, depression worst in the morning, marked psychomotor retardation, agitation, loss of appetite, weight loss, and loss of libido. Depending upon the number and severity of the symptoms, a depressive episode may be specified as mild, moderate or severe."

As indicated by this definition, the ICD-10 (2015) distinguishes between three different primary forms of depressive episodes. The final form (severe depressive episode) can occur either with or without psychotic symptoms attached. The classification of the forms depends on the frequency and severity of the symptoms, as follows (World Health Organization, 2015, p. 302):

- **Mild depressive episode**

In a mild depressive episode, two or three of the symptoms mentioned above are prevalent. The patient is normally able to pursue their everyday activities despite being under distress.

- **Moderate depressive episode**

For a depressive episode to be classified as moderate, a minimum of four symptoms must be prevalent. The patient will have significant difficulty in continuing with their ordinary activities.

- **Severe depressive episode with and without psychotic symptoms**

Severe depressive episodes without psychotic symptoms are marked by several of the above symptoms, which are found to be distressing. Additionally, patients typically experience loss of self-esteem and feelings of worthlessness or guilt. Suicidal thoughts and acts, as well as somatic symptoms, are common. Should psychotic symptoms be present, the patient experiences the additional presence of hallucinations, delusions, psychomotor retardation, or stupor so severe that regular social interactions become impossible. These psychotic symptoms may

mean additional danger to the patient's health by means of starvation, dehydration, or suicide.

If any of these episodes are recurrent without independent occurrences of mood elevations or mania, patients are suffering from a recurrent depressive disorder. Once again, the ICD-10 (World Health Organization, 2015, p. 303) gives a comprehensive definition of the term "recurrent depressive disorder," as follows:

> *"a disorder characterized by repeated episodes of depression as described for depressive episode (…), without any history of independent episodes of mood elevation and increased energy (mania). There may, however, be brief episodes of mild mood elevation and overactivity (hypomania) immediately after a depressive episode, sometimes precipitated by antidepressant treatment. The more severe forms of recurrent depressive disorder (...) have much in common with earlier concepts such as manic-depressive depression, melancholia, vital depression and endogenous depression. The first episode may occur at any age from childhood to old age, the onset may be either acute or insidious, and the duration varies from a few weeks to many months. The risk that a patient with recurrent depressive disorder will have an episode of mania never disappears completely, however many depressive episodes have been experienced. If such an episode does occur, the diagnosis should be changed to bipolar affective disorder (…)."*

These recurrent episodes of depressive disorder are what laypeople colloquially identify as "depression." These disorders would generally fall under the label of unipolar depressive disorder (Beck & Alford, 2009). The opposite of unipolar depressive disorder – bipolar affective disorder – is often closely associated with and mistaken for depression. The ICD-10 (World Health Organization, 2015, p. 300) describes bipolar affective disorder as follows:

> *"A disorder characterized by two or more episodes in which the patient's mood and activity levels are significantly disturbed this disturbance consisting on some occasions of an elevation of mood and increased energy and activity (hypomania or mania) and on others of a lowering of mood and decreased energy and activity (depression). Repeated episodes of hypomania or mania only are classified as bipolar."*

While these are the most important types of depressive disorders within the context of this thesis, there are naturally numerous other subtypes of depression. Examples include seasonal pattern depression, post-partum depression, atypical depression, hostile depression, dysthymia, and vascular depression (Alexopoulos,

Meyers and Young as cited in Baune et al., 2012; Fava et al., 1997; Hammen & Watkins, 2018).

2.4. Athlete-specific symptoms

The data from previous studies on the topic indicate that depressive illnesses occur at a similar or elevated rate among competitive athletes, compared the general population (Jensen et al., 2018; Nixdorf, 2018; Reardon & Factor, 2010; Rice et al., 2016; Stillman et al., 2013). However, while the same symptoms mentioned in the clinical definitions above may be present, athletes also face the risk of an additional set. For example, athletes might have a higher sense of irritability, manifesting itself in aggressive and nervous behavior towards teammates, opponents, or officials (Baron, Baron, et al., 2013). Similarly, athletes might showcase unrealistically high self-standards, excessive self-criticism, and an increased level of perfectionism (Baron, Baron, et al., 2013; Jensen et al., 2018). Contrary to states of agitation and increased levels of alertness, athletes can also experience a lack of enthusiasm and sense of going “through the motions” (Doherty, Hannigan, & Campbell, 2016). This lack of enthusiasm can manifest itself in athletes being late to or missing practice and competitions or by significant drop-offs in preparation focus. On the other end of the spectrum, Doherty et al. (2016) argue that athletes gain temporary relief from depressive symptomology by engaging in sports. This phenomenon is in accordance with the generally avoidant tendencies of male depression patients (Doherty et al., 2016). Overtraining deserves a special mention in this context, as it can be both a symptom and a cause of depression. Doherty et al. (2016) also suggest that overtraining can be a form of self-harm and a maladaptive means of seeking help. On the other hand, overtraining is sometimes difficult to distinguish from depression as they share many symptoms (Baron, Baron, et al., 2013). Unhealthy coping mechanisms can be similarly indicative of symptoms of depressive ailments. For example, substance and alcohol abuse can help to ease an athlete’s mind (B. E. Miller et al., 2002). The individual may isolate themselves from their social circles, which becomes especially apparent among team-sport athletes when they separate themselves from their teammates (Doherty et al., 2016). Unhealthy coping mechanisms can also be attempts to suppress the depressive disorder. This

avoidant coping behavior often leads to an accumulation and intensification of negative emotions. Eventually, the athlete reaches a tipping point where they snap and can no longer hide the depression. Typically, these breaking points occur during competition or practice (Doherty et al., 2016). Another observable symptom is a change in posture. While studies have shown that non-athletes also experience changes in posture due to depressive disorders (Canales, Cordás, Fiquer, Cavalcante, & Moreno, 2010), this symptom is more complex in the context of sports. As athletes are often taught to maintain an upright stance to symbolize strength and endurance, a change of posture can hint at decreased well-being. More fundamentally, bad posture can also lead to physical problems for athletes.

The most apparent symptom is poor performance in competition and practice settings (Baron, Baron, et al., 2013; Lebrun, MacNamara, Rodgers, & Collins, 2018). However, this symptom might be more difficult to attribute correctly, since there can be many other reasons for a decrease in performance. In addition, changes in performance are somewhat normal. For example, one participant in the study conducted by Lebrun et al. (2018) mentioned that few coaches had given significant attention to his drop-off in performance. However symptoms typical for the general public (e.g., sadness) might be missing altogether for athletes (Baron, Baron, et al., 2013). Hence, it is crucial to consider vegetative symptoms in the context of athletic pursuits (Baron, Baron, et al., 2013).

2.5. Causes of depression and risk factors

As previously mentioned, throughout the last century, two distinct models of the causes of depressive disorders have emerged: the biological and the psychological (Hammen & Watkins, 2018; Lawlor, 2012). Both positions have variously had supremacy in the past, but the complexity of the issue and the multitude of risk factors make it difficult to pinpoint a single correct approach (Hammen & Watkins, 2018; Riso, Miyatake, & Thase, 2002). The two approaches are explained in the following sections. The focus then turns to the explanation most prevalent today: the vulnerability-stress model (Ingram & Luxton, 2005).

2.5.1. Biological approaches

The biological approaches to depression onset concern physical processes that occur in the human body. Advocates of this approach argue that depressive illnesses show physiological symptoms such as sleep disturbance and alterations in activity levels. Another positive indication for biological approaches is the positive effects of anti-depressants (Hammen & Watkins, 2018). Furthermore, mental illnesses are potentially hereditary, thus biomedical approaches that focus on genetics have gained prominence. For example, studies dating back to the 1970s have indicated that depressive illnesses are more common in families in which other members have had mental health problems in the past (Sullivan, Neale, & Kendler, 2000). Hammen and Watkins (2018) highlight the findings of Levinson (2006), which state that a person is three times more likely to develop major depression if they have family members who are depressed than if they do not. Furthermore, chronic and major depressive disorders tend to show more heritable patterns. While there is no evidence for a single gene causing depression (or other mental illnesses, for that matter), studies have implied that heritability is caused by a large number of genes (Hammen & Watkins, 2018). These genes determine one's level of vulnerability to depression. In combination with influential environmental factors, such as parenting and traumatic life events, these genes influence the heritability of depressive disorders (Hammen & Watkins, 2018; Kendler, 2005).[5] In particular, family and heritage studies have shown the close and complex relationships between genetic and environmental influences on depression (Hammen & Watkins, 2018). Hence, environmental factors should be considered to be of equal importance as genetic factors, thus indicating a need for a holistic approaches to identifying the causes of depression (Sullivan et al., 2000). Hammen and Watkins (2018, p. 97) summarize these findings as follows:

> *"In short, virtually every facet of personality and stress reactivity is likely to have heritable components – but how they work together to produce depression is likely very complex indeed. Obviously, genetically regulated processes are strongly modified by environmental, prenatal and childhood experiences and their impact on neural/biological and social development."*

[5] As shown later, this assumption already exceeds the boundaries of biological aspects.

According to other biological explanation models, such as the “monoamine hypothesis” (Lee, Jeong, Kwak, & Park, 2010), the interaction of the neurotransmitters of serotonin, melatonin, noradrenaline, and dopamine plays an essential part in mood regulation and, consequently, the development of depressive ailments (Wasserman, 2011). Serotonin is responsible for mood regulation, hormone secretion, and the sleep and wake cycles. It is also involved in the regulation of internal and external stimuli. Imbalances in serotonin levels can lead to feelings of anxiety, obsessive-compulsive behavior, and depression (Wasserman, 2011). Furthermore, hereditary personality traits such as resilience and fearfulness have be shown to have connections with high and low levels of serotonin, respectively. Noradrenaline, on the other hand, plays a role in mood regulation and regulation of anxiety levels. The importance of noradrenaline shows itself in acute and chronic stress situations as noradrenaline cells are especially active when high-alertness is necessary (Wasserman, 2011). Finally, melatonin and dopamine are thought to affect the occurrence of depressive disorders. While intervals of high and low melatonin levels regulate the daily wake and sleep cycles, depression patients exhibit even melatonin levels throughout the day (Wasserman, 2011). Dopamine plays an important part in initiating and maintaining motor activity, mental activities, and motivational processes. It is also seems to play a significant role in the emergence of depressive disorders (Wasserman, 2011). In accordance with many theories of neurotransmitters, imbalances within the chemical processes of the brain have been identified as biological causes of depressive disorders (Wasserman, 2011). These theories emerged in the 1950s and 1960s and underpinned treatment approaches that focused on pharmaceutically treating serotonin shortages with anti-depressant medication (ADM) (Leo & Lacasse, 2008). In addition, studies have linked disturbances along the hypothalamic–pituitary–adrenal axis to the occurrence of depressive disorders. More specifically, excessive and prolonged distribution of the stress hormone cortisol has been identified as a key to the onset of depression (Hammen & Watkins, 2018).

However, theories focusing solely on chemical imbalances in the brain have been found unproven and potentially invalid by newer studies (Leo & Lacasse, 2008). These studies argue that a strictly biological model of neurotransmitter imbalance

oversimplifies the processes and causes of depressive disorders (France, Lysaker, & Robinson, 2007). Furthermore, it is hypothesized that if chemical imbalances were the sole cause of depression, it would be possible to diagnose depressive disorders by objective chemical testing methods (France et al., 2007). What is important in this context is the distinction between "causality" and "correlation" (Hammen & Watkins, 2018). The difference between the two can be vast in the context of clinical psychology. Leo and Lacasse (2008, p. 36) give the following example: "For instance, a correlation between abnormal behavior and altered brain activity does not necessarily imply that the behavior was caused by a brain defect." In the context of treating depression through selective serotonin reuptake inhibitors (SSRI), an even more relevant example highlighted by Leo and Lacasse (2008, p. 37):

> "*With the advent of the chemical imbalance theory, the companies were no longer just providing soothing tonics, they were now providing medications to treat diseases, as exemplified by an early SSRI advertisement stating: 'When serotonin is in short supply, you may suffer from depression.' The wording here is all-important. The advertisement takes a correlation between serotonin shortage and psychological stress — and even this is highly questionable and unverifiable in any individual case — and makes a leap of faith to the conclusion that depression is caused by a serotonin imbalance, not that psychological stress impacts the serotonin system."*

These semantics are further reflected in the oversimplification of the chemical imbalance theory of depression (France et al., 2007).

More recent research has shown that processes within the brain are especially complex interactions between numerous systems and circuits. Hence, further studies should paint a clearer picture of the biological causes of depression (Hammen & Watkins, 2018). Newer studies will also underpin the complex nature of processes related to depression that occur in the brain. Although recent research advances show promise in terms of progressing our understanding of these structures, biological approaches can only tell one side of the story. As both the chemical imbalance theory and the aforementioned genetic theory have called for consideration of environmental and psychological factors, it is important to combine psychological approaches with the biological models. Before arriving at a combination of the two approaches, it is necessary to look at theories that seek to explain the onset of depression using psychological approaches.

2.5.2. Psychological approaches

As some of the strictly biological explanation models – such as the chemical imbalance theory – have proven unsatisfactory (Deacon & Baird, 2009; France et al., 2007; Leo & Lacasse, 2008), psychological approaches seem to be the most logical answer. These approaches mostly deal with issues of perception, appraisal, and development of belief systems. They also take the psychological events of individuals and personality-based explanations into account (Wasserman, 2011). For instance, a perceived lack of will power combined with a particular personality type would fall into the latter category (Goldstein & Rosselli, 2003; Wasserman, 2011). One psychological theory locates the cause of depression in something called "learned helplessness." Learned helplessness occurs when people believe that they are generally unable to control controllable events after exposure to uncontrollable events. In other words, people feel powerless in present situations after having experienced helplessness in the past. This can be regarded as the opposite of the illusion of control (Langer, 1975). In the context of depression, this phenomenon occurs when individuals experience disadvantageous life environments and poor social integration. If interpersonal relationships (i.e., relationships with parents, family, friends, and role-models) are weak or do not help the individual to discover ways of dealing with stressful environments and contexts, feelings of hopelessness and deprivation can emerge. These feelings of despair and helplessness can play a role in the development of depressive disorders later in life (Wasserman, 2011).

The most prominent psychological theories stress the importance of cognitive processes in the development of depressive disorders (Wasserman, 2011). According to the cognitive model of depression onset, negative thoughts and emotions are more than simply part of the patient's symptomology: in fact, the patient's perceptions shape the way they see themselves and experience their lives. Ultimately, they shape an individual's likelihood of developing a depressive disorder (Hammen & Watkins, 2018). In more technical terms, "cognitive theories of depression are concerned primarily with the relationship between human mental activity (e.g., perception, recognition, judgment, attitudes, reasoning, memory) and the experience of depression" (Hankin, 2006, p. 107). Beck's cognitive model of

depression provides an important starting point for research into psychological approaches to depression onset. This model revolves around three main concepts: the cognitive triad, faulty information processing, and negative self-schemas (Hammen & Watkins, 2018).

The cognitive triad is the main component of Beck's cognitive approach. This states that depressed people view their world, their futures, and themselves more negatively than their non-depressed peers. The constellation of these negative beliefs is defined as the cognitive triad of depression (Beck & Alford, 2009; McIntosh & Fischer, 2000). According to Beck, negative interpretations of the individual's reality and life events play a key role in their lowered mood and the development of depression. These views are often described as distorted, since Beck found that depression patients were often automatically and unconsciously leaning towards negative interpretations of information. This phenomenon is called "information processing errors in attention and reasoning," and it constitutes the second component of Beck's cognitive model (Beck & Alford, 2009; Hammen & Watkins, 2018). Whereas manic patients look to interpret neutral situations as self-enhancing, the reverse is true for depressed patients. This difference between self-deflation and self-enhancement is most evident in bipolar patients changing from manic to depressed episodes (Beck & Alford, 2009). While the errors in information processing are related to external factors, Beck's theory also accounts for internal devaluation (Beck & Alford, 2009). The concept of this negative self-schema is the third part of Beck's theory and somewhat connected to the concept of faulty information processing. Schemas are important for human information processing because they organize and categorize representations of past experiences and filter and guide the selection of information. This process allows the individual to quickly fill gaps in understanding and draw on meaningful prior information (Hammen & Watkins, 2018). Self-schemas, as the name suggests, then organize self-beliefs and self-conceptions. Patients with depression are more likely to resort to negative information within the context of self-schemas. Additionally, the second concept also plays a role in the development of negative self-image. Via faulty information processing, evidence contrary to negative self-concepts is filtered out, while information that fits the negative self-image is accepted (Hammen & Watkins, 2018). Stressful situations are particularly likely to

activate these negative schemas. Unsurprisingly, negative self-schemas also come into effect when there are impediments to achievement-oriented (athletic) activities, such as poor performance in competition or losses in big games (Beck & Alford, 2009). According to this model, depressed patients also often undervalue their own performances. As this example shows, negative self-schemas are an important consideration within the context of depression among competitive athletes. In particular, the concepts of the "cognitive triad" and the "information processing errors in attention and reasoning" already account for the interaction between outside factors (e.g., world views) and internal cognitive traits. Hence, Beck's theory veers close to the vulnerability-stress model (Hammen & Watkins, 2018), which is the most common explanation for depression causes today (Wasserman, 2011).

2.5.3. Vulnerability-stress model

Depression is a multifactorial disorder. Many potential risk factors have to be taken into consideration, which makes it is unlikely that single etiological frameworks could be capable of adequately explaining the cause of depressive disorders (Hankin, 2006). In response, the vulnerability-stress model has emerged in contemporary research as the primary explanation approach (Hyde, Mezulis, & Abramson, 2008; Ingram & Luxton, 2005). This approach takes into account the close links between biological and psychological models (Wasserman, 2011). The vulnerability-stress model states that specific vulnerabilities – such as genetic predispositions, social aspects, and cognitive distortions – can lead to depression if combined with a chronic or acute stressor (Hyde et al., 2008; Ingram & Luxton, 2005; Nixdorf, 2018). Stressors are usually defined as either major life events (acute) or an accumulation of minor life events (chronic) that are interpreted as undesirable by the individual. These life events are disrupting mechanisms of the individual's physiology, cognition, and emotions (Ingram & Luxton, 2005). Estimates suggest that the vast majority of depression patients experienced at least one negative life event in the month leading up to the beginning of their depressive disorder (Goodyer, 2001; Hankin, 2006). However, the impact of the event on the individual is understood to be dependent on how the event is perceived and how the stressors interact with the individual's vulnerability (Ingram

& Luxton, 2005). Conceivable examples of stressors are the death of a loved one, an interpersonal conflict, financial insecurity, or a long phase of physical illness. Depending on the length and severity of these stressors, they can be placed into either the acute or chronic category (McGonagle & Kessler, 1990). Additionally, stressful life events are not limited to outside events, and they can also derive from an individual's actions and decisions (Ingram & Luxton, 2005).

Vulnerability, on the other hand, is described as a pre-dispositional set of factors that makes disordered states possible. Included under the term "vulnerability" are both genetic and biological factors, as well as those of a cognitive and psychological nature (Ingram & Luxton, 2005). Hankin (2006) additionally highlights interpersonal vulnerabilities in his review. In relation to genetic vulnerabilities, Beardselee, Versage, and Giadstone (1998) state that having a history of depression within the family (especially affecting one's parents) is a vulnerability factor. This supports the genetic models discussed earlier. Psychological factors include the likelihood of showcasing neuroticism or experiencing the world through negative emotions, such as distress or fear (Hankin, 2006; Watson, Clark, & Harkness, 1994). Neurotransmitter dysregulation in the nervous system in response to stressors and dysregulated brain circuits are examples of biological vulnerabilities (Hankin, 2006; Kaufman, Martin, King, & Charney, 2001). In particular, disturbances in the regulation of the human stress response along the previously mentioned HPA-axis have been identified as a potential biological vulnerability factor. This type of vulnerability manifests itself in variance of growth hormone output among adolescents (Hankin, 2006; Meyer, Chrousos, & Gold, 2001). Additionally, changes in the neural circuit of the brain are associated with biological vulnerability, which can also be caused by changes in the activity levels of certain brain regions. Children of depressed mothers, for example, are at risk of developing depression and have a potential underactivity in the left frontal cortex area of the brain, which is similar to that of adults with a current depression episode (Dawson, Frey, Panagiotides, Osterling, & Hessl, 1997; Hankin, 2006; Tomarkenand & Keener, 1998). These types of vulnerability are closely related to some of the biological models discussed before.

Four sub-categories of cognitive vulnerability have received extensive attention: negative inferential styles in regards to causes, consequences, and the self;

dysfunctional attitudes; rumination in response to depressive episodes; and self-criticism. Hankin (2006, p. 107) provides very detailed descriptions of these four types of cognitive vulnerability factor:

> "*A person with a negative inferential style is likely to attribute negative events to global and stable causes, to catastrophize the consequences of negative events, and to view himself or herself as flawed or deficient following negative events. An individual with dysfunctional attitudes is likely to think his or her self-worth hinges on being perfect or receiving approval from others. For example, the dysfunctional attitude characterized by the statement 'I'm worthless unless I'm perfect' may be activated if an individual does not excel in class. Rumination describes the cognitive process in which initially mildly dysphoric individuals focus on the meanings and implications of their depressed mood and, as a result, develop enduring and severe depressive symptoms. Finally, individuals high in self-criticism are preoccupied with issues pertaining to self-definition, competence, and worth. Such individuals are prone to view themselves as a failure as well as feel guilty and experience decreases in self-esteem when not meeting expectations or goals."*

The final vulnerability factor, as described by Hankin (2006), is the area of interpersonal vulnerability. Some examples of this concern excessive reassurance-seeking, dependency, and insecure attachment. However, the discussion is ongoing as to whether these interpersonal vulnerabilities cause depression or simply correlate with it. Hammen and Watkins (2018) add to Hankin's list by highlighting demographic vulnerability factors, such as sex (depression onset more likely among females) and lower socioeconomic status (in higher-income nations). In addition to Hankin (2006), Hammen and Watkins (2018) also mention age as a vulnerability (the younger the individual, the greater their risk of developing a depressive disorder). Some studies have ignited a discussion on the nature of vulnerability as a trait rather than a predisposition. It can be argued that, even if vulnerability is a stable factor, a certain degree of fluctuation is nevertheless possible as an effect of learning experiences (Ingram & Luxton, 2005). This assumption aligns with the learned helplessness theory of depression development (Wasserman, 2011).

Another key component of vulnerability is that it is an endogenous trait, which means that it resides within the individual. This is important as it allows for a clear distinction between the two parts of this explanation model. Stress is an external factor that interacts with the internally based vulnerability (Ingram & Luxton,

2005): “Overall, therefore, it is generally understood that the risk factors for depression (…) all influence the (maladaptive) ways in which individuals respond to stressors” (Hammen & Watkins, 2018, p. 151).

The vulnerability-stress model states that recent, stressful, external life events can potentially trigger an underlying internal vulnerability predisposition or trait. This can then lead to the onset of a depressive disorder, depending on whether an individual reaches their tipping point (Hankin, 2006; Ingram & Luxton, 2005; Nixdorf, 2018). The relationship between stressors and cognitive vulnerabilities as a reaction to stressful life events is well documented (Nixdorf, 2018). This answers one of the most pressing questions in depression research: “Why do some people become depressed following negative life events, while others stay mentally healthy?” (Hammen & Watkins, 2018). In summary, a helpful visual representation (see Figure 1) of the depression onset process, as described by the vulnerability-stress model, is provided by Nixdorf (2018, p. 8).

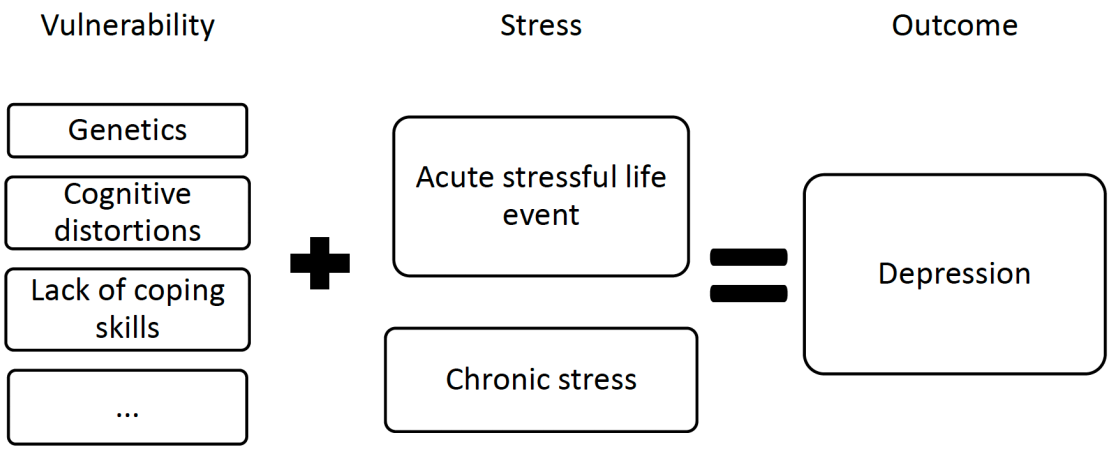

Figure 1: Vulnerability-stress model. (Nixdorf, 2018, p.8)

However, it is important to note that this model is not a static one-way street, as depression can cause negative life-events, such as interpersonal stressors. Depression can also heighten vulnerability. An example would be elevated biological vulnerability through changes to the hippocampus volume (see: symptoms section). Hence, the relationship between stressors, vulnerability, and depression is bidirectional and dynamic (Hammen & Watkins, 2018).

2.5.4. Specific causes and risk factors for athletes

While the vulnerability-stress model postulated for the general population and general life stressors also applies to the context of competitive athletes (Souter, Lewis, & Serrant, 2018), sport-specific risk factors also require consideration (Frank et al., 2013; Nixdorf, 2018; Wolanin, Gross, & Hong, 2015). Multiple studies have found that the prevalence of depressive symptomology can differ for different types of sport. These findings indicate that depression is more common among individual athletes than among team-sport athletes (Nixdorf, 2018; Nixdorf, Frank, & Beckmann, 2016). A possible explanation for these findings is that individual athletes tend to attribute failure internally, whereas team-sport athletes do so externally (Hanrahan & Cerin, 2009). Additionally, athletes, regardless of their respective disciplines, experience a multitude of intense, sport-specific, mental and physical demands that can have an effect on their mental health (Hughes & Leavey, 2012; Rice et al., 2016). Nixdorf (2018) argues that athletes experience acute stress (e.g., tournaments, competitions, or injuries) and chronic stress (i.e., the practice and competition schedule). Consequently, stressors can be divided into two sub-groups: physical and psychological. Exemplary physical stressors are demands posed by training regiments and competition. Uncertainties about future contracts, rumblings within the team, and interactions with managers, agents, or fans can all create psychological stress (Noblet & Gifford, 2002; Souter et al., 2018). According to Nixdorf, Frank, Hautzinger, and Beckmann (2013), high levels of stress have a positive correlation with depressive symptomology.

Athletes' responses to stressors and experiences of high stress levels depend on their coping mechanisms and vulnerability (Wasserman, 2011). Based on interviews with eight elite athletes, Doherty et al. (2016, p. 5) identified the following sport-specific vulnerabilities:

- high athletic identity in regards to the all-consuming demands of sports
- public perceptions, evaluations, and perceived acceptance hinging on performance
- global self-confidence depending on performance

- an emphasis on the need to hide frailties and show strength

The intrinsic vulnerabilities detailed in the same study were an obsessive drive and will to win, as well as the use of sports as a means to prove one's worth and gain admiration and acceptance from others (Doherty et al., 2016). Additionally, negative coping mechanisms were found to correlate with depressive symptomology (Nixdorf, 2018; Nixdorf et al., 2013). It is also interesting to note that years of peak athletic performance capability overlap with the years of peak onset for depressive disorders (Rice et al., 2016).

"Your body is your greatest asset": as mean-spirited and macabre as this oft-heard quote may sound, it still is very accurate for the world of competitive and professional sports. Hence, a common athlete-specific risk for depression is injury (Leddy, Michael, & Ogles, 1994). When athletes are robbed of their greatest asset by an injury, this can result in "significant depression" (Baum, 2013, p. 80). Wolanin et al. (2015) highlight multiple studies (e.g., Appaneal et al., 2009) that found injured athletes were more likely than healthy ones to experience depressive symptoms. Similarly, studies have indicated that athletes who have gone through injuries report symptoms associated with mental disorders more frequently than injury-free athletes do (Gulliver, Griffiths, Mackinnon, Batterham, & Stanimirovic, 2015). Generally, scores on depression screening tools tend to be higher for athletes with an injury history (Gouttebarge, Aoki, Ekstrand, Verhagen, & Kerkhoffs, 2016; Souter et al., 2018). A study by Junge and Feddermann-Demont (2016) found that injured soccer players had higher depressive symptomology than their healthy counterparts. These findings are supported by Gulliver et al. (2015). Depressive symptoms among injured athletes are associated with negative reactions such as frustration (e.g., frustration because of an inability to help the team succeed or to prevent failure), envy (e.g., an envious reaction to team successes without the help of the injured player), and worry about the long-term implications of the injury (Baron, Baron, et al., 2013). Hence, athletic trainers, coaches, and physicians need to understand that negative reactions to injuries are natural. On the other hand, problematic negative reactions can also occur and these can have extremely negative implications for the recovery process.

Putukian (2016, p. 146) suggests the following problematic reactions to injuries:

Persistent symptoms	**Worsening symptoms**	**Excessive symptoms**
alterations in appetite sleep disturbance irritability	alteration in appetite, leading to disordered eating sadness, leading to depression lack of motivation, leading to apathy disengagement, leading to alienation	pain behaviors excessive anger or rage frequent crying or emotional outbursts substance abuse

Figure 2: Negative reactions to injuries (Putukian, 2016, p.146)

Putukian (2016, p. 146) also explicitly mentions the connection between depression and injuries, as depression "can magnify other responses and can also impact recovery from injury." Post-injury depression symptomology may be prevalent for up to a month after a severe injury, even among otherwise mentally healthy athletes (Appaneal et al., 2009). A case study of a former NFL player, presented by Baum (2013, p. 80), highlights a frightening example of the connection between injuries and depression. In 2010, American football safety Kenny McKinley took his own life after being forced to end his season prematurely due to a knee injury that required surgery. Greg Oden's career is another tragic example of an injury-riddled career leading to depressive disorder among athletes. Leaving college in 2007, Oden was drafted as the first overall selection in that year's NBA draft, ahead of all-time great Kevin Durant (Knox, 2017). What followed was a career filled with leg injuries that derailed the path of the former number one pick (Titus, 2012). Oden's ongoing health problems caused a downward spiral for the basketball player that ended in alcoholism and depression for the once so promising talent (K. Jones, 2019). Oden eventually retired in 2016 (Anderson, 2018).

Although overtraining syndrome (OTS) does not necessarily fall into the category of an injury, it can affect the mental health of athletes in a similar fashion (Baron, Baron, et al., 2013). Physiological disturbances (e.g., fatigue, weight loss, heightened heart rate), as well as psychological factors (e.g., demotivation and loss of concentration) and performance issues characterize OTS (Meeusen et al., 2006; Meehan et al. as cited in Wolanin et al., 2015). It occurs as a result of overreaching, without adequate rest (Baron, Baron, et al., 2013; Kreher & Schwartz, 2012; Meeusen et al., 2006). The most common symptom of OTS is exhaustion. The athletes experience the effects of a systemic inflammation that has "subsequent effects on the central nervous system, including depressed mood" (Kreher & Schwartz, 2012, p. 128). Considering the negative correlation between stress-recovery and depressive symptomology (Nixdorf et al., 2013), it is clear that depressive disorders and OTS share a connection. According to Armstrong and VanHeest (2002) and Nederhof, Lemmink, Visscher, Meeusen, and Mulder (2006), the symptoms of OTS and depression are very similar. Professionals working with athletes should not make the error of mistaking one for the other. However, both OTS and depressive disorders can co-occur (Wolanin et al., 2015). Additionally, OTS can be considered a cause and a symptom of depression (Armstrong & VanHeest as cited in Baron, Baron, et al., 2013).

A particular type of injury closely connected to depression is concussion. In full-contact sports such as boxing, mixed martial arts, and American football, concussions have become an especially severe problem (Simmons, 2016). Previous exposure to traumatic brain injuries, such as concussions, has been shown to increase the likelihood of depressive illnesses among retired American football players (Guskiewicz et al., 2007). Kerr, Marshall, Harding, and Guskiewicz (2012) found that the likelihood of depression increases with higher numbers of concussions, as these impacts on the brain possibly result in lesions within the brain's structure (Guskiewicz et al., 2007). At worst, these injuries result in a form of brain matter degeneration known as chronic traumatic encephalopathy (CTE) (Baum, 2013; McKee et al., 2009). Among the numerous symptoms associated with CTE, the most important to mention in the context of this thesis are depression, suicidality, irritability, and poor mood control. The condition also mirrors Parkinson's disease and Alzheimer's disease in its symptomology (Baron,

Reardon, DeFranco, & Baron, 2013; Gavett, Stern, & McKee, 2011; McKee et al., 2009). Unlike those of post-concussion syndrome, the symptoms of CTE do not usually manifest directly after a concussion. The onset of CTE usually occurs among middle-aged individuals, which is later than symptoms of post-concussion syndrome and earlier than those of Alzheimer's and Parkinson's disease (Baron, Reardon, et al., 2013). Hence, depression-like CTE symptoms frequently occur after the retirement of the athletes in question. McKee et al. (2009) found that two-thirds of their study's participants had developed CTE symptoms within four years after the end of their respective careers. These findings were supported by a case study conducted by Omalu et al. (2006). The suicides of the athletes discussed in this study occurred at ages 50 and 42, respectively – an age range that could be considered middle-age (Baron, Reardon, et al., 2013). Hence, these suicidal actions occurred following the end of the respective athletes' careers.

More generally, retired athletes and athletes approaching retirement are often at an elevated risk of depression (Baum, 2013). The move from regular competition to a life away from competitive sports is a major transition, involving changes in daily routine, interpersonal relationships, and the athlete's self-image (Lavallee, Gordon, & Grove, 1997; Stephan, Bilard, Ninot, & Delignières, 2003). The end to an athlete's career – especially when caused by decreasing performance or injury (Cecić Erpič, Wylleman, & Zupančič, 2004) – can create feelings of worthlessness and hopelessness (Baron, Baron, et al., 2013). While such involuntary career termination normally has a negative effect on athletes, carefully planned retirement is associated with more positive feelings. Overall, athletes who voluntarily end their careers experience better adaption to life post retirement (Alfermann, Stambulova, & Zemaityte, 2004). According to Lebrun et al. (2018) and Baron, Baron, et al. (2013), physical problems (e.g., chronic pain, loss of fitness or insomnia) and lifestyle changes (e.g., financial insecurities, disappearance out of the public eye, feelings of impotence and loss of life purpose) often exacerbate depressive feelings. An important component of the ability to cope with the later stages and end of one's career is the athlete's view of themselves in terms of athletic identity. The greater the extent to which the athlete defines their life's purpose as athletic success, the stronger that individual's athletic identity is (Hendawy & Awad, 2013). Wolanin et al. (2015) highlight previous findings which

suggest that athletes with a more pronounced athletic identity experience more problems with adapting to life after retirement. Consequently, strong athletic identity can hinder the development of a multi-dimensional self-concept (Hendawy & Awad, 2013). In less technical terms, if athletes define their existence through their sport, retirement can leave them feeling empty and purposeless, as they have nothing else to offer.

The perhaps most commonly attributed cause of depression among athletes is the pressure they face. In particular, the ongoing commercialization and professionalization of high-level sports have contributed significantly to an increase in pressure on competitive athletes (Markser & Bär, 2019). They are expected to perform, achieve peak skill levels, and reach their goals on a regular basis (Souter et al., 2018). These expectations are not only held by outsiders but also nurtured by the athletes themselves, through an obsessive drive to win and a self-imposed performance narrative (Doherty et al., 2016; Douglas & Carless, 2008). Furthermore, athletes must adhere to values and performance narratives that have been reinforced by sports and media environments for decades (Carless & Douglas, 2012; Doherty et al., 2016). Professional and high-level competitors are judged by fans, media, managers, coaches, and peers on a daily basis. The advent of social media has only made it easier for athletes to be placed under the microscope and given yet more scrutiny by the general public (Rice et al., 2016). In the age of real-time news and sensationalism, (social) media platforms are filled with broadcasters, experts, and fans waiting to chastise poor performances by athletes. These reactions to performances are often perceived by the athletes in question to be biased and inaccurate (Kristiansen, Halvari, & Roberts, 2012). For instance, lists highlight every playoff shortcoming of LeBron James – arguably one of the greatest basketball players to ever compete (Ingrassia, 2017). These articles are worrisome because they so easily shape the negative images of players. Hence, the pressure of potential failure and the accompanying external scrutiny can put a strain on their mental health (M. Jones & Sheffield, 2011). Kristiansen et al. (2012) highlight multiple studies that indicate how elite-level athletes experience excessive media coverage as an exhaustive stressor that can negatively affect their self-confidence. As recently as late November 2019, NBA

guard DeMar DeRozan, who has spoken candidly about his battle with depression (NBA.com, 2018), voiced his disdain for social media (Holroyd, 2019).

Of course, it is not fear of publicly discussed failures alone that can negatively affect the mental health of athletes: there is also the experience of failure itself. For example, Hammond et al. (2013) found depressive symptoms to be a distinct possibility following performance failures. The same study also found that top-level athletes had significantly stronger reactions to failure than their peers in lower-level competition. It is suggested that the risk of depression onset is higher among these athletes, because their (potential) failure has more significance. Hence, Hammond et al. (2013) argue that athletes who strive to compete at the highest levels are more susceptible to depressive disorders in the event of failure. However, negative reactions to failure are not only derived from external expectations. In particular, internal pressure (i.e., the unrelenting will to succeed) can become detrimental to the mental health of athletes if their inner sense of self relies entirely on their ability to perform and succeed (i.e., strong athletic identity/performance narrative) (Carless & Douglas, 2009; Doherty et al., 2016). One form of internal pressure that has been linked to depressive disorders in numerous studies is perfectionism (Jensen et al., 2018; Stoeber, 2011; Stoeber, Otto, Pescheck, Becker, & Stoll, 2007).

3. Perfectionism and its relationship with depression

Perfectionism and its relationship with athletes' experiences of depression, competitive anxiety, and burnout have been studied extensively in recent decades (Jensen et al., 2018; Nixdorf et al., 2016; Stoeber, 2011; Stoeber et al., 2007). Perfectionism is perceived to be one of the most common personality traits among high-level athletes (Baum, 2013; Parker, 2002). However, there is significant disagreement between experts on the question of whether perfectionism helps athletes excel or whether it is detrimental to their performance and life quality (Stoeber et al., 2007). Experts advocating the latter notion have described something called the "perfectionism paradox": while athletes are expected to be perfect in competition, perfectionism can, in reality, have a limiting effect on their performance (Flett & Hewitt, 2005). Before considering how perfectionism affects individuals in general and athletes in particular, it is necessary to define the concept. According to Hendawy and Awad (2013, p. 56),

> *"Perfectionism can be defined as an achievement-related personality trait that includes setting and compulsive pursuit of excessively high standards of performance in conjunction with a tendency to make harsh, overly critical self-evaluations."*

Perfectionism is described as a multidimensional personality construct (Cooks & Ciesla, 2019), with two sub-domains: healthy, positively connotated perfectionism and maladaptive, negatively connotated perfectionism (Hendawy & Awad, 2013; Stoeber, 2011; Stoeber et al., 2007). Stoeber and Otto (2006) describe these as perfectionistic strivings (PS) and perfectionistic concerns (PC), respectively. When discussing individuals, the terms "healthy perfectionists" and "unhealthy perfectionists" are generally applied.

3.1. Perfectionistic strivings

Perfectionistic strivings (PS) have a positive nature. Positively connotated perfectionism is characterized by a tendency to set high goals, a desire to achieve said goals, and the will to maintain high-level performance (Hendawy & Awad, 2013; Stoeber & Otto, 2006). Such strivings reflect the individual's pursuit of

perfection in achievement settings (i.e., competition settings) and their adherence to extremely high performance standards (through practice and competition) (Rasquinha, Dunn, & Dunn, 2014). Athletes leaning towards positive PS are possibly more self-confident, have higher self-esteem, and are more likely to outperform their counterparts with PC (Chufar & Pettijohn, 2013; Koivula, Hassmén, & Fallby, 2002). In more practical terms, healthy perfectionists strive to be their best and achieve as much as possible, while their unhealthy counterparts have a more negative outlook on competition, fearing failure more than craving success. According to Gotwals, Stoeber, Dunn, and Stoll (2012), PS have an adaptive character among athletes, as long as PC are under control. Stoeber et al. (2007, p. 966) agree, stating that "striving for perfection may have positive effects – if athletes do not despair when they do not attain what they are striving for." One of these positive effects is a motivational boost that further drives athletes towards their goals (Stoeber, 2011). Furthermore, Enns and Cox (2005) have suggested that PS might act as a buffer against the effects of adverse achievement-based life events, when unrealistic self-standards are modified. This is an important aspect when considering that failure in competition can play a role in the onset of depression (Hammond et al., 2013). However, Hammond et al. (2013) also argue that athletes who strive to compete at the highest levels are more prone to failure-based depression. It is a fair assumption that athletes who want to reach elite levels also have PC tendencies. Considering the dichotomous statements of Hammond et al. (2013) and Enns and Cox (2005), as well as the theory review of Gäde, Schermelleh-Engel, and Klein (2017), it is apparent that PS are at best inconsistent predictors of depression. In particular, the relationship between the nature of the response to failure and PS remains unclear (Lizmore, Dunn, & Dunn, 2017). In the same vein, Jensen et al. (2018) found no correlation between depressive disorders and PS.

3.2. Perfectionistic concerns (PC)

In contrast, PC reflect the degree to which individuals fear evaluation by others, are afraid of not meeting their high performance standards, and worry about failing to achieve high goals in competition settings (Rasquinha et al., 2014; Stoeber,

2011). Fear of failure and the resulting evaluation by others, worries about mistakes, and harsh self-criticism are common among individuals who have a tendency towards PC (Madigan, Stoeber, & Passfield, 2017; Stoeber, 2011). Furthermore, such athletes tend to have negative reactions to discrepancies between their self-expectations and their performance (Stoeber, 2011; Stoeber & Otto, 2006). For example, instead of striving to win a game, an athlete with PC might be more concerned that his team will lose. Unhealthy perfectionists have distorted interpretations of their social interactions because they perceive others to be dissatisfied with and disapproving of them. For example, they may be continually worried about coaches, fans, and media thinking negatively about their performance. This rumination mechanism may then influence the prevalence of depressive symptoms. Additionally, PC contribute to social disconnection, which can also lead to depressive symptoms (Harris, Pepper, & Maack, 2008; Sherry et al., 2013).

Furthermore, Lin, Xie, Yan, Chen, and Yan (2019) have shown that unhealthy perfectionism can lead to decreased sleep quality. Poor sleeping behavior can then foster the development of depressive disorders (Franzen & Buysse, 2008). Considering these mechanisms, the evidence points towards a connection between PC and a multitude of psychological maladjustments and illnesses (Handley, Egan, Kane, & Rees, 2015). In the context of competitive sports, multiple studies have linked depressive disorders to PC and maladaptive perfectionism (Noble, Ashby, & Gnilka, 2014; Sherry et al., 2013; Smith et al., 2016). Jensen et al. (2018), Stoeber (2011), and Nixdorf et al. (2016) have all found a positive correlation between PC and depression. Hence, unlike PS, elevated levels of PC are maladaptive in the context of competitive sports (Stoeber, 2011). Koivula et al. (2002) also found that negative patterns of perfectionism (i.e., PC) were correlated with higher anxiety levels and decreased self-confidence. In line with this finding, Stoeber et al. (2007) found an association between perfectionism and competitive anxieties. More specifically, studies suggest a positive correlation between general perfectionism and the level of competitive anxiety experienced by the athlete. However, when differentiating between PS and PC, Stoeber et al. (2007) and Hamidi and Besharat (2010) made the following discovery: athletes with negative reactions to imperfection (i.e., PC)

evidenced higher levels of competitive anxiety, whereas athletes who positively strive for perfection had lower levels.

Finally, it is essential to note that, while perfectionism is listed in the cause section of this thesis and certain types of perfectionism are positively correlated with depressive disorders (Jensen et al., 2018), negative perfectionistic tendencies do not necessarily cause depression directly. Instead, it is likely that they affect the onset of depression through mediating factors, such as rumination, avoidant coping, and self-esteem (Chai et al., 2019; Harris et al., 2008; Noble et al., 2014). One mediating factor in the context of athletes is competitive anxiety (Jensen et al., 2018).

3.2.1. Competitive anxiety and social phobia

As previously mentioned, athletes that lean towards PC display higher levels of competitive anxiety. This type of trait anxiety usually arises before or during competition (Smith, Smoll, Cumming, & Grossbard, 2006). It can have somatic-, cognitive-, and self-confidence-related dimensions. Stoeber et al. (2007, p. 960) describe these factors as follows:

> *"Cognitive anxiety involves cognitions about possible failure, while somatic anxiety involves the perception of bodily symptoms and heightened negative arousal. Self-confidence, on the other hand, involves cognitions that one is up to the task and able to give one's best possible performance."*

In addition to its involvement in competitive settings, PC can also have a close connection to various forms of anxiety sensitivity in social interactions (Flett, Greene, & Hewitt, 2004). One potential social interaction problem is social phobia, which is a social anxiety disorder characterized by a fear of social interaction and evaluation. It can lead to avoidant behavior, as the fear of rejection or embarrassment and feelings of being undervalued overtake the individual's social decision making (Sioni, Burleson, & Bekerian, 2017). This is especially significant in the context of team sports, as interpersonal cohesion (team chemistry) can play a role in the onset of depression (Frank et al., 2013), thus potentially leading to a correlation between social phobia and depression (Ohayon & Schatzberg, 2010).

As previously mentioned, this connection has an important implication in the context of this study. The relationships between PC and different forms of anxiety

are important as the latter are understood to be comorbid with depressive disorders. Hence, the correlation between PC and depressive symptomology might be manifested in other forms such as competitive anxiety. Jensen et al. (2018) found that, among their study participants, the effects of PC on depressive disorders were usually moderated indirectly by means of competitive anxiety.[6]

[6] The same results were not seen for social phobia.

4. Sleep and its relationship with depression

4.1. General symptomology of sleep disturbance

In general, sleep helps the individual to recover from previous waking states and to prepare the body for the subsequent period of wakefulness (Halson, 2013). The sleep-wakefulness cycle, which is a circadian bodily function, is closely associated with the circadian curves of human performance measurements, such as body temperature and joint flexibility. If the harmonious co-existence of these circadian functions is disturbed by a change in the sleep-wake rhythm, individuals are affected in several areas (Davenne, 2009; Reilly & Edwards, 2007). Short-term sleep deprivation can impair cognitive functions (e.g., diminished reaction time), alter mood, and affect metabolism, immune function, and the regulation of appetite (Alhola & Polo-Kantola, 2007; Halson, 2013; Milewski et al., 2014; Taheri & Arabameri, 2012). Furthermore, chronic sleep disturbance is a significant risk factor for the onset of depression (H. J. Cho, Eisenberger, Olmstead, Breen, & Irwin, 2016). Sleep disturbance has a substantial effect on the development and subsequent trajectory of depressive disorders. For example, Baglioni et al. (2011) found that non-depressed individuals who struggle with their sleep have twice the risk of depression onset of their normal-sleeping counterparts. However, lack of sleep is not only a risk factor for depression onset. In fact, sleep disturbances are often in a bidirectional relationship with depressive disorders (Franzen & Buysse, 2008; Lustberg & Reynolds, 2000). This means that sleep disturbances can both be a symptom of and a risk factor for depression. Hence, long-term sleep disturbances can also be a potential core symptom of major depression (Nutt et al., 2008).

4.2. Athlete-specific symptoms of sleep disturbance

While the symptoms of sleep problems mentioned above affect both the general population and competitive athletes, the latter group once again faces an additional set of challenges. In fact, findings have suggested that the sleep quality of athletes is inferior to that of the general population (O'Donnell & Driller, 2017). Sleep is even more important for competitive athletes, as it is the most vital

recovery mechanism for physiological and psychological processes (Halson, 2013; Lastella, Roach, Halson, & Sargent, 2015; Leeder, Glaister, Pizzoferro, Dawson, & Pedlar, 2012). Empirical data, combined with evidence from personal experience, point to the positive effect of good sleep quality on athletes' performance (Lastella et al., 2015). Outside of competitive settings, proper sleep is also crucial for training and performance enhancement. To achieve positive training effects, athletes need sufficient recovery, since the frequent exposure to high-intensity practice to achieve functional overreaching creates strain on the athletes' minds and bodies (Meeusen et al., 2006). Therefore, athletes may even need more sleep than the general population. If the athlete does not have adequate sleep, OTS can potentially ensue (Meeusen et al., 2006). As discussed earlier, OTS can then lead to depression (Baron, Baron, et al., 2013). Injuries can be another potential physiological consequence of a lack of sleep. Milewski et al. (2014) found that the amount of sleep adolescent athletes had per night was directly associated with their risk of injury. Their statistics showed that adolescent athletes who slept fewer than eight hours per night were almost twice as likely to sustain an injury, in comparison with their counterparts who got more than eight hours. While chronic sleep deprivation and the subsequent decrease in testosterone levels can increase the risk of injury among athletes (Gao, Dwivedi, Milewski, & Cruz, 2019; Holmes, 2019), even a temporary loss of sleep can impair psychomotor function (Milewski et al., 2014). This means that loss of sleep negatively affects the performance of competitive athletes (Davenne, 2009; Skein, Duffield, Edge, Short, & Muendel, 2011). Conversely, increased sleeping time significantly enhances performance (Mah, Mah, Kezirian, & Dement, 2011). Detriments to the athletes' performance capabilities can also be of purely psychological nature. For example, the speed of the athlete's decision making is typically affected by sleep disturbances (Leeder et al., 2012; Simpson, Gibbs, & Matheson, 2017).

Considering the other potential causes for depression among athletes – such as PC, injuries, and OTS – it is evident that sleep deprivation is not only a risk factor in itself for athletes. Alterations to cognitive functions and mood due to lack of sleep can trigger competitive anxiety and, as a further consequence, depressive disorders. In addition, injuries suffered because of a body breakdown due to poor sleep quality can trigger depression (Gao et al., 2019; Putukian, 2016). Finally,

poor decision making due to lack of sleep can lead to poor performance; and subpar performances can, in turn, trigger depression by means of PC or failure (Hammond et al., 2013). These examples show that, for competitive athletes, sleep deprivation can have both direct and indirect relationships with depressive disorders.

4.3. Causes of sleep disturbance among athletes

While extensive research has acknowledged the role that sleeping problems can play in the onset of depression, the athlete-specific implications have yet to be given the same serious attention as concussions. However, considering the importance of the discussion on concussions and the changes this brought to the NFL (Rapp, 2012), professional basketball player Tobias Harris's belief that the issue of sleep deprivation among NBA players will eventually be discussed in the same vein as traumatic head injuries is worrisome. Harris's statement was published in recent investigative article by Baxter Holmes (2019), which shed light on the problems NBA athletes face regarding sleeping habits – a problem that has become more common in recent decades (Alhola & Polo-Kantola, 2007; Reilly & Edwards, 2007).

It is not only basketball athletes, but competitors across a multitude of disciplines who report problems with their sleeping schedule. With athletes competing in worldwide competitions and leagues such as the NBA and the NFL, extensive air travel across time zones affects sleep quality (Copenhaver & Diamond, 2017; Reilly & Edwards, 2007; Thornton et al., 2018). Another factor in travel demands is unfavorable competition and practice scheduling (Sargent, Lastella, Halson, & Roach, 2014). Staunton, Gordon, Custovic, Stanger, and Kingsley (2017) found that competitions in close succession (so-called "double-headers") were detrimental to the sleep quality of Australian female basketball athletes, as it is common to experience difficulties with falling asleep post-competition. Driller, Mah, and Halson (2018) highlight the results of multiple studies that indicate muscle tension, fatigue or pain, increased body temperature, physiological activation, and psychological distress following competitions as reasons for sleep difficulties among athletes. In addition, sleep disturbance does not only occur after

competition. Juliff, Halson, and Peiffer (2015) found that athletes may have difficulties falling asleep the night before an important competition due to nervousness and thoughts about the upcoming event. These thoughts may be shaped by forms of perfectionism and competitive anxiety. In particular, individuals with PC experience poorer sleep quality (Lin et al., 2019), as maladaptive perfectionism is connected to arousal (Azevedo et al., 2010). This arousal, which may be exacerbated by symptoms of anxiety and depression and repetitive thoughts of worry and rumination can delay the onset of sleep and reduce its overall duration and recovering effects (Akram, Ellis, & Barclay, 2015; Harvey, 2002; Lin et al., 2019).

5. Diagnosis of depression

There are two primary methods of diagnosis for depressive disorders: measuring the severity of depressive symptoms (i.e., screening tools) and measuring the presence of diagnosable conditions (i.e., diagnostic methods) (Hammen & Watkins, 2018).

The measurement of depression symptom severity can be conducted in interview form. However, most commonly, the severity of the patient's symptoms is assessed by screening tools such as the Center for Epidemiologic Studies Depression Scale (CES-D) or the Beck Depression Inventory (BDI). These tools take the form of self-administered self-report questionnaires, which are scored: higher scores indicate a higher likelihood and greater severity of depressive symptoms (Hammen & Watkins, 2018). These screening tools have a predetermined cut-off score that implies the need for further evaluation. Hence, screening tools serve as an aid for therapists, physicians, and psychiatrists to identify patients who are likely to be depressed (Goldman, Nielsen, Champion, & Council on Scientific Affairs, 1999). While these screening tools have shown good sensitivity percentages, all screening tools require diagnostic confirmation through clinical interviews (i.e., diagnostic tools) (Goldman et al., 1999).

Diagnostic tools are fundamentally clinical and ideally apply criteria such as those provided by ICD-10 or DSM-IV/DSM-V in standardized interview settings (Goldman et al., 1999; Hammen & Watkins, 2018). By asking the patients questions about their current and recent emotional states and life events and observing the individual's behavior during the conversation, the interviewer gets an indication of whether depressive symptoms are prevalent. Examples of such interview formats would be the Structured Clinical Interview for DSM and the Composite International Diagnostic Interview (Hammen & Watkins, 2018).

Newer studies have suggested another method of diagnosing depressive disorders. Biomarkers, such as growth factors (or lack thereof), an elevation in cytokines, and signs of inflammations can hint at the prevalence of a depressive disorder (Schmidt, Shelton, & Duman, 2011; Slavich & Irwin, 2014). However, this field of research is still in its infancy, as the diagnosis of depression through the use of biomarkers has to battle some inaccuracies and testing difficulties (Schmidt

et al., 2011). For example, the use of single biomarkers has proven insufficient, as depression is a heterogeneous disease with different clinical appearances (Hacimusalar & Eşel, 2018). To improve the accuracy of depression diagnosis, the use of a more diverse panel of biomarkers has been suggested (Hacimusalar & Eşel, 2018; Strawbridge, Young, & Cleare, 2017).

5.1. Athlete-specific diagnoses

While general diagnosis tools can also be applied to high-level athletes, Doherty et al. (2016) argue for a move beyond the traditional clinical definitions (e.g., ICD-10, DSM-IV; DSM-V), since the symptomology of high-level athletes may differ from that of the general public.[7] For example, Baron, Baron, et al. (2013, p. 68) propose the Baron Depression Screener for Athletes (BDSA) as a screening tool tailored to the specific needs of athletes. However, as this is only a screening tool, it can only indicate depressive symptomology. Hence, as for diagnoses of the general population, clinical interviews (Bech, Paykel, Sireling, & Yiend, 2015) and face-to-face interactions are necessary to accurately diagnose depressive symptoms. As has been described, depressive symptomology among competitive athletes can differ from that experienced by the general population (Baron, Baron, et al., 2013). Hence, during clinical interviews, interviewers should be mindful of sport-specific risk factors, such as competition-based failure, injury, and (impending) retirement. Only if the athlete-specific context and situation is taken into account is it possible to accurately distinguish between depressive disorders, adjustment disorders with lowered mood, and organic affective disorder (Baron, Baron, et al., 2013). For example, organic affective disorders as a result of concussion are more likely among athletes competing in full-contact sports such as boxing and American football (Kerr et al., 2012). Non-contact athletes, such as table-tennis players and golfers, are less likely to experience this type of disorder. However, if they (or any other athlete, for that matter) experience a long-enduring decrease in performance, accompanied by hopelessness, loss of interest, and apathy towards their athletic endeavors, this can be a strong indication of a major depressive disorder. If athletes evidence these symptoms only following a recent failure in

[7] For more information, please refer to the section on athlete-specific symptomology.

competition, it is more likely that they are experiencing an adjustment disorder with depressed mood (Baron, Baron, et al., 2013). As these three examples show, depressive symptomology and the causes of depression can vary from one athlete to another. This is not unlike depressive disorders among the general population. Hence, it is important to stress once again that the context in which each athlete operates should be evaluated before making a diagnosis. For this purpose, additional forms of examination might be necessary. In the case of the exemplary full-contact-sport athlete, an MRI of the individual's head might be useful for an assessment of whether concussion is playing a role in their struggle with mental health (Baron, Baron, et al., 2013).

6. Treatment

Mental health disorders, such as depression, require active treatment and management. Treatment approaches can be of a biological (e.g., pharmacotherapy) or psychological (e.g., psychotherapy) nature. Depending on the severity and type of depressive disorder, treatments that combine the two approaches may be necessary. If untreated, depressive disorders can impair a patient's physical health, mental well-being, and life quality. In the context of competitive sports, this can also lead to a decrease in performance (Hainline & Reardon, 2019). Hence, knowledge of different treatment approaches is vital for understanding how to help individuals with depression.

However, before describing depression treatment more extensively, it is important to note the pivotal issues that arise before any treatment can commence. As many depression patients either go undetected or are reluctant to seek out help, treatment efficiency for these patients sits at zero. The reasons for this problem include the inability of the individual to recognize their illness, a perceived low need for treatment, and the desire to handle the issue by one's self (Hammen & Watkins, 2018). Perhaps the most prominent cause of the reluctance to seek support is the social and self-stigma of depression-related problems (Barney, Griffiths, Jorm, & Christensen, 2006; Griffiths, Christensen, & Jorm, 2008). Economou et al. (2016) summarized some findings concerning stigmatizing assumptions about depressed individuals, highlighting that patients are often thought to be,

> *"weak, lazy, responsible for their condition, unpredictable and dangerous (…) with unfavourable attitudes being associated with male gender, older age, less familiarity with mental illness, lower educational attainment and less mental health literacy."*

In Western cultures, mental health problems are often perceived as a weakness. Society teaches the importance of relying on oneself and handling issues alone, thus it is unsurprising that seeking help for depression is seen as a form of surrender (Hammen & Watkins, 2018). This issue is especially pressing in the world of sports, where athletes refuse to seek out treatment because they cannot allow themselves to show any sign of weakness (Doherty et al., 2016). The stigmatization of depression in competitive sports is discussed later in this thesis.

As discussed previously, there are two main approaches to treatment, with experts distinguishing between biological and the psychological approaches (Hammen & Watkins, 2018). The goal of both forms is to help alleviate the symptoms of depressive disorders. A “response” to treatment methods is defined as a noticeable improvement of depressive symptomology, while “remission” indicates the (near) absence of symptoms (Frank et al. as cited in DeRubeis, Siegle, & Hollon, 2008). Both methods are described again here, before moving onto a discussion of the most popular treatment approach today.

6.1. Biological approach

6.1.1. Anti-depressant medication (ADM)

Although prescriptions of psychopharmaceutic medication have steadily increased, Hammen and Watkins (2018) argue that ADM is still underutilized when considering the number of depression patients – a theme discussed above in the preface to this section. However, there is no denying that the use of medication to treat depressive disorders became more prevalent in the latter half of the last century (Lawlor, 2012).

As noted above, the primary goal of ADM intake is relief from the symptoms of depression. The medication works by affecting the regulation processes of the monoamine system. More specifically, noradrenaline, dopamine, and serotonin cycles are altered in a way that reverses the psychopathological functioning patterns that arise during depressive episodes (DeRubeis et al., 2008). The earliest groups of ADMs were tricyclic anti-depressants (TDA) and monoamine oxidase inhibitors (MAOI). While the former alter several reuptake systems such as norepinephrine and serotonin via a complex mechanism (Khawam, Laurencic, & Malone, 2006), MAOIs increase the availability of neurotransmitters, subsequently affecting “areas of the limbic system that subserve emotional responses, appetite, sexual interest, and sleep, all of which are notably disordered in depression” (DeRubeis et al., 2008, p. 790). The most commonly prescribed type of ADM today are SSRIs, as their side effects are not usually as grave as

those of TDAs and MAOIs (DeRubeis et al., 2008; Hammen & Watkins, 2018). Their function is similar to that of TDAs. However, unlike TDAs, SSRIs only block the serotonin reuptake mechanism at the presynaptic nerve terminal (Khawam et al., 2006). This results in an increased serotonin availability and enhanced serotogenic function (Hammen & Watkins, 2018). Newer descriptive models of the functions of ADMs have suggested that successful treatment counteracts alterations to structural aspects of the brain, such as the decrease in hippocampus volume (Ahdidan et al., 2011; Bessa et al., 2009). Another effect found in studies is that ADMs helped to improve the cognitive biases typically found in depressed individuals. Harmer, Goodwin, and Cowen (2009) found positive biasing effects on facial expression recognition, emotional categorization, and memory of patients suffering from acute depression.

Typically, ADMs are prescribed to treat moderate to major depressive disorders (Hammen & Watkins, 2018; Markser & Bär, 2019). The consensus is that improvement of depressive symptomology takes several weeks to occur (Harmer et al., 2009). However, Hammen and Watkins (2018) argue that newer studies have found positive effects of ADMs to be manifested within the first two weeks of medication intake. Experts define three distinct phases of treatment cycles. First, there is the “acute treatment” phase, in which, as the name suggests, current symptoms improve. The second stage is “continuation.” In this phase, although the depressive symptomology may have vanished, it is nonetheless advisable to continue the ADM intake for up to nine months to avoid potential relapse. The third stage is “maintenance.” The continuous intake of ADMs is especially advisable for patients who have been struggling with recurrent episodes of depression. While some studies argue for a two-year maintenance period, there is no general agreement on the ideal length, as some patients benefit from a steady ADM intake (Hammen & Watkins, 2018; ten Doesschate, Bockting, & Schene, 2009; Viguera, Baldessarini, & Friedberg, 1998). In terms of efficiency, ADMs have similar success rates to psychological treatments, such as cognitive therapy. However, it has been postulated that ADMs do not have the same long-term effects as cognitive therapy, which has been found to be more enduring in terms of reducing relapse risk (DeRubeis et al., 2008). Regarding inter-ADM efficiency, a meta-study by Gartlehner et al. (2011) found that different types of medication have similar

levels of efficacy. Hence, choice of ADM should be based on previous medical history (including reactions to previous medication), displayed symptoms, side effects, and other factors (Hammen & Watkins, 2018).

As with almost all medication, ADMs have a multitude of possible side effects[8] (Khawam et al., 2006). Depending on the respective ADM type, patients can experience changes in their libido, nausea, headaches, or bodyweight changes (most typically weight gain). Some anti-depressants have stimulating effects, while others act as sedatives. In the worst case scenario, overdoses or combinations of certain ADMs can be lethal. In particular, first-generation ADMs such as TDAs and MAOIs require special care in terms of prescription and intake. For example, MAOIs have shown to cause problems such as elevated blood pressure or stroke when combined with a diet rich in amino acids (Hammen & Watkins, 2018). Hence, SSRIs – with their relatively minor scale of side effects – are the most popular type of ADM today (DeRubeis et al., 2008; Hammen & Watkins, 2018; Khawam et al., 2006). However, some SSRIs are believed to elevate the risk of suicide. This has been connected to the elevated activity levels in the early stages of intake (Khawam et al., 2006). However, newer meta-studies have suggested that this risk level is similar among older and newer types of ADMs (Hammen & Watkins, 2018). The important takeaway is that this potential risk should be borne in mind during depression treatment with ADMs.

6.1.2. Other biological treatment methods

While ADMs have been at the forefront of biological treatment approaches for close to 70 years now, other methods have recently (re-)emerged. These non-pharmaceutical biological treatment techniques are introduced in brief. For example, one approach has placed a focus on electrical stimulation of the brain to treat depressive disorders. Techniques such as transcranial magnetic stimulation and electroconvulsive therapy have shown to be effective in treatment of otherwise untreatable severe depression with psychotic episodes (Hammen & Watkins, 2018; Hollon, Thase, & Markowitz, 2002). These treatment methods are strictly

[8] Only a handful of general side-effects are discussed in this sub-section. For a more detailed and comprehensive list that distinguishes between ADM types, please refer to this list by Khawam et al. (2006) : https://pdfs.semanticscholar.org/9756/86eaf57d264242d6cfd99690fbef05fb8c5a.pdf.

regulated, with procedure manuals that ensure the safety of the patients. Photosensitive therapy is used to treat seasonal depression. Patients are exposed to bright light to decrease depressive symptoms – this comprising another biological approach. Exercise is also used to alleviate depressive symptoms. In particular, aerobic exercise has been found to have a positive effect on the depression states of patients (Arazi, Benar, Esfanjani, & Yeganegi, 2012), with mild to moderate depressive disorders improved by physical exercise (Hammen & Watkins, 2018). Hence, it is advisable for competitive athletes suffering from mild or moderate depression to continue their athletic endeavors. Markser and Bär (2019) argue that it is a suitable support mechanism for other forms of therapy.

6.1.3. Considerations for athletes

As anti-depressants can cause a plethora of side effects, it is possible that these physiological and psychological reactions to medication negatively affect the performance of athletes. Different types of ADM are associated with various side effects. Some of those that can be detrimental to competitive athletes are as follows (Khawam et al., 2006): gastro-intestinal effects, central nervous system side effects (e.g., insomnia, nightmares, anxiety), bleeding disorders (e.g., quicker bruising), nausea, dizziness, weight gain, and both agitation and sedation.

Since the smallest effect on performance can make the difference between success and failure (Reardon & Factor, 2010), it is not uncommon for depressed athletes to avoid this method of treatment (Baron, Baron, et al., 2013). For example, one study showed that “paroxetine,” an SSRI, had a negative effect on performance in terms of exercise length (Wilson & Maughan, 1992). This makes paroxetine unsuitable for endurance athletes such as runners or cyclists. However, according to Reardon and Factor (2010), it is difficult to measure the effect of medication intake on performance. In the same vein, Markser and Bär (2019) argue that the research data available as of 2019 is not sufficiently conclusive to answer this question. Sensitive measurement tools are needed to identify such effects. As research in this area is proving to be challenging and thus remains in its infancy (Reardon & Factor, 2013), major methodological steps will be necessary to yield more accurate results and information. What must be considered is whether the substances being used comply with the guidelines of

the World Anti-Doping Agency (WADA) and both national and sport-specific governing bodies (Reardon & Factor, 2010). One example of a problematic anti-depressant is “brupropion,” which is monitored by the WADA due to its potentially performance-enhancing nature (Reardon & Factor, 2013).

6.2. Psychological approach

As mentioned previously, there is also a psychological approach to treatment techniques. While biological treatments can solely affect symptoms of depression, psychological treatment approaches offer patients coping strategies to handle their ailments (DeRubeis et al., 2008; Wasserman, 2011). Unlike medical treatments, psychological treatments must be provided by a therapist. The most prominent psychological therapy techniques are behavioral therapy (BT), cognitive behavioral therapy (CBT), and interpersonal psychotherapy (IPT) (Hammen & Watkins, 2018; Wasserman, 2011).

Initially a part of CBT, BT has since developed into a singular form of treatment (Hammen & Watkins, 2018). It is a type of structured therapy (Wasserman, 2011), revolving around the assumption that depression is characterized by the patient’s attempt to avoid aversive emotional states and stressful situations (Hammen & Watkins, 2018). The therapy aims to solve issues and relieve symptoms by modifying this problematic, avoidant behavior (e.g., withdrawing from others when feeling low, doing less when tired, minimizing the risk of failure or embarrassment). Such behavior often exacerbates the symptoms of depression and reduces the possibility of improvement (Hammen & Watkins, 2018; Wasserman, 2011). Patients typically avoid previously enjoyed activities because of a lack of energy or perceived loss of pleasure, or because they deem the activity to be too difficult (Hammen & Watkins, 2018). Hence, BTs focus on reducing avoidance by building a positive approach towards activity. An important milestone in this process is re-installing the notion among patients that being active is something desirable that leads to positive rewards (Hammen & Watkins, 2018). One technique by which this is achieved is activity scheduling and graded task assignment (Beck & Alford, 2009; Hammen & Watkins, 2018). In this technique, the patient and the therapist identify enjoyable tasks and activities in which the patient can partake. These

activities are planned in detail, and the patient takes small steps towards gradually taking part in more difficult and demanding tasks (Hammen & Watkins, 2018). In this way, the symptoms should gradually decline. Additional behavioral aspects of BTs are the processes of reattribution and functional analysis. Patients are tasked with finding alternative explanations for negative experiences, other than an imagined lack of talent, abilities, or effort (Beck & Alford, 2009). With the help of these processes, patients should gain the ability to assess outside factors and environments that influence their mood and reactions to adverse situations (Hammen & Watkins, 2018).

As mentioned, BT is derived from the CBT approach, which was developed by Aaron Beck in the 1960s and codified in the late seventies (DeRubeis et al., 2008; Hammen & Watkins, 2018). According to DeRubeis et al. (2008, p. 3), "C[B]T is based on the premise that inaccurate beliefs and maladaptive information processing (forming the bases for repetitive negative thinking) have a causal role in depression." These inaccurate beliefs and faulty cognitions operate on different levels, ranging from surface level interpretations (e.g., "My friends never ask me out because they do not actually like me") to deeper core assumptions (e.g., "I am not liked because I am not good enough") (Hammen & Watkins, 2018). These thoughts form idiosyncratic cognitive schemas, which are activated by certain stressors (cf. vulnerability-stress model). Once activated, these schemata dictate the individual's thinking and can play a prominent role in the eventual development of depressive disorders (Beck & Alford, 2009). The practice of CBT seeks to identify and change negative thoughts, beliefs, idiosyncratic cognitive patterns, and maladaptive behavior (Hammen & Watkins, 2018). Therapy sessions are conducted in the form of a Socratic dialogue, as the therapist attempts to guide the patient towards the desired result. In more technical terms, "the purpose of the cognitive therapy session is to facilitate the transfer (from the therapist) and internalization (by the patient) of the cognitive perspective" (Beck & Alford, 2009, p. 299). To achieve this, CBT helps patients to acquire the skills to recognize the negative (self-)images and thoughts that accompany their depressive feelings (Beck & Alford, 2009; DeRubeis et al., 2008). After identifying these links between their thoughts and emotions, the patient is taught how to challenge these automatic negative and maladaptive thoughts. Techniques with which this can be

achieved include the evaluation of evidence that points towards or away from negative thoughts and the subsequent search for valid, alternate explanations (Hammen & Watkins, 2018). If successful, these challenges help the patient to identify and replace dysfunctional thoughts with realistic ones (Hammen & Watkins, 2018). The subsequent findings are documented, making progress measurable from one session to the next. According to Beck and Alford (2009, pp. 300, 301), individual sessions consist of the following successive elements:

- Mood checks to obtain information on the patient's current mood state
- Setting of an agenda in accordance with case formulation and history related to current emotional dysfunction
- Joint development and prioritization of problem and treatment goals, giving priority to the most pressing orders (problem goals are also weighted, building confidence through realistic tasks for the patient to tackle)
- Education of the patient in cognitive theory and therapy
- Testing and identification of negative automatic thoughts and beliefs
- Review of the patient's previous homework tasks (written documentation comes into play here)
- Experiments to test for negative automatic thoughts identified in the documentation (the further the treatment has advanced, the more deeper level schemas are addressed [Hammen & Watkins, 2018])
- Sessions summarized to facilitate learning from homework review and experiment evaluation
- Patient feedback on treatment evaluation is gathered by psychometric devices, as well as feedback on the therapy approach and individual sessions

This form of psychological treatment can be used in two settings. First, CBT can be conducted during depressive episodes to give patients an objective grasp of their automated emotional reactions and explain how to counteract them. However, during non-depressed episodes, CBT may allow patients to alter the idiosyncratic cognitive patterns that lead to their depressive illnesses in the first place. The patient's vulnerability to depression and likelihood of recurrent depression can thus be reduced (Beck & Alford, 2009, p. 299; Hammen & Watkins, 2018).

The third major psychological treatment method is IPT. This is based on the accompanying therapy model of Harry Stack Sullivan, which states that depression can be caused by and lead to difficult interpersonal relationships between patients and their closer surroundings (Hammen & Watkins, 2018; Wasserman, 2011). Examples of interpersonal difficulties are bereavement, role dispute, role transition, and deficits in relationship skills (Beck & Alford, 2009; Hammen & Watkins, 2018). The goal of IPT is to improve depression symptoms and the interpersonal functioning of patients by means of clarification and renegotiation of the interpersonal context of depression development (Hammen & Watkins, 2018). Manualized IPT consists of 12-16 weekly sessions that aim to resolve interpersonal crises by discussing the patient's depressed mood in relation to relevant interpersonal life events (Beck & Alford, 2009). Therapists use nondirective exploration, give opportunities for affect expression, and improve the patient's interpersonal communication methods. In addition, therapists seek to alleviate depressive symptoms by providing information and exploring interpersonal situations through role-play (Hammen & Watkins, 2018). The treatment sequencing comprises three phases. In the beginning, there is an assessment phase in which treatment goals are formulated. The patient learns to accept depression as an illness and to continue in their everyday activities without expecting normalcy (Hammen & Watkins, 2018). Following this, IPT identifies interpersonal problems that contribute to depression development. The final phase seeks to solidify learning experiences and explore how the newly acquired skills can help in future situations. Whereas CBT can be used for both current depression and prevention, IPT is only suitable for patients currently suffering from depressive ailments.

Compared to other psychological and pharmaceutical treatment methods, CBT, BT, and IPT have shown similar effectiveness(Cuijpers, Andersson, Donker, & van Straten, 2011). Other popular psychological methods include group therapy, family and couple therapy, psychodynamic psychotherapy, and dialectic behavioral therapy (Wasserman, 2011). As discussed, some of these methods, such as BT and CBT, are very similar and even originate as single approaches (Hammen & Watkins, 2018). Therefore, a combination of different aspects of psychological therapy can often lead to the desired results. In addition to the treatment of current depression, psychological approaches have the supplementary goals of preventing depression relapse and onset (Hammen & Watkins, 2018).

6.3. What is the correct general treatment approach?

Like the modern onset theories that acknowledge the connection between biological and psychological factors, depression treatment should also follow a holistic approach. Studies have shown that psychological and pharmaceutical treatment methods have similar success rates in terms of alleviating depressive symptoms (Cuijpers et al., 2011; Hammen & Watkins, 2018). Furthermore, Hollon et al. (2002) found that CBT is superior to ADMs in terms of relapse and recurrence protection. DeRubeis et al. (2008) and Hollon et al. (2005) also highlight that the positive effects of CBT after treatment discontinuation are more enduring than those of ADMs.

While Beck and Alford (2009) argue that CBT should be employed first, with medication only coming into play when therapists are unavailable, Wasserman (2011) notes that the treatment of depressive disorders by either biological or psychological means is no longer the preference of modern psychiatrists. Beck and Alford (2009) acknowledge that a combination of pharmaceutical and psychological treatment techniques is necessary for chronic depression. A multitude of studies and textbooks on the matter have argued for a combination of both pharmaceutical and biological treatments, as well as psychological approaches, especially when treating moderate and severe cases of depression (DeRubeis et al., 2008; Markser & Bär, 2019; Pampallona, Bollini, Tibaldi,

Kupelnick, & Munizza, 2004). For example, Hollon et al. (2014) found that the recovery rate of patients with a therapy combining ADMs and psychological treatment (CBT, in the case of this study) was higher than that of patients solely receiving ADM (75.2% vs. 65.6%). Furthermore, a meta-analysis conducted by Cuijpers et al. (2014) concludes that psychological therapy in combination with pharmaceutical treatment is significantly more effective than treatment by ADM alone. Hence, to provide the best possible treatment for patients, a holistic approach that includes both biological and psychological methods is advisable.

6.3.1. Which treatment approaches are appropriate for athletes?

As athletes often face particular depression symptoms, causes of onset, and treatment reactions, it is important to consider the approach most suitable for their unique context. There are unique factors that therapists must bear in mind when working with athletes. For example, successful athletes often develop what is called "situational narcissism." This tendency makes it difficult for athletes to empathize with others and leads to strong adverse reactions against what they perceive to be offenses. In psychological settings, some treatment suggestions can be perceived as an affront to and attack on their egos, as narcissism hides deep insecurities (Stillman et al., 2013).

Baron, Baron, et al. (2013) suggest that, given the danger of violating WADA guidelines and a lack of data on potentially negative effects on performance, pharmacotherapy should not be at the forefront of treatment for athletes. Conventional psychotherapy and CBT are, they argue, better suited. Baron, Baron, et al. (2013) and Stillman et al. (2013) note that CBT is particularly effective because it aligns with the mindset society has attached to high-level competitive athletes (Baron et al., 2013). [9] Additionally, CBT fits the world of sports for two key reasons. First, athletes typically rely on advice and instruction from coaches. In a CBT setting, the therapist takes on the role of a coach who instructs the patient and gives "homework" with the goal of improvement in mind. Therein lies the

[9] However, this reasoning is a bit problematic. The argument for CBT given by Baron, Baron, et al. (2013) is arguably built on a stereotype. These kinds of stereotypes contribute to the stigmatic perception of mental health issues among athletes (Hammond et al., 2013). Notably, Baron, Baron, et al. (2013, p. 69) do admit this.

second similarity: just as athletes partake in extra training activities to improve their skills, the patients use the homework tasks to solidify their progress (Baron, Baron, et al., 2013). Markser and Bär (2019) also argue for the CBT and psychotherapy, with this combination having the highest success rates among competitive athletes. In the context of competitive athletes, CBT explores negative self-imagery (e.g., “I am unable to perform at this level”), unrealistic expectations (e.g., “If I do not hit every shot, my coach will put me on the bench”), and the relationship between load and recovery (e.g., “If I do not practice three hours a day, I will be a lesser player”). Furthermore, therapists help athletes to identify and change their maladaptive thoughts and practices, while managing the pressure of competitive sports and engaging in conflicts with teammates, coaches, and the media (Markser & Bär, 2019).

However, in the case of moderate and severe forms of depression, pharmaceutical treatments should be considered of similar importance as CBT (Markser & Bär, 2019). This argument is supported by a large body of evidence, with relevant studies by Hollon et al. (2014) and Cuijpers et al. (2014). Some athlete-specific factors – such as potential doping violations and situational narcissism – have to be considered (Hainline & Reardon, 2019), but the literature points towards a similar treatment approach for both athletes and the general population: a combination of psychological and pharmaceutic therapy.

6.3.2. Brief digression: treatment for sleep problems & maladaptive perfectionism

As sleep disturbance and a tendency towards PC can be correlated with depressive disorders among athletes, some treatment approaches to these two areas warrant closer inspection.

6.3.2.1. Treatment of sleeping problems

Promotion of sleep hygiene has become instrumental in the preparation and recovery processes of competitive athletes. Sleep hygiene refers to several practices, including environmental and behavioral factors, that individuals can engage in to achieve better sleep quality (Stepanski & Wyatt, 2003). Avoiding

heavy meals and reducing use of light-emitting technology shortly before going to bed have been shown to be effective techniques. Additionally, maintaining a steady sleep schedule supports good sleep hygiene (Halson, 2013; Knufinke, Nieuwenhuys, Geurts, Coenen, & Kompier, 2018; Stepanski & Wyatt, 2003). In addition to sleep hygiene during the nighttime, regular short naps can help athletes (Davenne, 2009), especially when early practices and competition start times are a regular part of their schedule (Halson, 2013; Sargent et al., 2014). Perhaps most importantly, misconceptions such as “sleep is for the weak,” which often fit the performance narrative of the ever-practicing athlete (Carless & Douglas, 2012), need to be eliminated and a positive approach to sleep established (Halson, 2019). To achieve this and promote the aforementioned techniques for improving sleep quality, sleep hygiene education teaches coaches and athletes how to implement beneficial techniques in their sleeping routine (Lastella et al., 2015). O'Donnell and Driller (2017) found that even short sessions of sleep hygiene education had a positive effect on athletes’ sleep behavior.

Halson (2019) also mentions pharmacotherapy, changes in nutrition, light therapy, and progressive muscle relaxations, among other interventions. In addition to being a common treatment approach for depressive disorders, CBT also helps individuals with PC (Beck & Alford, 2009; Halson, 2019; Shafran, Cooper, & Fairburn, 2002). For example, to alleviate sleeping problems caused by maladaptive perfectionistic thoughts, Lin et al. (2019) suggest mindfulness-based CBT and techniques of stress reduction. In early clinical trials, these two techniques were found to reduce the mediating factors of worry and rumination (Lin et al., 2019; Pillai & Drake, 2015). Additionally, Akram et al. (2015) suggest that therapy for sleeping problems should include treatment of anxiety and depression symptoms, as these mediate negative perfectionism and insomnia.

Coaches can also directly influence the sleep quality of their athletes by smart practice scheduling that pays attention to their sleeping needs (Sargent et al., 2014). This form of “treatment” is discussed later in this thesis.

6.3.2.2. Treatment of maladaptive perfectionism

Considering the interventions proposed by Lin et al. (2019) for improving poor sleep caused by negative perfectionism, it is logical that similar techniques could help athletes generally struggling with maladaptive perfectionism. In fact, CBT and cognitive restructuring are among the most common therapy approaches (Jensen et al., 2018). There are four distinct phases of CBT for PC. First, with the help of the therapist, the patient identifies their negative perfectionism as an issue. A goal for treatment is established in the second step. Behavioral experiments then test the patient's fundamental ideas and assumptions about perfectionistic behavior. Finally, cognitive-behavioral methods address their general personal standards and self-criticism. In this step, patients are tasked with identifying dichotomous thinking (e.g., "If I come in second place, I will be the worst athlete of all-time"). By means of cognitive restructuring, these negative thinking patterns are then broken down (Shafran et al., 2002). These forms of CBT have been shown in randomized controlled trials and case studies to reduce PC (Chand, Chibnall, & Slavin, 2018; Riley, Lee, Cooper, Fairburn, & Shafran, 2007; Shafran, Lee, & Fairburn, 2004). Furthermore, Handley et al. (2015) found that cognitive-behavioral group therapies that target PC have a positive effect on anxiety disorders and depressive disorders.

The second common treatment of maladaptive perfectionism among athletes revolves around mindfulness training (Jensen et al., 2018). The mindfulness approach assumes that performance outcome hinges on the individual's ability to "stay in the moment," remain non-judgmentally present with subjective experiences, and focus on the task without losing the present focus of the task-specific demands. In the most basic types of mindfulness, the individual's focus and awareness are directed toward the "now" and its dominant experience (Bishop et al., 2004; Cornejo, 2013). Therapy programs, such as the mindfulness-acceptance-commitment (MAC) protocol or mindfulness-based cognitive therapy, employ techniques that aim to increase athletes' mindful awareness and non-judgmental momentary awareness of thoughts, feelings, and sensory experiences (Gross et al., 2018). In particular, MAC has proven to be an effective tool for alleviating PC and improving athletes' performance (Gross et al., 2018).

6.4. The social stigma surrounding depression among athletes

While the treatment options for depression and its potential causal factors (e.g., negative perfectionism and sleep disturbance) are numerous, athletes often do not seek treatment. The social stigma and lack of understanding of depressive disorders – especially in the context of the world of competitive sports – are recurring themes in this thesis. In addition to a perceived lack of mental health resources (Delenardo & Terrion, 2014), these are among the most persistent issues athletes face when they suffer from depression. A study by Gulliver, Griffiths, and Christensen (2012) found that a lack of knowledge about mental disorders and their symptoms had a negative influence on the athletes' ability to recognize their need for professional help. In particular, the athletes found it difficult to grasp the difference between sadness and tiredness as depression symptoms and the same feelings associated with their sport.

The more significant barrier, however, is the stigma that looms over mental health issues among athletes. While the reality of individuals with mental health problems being viewed negatively is problematic for the general public (Economou et al., 2016; Wood et al., 2014), this is amplified in the context of competitive and professional sports (Reardon, Baron, Baron, Coskun, & Cakir, 2013). As seeking professional support is often perceived as a weakness in this world, many depressed athletes opt not to do so (Schinke, Stambulova, Si, & Moore, 2018; Schwenk, 2000; Stillman et al., 2013). Consequently, and unsurprisingly, athletes struggling with depression utilize mental health services less often than their non-athlete peers do (Kaier, Strunk, Cromer, Davis, & Johnson, 2015). This further indicates that athletes in need of therapeutic support still face various forms of stigma (Bauman, 2016; Doherty et al., 2016; Jensen et al., 2018). Depressed athletes are likely to show high levels of self-stigmatizing attitudes (Gulliver et al., 2012). Self-stigmas occur when patients internalize negative social attitudes (Corrigan & Watson, 2002). As noted above, in the world of sports, this can mean that athletes perceive the decision to seek treatment as an admission of weakness and defeat (Reardon et al., 2013).

The other primary concern of depressed athletes is judgment by their coaches and peers (i.e., public stigma). Athletes often partake in a metaphorical game of "hide and seek" to conceal any frailties and maintain an image of strength. The fear of being perceived as weak outweighs their willingness to seek treatment (Doherty et al., 2016; Gulliver et al., 2012; Proctor & Boan-Lenzo, 2010). Methods of hiding mental distress can take an extreme form. Sport psychiatrist Dr. Valentin Markser (2020) reports practices such as faking other illnesses or taking antibiotics without cause that serve the purpose of enabling athletes to talk to a practicing doctor without raising suspicion. These stigmas, of course, do not persist only among athletes and coaches. Fans and the media also project negative images upon athletes struggling with mental health problems (Bauman, 2016; Delenardo & Terrion, 2014; Gulliver et al., 2012). A study by Kaier et al. (2015) found that athletes perceive the public stigma to be greater than the personal form. These assumptions about the ideal athlete (strong, mentally tough, indestructible) are shared by both the athletes themselves and the public. These perceptions weigh more heavily on the shoulders of the athletes when shared by millions of spectators (Rasenfunk, 2017). Again, to avoid raising suspicion, depressed athletes seek to maintain the script of the mentally fierce competitor (Doherty et al., 2016). This denial of weakness, in combination with pressure from fans and media, is likely to reinforce the beliefs of the athlete that create a reluctance to seek treatment. Kroshus, Garnett, Hawrilenko, Baugh, and Calzo (2015) found the same effect of public pressure in the slightly different context of concussions. However, as case studies by Doherty et al. (2016) have shown, the suppressing behavior of depressed athletes often leads to a worsening of their conditions. The patient then reaches a breaking point, at which the illness can no longer be hidden. Typically, these breaking points occur during practice or competition.

Although mental toughness should never be confused for mental health (Markser, 2020), Stillman et al. (2013) argue that therapists could sell therapy under the disguise of "performance enhancement" to the reluctant athlete.[10] That way,

[10] In my opinion, in the same way that it is problematic to assume that CBT is particularly well suited to athletes because of the image of them that persists among the general population, this suggestion is also troubling. It is contradictory to advocate for mental health literacy and the notion that it is "okay to be not okay," while at the same time suggesting a ruse with which to trick athletes into treatment. While it might be the sad reality that this "trick" is necessary, honesty and direct

athletes who are reluctant to seek out help can be lured into therapy before reaching their breaking point. This “trick” seemingly upholds the notion of the athlete as a human made of steel. As the case study of Doherty et al. (2016) shows, the perception of the indestructible athlete is rooted in the assumption that high-level athletes must continually show strength and never any form of weakness. It often does not occur to coaches, media, fans, or even the athletes themselves that athletic competitors can suffer from depression (Reardon et al., 2013). However, this perception is obviously faulty and evidences a lack of understanding by the public and the athletes about the nature of mental health problems (Reardon & Factor, 2010; Rice et al., 2016). As Hainline and Reardon (2019) note, athletes are regular human beings who happen to be skilled in their athletic endeavors. Hence, an athlete who suffers from depression is not weak, but rather suffering from an illness. A key to helping athletes who struggle with depression lies in this destigmatization of the illness (Kaier et al., 2015). How to achieve of this goal, from a coaches’ perspective, is discussed later in this thesis.

Finally, the following is an interesting example of the stigma around mental health issues. While strides have been made in the right direction, the same habitually negative assumptions about mental health patients still persist. The process of researching this thesis yielded notable findings on athletes’ efforts to destigmatize mental illnesses and open up about their battles with depression: specifically, even when they discussed their mental health issues, their accounts were seemingly divided into those of strong and weak athletes. Whereas the accounts offered by elite competitors Gianluigi Buffon, Kevin Love, Tyson Fury and Michael Phelps were met with public attention and ignited discussions about mental health among athletes, the stories of Royce White and Keyon Dooling, who were both good but not elite level, did not have the same effect. The difference between these two groups of athletes is that whereas the former seemingly won despite their mental health problems, White and Dooling appear to have lost because of theirs. This is especially true for Royce White. While Dooling’s admission was met with what could be described as indifference, White argues to this day that he was

discussion of the subject should be the way to go. This sentiment was shared by Dr. Markser in his interview (2020).

blackballed by the NBA because of his fight for a mental health policy[11] (Layton, 2019; MacKay, 2018). Love, Phelps, and others are revered as champions for exceeding despite their mental health issues, while White's advocacy was deemed a distraction that meant teams could even invite him to training camp (Gordon, 2018; Murphy, 2017; Pinto, 2019). One could argue that, even the process of eliminating a stigma reveals said stigma by distinguishing between the loathed (White) and the loved (Phelps). While this is merely a personal observation, the different narratives (or lack thereof) that accompany the athletes' accounts somewhat point to this phenomenon.

[11] Ironically, it was Dooling who would eventually become the director of the mental health program initiated by the NBPA

7. How can coaches help athletes?

While previous sections discussed treatment methods employed by professionals, this chapter will shed light on the role of coaches in supporting depressed athletes. Ideally, coaches' support is not limited to enhancing their athletes' performance. As they are in regular contact with their athletes and their inter-personal relationship is close and interdependent (Lorimer & Jowett, 2009), coaches are often among the first to observe changes in their protégés' behavior and mental well-being. Additionally, being one of the athletes' confidants means that coaches are among the first to be able to offer support (Jensen et al., 2018). The following sections discuss what coaches can do in particular and where their limitations lie.

7.1. Creating supportive environments

This thesis has shown that the stigma the sports world attaches to depression is one of the biggest problems for affected athletes. In fact, various forms of stigma have proven to be a significant barrier to professional help-seeking for depressive ailments (Barney et al., 2006). To break through that barrier, coaches must work to create environments that support the mental well-being of their athletes (Hainline & Reardon, 2019). Such measures can work on either an interpersonal or a structural level (Kroshus, Chrisman, Coppel, & Herring, 2018).

Starting with the interpersonal level, coaches should ensure they have the skills necessary to identify signs of depressive disorders and respond appropriately to affected athletes. According to a study by Sebbens, Hassmén, Crisp, and Wensley (2016), workshops promoting "mental health literacy" increase knowledge of mental health issues among coaches. Furthermore, these programs improve the skills most critical for interventions by coaches. When working with a depressed athlete, these interventions comprise up to four stages, in which the following skills are applied (Neal et al., 2015; Sebbens et al., 2016):

Recognition: In the first step, coaches should recognize athletes who might be struggling with their mental health. By paying attention to the athletes' behavior both within and outside of practice settings, the coaches should observe any

symptoms that point to depressive disorders. The importance of being able to recognize potentially affected athletes cannot be overstated. Hegarty, Weight, and Register-Mihalik (2018) state that an under-educated or uninterested coaching staff is a substantial barrier to athletes accessing support resources. Coaches who fail to recognize and understand the signs of depressive disorders may contribute negatively to their athletes' chances of recovery (Hegarty et al., 2018). Recognition not only plays an essential role in follow-up steps (reaching out, referral, remaining supportive), but also helps coaches in their everyday interaction with players. Knowing of (or even suspecting) a depressive ailment makes it easier for coaches to relate to their athletes. For example, the coach can adjust criticism and feedback on the athlete's performance in a way that does not threaten their self-worth (Hegarty et al., 2018). While criticism is necessary for improving performance, the delivery of feedback to a depressed competitor can be a balancing act. Hence, recognizing indicators is a helpful skill. Measurement instruments, such as the "Brunel mood scale" or the "profile of mood states" can help coaches to identify potentially depressed athletes (Schinke et al., 2018). When employed frequently, these screening tools allow coaches to get a clear picture of the mental states of their athletes.

Reaching out: In the next stage, coaches should engage with their athletes and discuss possible ailments. Coaches often assume that seemingly moody athletes want to be left alone. On the other side, while athletes tend to keep their struggles with mental health issues to themselves and must be encouraged to open up, this is not due to their wanting to be left alone, but instead because of the stigma surrounding mental health issues. As previously stated, the fear of appearing weak and unreliable in front of their coaches outweighs their desire for help (Gulliver et al., 2012; Hegarty et al., 2018; Rice et al., 2016). This is where the importance of the coach and their staff comes into play. Not only should the coach initiate the conversation about mental health, but they should also reassure their athletes that it is okay to discuss their problems with depression (Souter et al., 2018). Furthermore, the coach should convey their (hopefully honest) concern and express an offer of support. Trusted interpersonal relationships with the coach provide the athletes with a safe environment in which to disclose their problems with mental health (Rao & Hong, 2016). Once the athlete has sufficient trust to

open up, it is their turn to speak and express their feelings and emotions. Hence, coaches need active listening skills (Sebbens et al., 2016). This intervention step shows the importance of emotional intelligence and empathy (Lorimer, 2013). To be able to work with athletes and support them through difficult times, coaches must treat their athletes like human beings. While this seems quite logical, it is not always the case (Eder & Zernike, 2013; Jowett & Cockerill, 2002). Coaches often focus solely on results and forget to relate to their athletes (Gervis & Dunn, 2004). With that being said, it is important to make the athlete feel that they are perceived as more than simply a performer (Markser, 2020).

Referral: Coaches have certain limitations when helping their athletes. Barring those with specific side professions, coaches do not have the necessary training to prescribe ADM or go through psychotherapy with their athletes. Hence, coaches must accept this and know when and how to refer their athletes to sports-psychologists or, better yet, psychiatrists. In a worst-case scenario, these referrals might have to take place against the athlete's wishes (Sebbens et al., 2016). If available, professionals who focus on sports psychiatry are an ideal option. Such professionals will ideally be a part of the coaching staff. However, regardless of the availability of sports-specialized therapy, the bottom line is that athletes need consultation by professionals to improve their mental health.

Remaining supportive: The intervention does not stop at the referral to professionals. Reaffirming the importance of empathy and the coach-athlete relationship, coaches should follow up on the progress and state of the athletes' well-being, as their continuous involvement in the recovery process has been shown to have a positive impact (Sebbens et al., 2016).

The findings of Sebbens et al. (2016) echo those of Pierce, Liaw, and Dobell (2010), suggesting that, after being instructed by experts, in addition to having broadened their knowledge, coaches felt more confident with helping affected athletes. Coaches who have achieved self-efficacy and confidence in their ability to support their athletes are more likely to offer help (Kroshus et al., 2018). An increased ability to recognize struggling athletes and to undertake basic interventions is also highly beneficial on an interpersonal level, since coaches can

thus enhance their relationships with their players (Markser, 2020; Sebbens et al., 2016). Fittingly, Gulliver et al. (2012) found that athletes perceive coaches' positive attitudes to mental health-related issues as the most important facilitator of access to professional support. This is especially important as, due to their established and close relationships, coaches are key figures in the athletes' depression support and management in the daily training environment (Hegarty et al., 2018; Sebbens et al., 2016).

Another intervention that helps prevent the onset of depressive disorders is the social support of coaches and athletic trainers during the injury recovery process. Gulliver et al. (2015) found that injured athletes showed higher rates of depression symptoms. Conversely, depressive disorders among athletes as a result of injuries were less likely when they received satisfying social support from their coaching staff (Yang, Schaefer, & Zhang, 2014). Hence, positive coach-athlete relationships significantly buffer the likelihood of depression, reasserting the importance of coaches' roles in the mental well-being of their athletes (Sebbens et al., 2016). In practice settings, coaches can also enhance athletes' mental well-being by teaching them healthy responses to stressors and appropriate coping strategies through skill-building (Hainline & Reardon, 2019). Resilience, mindfulness, self-compassion, consistency in core values, and psychological flexibility are all skills that warrant consideration (Cornejo, 2013; Hainline & Reardon, 2019; Kashdan & Rottenberg, 2010; Neff & McGehee, 2010; Wagstaff, Sarkar, Davidson, & Fletcher, 2017). This enables coaches to play a role in preventing the development of depressive disorders (Jensen et al., 2018).

On a more structural level, coaches should advocate for structural improvements of their clubs, organizations, or federations. The creation of detailed protocols for managing mental health emergencies is a crucial starting point (Hainline & Reardon, 2019). Promotion, knowledge, and use of these protocols make it easier to recognize when athletes are struggling with mental health issues and to refer them to professionals (Neal et al., 2015). Furthermore, the existence of institutional mental health guidelines builds trust among athletes in their coaches and organizations. Building trust is especially vital, since, as Sebbens et al. (2016) and Hegarty et al. (2018) note, coaches and their staff are key figures in the organizational approach to mental health issues. Consequently, a transparent

mental health action plan assures the existence of a stable support system. Both athletes and coaches benefit from the establishment of such mental health codes. Kroshus et al. (2018) found that coaches were more likely to respond and more confident in their intervention actions when they were familiar with a mental health action plan. In addition to establishing mental health guidelines, sports psychologists and psychiatrists should be incorporated into the coaching staff (Markser, 2020). This enables direct diagnosis, supervision, and intervention for athletes with depressive disorders, without the need for referral. In particular, younger athletes who are still in the developmental stages of their careers benefit from continuous psychological support (Hill, MacNamara, Collins, & Rodgers, 2016).

7.2. Mental health literacy

According to Neal et al. (2015), helping athletes with mental health issues means recognizing those affected, referring them to professionals, and educating the athletes on the topic of mental health. With the first two points already discussed as components of coach interventions, the education of athletes now warrants closer examination. Coaches make the most substantial improvements to the mental health knowledge of their athletes, fellow staff members, organizations, federations, and, ideally, the fanbases when they encourage mental health literacy among these groups. Affecting both individuals and large groups, mental health literacy can be regarded as a preventive measure operating on both interpersonal and structural levels.

7.2.1. Mental health literacy and its effects

Mental health literacy concerns knowledge of mental health disorders, supporting their recognition, prevention, and management (Jorm, 2000b). It consists of beliefs and knowledge regarding the following components (Furnham & Swami, 2018; Jorm, 2000b):

- the ability to recognize mental disorders; knowledge of indicators and symptoms

- causes and risk factors in the onset of mental disorders
- self-help and professional help interventions
- positive attitudes that facilitate recognition and promote support seeking
- how to seek further information

According to Jorm (2000b), a patient's mental health literacy has implications for the management of their mental disorders. More specifically, the conceptual models underlying the individual's beliefs about mental disorders shape their help-seeking behavior and treatment compliance. Furthermore, poor mental health literacy has the effect of leaving mental health support confined to professionals (Jorm, 2000b). Additionally, mental health literacy influences the degree to which individuals stigmatize those struggling with mental disorders. In fact, it has been shown that poor mental health literacy has a negative impact on the public's image of mental health issues and decreases the rate of professional help-seeking for psychopathological symptoms (Furnham & Swami, 2018). Conversely, Furnham and Swami (2018) conclude that there is positive change in these regards when mental health literacy is improved. Hence, the ultimate goal of improved mental health literacy is to reduce social stigma and to strengthen relationships with mental health support providers (Schinke et al., 2018). An enhanced focus on achieving this goal is required in the context of competitive sports, since stigma and limited synergies with mental health support providers persist as significant barriers for athletes. Ideally,

> *"de-stigmatising and spurring conversations about mental health with both coaches and athletes, promotes the prevention and effective treatment of the maladaptive processes that hinder athletes' well-being in their performance, personal, and interpersonal domains" (Schinke et al., 2018, p. 9).*

Coaches who display good knowledge about mental health-related areas are clearly better qualified to create mental health-friendly environments. However, improved mental health literacy among coaches also has an indirect positive effect on athletes' mental health support. As Jorm (2000b) notes, poor mental health literacy limits the help that can be offered by non-professionals. Kroshus et al.

(2018) and Sebbens et al. (2016) found that improved knowledge about mental health interventions led to greater confidence among coaches, and those coaches who displayed more confidence were more likely to offer support to their depressed protégés. Considering these findings, it is clear that improvements in mental health literacy have an indirect positive effect on the mental well-being of athletes, due to increased coach support.

7.2.2. How can mental health literacy be improved?

Improvements can be made to public mental health literacy in a number of ways. For example, printed fact sheets about mental disorders and informational campaigns have been found to be effective in this regard (Furnham & Swami, 2018; Jorm, 2000b). Hadlaczky, Hökby, Mkrtchian, Carli, and Wasserman (2014) and Kitchener and Jorm (2002) conclude that mental health literacy training programs have a positive effect. Methods to raise awareness can be tailored to meet the needs of specific groups (Jorm, 2000b). For example, mental health literacy training can be adapted to target sport coaches. Another example (previously discussed) is the mental health awareness workshops described by Sebbens et al. (2016). Mental health literacy training programs can also be beneficial for athletes. Bapat, Jorm, and Lawrence (2009) have found that these workshops already have a beneficial effect at the junior club level. This is an important discovery, as the first onset of depressive disorders often occurs during adolescence (Hankin, 2006). Both mental health literacy education programs for athletes and those targeting coaches have been shown to improve mental health knowledge, foster more positive attitudes towards affected individuals, and encourage confidence in offering support (Bapat et al., 2009; Schinke et al., 2018; Sebbens et al., 2016).

Coaches can also pass along mental health literacy along to their athletes, even without explicit discussion of the topic. This process can occur through individual conversations that stress the importance of maintaining mental well-being. As shown, acute interventions also improve the mental health literacy of athletes. Furthermore, when coaches have open and positive attitudes towards professional support, this can enhance athletes' trust and positively influence their help-seeking behavior. Additionally, even gestures and statements not directly aimed at the

athletes can have a positive effect on their mental health attitude. For example, coaches who shield depressed athletes from public scrutiny send a powerful message of trust. Similarly, coaches openly discussing mental health topics and advocating for positive change also raise awareness of the topic among fans and the media, thereby encouraging mental health literacy. For example, Los Angeles Clippers head coach Doc Rivers has recently opened up about the strain that an NBA season puts on the physical and mental well-being of coaches (Woike, 2019). Candid discussion of these issues can substantially destigmatize mental health issues and make depression among athletes as "normalized" as a knee injury (Markser, 2020). As many among the general public have a poor understanding of psychological disorders, the improvement of mental health literacy is a crucial step towards counteracting reduced rates of treatment and recognition of mental disorders (Furnham & Swami, 2018). Furthermore, with the stigma associated with mental health issues in the world of sports, there is yet more need to improve the mental health literacy of athletes, coaches, fans, organizations, and the media. Thus, by advocating for mental health literacy, coaches can make significant strides towards creating environments that value the psychological well-being of athletes (Sebbens et al., 2016).

7.3. Sleep

In addition to educating players on mental health issues, coaches can also control other risk factors to a degree. Whereas the treatment of PC, competitive anxieties, and depressive disorders are likely to need oversight by a professional, coaches can take measures to improve the sleeping quality of their athletes. Considering the correlation between poor sleep and depressive disorders, as well as the high number of poor sleepers in this study and the bidirectional relationship between sleep and depression (Franzen & Buysse, 2008), it is clear that coaches can substantially help their athletes by improving their sleeping habits.

On the most basic level, practice scheduling can counteract the sleeping deficiencies caused by high arousal or unfavorable traveling schedules (Copenhaver & Diamond, 2017; Fullagar et al., 2016). Coaches should be aware of the fatigue levels of their athletes and schedule practice sessions accordingly. It

may be advisable to re-schedule morning practices to later times or to skip them altogether. If early morning workouts are unavoidable, coaches should create additional timeslots for sleep recovery (i.e., afternoon naps) (Waterhouse, Atkinson, Edwards, & Reilly, 2007). However, ideally, coaches will not schedule these early morning practices at all (Sargent et al., 2014). High-level professional sports teams have already begun to adopt this approach. In early November, Benas Matkevicius, the European International Scout of the Boston Celtics (Himmelsbach, 2018), explained in a private conversation that the Celtics were canceling early morning shootarounds and walkthroughs if they were on the second day of a back-to-back or coming home from a road game the night before. To replace the lost practice time, the Celtics hold their sessions immediately before their games. In accordance with the findings of Mah et al. (2011), Matkevicius states that this change in scheduling has had a positive effect on the players. The use of measurement devices such as wristwatches capable of actigraphy and sleep monitoring help athletes and coaches to measure sleep quality and quantity (Halson, 2019; Leeder et al., 2012). Where more sophisticated measurement methods are unavailable, sharing sleeping logs and diaries with the coaches may be a solution (O'Donnell & Driller, 2017). These results can then support the coach with dynamic planning. If athletes score poorly in terms of sleep quality and quantity measurements, coaches can then account for insufficient recovery rates by adapting practice intensity, volume, and scheduling.

However, even the most thoughtful practice planning can become worthless if athletes partake in activities that impede nighttime sleep (e.g., video games, going out, late caffeine intake) (Halson, 2019). Hence, coaches must educate their athletes in establishing proper sleeping hygiene (Lastella et al., 2015; O'Donnell & Driller, 2017). As has been mentioned, these interventions are relatively simple, with even short sessions yielding sizeable effects (O'Donnell & Driller, 2017). The aforementioned measurement methods can help coaches to supervise their athletes' adherence to the maintenance of good sleep hygiene.

7.4. Limitations

In addition to knowing the possibilities, it is equally important for coaches to understand their boundaries. While coaches can create mental health literacy and supportive environments for depressed competitors, they cannot cure the athlete of their ailment. Only qualified professionals can make a diagnosis of depressive disorders, decide the necessary therapy measures, and write prescriptions for ADM. Therefore, many of the interventions for clinical perfectionism and sleep disturbance, as well as the previously discussed treatments for depression, cannot be carried out by coaches alone. While coaches can educate their athletes about maintaining proper sleep hygiene, only a doctor can provide pharmacotherapeutic forms of depression therapy. Hence, a line must be drawn. Coaches should feel neither responsible nor empowered to cure their athletes' depressive ailments. Furthermore, they must recognize when they have to refer depressed athletes to trained professionals (Sebbens et al., 2016).

Another limitation lies with the current state of mental health literacy among coaches themselves. A recent study by Sebbens et al. (2016) found that the majority of coaches and support staff have a severe lack of knowledge about mental health due to insufficient education on the topic. Hegarty et al. (2018) criticize the lack of minimum standards for mental health education in coaching development in North America. Similarly, Markser and Bär (2019) mention that sports psychiatric education programs are still in their infancy. This backlog is also clear to athletes, who find the mental health support tools at their disposal to be insufficient (Delenardo & Terrion, 2014). Considering the vital early role that coaches can play in the support of their athletes, Markser (2020) calls for the addition of more sport psychology and psychiatry topics in coaches' education programs. Given these recent comments and the importance of mental health issues among athletes, it is alarming that many coaches – some working in high-level environments such as NCAA Division 1 schools – have still never had any type of mental health literacy training (Hegarty et al., 2018). However, Hegarty et al. (2018) found that there is a silver lining: even without proper mental health education, most coaches who participated in their survey were able to evidence decent knowledge about the topic and were eager to receive additional education.

Despite this positive sign, the need for more extensive coaching education on mental health also became apparent in the same study. While coaches might be able to recognize the symptoms of depression, they seem to lack what Hegarty et al. (2018) call “depression awareness.” In other words, coaches struggle to recognize indications of depressive disorders among their athletes. While theoretical knowledge might be prevalent, its application in the context of living human beings leaves much to be desired (Hegarty et al., 2018). As previously mentioned, more knowledge of mental health increases coaches’ self-confidence. This higher self-esteem then leads to an improvement in readiness to actively help athletes (Kroshus et al., 2018). Given this correlation, the importance of the coach-athlete relationship, and the lack of educational opportunities for coaches, it is clear that improvements are necessary. Hence, going forward, coaching education curricula should include enhanced mental health literacy training.

Coaches who work in high-level team-sport disciplines might face a different type of problem altogether. Depressed players on their teams pose difficult either/or questions. Is it ethically correct for a coach to use a player who performs well but is clinically depressed, or should the coach place them on a leave of absence? The obvious answer to that question is that the human being should be valued more highly than their performance on the pitch. However, reality often paints a grim picture, as coaches must cling to every straw to maintain their success. As a result, the answer to the previous question is not as clear as it should be. On an even larger scale, federations, big leagues, and some disciplines themselves also pose challenges regarding mental health issues. For one, the pressure of competitive sports will not lift any time soon. With leagues such as the UEFA Champions League, the NBA, and NFL all having become billion-dollar enterprises and seeking to further increase their revenue, it is unrealistic to expect a more mental health-friendly environment to emerge through shortened competition schedules or – even less likely – decreased performance demands. In reality, demands on athletes are probably only going to increase. Another difficult area to improve is the nature of the respective sports. Combat sports, for example, will remain of a full-contact nature. As these examples show, major structural changes will be difficult to achieve, especially for a single coach.

However, Dr. Valentin Markser (2020) takes a more positive stand. He argues that history offers many examples of federations and leagues adapting rules and schedules to accommodate the health of their players. Two examples that come to mind are the adapted tackling rules in American Football (e.g., more excessive penalties for helmet-to-helmet hits and horse-collar tackles) and increased safety regulations in motorsport (e.g., “halo” safety system in Formula 1 cars) to protect athletes from head trauma. In a similar vein, Markser (2020) argues these kinds of changes – in relation to mental health – are not impossible. To achieve this, however, coaches, clubs, and federations must improve structures with the mental well-being of their athletes in mind.

8. Aim of this empirical study

This diploma thesis expands upon the research paper “Depression in Danish and Swedish elite football players and its relation to perfectionism and anxiety” by Jensen et al. (2018). That study investigated the correlation between different forms of perfectionism and the prevalence of depressive symptoms among Swedish and Danish elite soccer players. Jensen et al. (2018, p. 152) conclude that PC had a negative correlation with the mental health of their study’s participants (i.e., the greater the PC of the participants, the more depressive symptomology in evidence). This type of maladaptive perfectionism was shown to have a strong indirect effect on symptoms of depression via the mediating factor of competitive anxieties. Positively connotated perfectionism, on the other hand, was not correlated with the occurrence of depressive symptomology.

To draw further conclusions on the occurrence of depression among athletes, the present study expands the Jensen et al. (2018) study in three areas. The first concerns the participants. While Jensen et al. (2018) questioned only elite-level soccer players, this follow-up study is interested in a more diverse spectrum of participants. Hence, this diploma thesis presents a cross-sectional study of not only competitive soccer players, but also competitive basketball players and individual athletes competing in various sports. In their concluding comments on future perspectives, Jensen et al. (2018, p. 153) remark that, “It would be interesting to examine female footballers and to investigate gender differences.” In response to this, the study at hand also includes female athletes from all sports. This is an especially important addition, as women have been found to experience depressive disorders more frequently than men (Kuehner, 2003). This allowed for a more detailed look at the variation in depressive symptoms and their correlating effects for different demographic groups. Finally, as another possible future direction of study, Jensen et al. (2018, p. 153) propose consideration of “additional factors that influence and contribute to depressive symptoms among elite football players like social and environmental stressors.” One possible such factor is sleeping behavior. In particular, considering recent reports on the problems NBA athletes face with maintaining steady and healthy sleeping routines (Holmes, 2019), sleep deprivation is a topical issue among sports scientists. Therefore, the

inclusion of an investigation into the sleeping habits of the participating athletes was a logical choice. As depressive disorders often correlate with the individual's perception of themselves (Orth & Robins, 2013), the connections between depressive symptomology and self-worth (or lack thereof) were also taken into consideration.

In summary, the present study investigates how and whether risk factors, such as sleep deprivation and personality traits (e.g., perfectionistic tendencies), correlate with the occurrence of depressive disorders among male and female soccer and basketball players and individual athletes competing in Europe. To assess the potential correlations, this diploma thesis tests a set of hypotheses. These are as follows:

- Athletes with stronger tendencies toward perfectionistic concerns (PC) are more likely to experience depressive symptomology. In contrast, athletes with stronger tendencies toward perfectionistic strivings (PS) are less likely to experience depressive symptomology.

- Athletes with poor sleeping habits are more likely to experience depressive symptomology. Athletes who sleep less during the night are also more likely to be depressed.

- Athletes with poor sleeping habits are more likely to exhibit perfectionistic concerns (PC).

- Competitive anxiety, lack of self-esteem, and social phobia are all positively related to the prevalence of depressive symptomology.

In addition to testing these correlation hypotheses, the thesis also compares depression prevalence among different demographic groups. Considering the misconceptions about athlete depression that remain prevalent in the world of sports, this study aims to educate coaches by providing a foundation for better understanding of the potential triggers of depressive disorders among athletes. Only with this knowledge in mind, is it possible to correctly assess the individual

environments in which the athletes train and compete and to identify potential risk factors.

9. Empirical theory

9.1. The questionnaire

Two surveys were created to collect the necessary data for this study. These questionnaires were identical, though one was in English and the other German. Since both this diploma thesis and the majority of the secondary literature are written in English, it was logical to conduct the survey in this language. In the field of basketball in particular, where many of the participants in this survey either have an English-speaking background or English-speaking coaches, there was little concern about the intelligibility of the questionnaire. The answers to the open question provided by approximately one-third of the basketball participants in the English survey indicate that they have a German-speaking background.[12] Hence, this group proved to have less of a potential accessibility issue than the soccer players and individual athletes.

However, there were potential problem areas for these two groups of participants. First, while my own personal experience suggests that English is considered the unofficial language of basketball (Stratemeyer, 1999)[13], it is debatable whether the same is true for soccer. As there were only soccer teams from German-speaking countries asked to participate, and some of these teams were youth academy teams of larger clubs, it can be argued that German was more prevalent than English among the soccer athletes. The third group – the individual athletes – were the most difficult to predict in terms of demographics, as, unlike the other groups, these participants did not necessarily share common ground (i.e., playing on the same teams, in the same leagues, in the same sport). Thus, providing this group of participants with a choice of German and English questionnaires was intended to increase the accessibility of the survey. In summary, most of the athletes in the study either were located in or originated from Austria or Germany. While there were outliers, such as players from the basketball leagues of the Czech Republic, and import players from overseas, more than 50% of the athletes

[12] For an explanation of why participants were only asked where they hailed from, please refer to the section “Problems and limitations of the study.”
[13] To illustrate this point, please refer to this German basketball glossary (Stratemeyer, 1999), where the majority of terms explained are in English: https://www.basketball-bund.de/wp-content/uploads/basketball_lexikon1.pdf.

had a primarily German language background, as indicated by the participation statistics. In total, 140 athletes (111 valid completions) opted to fill out the German questionnaire, while 133 participants (110 valid completions) chose the English form. Thus, the decision to provide two separate questionnaires was justified, leading to increased accessibility.

It should be noted that these language concerns were assumptions, for which there was no evidence beyond the indications drawn from basketball terminology and the rules governing roster construction in soccer leagues. This paper does not argue that basketball players are more proficient in speaking English than individual athletes or soccer players. However, it would not have been within the scope of the study to scientifically investigate which language was more likely to be used or to question every potential participant about their ability to understand and follow English instructions. Hence, the decision to create two identical questionnaires in different languages was taken to make the survey accessible for as many participants as possible. The data collection was thus broadened.

9.2. What the questionnaire measures

The questionnaire was designed to obtain various types of information from participants, with individual sections focusing on biographical information, potential depressive disorders, self-reflection and social habits, sleeping habits, and leisure time activities, as well as potential competitive anxiety. The concluding sections collected indicative information about the perfectionism of the participants. The sections consisted of a mixture of open questions, multiple-choice questions, rating scales, and Likert scales.

9.2.1. Biographical information

To begin, the participants were asked to provide biographical information, such as their gender, age, marital status, family status, and, naturally, their respective sports. The athletes indicated the sport in which they competed, with the options being *“soccer,” “basketball,”* and *“individual sports.”* If the latter were selected, the participants were asked to indicate the kind of individual sports in which they

participated. Additionally, they indicated their average amount of individual and group/team practice time per week, as well as how often they usually partook in competitive events. The respondents also had to provide information on their supervision by physical trainers, doctors, and physiotherapists. In addition to their sport-specific workload, the athletes indicated whether they had a side occupation and how they felt about it. Finally, the survey had open questions for the athletes to describe their most significant accomplishment and the highest level at which they had ever competed. As these questions had open-ended responses, a coding system had to be established to more efficiently compare the individual levels. Most of the athletes indicated the country in which they were competing at the time of their career peak, which allowed a more sophisticated sorting. After reviewing the data, the responses of the participants were recoded to match each other[14] and grouped as follows:

- **Level 1:** Regional youth competitions
- **Level 2**: National youth competitions
- **Level 3:** International youth competitions (e.g., European championships, world championships, Olympic youth games)
- **Level 4:** Lower tiers of national competition (i.e., team-sport leagues that are the second-highest level in their respective countries or below; individual competitions that are not nationwide or do not involve the nation's top athletes)
- **Level 5:** Highest tier of national competition (i.e., highest team-sport leagues of the respective countries; national championships)
- **Level 6:** Pan-European events (e.g., European championships, pan-European club competitions, national team events)

[14] Due to differences and mistakes in spelling and denominations, many of the respondents used different terms for the same tier of competition (e.g., the highest basketball league of Austria was variously indicated as "ABL," "BSL," "1. Bundesliga," and "1.bundesliga," among other designations).

- **Level 7:** Worldwide competitions (e.g., world championships, Olympic games)

9.2.2. Depressive symptoms

To quantify the athletes' psychological well-being and potential for depression, this study relied on the CES-D. The CES-D was conceptualized by Lenore Radloff (1977) as a short self-report scale with which to measure depressive symptoms among participants. It consists of 20 items investigating symptoms associated with depressive disorders. These symptom items describe "elements related to depressed mood, feelings of guilt and worthlessness, helplessness and hopelessness, psychomotor retardation, appetite loss and sleep disturbance" (W. C. Miller, Anton, & Townson, 2008, p. 288). The individual items were pre-validated in prior tools. Participants were asked to indicate how often they had experienced certain feelings over the course of the previous week (W. C. Miller et al., 2008). A sample item is, *"I felt fearful"* (Radloff, 1977). Possible answers for items were on a four-point, ranging from *"Rarely or none of the time (once or less than once per day)"* (0 points) to *"Most or all of the time (5-7 days)"* (3 points). Items number *4 ("I felt I was just as good as other people"), 8 ("I felt hopeful about the future"), 12 ("I was happy")*, and *16 ("I enjoyed life")* were scored in reverse order, as they described positive feelings and attitudes. These items were then reverse-corrected and added to the total scores of the other items (W. C. Miller et al., 2008). Potential scores ranged from 0 to 60 points (Siddaway, Taylor, & Wood, 2018), with a higher score meaning a higher prevalence of depressive symptoms (W. C. Miller et al., 2008). In the Western setting of this study's participants, a threshold score of ≥ *16* points indicates the occurrence of a current clinical depressive symptomology (Tomitaka, Kawasaki, & Furukawa, 2015).[15] Using their scores, the respondents could be placed in one of the following categories: non-depressed (*0-15* points), mildly depressed (*16-20* points), or moderately depressed (*21-30* points) (Radloff, 1977; Shean & Baldwin, 2008). Chin, Choi, Chan, and Wong (2015) argue that the category of major depressive symptomology lies in the scoring range of *27-60*. In accordance with Shean and

[15] For Eastern Asian residents, the cut-off score would be 25, according to Cho and Kim, as cited in M. J. Cho, Nam, and Suh (1998).

Baldwin (2008), the category major or severe depression was located between *31* and *60* points. The internal consistency of the CES-D was good (α=*.894*).[16]

In addition to completing the CES-D, the subjects indicated whether they had received professional help in the past and whether they were doing so at the time of the survey. That way, the study could identify those athletes who might have struggled with depression in the past or were struggling at the time of the survey but who nevertheless scored low on the CES-D scale. To compare the depression prevalence of different age groups, adolescents and young adults were classified as one category (14-25-year-olds) (McGorry, Purcell, Goldstone, & Amminger, 2011). Adults were defined as those aged 26 and older.

9.2.3. Self-reflection and social (media) habits

In the third step, the questionnaire inquired about the social habits of the participants and, specifically, whether the athletes had ever experienced social phobia. One part of their social life in which the study was interested was their use of social media. Additionally, the responding athletes were asked to reflect on their self-esteem. For the latter, they filled out the Rosenberg scale (Rosenberg, 2015).

9.2.3.1. Self-esteem

The Rosenberg self-esteem scale (RSES) is a 10-item self-report scale developed by Morris Rosenberg in 1965. These 10 items were used to indicate the participants' relationships with themselves (Gray-Little, Williams, & Hancock, 1997). A sample item is, "*On the whole, I am satisfied with myself.*" While initially conceptualized by Rosenberg as a Guttman-scale, it is mostly administered as a four-point Likert-scale, with answers ranging from *"strongly disagree"* to *"strongly agree."* Five of the 10 items are negatively worded (e.g., *"I feel I do not have much to be proud of"*) and scored in reverse order (Classen, Velozo, & Mann, 2007). Typically, responses are scored from one to four, which leads to a maximum global score of *40*, with a higher point total indicating a higher level of self-esteem (Ciarrochi, Heaven, & Davies, 2007; García, y Olmos, Matheu, & Carreño, 2019).

[16] Cronbach α for the German version =.926; Cronbach α for the English version =.846

For this study, the RSES questionnaire provided by the Mental Health Helpline For Wales (2019) was employed. Questions 3, 5, 8, 9, and 10 were negatively worded and reverse-scored. In this version of the RSES, the Likert scale ranged from *0* (= *"strongly disagree"*) to 3 (= *"strongly agree"*),[17] with a maximum possible score of *30* (Sinclair et al., 2010). Internal consistency was good (α=.*895*).[18]

9.2.3.2. Social phobia

The social phobia inventory (SPIN) was employed to indicate whether participating athletes had social phobia. Developed by Connor et al. (2000), the SPIN is a 17-item self-administered questionnaire, used to indicate participants' fear, social anxiety disorders, and negative physiological reactions to social performance situations (Radomsky et al., 2006). Each of the 17 items was rated from *0 (not at all)* to *4 (extremely)*,[19] with a maximum possible score of *68*. Higher scores implied more significant distress for the individual respondent (Connor et al., 2000). The 17 items were grouped into three subscales: avoidance (seven items, e.g., *"I avoid talking to people I don't know"*), fear (six items, e.g*., "Parties and social events scare me"*) and physiological reactions (four items, e.g., "*Sweating in front of other people causes me distress"*) (Connor et al., 2000; Radomsky et al., 2006). The internal consistency of the SPIN was good (α=.*896*).[20]

In addition to completing the RSES and the SPIN, the questionnaire called for the participants to indicate how much time they usually spent on electronic media devices and social media during the competition phase. The participants also indicated whether they interacted with fans and, if so, via which means.

9.2.4. Sleeping habits and sleep hygiene

In the next stage, the questionnaire was concerned with the sleeping habits of the participants. This field of inquiry served as the most significant expansion upon the study by Jensen et al. (2018). At the beginning of the section, the participants

[17] 0 = strongly disagree, 1 = disagree, 2 = agree, 3 = strongly agree
[18] Cronbach α for the German version =.913; Cronbach α for the English version =.860
[19] 0 = not at all, 1 = a little bit, 2 = somewhat, 3 = very much, 4 = extremely
[20] Cronbach α for the German version =.900; Cronbach α for the English version =.894

were asked to indicate how much sleep they had had during the night, on average, in the month prior. They were then asked to complete the athlete sleep behavior questionnaire (ASBQ). The ASBQ was designed by Driller et al. (2018), with the goal of enabling more accurate analysis of the sleeping habits of elite athletes. As prior questionnaires were insufficiently sensitive to the unique sleep demands of this group, the ASBQ was intended to provide "a practical instrument for practitioners, coaches and researchers wanting to evaluate the sleep behaviors of elite athletes" (Driller et al., 2018, p. 43). The ASBQ consists of 18 questions that focus on different aspects of the sleeping behavior of respondents and areas of special concern for elite athletes. The individual items were chosen to allow the ASBQ to cover different aspects of sleep behavior, such as routines before going to bed (e.g., *"I use sleeping pills/tablets to help me sleep"*) or occurrences during night and sleep time (e.g., *"I wake to go to the bathroom more than once per night"*) (Driller et al., 2018). Items are also intended to help identify special areas in which the athletes could make improvements (e.g., item *8: "I use light-emitting technology in the hour leading up to bedtime [e.g., laptop, phone, television, video games]"*). Possible answers ranged from *"never"* (1 point) to *"always"* (5 points)[21]. The individual scores were then combined to reach a global ASBQ score, with higher scores indicating poor sleep behaviors (Driller et al., 2018, p. 39).[22] The internal consistency of the ABSQ was poor (α=*.587*).[23] However, the creators of the ASBQ (Driller et al., 2018, p. 43) addressed their similar Cronbach's α result as follows,

> "*The authors acknowledge that the Cronbach's α of 0.63 for the ASBQ is below the usually accepted threshold of 0.70, however, given this is a measure of internal consistency for the relationship between items in a questionnaire, this was not the aim of the practical tool being developed in the current study. Indeed, the ASBQ was intentionally designed to measure different aspects of sleep behavior, and therefore, it was not critical that all items on the questionnaire are related."*

[21] Scoring: never = 1, rarely = 2, sometimes = 3, frequently= 4, always = 5
[22] Driller et al. (2018, p. 43) consider scores below 37 to indicate good sleep behavior and scores above 41 poor sleep behavior.
[23] Cronbach α for the German version =.649; Cronbach α for the English version =.519

In addition, the participating athletes were asked to indicate how frequently they were able to partake in leisure time activities with their friends, family, teammates, coaches, and other associates.

9.2.5. Competitive anxiety

The sports anxiety scale 2 (SAS-2) investigates competitive anxiety before and during competitions. The SAS-2 is an expansion of the original sports anxiety scale (Smith, Smoll, & Schutz, 1990), as some factor loadings of the original scale were found to be conflicting for adults (Smith et al., 2006). The overhauled SAS-2 consists of 15 items, organized into three sub-scales indicating symptoms of competitive anxiety: worry, somatic anxiety, and concentration disruption (Smith et al., 2006). Each of the sub-categories consists of five items. Sample items are as follows:

- *"I worry that I will play badly"* (worry)
- *"My muscles feel shaky"* (somatic anxiety)
- *"I cannot think clearly during competition"* (concentration disruption)

The participating athletes had to rate the 15 items in the context of the statement, *"Before or while I compete in sports…,"* and on a scoring scale ranging from 1 (*not at all*) to 4 (*very much*).[24] The individual ratings were then added together, and a higher total score indicated a higher level of competitive anxiety. The scoring ranged from *15* to *60* points. The SAS-2 showed excellent internal consistency (α=.*906*).[25]

9.2.6. Perfectionism

Drawing on the research paper "Depression in Danish and Swedish elite football players and its relation to perfectionism and anxiety," the final part of the questionnaire sought to identify perfectionistic tendencies among participants. As

[24] Not at all = 1, a little bit = 2, pretty much = 3, very much = 4
[25] Cronbach α for the German version = .903; Cronbach α for the English version = .908

in the study conducted by Jensen et al. (2018), the participants were asked to rate a total of 25 sub-scale items derived from the multidimensional inventory of perfectionism in sports (MIPS) and the sports multidimensional perfection scale 2 (SMPS-2). Of these 25 items, 12 measured PS[26] and 13 indicated PC.[27] The scores for the PC and PS items were added separately and two separate means were calculated. The procedure was repeated for the PC and PS items of the SMPS-2. In a final step, the separate means for the PC and PS items were added together to give global scoring for PC and PS. The higher the means, the more likely the participants exhibited this form of perfectionism. This was inspired by a similar procedure employed by Jensen et al. (2018) in their study.

9.2.6.1. Sports multidimensional perfection scale – 2 (SMPS-2)

The original version of the SMPS (Dunn, Dunn, & Syrotuik, 2002) (then labeled "football MPS") is based on the multidimensional perfection scale of Frost, Marten, Lahart, and Rosenblate (1990). The Frost-MPS, as Dunn et al. (2002) termed it, consists of 35 items divided into six sub-scales. These categories measure six distinct dimensions of perfectionism: *concern over making mistakes, high personal standards, perception of parental standards, preference for order and organization, perception of high parental criticism,* and *doubting of the quality of one's actions*.

While Frost et al. (1990) used a more general scope for the items in their initial version of the MPS (e.g., *"If I do not do well all the time, people will not respect me"*), Dunn et al. (2002) narrowed the focus of their items to their role within sports (e.g., *"If I do not do well all the time in competition, I feel that people will not respect me as an athlete"*). This was a critical improvement, since research has shown that the measurement of perfectionistic traits is best conducted within the frame of specific domains. In the case of this research, the specific domain is competitive sports (Dunn, Gotwals, & Dunn, 2005). The first version of the SMPS consisted of 30 items in which four different sub-categories of perfectionism were measured (*personal standards, concerns over mistakes, perceived parental*

[26] Seven PS items were measured by the SMPS-2, and five PS items were measured by the MIPS.
[27] Eight PC items were measured by the SMPS-2, and five PS items were measured by the MIPS.

pressure, perceived coach pressure) (Dunn et al., 2006). However, the original SMPS neglected to investigate the dimensions of *doubts about one's actions* and *preferences for organization and order* (Gotwals & Dunn, 2009). Hence, seven years later, the initial scale was refined to create the SMPS-2, adding a total of 12 items to the sub-scales. All versions of the SMPS invite respondents to answer questions about their perfectionistic orientation in sports (Gotwals & Dunn, 2009, p. 72).

For this study, the SMPS-2 was employed, as it is the most recent iteration of the scale and one of its creators, John Dunn, was kind enough to provide the questionnaire. As previously noted, rather than working through all 42 items of the SMPS-2, the participating athletes were presented only with items about their *personal standards* and *concerns over mistakes*. The participants then responded to a total of 15 items on a five-point Likert-scale, which ranged from *1* to *5*.[28] Some of the items (e.g., "*If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate player"* and *"I feel that other players generally accept lower standards for themselves in sport than I do"*) had to be adapted, as team-sport players were not the only participants in the study. Thus, the word "player" was replaced with "athlete." The Cronbach α of the SMPS-2 was good (α=*.814*).[29]

9.2.6.2. Multidimensional inventory of perfectionism in sports (MIPS)

To obtain a larger data set on the participants' perfectionistic orientations, the MIPS was used in addition to the SMPS-2. This was conceptualized as a German tool for screening perfectionistic tendencies among athletes (Stoeber, Otto, & Stoll, 2004). In 2006, Stoeber, Otto, & Stoll provided an English translation, which served as the basis for this part of the questionnaire. Again, rather than working through the entire MIPS, participants responded only to the items of two sub-scales *"perfectionistic aspirations during training and competitions"* and *"negative reactions to nonperfect performance during training and competitions"* (Stoeber et

[28] Strongly disagree = 1, disagree = 2, neither agree nor disagree = 3, agree = 4, strongly agree = 5

[29] Cronbach α for the German version =.840; Cronbach α for the English version =.790

al., 2006). To maintain a reasonable questionnaire length – and reduce the potential for losing respondents – only 10 of the 16 potential items were used. These items were chosen in accordance with a study conducted by Stoeber et al. (2007, p. 963), who selected these items on the basis of their validity and consistency across four samples. On a six-point scale ranging from 1 (*"never"*) to 6 ("*always*"), the participants rated how often they experienced their perfectionistic orientation during competitions.[30] The MIPS showed good internal consistency (α=*.833*).[31]

9.3. Procedure

The questionnaires were sent to several European basketball and soccer teams, ranging from those playing in the fifth tier of their respective competitions to national teams. When the clubs had an ambitious youth program or even a youth academy, the questionnaire was also forwarded to the prospective athletes. Direct contact was made with coaches and representatives from the contacted clubs, and the questionnaires were shared on social media platforms (especially Facebook and Twitter). The individual athletes were either contacted by clubs with which they were associated or through personal connections. In addition to these target-specific calls for data collection, participant requests were sent out to the social media channels of the sports department at the University of Vienna and the German Sport University Cologne. The online survey was conducted in the period from October 17th, 2019 to November 10th, 2019, using the online tool "Survey Monkey." After collection, the answers of the participants were put into a Microsoft Excel sheet. Where necessary, open-ended responses were re-coded to help categorize them. In a final step, the data were imported into SPSS, which was used to test the hypotheses and seek out statistical trends.

All hypotheses were tested by means of null hypothesis significance testing. This form of empirical falsification works as follows (Bhattacherjee, 2012; Levine, Weber, Hullett, Park, & Lindsey, 2008): the researcher begins by forming two hypotheses, namely the null hypothesis (H_0) and the alternative hypothesis (H_1).

[30] never = 1, rarely = 2, sometimes = 3, often = 4, mostly = 5, always = 6
[31] Cronbach α for the German version =.835; Cronbach α for the English version =.841

While the latter reflects the assumption of the researcher, the H_0 is the negation of the H_1. In the next step, an alpha level is chosen. This α usually equals 0.05 in social sciences such as psychology. In the next stage, the necessary statistical tests (here, correlation tests) are employed and the results and a p-value are calculated. If the p-value is less than or equal to the chosen α-level, the H_0 is rejected and the H_1 is indirectly supported.

10. Results and discussion

10.1. Demographic and descriptive statistics

Initially, *273* athletes took part in the survey, with *225* completing the whole questionnaire, giving a completion rate of *82.4%.* However, four answer sets had to be removed because these respondents did not adhere to the study's requirements (i.e., the athletes were from disciplines that were not called upon). Hence, this study includes the answers of *221* respondents. The participant distribution was very male-heavy, as just *30.8%* of the respondents were female. The average age of the participants was *23.6* years (SD = *8.645*), with the age spectrum ranging from 14 to 57 years old (see Tables 1 & 2).

Table 1: Gender distribution

Gender

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Male	153	69.2	69.2	69.2
	Female	68	30.8	30.8	100.0
	Total	221	100.0	100.0	

Table 2: Age range of participants

Age

	N	Minimum	Maximum	Mean	Std. deviation
Age	221	14	57	23.59	8.645
Valid N (listwise)	221				

The participants were split into three groups, consisting of *124* (*56.1*%) basketball players, *65* (*29.4*%) individual athletes, and *32* (*14.5*%) soccer players. This amounted to a split of *156* team sport athletes (*70.6*%) and *65* individual athletes (*29.4*%). Of the 65 individual athletes, more than half competed in endurance (*46.2*%) and cycling/mountain bike (*12.3*%) events.

A summary of these findings are presented in the following tables (3-5).

Table 3: Distribution of athletes among the disciplines

The sports in which the participants compete

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Basketball	124	56.1	56.1	56.1
	Individual Sport	65	29.4	29.4	85.5
	Soccer	32	14.5	14.5	100.0
	Total	221	100.0	100.0	

Table 4: Distribution of athletes among team and individual sports

Individual or team sports

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Team Sport	156	70.6	70.6	70.6
	Individual Sport	65	29.4	29.4	100.0
	Total	221	100.0	100.0	

Table 5: Individual sports

Grouping of individual sports[a]

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Endurance sports	30	46.2	46.2	46.2
	Cycling & mountain bike	8	12.3	12.3	58.5
	Aesthetic sports	5	7.7	7.7	66.2
	Combat sports	5	7.7	7.7	73.8
	Alpine sports	4	6.2	6.2	80.0
	Swimming	4	6.2	6.2	86.2
	Racket sports	3	4.6	4.6	90.8
	Track & field	3	4.6	4.6	95.4
	Inline skating	1	1.5	1.5	96.9
	Motor sports	1	1.5	1.5	98.5
	Weight lifting	1	1.5	1.5	100.0
	Total	65	100.0	100.0	

a. Which sport do you compete in? = individual sport

Comparing the distribution of male and female athletes in the three discipline groups revealed a connection between gender and discipline preference (see Tables 6 & 7).

Table 6: Crosstabulation: Participants distribution among Sports

Which sport do you compete in? * Gender crosstabulation

			Gender		
			Male	Female	Total
Which sport do you compete in?	Individual sport	Count	35	30	65
		Expected count	45.0	20.0	65.0
	Basketball	Count	94	30	124
		Expected count	85.8	38.2	124.0
	Soccer	Count	24	8	32
		Expected count	22.2	9.8	32.0
Total		Count	153	68	221
		Expected count	153.0	68.0	221.0

Table 7: Chi-square test gender/discipline

Chi-square tests

	Value	df	Asymptotic significance (two-sided)
Pearson chi-square	10.239[a]	2	.006
Likelihood ratio	9.889	2	.007
Linear-by-linear Association	7.123	1	.008
N of valid cases	221		

a. 0 cells (0.0%) have expected count of less than five. The minimum expected count is 9.85.

The experience and (past) competition level of the participants was spread out rather evenly (see Table 8). With the exceptions of those who had only competed in regional youth competitions (*1.4*%) and those who cited the highest national competitions as their peak competition level (*26.2*%), the athletes were distributed somewhat equally. The prevalence of athletes competing in worldwide, pan-European, lower-tier national, international youth, and national youth competitions was around *15*% (± ~*3*%).

What is the highest level at which you have ever competed?

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Worldwide competitions	27	12.2	12.2	12.2
	Pan-European competitions	30	13.6	13.6	25.8
	Highest national competitions	58	26.2	26.2	52.0
	Lower tiers of national competitions	38	17.2	17.2	69.2
	International youth competitions	34	15.4	15.4	84.6
	National youth competitions	31	14.0	14.0	98.6
	Regional youth competitions	3	1.4	1.4	100.0
	Total	221	100.0	100.0	

Table 8: Competition levels of participants

The individual athletes indicated the most estimated practice time (*19.8* hours per week), while soccer athletes indicated the least of the three groups (*15.41* hours per week). Basketball athletes were the leaders in terms of team practice time (*11.42* hours per week), while individual athletes naturally led the solo practice category (*14.35* hours per week) (see Table 9).

Table 9: Hours of practice by sport

Descriptive Statistics

In which sport do you compete?		N	Min.	Max.	Mean	Std. deviation
Individual sport	Hours of individual practice per week	65	0	40	14.35	7.270
	Hours of group/team practice per week	65	0	25	5.45	6.307
	Total average practice time per week	65	6	49	19.80	8.169
	Valid N (listwise)	65				
Basketball	Hours of individual practice per week	124	0	35	6.13	6.872
	Hours of group/team practice per week	124	0	40	11.42	5.877
	Total average practice time per week	124	3	70	17.55	11.006
	Valid N (listwise)	124				
Soccer	Hours of individual practice per week	32	0	20	5.56	5.775
	Hours of group/team practice per week	32	4	30	9.84	5.030
	Total average practice time per week	32	4	38	15.41	8.489
	Valid N (listwise)	32				

10.2. Screening results and discussion

10.2.1. Depression

The scores on the CES-D scale ranged from *0* to *53*, and the participants averaged 13 points (SD = *9.095*) (see Table 10). This score is just three points below the suggested cut-off score for clinical symptoms (≥ *16*) (Radloff, 1977).

Table 10: CES-D scoring range and average

Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation
CESD total score	221	0	53	13.00	9.095
Valid N (listwise)	221				

The results of the CES-D further indicated that a total of *75* athletes (*33.9*%) displayed clinical depression scores. Of those who surpassed the threshold of ≥ *16*, *11* were experiencing severe depressive symptomology (*5*% of all participants), *29* showed moderate depressive symptomology (*13.1*%), and *35* displayed mild depressive symptomology (*15.8*%). Conversely, *66.1*% of the athletes (*146* individuals) fell into the non-depressed category (see Table 11).

Table 11: Participants by level of depressive symptoms

Total CES-D range

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Severe depressive symptomology	11	5.0	5.0	5.0
	Moderate depressive symptomology	29	13.1	13.1	18.1
	Mild depressive symptomology	35	15.8	15.8	33.9
	Non-depressed	146	66.1	66.1	100.0
	Total	221	100.0	100.0	

The WHO estimates for 2017 state that approximately 4.4 % of the global population suffer from depressive disorders, thus the prevalence of clinical depressive symptomology was significantly higher among the study's participants (33.9%). Even the slightly higher overall depression prevalence rates of Austria and Germany (5.1% and 5.2% respectively) did not come close to the figures in this study. Similarly, Jensen et al. (2018), who conducted their athlete-depression research in Denmark and Sweden, found that the prevalence of depressive symptomology among their participants (16.7%) was higher than that of the general Scandinavian public (3.5-5%). In fact, the difference in prevalence between the global estimates and the present study was so staggering that the total rate indicated by the WHO (4.4%) was lower than the prevalence of each of the depression severity gradations of this survey (severely depressed athletes: *5.0*%; moderately depressed athletes: *13.1*%; mildly depressed athletes: *15.8*%). Of course, the elevated depression rates in this thesis are not entirely representative, because the limited group of participants (*221*) cannot be assumed to speak for the global population. Nevertheless, these findings could serve as an indication, as they are in line with the suggestions of Nixdorf (2018) regarding the elevated depression prevalence among athletes. The increased rate of depression – in this study in particular, and among competitive athletes in general – is potentially due to the unique demands placed upon athletes (Wolanin et al., 2015). Unique risk factors such as injury, failures, premature career termination, and the pressure of performance environments can add to the general triggers of depressive disorders (Souter et al., 2018; Wolanin et al., 2015). Further inspection shows that the prevalence of depression among this study's participants was higher than in many other European studies. Junge and Feddermann-Demont (2016) (Switzerland: 10.6%), Jensen et al. (2018) (Sweden and Denmark: 16.7%), Spengler, Schneider, and Schröder (2013) (Germany: 25%) and Gouttebarge, Frings-Dresen, and Sluiter (2015) (pan-European study: 26%) all reported lower rates than the *33.9*% suggested in this thesis.

The connection between age and depression could also be considered a possible reason for the increased prevalence in this study. As previously mentioned, the average age of the participating athletes was *23.59* years. Most (*146*) fell into the

category of adolescents and young adults. This group also showed a higher prevalence of clinical depression symptomology. In fact, their average score of *14.88* came very close to the cut-off score of *16* suggested by Radloff (1977). Comparing the average CES-D scores of adolescents/young adults with those of adults over the age of 26 yields a lopsided result, as the younger group scores significantly higher on average. While the mean for adults older than 25 is *9.33*, athletes between the ages of 14 and 25 scored an average of *14.88* points (see Tables 12 & 13).

Table 12: CES-D average by age group

Group statistics

	Age range	N	Mean	Std. deviation	Std. error mean
CESD total score	Adolescents & young adults (aged 14-25)	146	14.88	9.539	.789
	Adulthood (aged 26 & older)	75	9.33	6.856	.792

Table 13: T-Test CES-D scores by age group

Independent samples test

		Levene's test for equality of variance		t-test for equality of means						
									95% confidence interval of the difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
CESD total score	Equal variances assumed	9.957	.002	4.478	219	.000	5.550	1.240	3.107	7.993
	Equal variances not assumed			4.964	195.616	.000	5.550	1.118	3.345	7.755

Of the depressed athletes, the majority (64 athletes) were aged between 14 and 25. In contrast, only 11 athletes over the age of 25 showed symptoms of clinical depression (see Table 14).

Table 14: Depression severity by age group

CESD range

Age range		Frequency	Percent	Valid percent	Cumulative percent
Adolescents & valid young adults (aged 14-25)	Mild depressive symptomology	30	46.9	46.9	46.9
	Moderate depressive symptomology	24	37.5	37.5	84.4
	Severe depressive symptomology	10	15.6	15.6	100.0
	Total	64	100.0	100.0	
Adulthood (aged 26 valid & older)	Mild depressive symptomology	5	45.5	45.5	45.5
	Moderate depressive symptomology	5	45.5	45.5	90.9
	Severe depressive symptomology	1	9.1	9.1	100.0
	Total	11	100.0	100.0	

Thus, the overall prevalence of depressive disorders was higher among younger athletes (see Table 15). Nixdorf et al. (2013) also report a difference – albeit smaller (5 %) – between younger and older athletes. Similarly, Jensen et al. (2018) found that members of junior teams showed higher levels of depression than their adult counterparts. A potential explanation for these results is that depressive symptoms appear to be highest among young adults (Sutin et al., 2013). Additionally, in a more sport-specific context, the depression vulnerability of younger athletes is heightened in comparison to that of their adult counterparts (Jensen et al., 2018).

Table 15: Prevalance of depression by age group

Prevalence of depression

Age range		Frequency	Percent	Valid Percent	Cumulative Percent
Adolescents & young adults (aged 14-25)	valid Clinical level of depression	64	43.8	43.8	43.8
	Not depressed	82	56.2	56.2	100.0
	Total	146	100.0	100.0	
Adulthood (aged 26 & older)	valid Clinical level of depression	11	14.7	14.7	14.7
	Not depressed	64	85.3	85.3	100.0
	Total	75	100.0	100.0	

Gender was also shown to have an impact on prevalence rates, as females generally tend to have a higher risk for depression onset (Hammen & Watkins, 2018; Kuehner, 2003) and display more severe levels of symptomology (Appaneal et al., 2009; Storch, Storch, Killiany, & Roberti, 2005; Wolanin, Hong, & Marks, 2016). This thesis supports these findings. For the CES-D, the female participants (*15.43*, SD = *11.036*) scored significantly higher than the male athletes (*11.92*, SD = *7.889*) (see tables 16 & 17). In fact, the female athletes came very close to averaging the CES-D full-scale cut-off threshold for clinical depression symptoms of 16 points (Andresen, Malmgren, Carter, & Patrick, 1994; Radloff, 1977).

Table 16: CES-D average scores by gender

Group statistics

	Gender	N	Mean	Std. deviation	Std. error mean
CESD total score	Male	153	11.92	7.889	.638
	Female	68	15.43	11.036	1.338

Table 17: T-Test CES-D Scores by Gender

Independent samples test

		Levene's test for equality of variances		t-test for Equality of Means						
									95% confidence interval of the difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
CESD total score	Equal variances assumed	8.591	.004	-2.681	219	.008	-3.505	1.307	-6.081	-.928
	Equal variances not assumed			-2.364	98.641	.020	-3.505	1.483	-6.447	-.563

Nixdorf et al. (2016) also found variation in depression prevalence for team-sport athletes and individual athletes. As a result of PC and a predominantly internal attribution style, athletes competing in individual sports showed an elevated prevalence of depressive symptoms (Hanrahan & Cerin, 2009; Nixdorf et al., 2016). In contrast to these findings, the survey found no significant difference between the two groups (see Tables 18 & 19).

Table 18: CES-D average by sport type

Group statistics

	Do you participate in individual or team sports?	N	Mean	Std. deviation	Std. error mean
CESD total score	Team sport	156	12.96	8.077	.647
	Individual sport	65	13.11	11.240	1.394

Table 19: T-Test CES-D score by sport type

Independent samples test

		Levene's test for equality of variances		t-test for equality of means						
									95% confidence interval of the difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean difference	Std. error difference	Lower	Upper
CESD total score	Equal variances assumed	7.005	.009	-.113	219	.910	-.153	1.346	-2.805	2.500
	Equal variances not assumed			-.099	92.725	.921	-.153	1.537	-3.205	2.899

One possible explanation for this result lies within the fact that some of the team-sport athletes could be considered individual athletes. Many team-sport participants either hailed from academies or were still attending an academy at the time of the survey. Basketball academies usually put a particularly strong emphasis on individual practice (see Table 9) and place the athletes in multiple junior teams to foster their individual development. Due to this focus on the individual, team-sport athletes from these talent-development structures could, to a degree, be considered individual athletes. However, further investigation would be necessary to verify this hypothesis.

The broad spectrum of the athletes' peak competition levels showed that the prevalence of depression was the highest among those who had only competed at the lower tiers (see Table 20).

Table 20: Prevalence of depression by competition level

Prevalence of depression

What is the highest level at which you have ever competed?		Frequency	Percent	Valid percent	Cumulative percent
Regional youth competitions	Valid Not depressed	1	33.3	33.3	33.3
	Clinical level of depression	2	66.7	66.7	100.0
	Total	3	100.0	100.0	
National youth competitions	Valid Not depressed	15	48.4	48.4	48.4
	Clinical level of depression	16	51.6	51.6	100.0
	Total	31	100.0	100.0	
International youth competitions	Valid Not depressed	20	58.8	58.8	58.8
	Clinical level of depression	14	41.2	41.2	100.0
	Total	34	100.0	100.0	
Lower tiers of national competitions	Valid Not depressed	27	71.1	71.1	71.1
	Clinical level of depression	11	28.9	28.9	100.0
	Total	38	100.0	100.0	
Highest national competition	Valid Not depressed	42	72.4	72.4	72.4
	Clinical level of depression	16	27.6	27.6	100.0
	Total	58	100.0	100.0	
Pan-European competition	Valid Not depressed	22	73.3	73.3	73.3
	Clinical level of depression	8	26.7	26.7	100.0
	Total	30	100.0	100.0	
Worldwide competition	Valid Not depressed	19	70.4	70.4	70.4
	Clinical level of depression	8	29.6	29.6	100.0
	Total	27	100.0	100.0	

In their study on the prevalence of depressive disorders among German elite athletes, Nixdorf et al. (2013) made similar findings. The group of amateur athletes in their study showcased the highest depression prevalence rate (29%). On the other end of the spectrum, professional athletes had a prevalence rate of 15%. While prevalence rates do not decline steadily as competition level increases, there was potentially a significant negative correlation (see Table 21 & Figure 3).

Table 21: Correlation between CES-D score and competition level

Correlations

		What is the highest level at which you have ever competed?	CESD total score
What is the highest level at which you have ever competed?	Pearson correlation	1	-.144*
	Sig. (2-tailed)		.032
	N	221	221
CESD total score	Pearson correlation	-.144*	1
	Sig. (2-tailed)	.032	
	N	221	221

*. Correlation is significant at the 0.05 level (2-tailed).

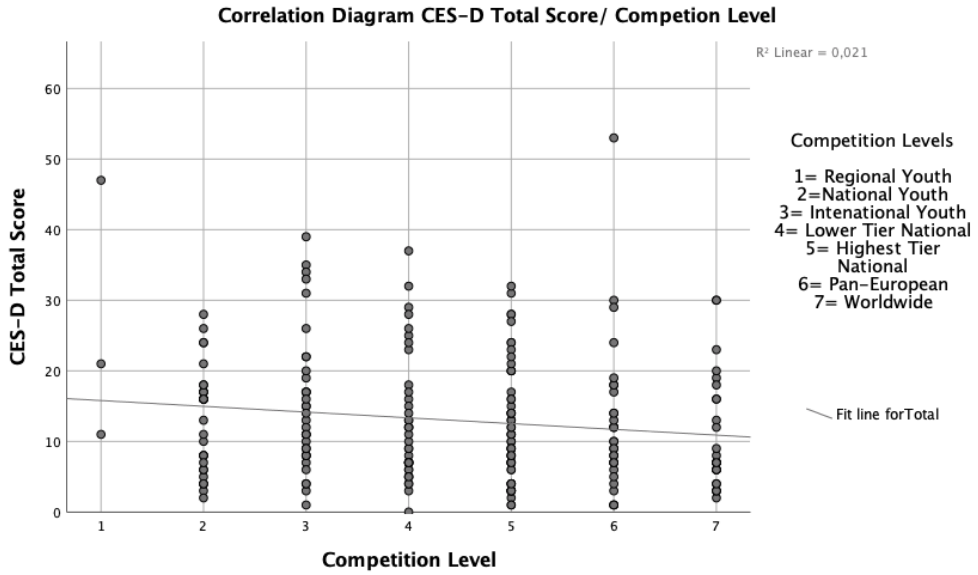

Figure 3: Correlation between CES-D score and competition level

Depressive symptomology may decline as competition level of athletes rises due to differences in reaction to stressors. While high-level athletes have more expertise in effective coping strategies, athletes competing in lower tiers are less skilled in the same regard (Nicholls, Polman, Levy, Taylor, & Cobley, 2007). The context of this study warrants a look at a relevant example in the study of Gould, Dieffenbach, and Moffett (2002). They found that Olympic champions displayed low levels of concern over their mistakes. This finding highlights a perceived discrepancy between the respective coping strategies of high-level and lower-level

athletes. Thus, it is warranted to conclude that education in coping strategies for athetes could improve mental health. Furthermore, this type of intervention should be employed more widely among lower-level athletes.

Finally, when the athletes who showed clinical depressive symptoms were asked whether they were currently seeing a professional regarding their mental health issues, only eight of the *75* said they were (see Table 22). Questions about past support-seeking among the same group yielded more positive responses, as a little over a quarter of depressed athletes had received treatment in the past. These results indirectly illuminate one of the most substantial problems faced by depressed athletes: insufficient treatment of their ailment. Just *10.7*% of all participants with depressive symptomology were receiving support from professionals at the time of the survey. While the percentage of those who had sought out treatment previously was higher (*25.3*%), these figures are alarming. A primary reason for this poor result is the stigma attached to mental health issues among athletes (Markser, 2020). As mental health struggles are often perceived as weakness, athletes attempt to hide their problems and tend to under-utilize treatment options (Reardon et al., 2013; Schwenk, 2000; Wippert & Wippert as cited in Wolanin et al., 2015).

Table 22: Help-seeking behavior of athletes

Factor		Count	Column N %
Are you currently receiving professional help for mental health problems?	Yes	8	10.7
	No	67	89.3
	Total	75	100.0
Have you ever received professional help for mental health problems in the past?	Yes	19	25.3
	No	56	74.7
	Total	75	100.0

10.2.2. Potential risk factors

For the sake of brevity, the main findings on the observed risk factors for depressive disorders are presented together (see Table 23). First, the participating

athletes scored an average of *39.89* (SD = *6.074*) points on the ASBQ. On average, the athletes displayed a greater tendency towards healthy perfectionism than towards maladaptive PC. The added mean of PS was *7.847* (SD = *1.3020*), while the average score for PC was *5.665* (SD = *1.6022*). In terms of self-esteem, the respondents showed above-average levels of self-confidence. The average result of the RSES was *22.15* (SD = *5.633*), which was more than seven points higher than the median of the scoring range employed in this version of the scale (= 15 points). The athletes displayed below-average levels of competitive anxiety. The SAS-2 mean of *25.63* points (SD = *7.484*) was slightly below the scale median of 30 points. In terms of social phobia, the athletes scored even lower in relation to the possible maximum score. While a maximum score of 68 could be reached on the SPIN, the participants averaged just *15.22* points (SD = *10.634*).

Table 23: Descriptive statistics of risk factors

Descriptive statistics

	N	Min	Max	Mean	Std. deviation
ASBQ total score	221	24	60	39.89	6.074
PC total mean	221	2.3	11.0	5.665	1.6022
PS total mean	221	2.8	10.3	7.847	1.3020
Rosenberg scale total score	221	7	30	22.15	5.633
SAS-2 total score	221	15	51	25.63	7.484
SPIN total score	221	0	49	15.22	10.634
Valid N (listwise)	221				

Before testing the hypotheses, one striking result should be addressed: the high average score (39.89) on the ASBQ. This average score was very close to the threshold established by Driller et al. (2018) as indicating poor sleeping behavior among athletes (= 41 points). Hence, the average participant in this study bordered on having poor sleeping behaviors (see Table 23). A more detailed look at the ASBQ results reveals that 38.9% of the participants fell under the category of poor sleeper. Conversely, the group displaying good sleep behavior was the smallest, with just 63 athletes (see Table 24).

Table 24: Participant distribution by sleep behavior

ASBQ_range

		Frequency	Percent	Valid percent	Cumulative percent
Valid	Good sleep behavior	63	28.5	28.5	28.5
	Normal sleep behavior	72	32.6	32.6	61.1
	Poor sleep behavior	86	38.9	38.9	100.0
	Total	221	100.0	100.0	

This result suggests that athletes have difficulties maintaining good sleep behavior due to the unique challenges that they encounter (Copenhaver & Diamond, 2017). Considering the potential role of lack of sleep and poor sleep behavior in the development and course of depression (H. J. Cho et al., 2016; Franzen & Buysse, 2008), these results are reason for concern. Poor sleep behavior not only has a potentially detrimental effect on performance (Belenky et al., 2003), but can also be a risk factor for depression onset (H. J. Cho et al., 2016; Zhai, Zhang, & Zhang, 2015). Conversely, good sleep can enhance performance and improve psychological well-being (Lastella et al., 2015; Steptoe, O'Donnell, Marmot, & Wardle, 2008). The results support this notion, as significant differences between poor sleepers and the other two groups in depressive symptomology were found. Poor sleepers displayed the highest average CES-D score (*16.43*), while good sleepers displayed a significantly lower mean (see Tables 25 & 26). However, these high numbers could be due to the bi-directional relationship of sleep disturbance and depression (Franzen & Buysse, 2008; Lustberg & Reynolds, 2000). In more general terms, poor sleep is not only a cause of depression, as the relationship goes in both directions; thus, some of the poor sleeping behavior might be caused by depressive disorders.

Table 25: One-factor ANOVA of sleep quality groups, depression

Descriptives

CESD total score

	N	Mean	Std. deviation	Std. Error	95% confidence interval for mean		Min.	Max.
					Lower bound	Upper bound		
Good sleep behavior	63	9.41	6.392	.805	7.80	11.02	1	26
Normal sleep behavior	72	12.04	8.707	1.026	10.00	14.09	0	47
Poor sleep behavior	86	16.43	9.937	1.072	14.30	18.56	1	53
Total	221	13.00	9.095	.612	11.79	14.21	0	53

Table 26: Scheffe post-hoc test

Multiple comparisons

Dependent variable: CESD total score

Scheffe

(I) ASBQ_range	(J) ASBQ_range	Mean difference (I-J)	Std. error	Sig.	95% confidence interval	
					Lower bound	Upper bound
Good sleep behavior	Normal sleep behavior	-2.629	1.492	.214	-6.31	1.05
	Poor sleep behavior	-7.018*	1.434	.000	-10.55	-3.48
Normal sleep behavior	Good sleep behavior	2.629	1.492	.214	-1.05	6.31
	Poor sleep behavior	-4.389*	1.382	.007	-7.79	-.98
Poor sleep behavior	Good sleep behavior	7.018*	1.434	.000	3.48	10.55
	Normal sleep behavior	4.389*	1.382	.007	.98	7.79

*. The mean difference is significant at the 0.05 level.

Unlike for other risk factors, however, coaches have the potential to set preventive measures to improve sleep behavior. In turn, these measures can help prevent the onset of depressive disorders. Scheduling practices that are considerate of their protégés' sleeping needs, as well as educating athletes on proper sleeping habits, are potentially viable interventions for coaches (Lastella et al., 2015; O'Donnell & Driller, 2017; Sargent et al., 2014).

10.3. Results and discussion of hypotheses testing

Aside from providing education on the symptomology of depression and how coaches can help affected athletes, the primary aim of this study is to investigate the correlations between depressive disorders and different potential risk factors (see Table 27). To achieve this, the following (previously noted) correlation hypotheses are investigated (Akoglu, 2018; Dancey & Reidy, 2017) [32][33]:

- Athletes with stronger tendencies toward perfectionistic concerns (PC) are more likely to experience depressive symptomology. In contrast, athletes with stronger tendencies toward perfectionistic strivings (PS) are less likely to experience depressive symptomology.

- Athletes with poor sleeping habits are more likely to experience depressive symptomology. Athletes who sleep less during the night are also more likely to be depressed.

- Athletes with poor sleeping habits are more likely to exhibit perfectionistic concerns (PC).

- Competitive anxiety, self-esteem, and social phobia are all related to the prevalence of depressive symptomology

[32] The following labels will be attached to different correlation coefficients: zero correlation ($r = 0$), weak correlation ($r = \pm 0.1$ to ± 0.3), moderate correlation ($r = \pm 0.4$ to ± 0.6), strong correlation ($r = \pm 0.7$ to ± 0.9), and perfect correlation ($r = \pm 1$).
[33] Note: the significant correlations of interest for each hypothesis are marked in yellow.

Table 27: Correlation table

Correlations

		CESD total score	PS total mean	PC total mean	ASBQ total score	Avg. amount sleep per night	SAS-2 total score	Rosenberg Scale total score	SPIN total score
CESD total score	Pearson correlation	1	.055	.541**	.351**	-.214**	.535**	-.661**	.495**
	Sig. (2-tailed)		.415	.000	.000	.001	.000	.000	.000
	N	221	221	221	221	221	221	221	221
PS total mean	Pearson correlation	.055	1	.354**	.210**	.034	.087	.022	-.052
	Sig. (2-tailed)	.415		.000	.002	.614	.199	.747	.443
	N	221	221	221	221	221	221	221	221
PC total mean	Pearson correlation	.541**	.354**	1	.317**	-.093	.655**	-.500**	.427**
	Sig. (2-tailed)	.000	.000		.000	.168	.000	.000	.000
	N	221	221	221	221	221	221	221	221
ASBQ total score	Pearson correlation	.351**	.210**	.317**	1	-.139*	.243**	-.221**	.166*
	Sig. (2-tailed)	.000	.002	.000		.039	.000	.001	.013
	N	221	221	221	221	221	221	221	221
Avg. amount sleep per night	Pearson correlation	-.214**	.034	-.093	-.139*	1	-.109	.158*	.000
	Sig. (2-tailed)	.001	.614	.168	.039		.106	.018	.995
	N	221	221	221	221	221	221	221	221
SAS-2 total score	Pearson correlation	.535**	.087	.655**	.243**	-.109	1	-.563**	.485**
	Sig. (2-tailed)	.000	.199	.000	.000	.106		.000	.000
	N	221	221	221	221	221	221	221	221
Rosenberg scale total score	Pearson correlation	-.661**	.022	-.500**	-.221**	.158*	-.563**	1	-.487**
	Sig. (2-tailed)	.000	.747	.000	.001	.018	.000		.000
	N	221	221	221	221	221	221	221	221
SPIN total score	Pearson correlation	.495**	-.052	.427**	.166*	.000	.485**	-.487**	1
	Sig. (2-tailed)	.000	.443	.000	.013	.995	.000	.000	
	N	221	221	221	221	221	221	221	221

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

10.3.1. The relationship between the two domains of perfectionism and depression

Hypothesis: Athletes with stronger tendencies toward perfectionistic concerns (PC) are more likely to experience depressive symptomology. Conversely, athletes with stronger tendencies toward perfectionistic strivings (PS) are less likely to experience depressive symptomology.

H_0 Part 1: There is no positive correlation between perfectionistic concerns (PC) and depression among athletes.

H_1 Part 1: There is a positive correlation between perfectionistic concerns (PC) and depression among athletes.

H_0 Part 2: There is no negative correlation between perfectionistic strivings (PS) and depression among athletes.

H_1 Part 2: There is a negative correlation between perfectionistic strivings (PS) and depression among athletes.

As perfectionism is conceptualized as a common trait among athletes (Baum, 2013; Parker, 2002), its relationship with mental health problems has been extensively researched (Jensen et al., 2018; Nixdorf et al., 2016). These recent studies – as well as others conducted in different fields – have established a positive relationship between maladaptive perfectionism and the prevalence of depressive disorders (Cooks & Ciesla, 2019). In addition to the underlying mechanisms of PC themselves, comorbidities – such as anxiety disorders, social disconnection, and sleep disturbance – may also play a role in depression onset among athletes (Koivula et al., 2002; Sherry et al., 2013). In contrast, the body of research on the connection between healthy perfectionism and depressive disorders is not equally conclusive. Stoeber (2011) argues that healthy perfectionism has positive associations with elevated self-confidence and a positive self-image, which are believed to enhance the individual's resilience to negative life events (Enns & Cox, 2005). However, this assumption is not

universally shared. Some studies suggest that PS has depressogenic effects (Smith et al., 2016), while others found no significant correlation (Jensen et al., 2018). These theoretical considerations lead to an assumption that PC has a negative connection with mental well-being (i.e., PC scores positively correlate with CES-D scores). Given the uncertainty of the connection between PS and depressive symptomology, it was important to investigate further. Hence, the second part of this hypothesis states that PS has positive associations with mental health (i.e., PS scores correlate negatively with CES-D scores).

The results of the correlation analysis (see Table 27 & Figure 4) indicate a moderate positive correlation between the prevalence of depressive symptomology among athletes and PC. Thus, the first part of the hypothesis is supported. These findings are similar to those of Jensen et al. (2018), who also found a positive relationship between mental health problems and PC. Nixdorf et al. (2016) also found evidence for a positive correlation between unhealthy perfectionism and depression. However, the present study (r = *.541*) suggests a stronger correlation than that concluded by Nixdorf et al. (r = .14) and Jensen et al. (r = .32).

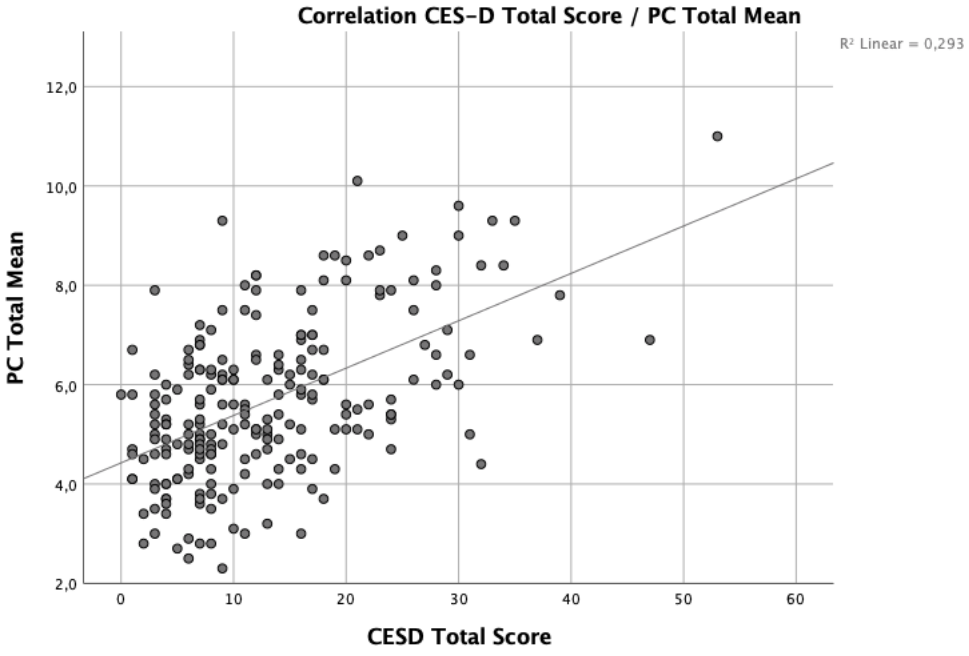

Figure 4: Correlation between CES-D score and PC mean

Apart from the the average scores for the RSES (r = -.661), PC had the second-strongest correlation with depressive symptoms. The positive correlation between PC and depression indicates that coaches and professionals who work with depressed athletes should consider the importance of this personality trait. It is my personal experience that other factors related to depression – such as low self-esteem and competitive anxiety – are more often discussed with athletes. Perfectionism, on the other hand, is often seen as an essential and strictly positive core trait. It has even been argued that perfectionism is necessary for those who want to improve their performance and reach peak competition levels (Hendawy & Awad, 2013; Stoeber, 2011). Furthermore, some athletes have been revered for their relentless pursuit of perfection. However, as most coaches and athletes do not have a background in perfectionism research, they are often unaware of the duality of perfectionism in the realm of competitive sports (Stoeber, 2011; Stoeber & Otto, 2006). In other words, they do not recognize the detrimental nature of some aspects of perfectionism.

Even if maladaptive perfectionism is considered, the connection between PC and depressive symptomology is not necessarily directly evidenced. For instance, Jensen et al. (2018) found that PC has a positive indirect effect on depressive disorders by means of competitive anxiety. Further athlete-relevant mediating factors between PC and depression can be rumination (e.g., before a big competition) and low self-esteem (e.g., following failure in competition settings) (Chai et al., 2019; Harris et al., 2008). Taking these assumptions into account, it is understandable that the association between PC and depression is not necessarily clear at first glance. However, given the evident correlation, coaches should pay attention to negative perfectionistic tendencies among their athletes. The presence of maladaptive perfectionism can be important information for any potential intervention or prevention measure. Addressing PC can have an alleviating and preventive effect on the occurrence of depressive symptoms among athletes. Furthermore, knowledge about the correlation between PC and depression allows coaches to tailor negative feedback such that it does not further decrease the self-worth of the athlete and cause them greater distress (Hegarty et al., 2018).

Unlike maladaptive perfectionism, PS had neither significant positive nor significant negative correlation with depressive disorders (see Table 27 & Figure 5). Hence, the second part of the hypothesis could not be supported.

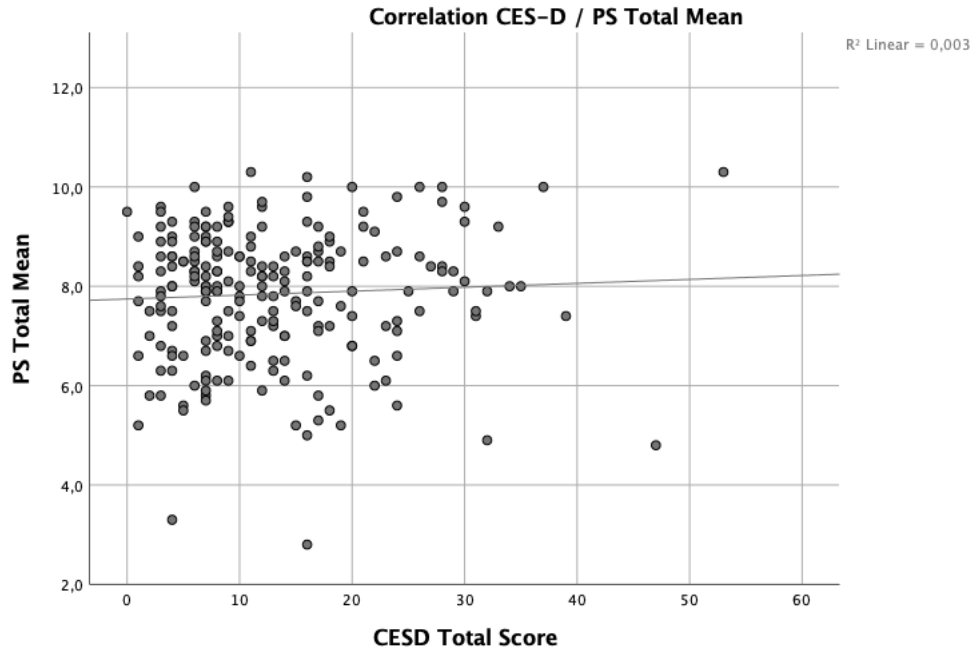

Figure 5: Correlation between CES-D score and PS mean

However, the results suggest that if one domain of perfectionism appears, it tends to appear together with the other (Stoeber, 2011). This is an important consideration in this context, as the presence of negative perfectionistic tendencies might negate the positive effects of PS (Stoeber, 2011). Hence, the positive correlation between PC and PS (*r* = .*354*) might be the reason for the lack of a significant negative correlation between healthy perfectionism and depression (see Table 27). Overall, this result is unsurprising, given that the body of existing research on the correlation between PS and depressive disorders remains inconclusive (Lizmore et al., 2017; Smith et al., 2016). Therefore, no practical implications can be derived from this result.

10.3.2. The relationship between sleep and depression

Hypothesis: Athletes with poor sleeping habits are more prone to experience depressive symptomology. Athletes who sleep less during the night are also more likely to be depressed.

H_0 Part 1: There is no positive correlation between poor sleeping behavior and depression among athletes.

H_1 Part 1: There is a positive correlation between poor sleeping behavior and depression among athletes.

H_0 Part 2: There is no negative correlation between sleep amount during the night and depression among athletes.

H_1 Part 2: There is a negative correlation between sleep amount during the night and depression among athletes.

As sleeping problems and depressive disorders share a bi-directional connection (Franzen & Buysse, 2008; Lustberg & Reynolds, 2000), the unique sleeping demands of athletes warrant investigation in this study's context (Copenhaver & Diamond, 2017; Driller et al., 2018). Athletes struggle to maintain healthy sleeping routines (Holmes, 2019), which is a significant risk factor for depression onset. Therefore, this study investigated the correlation between sleep behavior quality and the prevalence of depressive symptoms and the connection between average sleep during the night and depression. Poor sleep behavior (i.e., a high score on the ASBQ) has a significant positive correlation with depressive symptomology (i.e., high score on the CES-D) (see Table 27 & Figure 6). The correlation coefficient indicates a weak to moderate correlation (r = .351). The correlation analysis also found a significant negative correlation between hours of sleep per night and CES-D scores: the less an athlete slept during the night, the more likely they were to experience depressive symptoms (see Table 27 & Figure 7). However, when compared to the correlation between the ASBQ and the CES-D, the correlation coefficient was weaker (r = -.214). This suggests that, while sleep during the night is important, a lack of it can be compensated, to a certain degree.

A nap is one suggested way of maintaining proper sleep hygiene despite diminished sleep at night (Waterhouse et al., 2007).

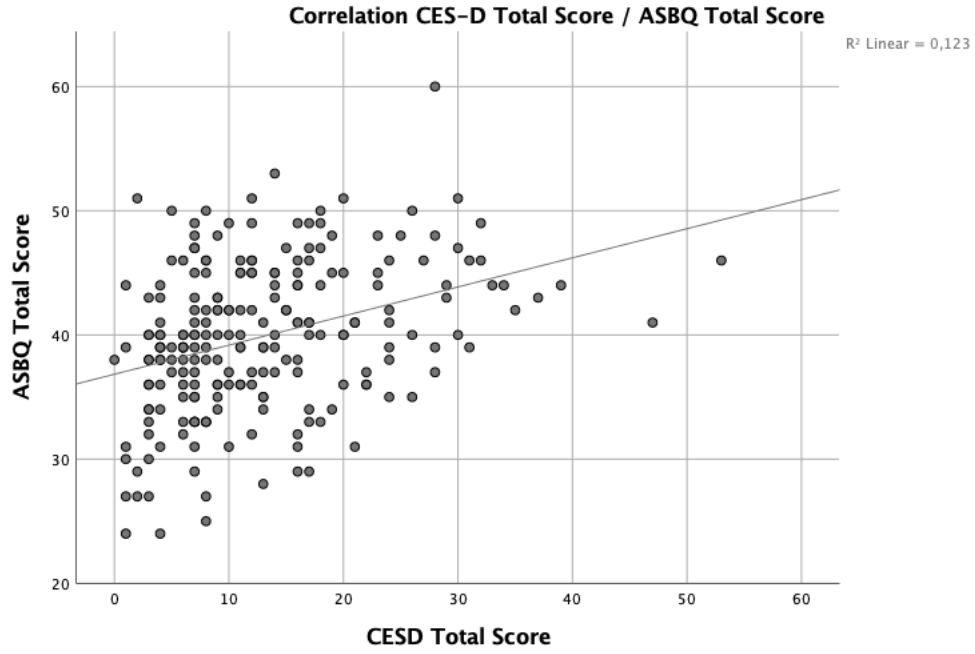

Figure 6: Correlation between CES-D score and ASBQ score

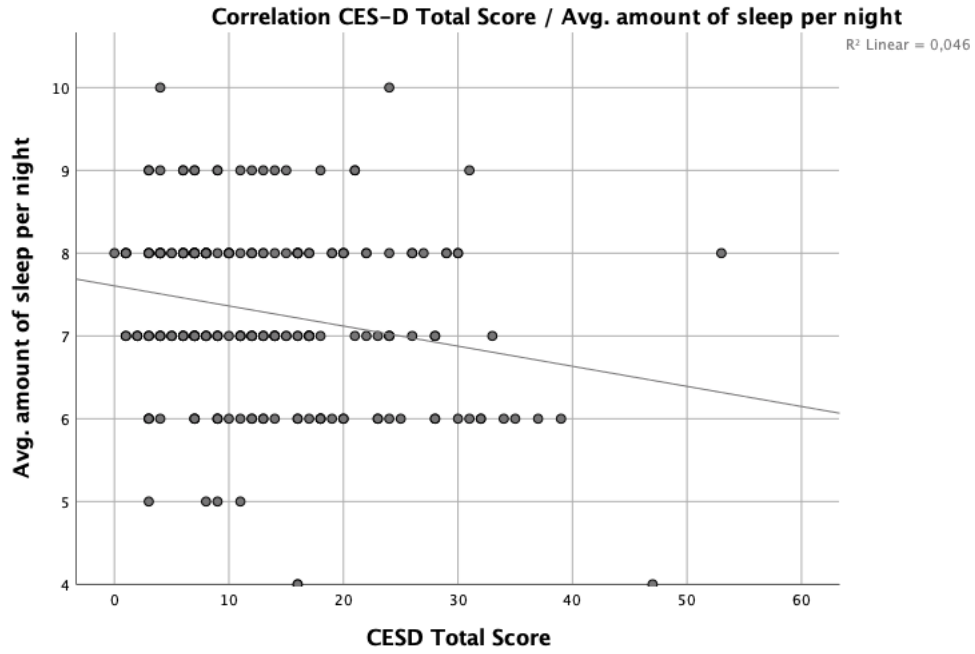

Figure 7: Correlation between CES-D score and avg. sleep amount

Regardless of this difference, both results indicate that poor sleep behaviors have a negative connection to mental health among athletes. Hence, both parts of the hypothesis are supported.

Coaches should be aware of the sleeping needs of their protégés to ensure proper physical and psychological recovery. All too often, coaches in high-level competition settings want to win at any cost, which results in them demanding too much of their athletes (Gervis & Dunn, 2004). Unfavorable practice volume and scheduling, for example, can lead to sleep and recovery impairments (Sargent et al., 2014).

The results of this study (see Table 15) also indicate that the prevalence of depressive symptomology is higher among athletes aged 14-25 (CES-D mean = *14.88*) than for the older group (CES-D mean = *9.33*). Many of these athletes must accommodate morning practices, school or university, and evening practices. In my personal experience of working with youth academy athletes, I have found that athletes struggle to fall asleep after late practices and must then wake up early for school or individual practice the following day (Copenhaver & Diamond, 2017; Milewski et al., 2014). Hence, the stronger correlations between sleep problems and depression for younger athletes seem logical and expected.

Table 28: Correlation table CES-D & sleep factors (adolescents & young adults)

Correlations between sleep problems and depression, 14-25-year-olds[a]

		CESD total score	Avg. amount sleep per night	ASBQ total score
CESD total score	Pearson correlation	1	-.233**	.294**
	Sig. (2-tailed)		.005	.000
	N	146	146	146
Avg. amount sleep per night	Pearson correlation	-.233**	1	-.117
	Sig. (2-tailed)	.005		.161
	N	146	146	146
ASBQ total score	Pearson correlation	.294**	-.117	1
	Sig. (2-tailed)	.000	.161	
	N	146	146	146

**. Correlation is significant at the 0.01 level (2-tailed).

a. Age range = adolescents and young adults (aged 14-25)

However, only a slight increase in the correlation coefficient of the average amount of sleep per night and depression was found (r = -.*233*) (see Tables 27 & 28). In contrast, the correlation between the ASBQ score and depression (r = .*294*) levels was weaker than in the complete sample. Hence, no indication of an elevated association between sleeping problems and depression among younger athletes was found. Further investigation is necessary to explain this result. In any case, the results suggest that poor sleep behaviors are correlated with depressive disorders. Hence, it is important to convey to coaches that steps can be taken here rather easily. A focus on athlete sleep quality is the intervention that perhaps requires the least effort. Depending on the skills and training of the coach, it might also be the only possible intervention that does not require the support of a psychologist or psychiatrist. Ideas for how coaches can improve the sleeping quality of their athletes were discussed previously.

10.3.3. The relationship between sleep and maladaptive perfectionism

Hypothesis: Athletes with unhealthy sleeping habits are more likely to exhibit perfectionistic concerns (PC).

$H_{0:}$ There is no positive correlation between poor sleeping habits and perfectionistic concerns (PC) among athletes.

$H_{1:}$ There is a negative correlation between amount of sleep had during the night and depression among athletes.

Having seen that both poor sleep behavior and maladaptive perfectionism are positively correlated with depression, it is interesting to investigate the extent and strength of these associations (see Table 27). As previously indicated, Lin et al. (2019) found that PC positively correlates with poor sleep quality. Drawing from their research, it was assumed that higher scores on the added PC scales would indicate poorer sleep behavior (i.e., higher ASBQ scores). The findings of the correlation analysis support this claim and the hypothesis, indicating a moderate positive correlation ($r = .317$) between the prevalence of bad sleep behavior and maladaptive perfectionism (see Table 27 & Figure 8).

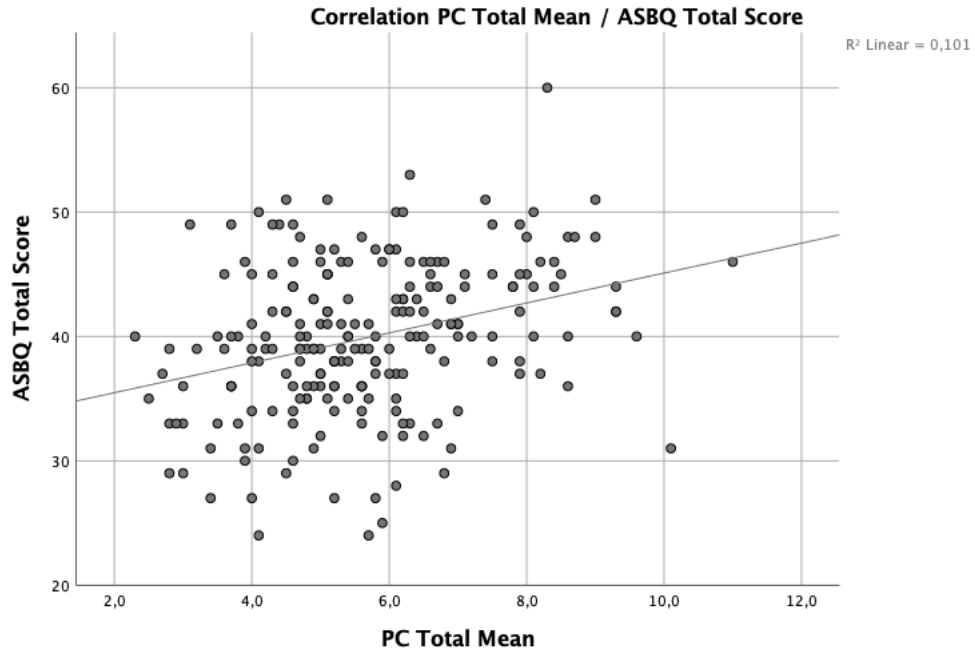

Figure 8: Correlation between PC mean and ASBQ score

As previously mentioned, PC are associated with depression via mediating factors. The same principle is true in case of poor sleep quality. Repetitive negative thinking and worry are the primary mediating factors between unhealthy perfectionism and decreased quality of sleep (Lin et al., 2019). In practical terms, this means that negatively perfectionistic athletes lose sleep after they have underperformed, worrying about the opinion of others in regards to their performance. Perhaps more commonly, maladaptive perfectionists worry about potentially negative outcomes prior to competitions. When these negative repetitive thinking patterns commence, loss of sleep is often the result. Insufficient sleep recovery can then cause performance issues during the competition. This can then lead once again to negative mechanisms of PC. This suggests that the correlation between maladaptive perfectionism and poor sleeping behavior can create a vicious circle. When coaches notice this downward spiral, a possible intervention is to refer their athletes to professionals for training in mindfulness. Mindfulness training has been shown to reduce the mediating factors of rumination and worry, allowing individuals to reduce their repetitive thought patterns (Lin et al., 2019; Pillai & Drake, 2015).

10.3.4. The relationship between competitive anxiety, self-esteem, social phobia, and depression

Hypothesis: Competitive anxiety, lack of self-esteem, and social phobia are all positively correlated with the prevalence of depressive symptomology among athletes.

H_0 Part 1: There is no positive correlation between competitive anxiety and depression among athletes.

H_1 Part 1: There is a positive correlation between competitive anxiety and depression among athletes.

H_0 Part 2: There is no negative correlation between self-esteem and depression among athletes.

H_1 Part 2: There is a negative correlation between self-esteem and depression among athletes.

H_0 Part 3: There is no positive correlation between social phobia and depression among athletes.

H_1 Part 3: There is a positive correlation between social phobia and depression among athletes.

The theory review of this thesis indicated that PC have close relationships with not only depressive disorders, but also anxiety disorders and decreased social connectedness. This implies connections between negative perfectionism, competitive anxiety, and social phobia. Furthermore, PC can have a negative correlation with self-esteem (Harris et al., 2008; Jensen et al., 2018; Koivula et al., 2002; Sherry et al., 2013; Stoeber et al., 2007). Conversely, competitive anxiety (or anxiety disorder), low self-esteem, and social phobia have been identified as potentially mediating factors between unhealthy perfectionism and depressive disorders (Chai et al., 2019; Jensen et al., 2018; Ohayon & Schatzberg, 2010).

Finally, these factors have comorbidity with depressive disorders and are considered to be risk factors and symptoms of the psychological ailments (Hammen & Watkins, 2018; Krishnan, 2003; Orth & Robins, 2013).Therefore, it was interesting to identify whether and how these three factors correlate with the prevalence of depressive disorders among the participants of this study.

Competitive anxiety (*r* = *.535*), social phobia (*r* = *.495*), and self-confidence (*r* = -*.661*) were all significantly correlated with depressive disorders (see Table 27 and Figures 9-11). These results support the hypothesis and provide further evidence for the postulated close relationship between depression and these factors.

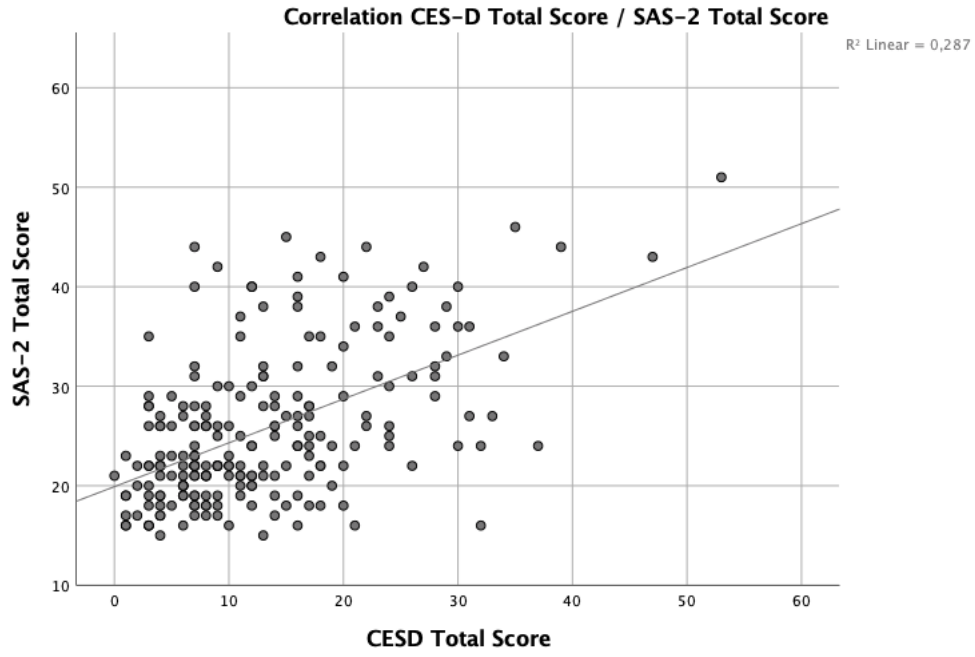

Figure 9: Correlation between CES-D score and SAS-2 score

Competitive anxiety was identified by Jensen et al. (2018) as a mediator of PC and depression. As indicated in the theory section, competitive anxiety manifests itself in worries about potential failure (Stoeber et al., 2007). This manifestation is, of course, very similar to the maladaptive perfectionism dimension of *concern over mistakes* (Dunn et al., 2002; Madigan et al., 2017; Rasquinha et al., 2014; Stoeber & Otto, 2006). Considering their similar underlying mechanisms, it is hardly

surprising that, as maladaptive perfectionism is correlated with depressive disorders, competitive anxiety is similarly linked. In fact, the correlation table (see Table 27) shows that unhealthy perfectionism and competitive anxieties share a significant positive correlation (*r* = *.655*). This result is supported by Stoeber et al. (2007) and Hamidi and Besharat (2010), who reached similar findings.

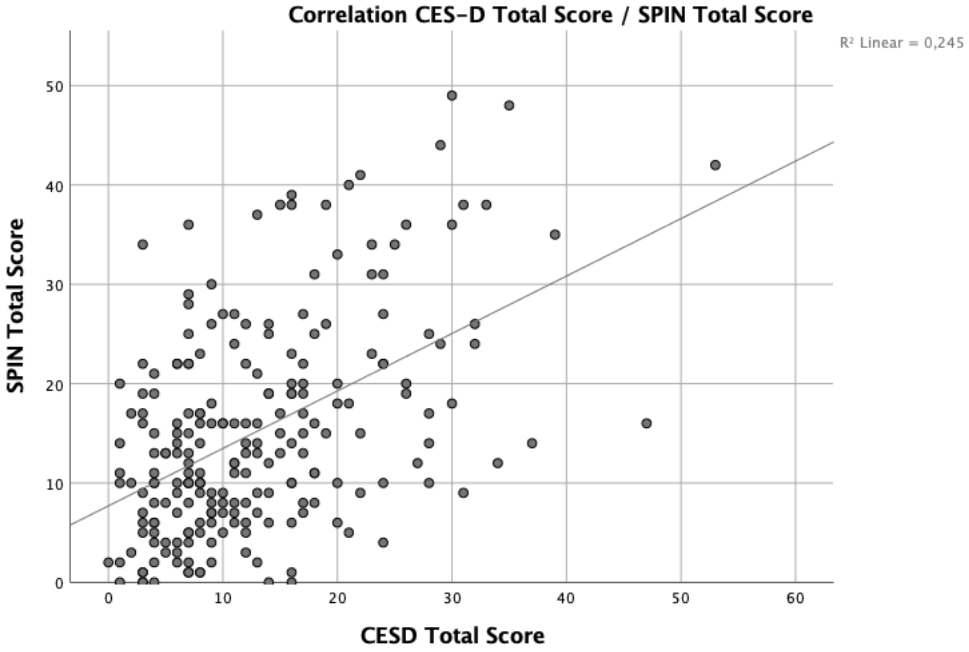

Figure 10: Correlation between CES-D score and SPIN score

While Jensen et al. (2018) found no mediating effects of social phobia for maladaptive perfectionism and depressive disorders, there is reason to believe that the three factors share a closer connection. One theoretical indication is that athletes with unhealthy perfectionism tend to have distorted perceptions of their social interactions, as they experience a constant fear of negative judgement and heightened anxiety sensitivity (Flett et al., 2004; Stoeber, 2011). At worst, this leads to social disconnection, which can in turn encourage the onset of depressive disorders (Harris et al., 2008; Sherry et al., 2013). Although no mediation effect tests were conducted in this thesis, a relationship between depression and the factors of social phobia and PC can be summized. Social phobia correlated positively with both depression (*r* = *.495*) and PC (*r* = *.427*).

Social phobia is a very interesting topic for further investigation in the context of team sports. As lack of social cohesion within a team can be a factor in the development of depressive disorders (Frank et al., 2013), it would be valuable to investigate how poor team-chemistry affects depressive disorders, and vice versa. It would also be useful to identify whether any interrelation changes with the team size (e.g., differences between tight-knit groups, such as tennis doubles, and NFL rosters that consist of 60 players).

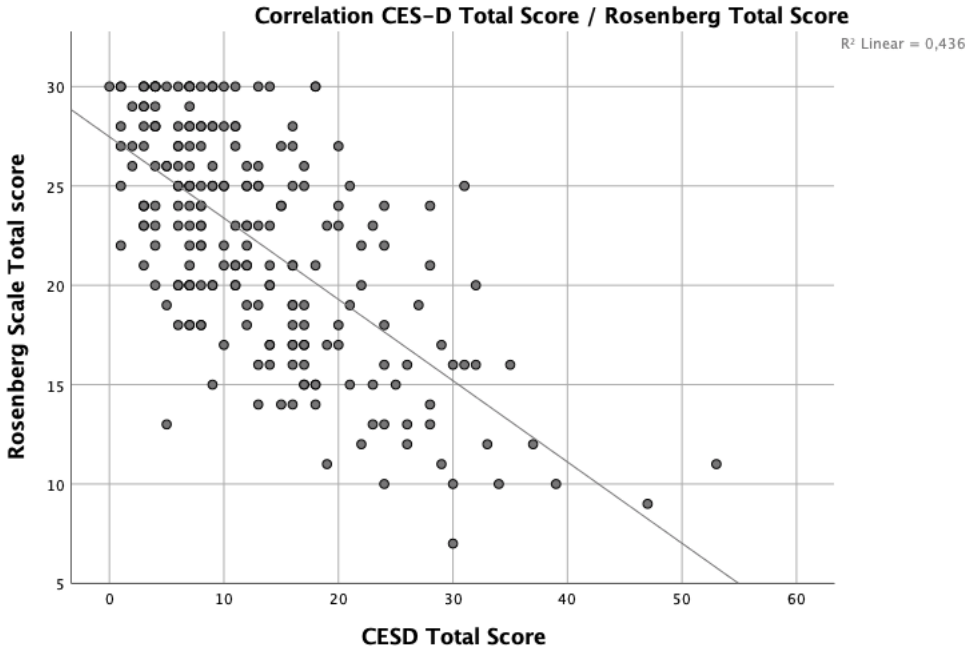

Figure 11: Correlation between CES-D score and Rosenberg score

Finally, self-esteem, the factor most closely correlated with depression, should be discussed in the context of its connection to perfectionism. Self-esteem had a strong negative correlation with depression (*r* = -.*661*) and a moderate positive correlation with PC (*r* = .*500*). Previous studies have suggested connections between maladaptive perfectionism and decreased self-confidence among athletes (Hamidi & Besharat, 2010; Koivula et al., 2002). Considering the deep connection between low self-esteem and depressive disorders, it is clear that these perfectionist mechanisms can encourage the onset of depressive disorders (Chai et al., 2019; Orth & Robins, 2013). As all sports are games and disciplines are “games of mistakes” (i.e., the party who makes fewer mistakes has a better chance of winning), a negative attitude towards mistakes can destroy the self-

confidence of an athlete – not only slowing a career down, but also deteriorating the individual's mental health. Conversely, a positive attitude toward mistakes can elevate a career.[34]

While not central to this thesis, the correlations between depression and these risk factors have an important implication: these connections further emphasize the complexity of depressive disorders. This complexity should be acknowledged by athletes, coaches, and therapists alike, as it ensures the parties approach the treatment and intervention measures from a variety of angles.

10.4. Problems and limitations of this study

10.4.1. Time constraints

The most evident limitation of this study was its time constraints. Although the initial idea emerged more than two years ago, due to work obligations and accompanying time constraints, the study and thesis had to be completed over just 3.5 months. More time would have made a broader scope possible. Another time constraint-related factor was the data-collection instruments. A significantly longer timeframe would have allowed for more sophisticated ways of measuring factors such as depressive symptoms and sleep hygiene.

10.4.2. Limitations of the data collection

While the answers to the questionnaire indicated whether an athlete was suffering from depression or competitive anxiety or was sleeping poorly, these were solely indications. More precise measurement tools would have improved the diagnostic quality of the study. Two noteworthy examples are the CES-D (Radloff, 1977) used for diagnosing depression symptoms and the ASBQ (Driller et al., 2018), which explored the recent sleeping habits of the athletes. Both the ASBQ and the CES-D are conceptualized as short self-report scales (Driller et al., 2018; Radloff,

[34] Consider this famous quote by arguably the best basketball player of all time, Michael Jordan: "I've missed more than 9,000 shots in my career. I've lost almost 300 games. 26 times, I've been trusted to take the game winning shot and missed. I've failed over and over and over again in my life. And that is why I succeed" (Lizmore et al., 2017).

1977) over a relatively short time span (one month for the ASBQ and one week for the CES-D). Clearly, the first problem is that while both scales can give hints via self-reflection, the accuracy of the results may leave much to be desired. In both cases, there are more extensive and precise means of gathering information.

The CES-D instrument captures the feelings and moods of the respondents during the previous seven days. Within that sentence lies the first problem: can one speak of a reliable diagnosis of depression after seven days? Jensen et al. (2018, pp. 152, 153) note the same concern:

> *"[…] the measure for depressive symptoms investigated only the last week prior to data collection, not allowing for inferences about how long these symptoms had been present."*

This lack of depth to the data makes it difficult to go beyond limited indications of depressive symptomology. Hence, the CES-D cannot provide a clinical diagnosis, which is a common issue among self-report scales. Vilagut, Forero, Barbaglia, and Alonso (2016) argue that the CES-D is an adequate initial method of identifying individuals who potentially struggle with depression, but it should not be considered a sole method of diagnosis. Furthermore, the CES-D may struggle to differentiate between depression and anxiety, as well as between current and prior disorders (McDowell, 2006, p. 373). The ASBQ, on the other hand, has its own set of limitations. For example, a self-administered sleep behavior questionnaire, in addition to having issues in terms of answer reliability, cannot take other dimensions of athletes' sleep patterns into account. Different means of investigation would be necessary to examine sleep phases or how different types of sleep behavior affect the human body (e.g., heart rate, recovery time).

While these two parts of the questionnaire are highlighted, it should be noted that all the screening methods are self-administered screening tools. Thus, the results are based upon the reflections of the participants, which are often insufficient to paint a clear picture (Hammond et al., 2013). For example, participants might try to present themselves in a more favorable light by selecting answers that are not necessarily congruent with their actual feelings, attitudes, or behavior (McDonald, 2008). This phenomenon is known as "socially desirable responding" (Paulhus, 1991). In the context of depression among competitive athletes, this could be a substantial problem. Owing to their desire to appear strong and thus to hide any

mental health problems, athletes tend to under-report symptoms on self-administered screening questionnaires (Wolanin et al., 2015). Similarly, participants might depart from realistic self-conceptions as a form of self-enhancement (Taylor & Brown, 1988). While socially desirable responding and the diversion from realistic self-conception for the sake of self-enhancement imply that participants have an accurate self-image but choose to give false responses, it should be noted that people often have a distorted outlook about themselves. In other words, the way that participants think that they perform does not necessarily match the way they actually perform (John & Robins, 1994). As self-administered questionnaires may not produce entirely accurate results and valid diagnoses, additional forms of assessment should be considered. For example, for a conclusive diagnosis of social phobia (or, in more technical terms, social anxiety disorder), clinical interviews and behavioral assessments should be employed in addition to self-assessment scales such as the SPIN (McCabe, Ashbaugh, & Antony, 2010). To more accurately diagnose a depressive order beyond its symptomology, the CES-D should be supported by other means of assessment, such as clinical interviews (Bech et al., 2015; Vilagut et al., 2016).

In addition, there were potentially also other problems with the accuracy of the self-reports and screening tools. As previously indicated, to ensure the questionnaire was accessible, a German version was created alongside the original English version. The respondent data show that this was an appropriate decision: of 273 participants (221 correctly completed questionnaires), 140 opted for the German version (111 completions) and 133 for the English survey (110 completions). However, Schwarz (1999, p. 93) found that "self-reports are a fallible source of data, and minor changes in question wording, question format, or question context can result in major changes in the obtained results." In the context of this diploma thesis, this is problematic because some of the screening tools used were not available in German. The CES-D, for example, was difficult to access, while the ASBQ had no valid German translation as of November 7th, 2019. The original SAS does have a German version – the "Wettkampfangst Index-Trait" (WAI-T). However, although it claims to be the German version of the SAS (Bundesinstitut für Sportwissenschaft, 2019), it is scored differently and does not employ the same number of question items as the SAS-2, which is used in this

study (Smith et al., 2006). Jensen et al. (2018) faced the same issue when investigating Swedish and Danish soccer players using English-language screening tools. The coaches of their participants (2018) indicated that their athletes had sufficient command of English to successfully navigate the questionnaire. Hence, there was no need for Swedish or Danish versions of the screening tools.

However, the current study was administered in two languages as it was not certain that all participants would be capable of filling out the questionnaire in English. Furthermore, as the questionnaire was quite lengthy (with more than 130 question items), it was a goal to make the answering process as convenient as possible. Even if the participant had a good command of English, it can be assumed that answering in one's mother tongue (in this case, German) would necessarily be easier. However, this meant that some parts of the questionnaire had to be translated without a source indicating the translated version's validity. While the questions were translated as closely as possible from English to German, the validity of the outcomes could be improved upon in the future (Schwarz, 1999).

In conclusion, there was a choice between making the questionnaire sufficiently accessible for as many participants as possible (with the potential drawback of losing some degree of data accuracy) and maintaining the original versions of the screening tools (with the potential drawback of losing a significant number of potential participants). While Jensen et al. (2018) chose the latter approach, the present study decided in favor of a broader set of respondents and a larger data pool.

Fortunately, the internal consistency for the German screening tools used in this study was equal to that of the original English counterparts. On occasion, the Cronbach alphas of the German scales even exceeded those of the English scales.[35]

[35] For the precise results, please refer to the footnotes in the sections which discuss the tools employed.

10.4.3. Competitive vs. professional athletes

Another difficulty was the choice of groups to include in the study. Jensen et al. (2018) chose elite-level soccer players for their investigation of how perfectionism and competitive anxieties – among other factors – influence mental health. The term “elite” was indirectly defined as competing in the top-level (i.e., first league) of the athletes’ respective national competitions (Jensen et al., 2018, p. 149). However, due to the scope of the present study, there were some challenges to applying this definition. To illustrate the issue, these challenges will be discussed using the example of basketball teams. To broaden the potential pool of participants, basketball teams from multiple European countries were contacted. Some of these teams were not in the top tier of their respective national competitions and thus not of elite-level status, as defined by Jensen et al. (2018). However, some second-tier competition teams in Germany had managed to beat Austrian top-level teams. For example, in a 2019/20 pre-season exhibition game between the VFL Kirchheim Knights (second league Germany) and the BK ImmoUnited Dukes Klosterneuburg (first league Austria), the lower-tier team came away victorious (Hradil, 2019). Although these two clubs did not participate in the survey, there were athletes from teams competing in the same two competitions who answered the questionnaire. This poses the question of whether the second league team should now be considered elite, and the Austrian top tier team not. While this example concerns a single, relatively meaningless, pre-season exhibition game, it exemplifies that the elite label can be problematic when comparing team-sport athletes from multiple countries and competition tiers. The levels of performance simply differ too greatly to employ the “elite” label within the context of this thesis.

As a result, a replacement for the term was necessary. Initially, the decision was made to investigate how “professional” athletes are affected by depressive disorders. This term was chosen because it concerned a larger group of participants, while remaining close to the idea of athletes who excel at their respective disciplines. As term suggests, professional athletes receive money or similar form of compensation for their efforts (Kiswandari, 2012). However, this created problems with the Austrian sports landscape. Once again, an example

from the top-tier Austrian basketball league can be taken to illustrate the challenge. Some players in teams at the highest level of the Austrian basketball competition do not receive monetary compensation in for their performances. For instance, many youth academy players who are already on their teams' main rosters – some already playing significant minutes – are not paid. In the Austrian women's league, there are teams where no players receive any form of payment. This example shows that some players who could be considered elite, according to Jensen et al. (2018), are not professional in the literal sense. At the same time, these athletes – as well as those competitors who receive money but must also work in other professions on the side – cannot be categorized as "amateur" or "recreational" either, as these terms indicate that their respective sports are hobbies and ways of interacting with one's social circles in accordance with the values of one's community (Kiswandari, 2012). Again, this generated a gray area that would ultimately have prevented the widening of the scope of the survey.

Due to this dissatisfaction with the existing definitions, inspiration was taken from the term "performance athlete," coined by Kiswandari (2012, p. 244). Hence, the study called for athletes who trained and developed in a gradual manner and partook in achievement-oriented competition. In addition to the existing components of Kiswandari's definition, the athletes should have a desire to achieve and follow personal and team-oriented goals, such as personal growth, winning, scoring better contracts, participating in higher competition, or maximizing their potential. The athletes who fit this categorization were described as "competitive athletes."

This custom definition led to the desired result: a broad spectrum of participants. Participants ranged from youth athletes to Olympic participants and from athletes on the fringes of making an NBA team to basketball players who still pay a club fee.

10.4.4. Uneven distribution of participants

The results show that the distribution of the participants was unbalanced, with basketball athletes and individual sport athletes making up the majority of the respondents (*85.5*%). Only *32* of the *211* athletes who filled out the whole questionnaire had a soccer background**.** Hence, the data depth of the soccer

group was less than that of the other two groups. This made it more challenging to attain conclusive results when comparing the groups.

10.4.4.1. Uneven distribution of participants – soccer

The response of some soccer representatives to the request to share and fill out the questionnaires was a problem that led to an illuminating discovery. While some questionnaires were shared immediately, there was a significant reluctance among some executives and coaches to do so. On one hand, there were representatives and associates who asked for permission from their clubs and received a negative response. On the other hand, some coaches immediately declined the inquiry, politely citing club policies as their reasoning. The participation numbers indicate that soccer teams and their athletes had the lowest response rate of the three groups. In comparison to basketball players (*124* athletes, *56.1*%) and individual athletes (*65* athletes, *29.4*%), only *32* (*14.5* %) soccer athletes took part in the study and completed the questionnaire. This was unsurprising, as many soccer representatives and players expressed negative reactions to the initial inquiry. While the basketball personnel gave especially transparent and comprehensive explanations for not forwarding or filling out the survey, potential soccer participants did not do so. The responses ranged from negative reactions to indicating they were too busy to forward or fill out the questionnaire. One soccer club coach even stated that his players do not need this kind of investigation. Other clubs, unfortunately, did not respond to the initial request at all. The negative reaction to the study alone is noteworthy, yet it only paints one half of the picture.

The truly illuminating discovery alluded to earlier is that many of these adverse or indifferent reactions came from clubs participating in the highest tier of their domestic competition or even internationally. The respondent data reveal that only three of the 24 male, soccer-playing respondents (12.5%) have ever competed at the highest level of their national competition. Fortunately, the study generally received positive responses from basketball teams playing in elite European competitions and those in lower-level leagues. Conversely, the higher tier soccer clubs contacted did not respond with the same frequency as their counterparts in lower-level competitions.

In a personal phone conversation before our interview, Dr. Valentin Markser (personal conversation in November 2019) offered one possible explanation for this phenomenon of higher-level clubs and players being more reluctant to share information:[36]

> *"Imagine if you worked somewhere, where there is as much money involved as in elite soccer clubs: would you want to stir the pot and raise potential problems by, for example, finding out about unhealthy coping mechanisms? Often, decisions come down to keeping the wheels turning."*

This explanation hints that mental health issues and depression continued to be stigmatized in higher tiers of competition.[37] It also is a potential reason for the negative reaction of the high-level coach mentioned above.

Naturally, another possible explanation for these reactions could simply be that I am better connected in the world of basketball than I am to soccer clubs. Although there is truth to that notion, the respondent data suggest its importance is limited. The results show that the group of athletes with which I had the least connection – individual athletes (*65* athletes; *29.4*%) – yielded significantly more participants than the soccer group (*32* athletes; *14.5*%). This result is even more striking when one considers the roster size[38] of average soccer teams. Not only was the distribution of questionnaires among soccer players meager, but their response rate also left much to be desired. Bearing these findings in mind, it can be argued that the discourse around the mental well-being of high-level soccer athletes is remains limited in comparison to that of other sports.

10.4.5. Nationalities

The survey omitted any questions discussing nationality. Due to my own involvement in professional basketball, this decision was made with the anonymity of the basketball participants in mind. Information about the participants' heritage

[36] Note: this statement is analogous. It is presented as a direct quote to more easily make the point. While the message and the emphasis are the same, it should be noted that these were not the precise words of Dr. Markser, as (1) the conversation was held in German and (2) the conversation was conducted over the phone while arranging the details for the following interview.
[37] For more on the stigma of athletes battling mental health issues, please refer to section 6.4.
[38] For an example of roster sizes in American Major League Soccer (2018), please refer to https://www.mlssoccer.com/league/official-rules/mls-roster-rules-and-regulations.

in combination with details of their age, most significant achievements, and highest levels of competition would have enabled the easy identification of some of the athletes. However, most of the participants indicated the countries in which they had reached their career peaks, giving at least a general idea of demographics. While precise indications of the participants' nationalities would have allowed comparisons of different cultures, the respondents' anonymity could not have been guaranteed. Hence, this study did not elicit information on nationality. However, it is a safe assumption that most of the participating athletes have a European background.

10.4.6. Highest level vs. current level

Rather than indicating their current level of competition, the participants gave information about the highest tier at which they had ever competed. The decision to omit questions regarding current competition levels followed the same reasoning as that of the previous issue. Information about current competitions, in combination with other biographical data, would have allowed an easy identification of certain participants – especially among the basketball players. Had this study been conducted solely within the scope of one league, this would not have been as substantial a problem. However, as the questionnaires were distributed among several basketball teams across Europe – with some being the only participating teams in their respective countries – the international players' anonymity could not have been guaranteed. While the most logical solution to this problem would have been to avoid looking closely at the data connections, it was in the interest of the ethics of this study to keep the potential for identification to a minimum.

To quantify the information on competition levels, a specific coding system was established. Although the scale enabled comparisons of open response answers, some problems remained. First, the grouping process could not take differences between different first leagues into account.[39] For simplicity's sake, leagues with different strengths were grouped together where they had a logical common characteristic. For example, a group was formed for all types of pan-European

[39] For more on this issue, please refer to the section on "Competitive vs. professional athletes."

competitions – including individual European championships, club team events, and national team events. In the same vein, team-sport leagues from different countries received the same label where they were the highest tier in their respective countries. However, this meant that there were differences in skill and achievement levels within the individual groups. These differences became even more apparent when different sports were compared. It remains unclear how the same competition levels of different individual sports compare to one another, let alone to team-oriented sports. In more technical terms, the question of whether starting in the triathlon European championships is comparable to participation in the judo European championships is simply too difficult to answer in the context of this study – especially since these considerations are not the main interest of the thesis. Metaphorically speaking, these groupings compare apples and oranges – leaving room for improvements in regards to accuracy. However, this was necessary to investigate the survey data from the angle of the participants' level of performance.

10.4.7. Final thoughts

Despite its limitations, the questionnaire collected data from 211 participants, comprising a sufficient sample size. The results of the study thus enable a good general grasp of the correlations between depressive symptomology and different risk factors, as well as confirming and expanding the findings of Jensen et al. (2018). However, future studies on the topic of "Depressive disorders among competitive athletes" have room for improvement on several levels. Some ideas for expanding this study going forward are discussed in the following section.

10.5. Future directions and recommendations

The first logical step toward improving this study would be a reassessment of the screening tools. Returning to the Vilagut et al. (2016) assessment of the CES-D, it can be argued that future studies should employ more sophisticated methods of diagnosis, such as Paykel's clinical interview for depression (Bech et al., 2015; Guidi, Fava, Bech, & Paykel, 2011). As with the CES-D, interviewees answer questions about their mood and potential depressive symptoms that may have occurred during the previous seven days. Clinical interviews also enable an

interviewer to observe the conversation and the interviewee's behavior. Ideally, such interviews could be conducted by physicians or, better yet, sports psychologists and psychiatrists to yield more accurate results. While this serves only as an example of how depressive disorders can be more accurately diagnosed, an improvement in the extensiveness of screening methods for all measurements should be sought.

Conducting future studies over an extended timeframe would enable more sophisticated means of screening. Additionally, the validity of the Germanized screening tools should be investigated and, where necessary, improved, "as the psychometric properties of any translated measure must be assessed" (Radomsky et al., 2006, p. 4). While testing of the internal consistency of the German translations of the screening tools yielded satisfactory results, for some tools, such as for the athlete sleep behavior questionnaire, valid and reliable translations will be required going forward.

In addition, some issues surrounding the collection of biographical data should be addressed. As previously mentioned, the survey excluded questions on nationality and current playing levels to preserve the anonymity of the participating soccer and basketball players**.** The inclusion of such questions would have enabled comparisons of athletes at different career stages or from different cultural backgrounds. Rather than disseminating questionnaires around Europe, future studies could narrow their scope to one or two levels of competition within a single sport. (e.g., solely teams from the Austrian and German soccer Bundesliga competitions). This would open new alleys for research. A study could consider how the mental health of soccer athletes at the beginning of their careers compares with that of players in the later stages. The findings could then be compared for the two leagues. However, to guarantee a sufficiently large data set, as well as the anonymity of the participants, the study would need to cover the entire competition tier (i.e., every team would at least need to forward the questionnaires to their athletes).

Whereas the issue of the athletes' current levels of competition can be resolved by specifying sports and tiers, as Jensen et al. (2018) did, the issue of nationalities is more complicated. This can be illustrated if we take the prior example of a comparison of soccer players and apply this in the context of the Austrian and

German basketball leagues. If every basketball player in the German easyCredit Bundesliga (BBL, 2019) and the Austrian ADMIRAL Basketball Superliga (Berger, 2019) participated in the aforementioned survey, there would be three French players in a pool of 491 athletes.[40] Once again, these three athletes would be easy to identify. This demonstrates that where there are outliers in terms of nationality, the anonymity of these players will be threatened. This may have been the reason for the choice of Jensen et al. (2018) not to discuss the nationalities of their participants. However, since this problem primarily stems from my personal involvement in professional basketball, there are two possible solutions: either future studies could focus on sports in which there is not as much personal involvement as in basketball, or they could conducted by researchers who are not so immersed in one discipline.

The more interesting considerations, however, deal with the directions for future studies of this topic. Perhaps the most obvious approach would be to focus more on individual factors and dive deeper into their relationship with depressive disorders among athletes. One of the most valuable potential future questions would be the relationship between sleeping habits and depression, as the sleep difficulties of professional athletes have become a dominant area of discussion (Holmes, 2019). A closer examination of the role sleep plays in the mental health issues of athletes would be a timely discussion topic. As has been suggested, an expansion of the methodology employed in this thesis should be a goal for future work. Rather than relying on the ASBQ for insights into athletes' sleeping habits, questionnaires such as the sleep hygiene index (Mastin, Bryson, & Corwyn, 2006) or the Pittsburgh sleep quality index (Buysse et al., 1991) could be used. An even more significant improvement would be the introduction of clinical sleep measurement instruments, such as polysomnography or a – less sophisticated yet more practical – wrist actigraphy tool (Kosmadopoulos, Sargent, Darwent, Zhou, & Roach, 2014). Studies employing these and other, more sophisticated screening instruments are likely to yield more accurate results. They could thus give a clearer picture of the interrelation between depression and certain sleeping habits and problems.

[40] Killian Hayes, Matthias Lessort, and Eric Katenda. Please refer to the databases provided in the footnotes above for more information. Data collected as of November 19th, 2004.

Another future direction could be to specify a single sport and explore how its unique demands affect the mental health of athletes. Some conceivable research questions for the sports discussed in this thesis are as follows:

- A cross-sectional study: How are the travel schedules of NBA teams related to the mental health of the players? Do athletes who endure more grueling schedules struggle more with mental health issues than other athletes? When travelling longer distances, what kind of factors come into play with regards to the mental health of players? (Villas, 2018).[41]

- A longitudinal qualitative study: How do the ongoing changes in the Euroleague basketball schedule affect players? Has the increase in games over the last couple of seasons affected the mental health of the athletes? (Bouranis, 2018).

- A cross-sectional study: Are there mental health-related differences between soccer players who compete in multiple competitions (domestic leagues, Champions League, UEFA Euro League) and those who play only in domestic leagues?

- A longitudinal study: Are competitive skiers more likely to suffer from mental health problems during the season or during the off-season?

- A cross-sectional study: How do the approaches to mental health issues of high profile clubs/athletes differ from those of clubs/athletes further down the pecking order?

Finally, the perhaps most intriguing idea for a follow-up study emerged from an unexpected event that occurred during the distribution of the questionnaires: the interest in the topic among coaches who agreed to share the survey. Although it

[41] For a general understanding of the travel demands of an NBA team, please refer to this article by Rexwell Villas (2018): https://clutchpoints.com/blazers-news-portland-to-lead-nba-in-miles-traveled-in-2018-19/.

was to be expected that those coaches who animated their teams and athletes to take part in the study and advertised the study on social media would have some interest in the topic, it was surprising to learn how many were eager to participate in the study themselves. While including coaches would have exceeded the scope of the thesis, the reaction is an indication that the topic of mental health is a pressing issue among coaches. For example, the National Basketball Coaches Association (Fogel, Marrero, & Polivy, 2018) published a basic guide to managing mental health among basketball coaches.

However, while the discussion of mental health issues among elite athletes is slowly gaining momentum, coaches are being left out of the equation often. Search results from Google and the library search engine of the University of Vienna show that the studies concerning athletes outnumber those dealing with coaches. On a more mundane level, fans and the media seem to be even less understanding when a coach suffers from mental illness. Comments and social perceptions often range from queries of “What does a coach have to worry about?” to conclusions that, “If a coach is not able to withstand the pressure of his job, he should pursue a different career.” Considering the huge numbers of people around the world battling depression (WHO, 2018), there is little reason to believe that coaches are exempt (Rasenfunk, 2017). As a result, studies of mental health issues experienced by sports coaches would bring more attention to this group and illuminate possible causes specific to their profession. Among the potential topics for investigation would be the following:

- How do winning and losing affect the mental health of team-sport coaches? Are surroundings in which coaches experience higher pressure but greater chances of winning (i.e., working with championship contenders) more likely to correlate with mental health issues? Or, conversely, does the pressure of avoiding relegation create a more problematic environment for coaches?

- How do the different roles for coaching staff and their specific demands influence the mental health of coaches? Are there differences between head coaches, assistant coaches, advance scouts, physical trainers, and other staff members?

- Do conflicts and unrest within the team play a role in the development of mental health problems among coaches? Do existing problems prove detrimental to both the everyday work of a coach and the performance of the athletes?

- Are team-sport coaches more or less likely than other coaches to experience mental health issues? Are there risk factors that are specific to coaches of individual athletes?

While the thesis sheds some light on this issue, the number of coaches is simply too small to yield reliable results. Hence, follow-up investigations are necessary for a better grasp of the topic.

11. Conclusion

In summary, this thesis provides an extensive examination of the general and athlete-specific theoretical background of depressive disorders. The literature review identifies conceptions of the nature of depressive disorders, depression symptoms, treatment approaches, and, most importantly, different factors associated with the onset of depressive ailments. The roles of perfectionism and sleep in the context of depression among athletes are also discussed in more detail. These factors are examined from both a general and an athlete-focused angle. The theoretical review then identifies reasons for the social stigma attached to depressed athletes. As the education of coaches who work with depressed athletes is a personal matter, the next section considers what coaches can do to alleviate this stigma and help their struggling protégés. In particular, the development of mental health literacy in the surroundings of the athletes – and among the athletes themselves – is emphasized in these concluding remarks. In the final section, the thesis focuses on the results of its underlying study. The correlations found between the prevalence of depression and the different risk factors support those identified in much of the existing literature. They also show that maladaptive perfectionism and suboptimal sleeping habits warrant special and extensive consideration within the context of depression onset among competitive athletes. This is hardly surprising, as the realities of high-level athletics are putting increasing strain on the emotional well-being of athletes. As external and internal pressures increase, alongside the growing prevalence of mental health issues in the global population, it is important for coaches to recognize the specifics of depressive disorders among competitive athletes.

However, too often, athlete depression is conceptualized as a purely external phenomenon created by sport-specific pressures. The results of the correlation analyses here illustrate that depressive disorders are a very complex phenomenon (Hankin, 2006). Factors such as sleep deprivation are in bi-directional relationships with depressive disorders; and perfectionism, while not directly affecting onset, can promote factors that have been identified as causes of depressive disorders. Therefore, it is important to pay greater attention to the personality traits that can make athletes vulnerable to the onset of mental

illnesses. This marks a clear paradigm shift away from the assumption that athletes who are depressed are just sad individuals not cut out for the demands of competitive sports (Reardon et al., 2013) – a notion that, unfortunately, remains very common.

Although coaches will ideally have a good rapport with their athletes, many need to be made aware of the importance of this topic and receive further education on it (Markser, 2020; Sebbens et al., 2016). Depressive disorders can affect the performance of their athletes, thus helping those affected to overcome their mental health issues is a good way to improve performance. Far more importantly, however, is that coaches are among the most important confidants for their athletes and are therefore in prime position to support those who are struggling. Knowledge of the complexities of depressive disorders can help coaches to interact properly with their athletes. Furthermore, this knowledge will help coaches – as well as sports psychologists and sports psychiatrists – to recognize that improvement in one of the factors can trigger a positive chain reaction that ultimately helps the athlete to overcome their mental health struggles. Consider the following theoretical example of the interconnectedness of depression and its risk factors: the alleviation of PC can lead to a decrease in rumination, worry, and competitive anxiety prior to competition. Less competitive anxiety makes it easier for the athlete to sleep before competition. A well-rested athlete has a higher chance of performing better. Given the occurrence of failure-based depression among athletes with strong athletic identity, improved performance limits the chance of depression onset.

However, it is important to remember that coaches alone cannot carry the entire workload for improving their athletes' potential conditions. Some interventions – such as the prescription of ADM or specific forms of psychotherapy – can only be carried out by trained professionals (Sebbens et al., 2016). Hence, coaches need to understand their own limitations and recognize when to refer athletes to professionals. This is a crucial step toward the management of depressive disorders among athletes. Despite their limitations, coaches should understand that they are well placed to help affected athletes. An equally important tool is mental health literacy among the athletes. Sensitizing athletes even before the onset mental health issues would improve the course of the disorders. As this

thesis has shown, mental health literacy can prevent the development of mental health issues and counteract the onset of depressive symptoms among their athletes in the early stages (Gulliver et al., 2012). However, going forward, adaption to coaches' training and provision of further education in mental health in sports (e.g., mental health literacy workshops) will be necessary (Sebbens et al., 2016). Only when mental health-related issues are regarded as of a similar importance to physical, tactical, and technical aspects will environments that support mental well-being be assured (Markser, 2020; Rice et al., 2016). Eventually, when coaches and programs succeed in promoting mental health literacy among their athletes and associates and in their surrounding environments, the stigma surrounding depressive disorders among athletes will decrease. Ideally, competitive sports will adopt an approach to the topic that guarantees affected athletes the help they need, in contrast to the present environment of scarce mental health support resources (Bauman, 2016; Delenardo & Terrion, 2014). This new norm should mean that athletes do not have to wait for their careers to end to discuss mental health struggles because they fear negative repercussions (Souter et al., 2018).

However, positive developments will not happen overnight and they will not happen by themselves. As Markser (2020) notes, despite the creation of the Robert-Enke Foundation and the establishment of a network of sport-psychiatry caregivers, the system of competitive sports has not changed substantially in the last ten years. There is still a significant reluctance to add mental health care to athletes' general medical support structure. As a result, an even more active, courageous, and open approach to promoting mental health literacy is required from all parties. Given the importance and timeliness of this topic, the creation of mental health-friendly environments for competitive athletes should be a goal which coaches, athletes, clubs, and federations are striving to meet (Hegarty et al., 2018; Markser, 2020). If successful, "a new and healthier culture will replace the existing one where athletes and mental health issues are ignored, hidden or discarded" (Bauman, 2016, p. 135). Regardless of sport, level of performance, or position, this is a goal that all athletes, coaches, officials, and sports-psychologists/psychiatrists should pursue.

12. Abstracts

12.1. English

Current numbers and forecasts by the WHO show that depressive illnesses have been developing into a widespread disease. Considering the number of depression patients worldwide, it would be utopian to assume that there were no competitive athletes among people affected. Even though multiple studies have conducted research on depression among competitive athletes, the topic has yet to fully reach the public discourse. In fact, affected athletes still face enormous stigmata – especially within the realm of sports. To improve the current state, this diploma thesis aims at informing about the general and athlete-specific risk factors, symptoms and progression of depressive disorders. In addition to general risk factors, the onset of depression among athletes can be fostered by special problem areas which are unique to the realities of competitive sports. Especially perfectionism and sleep disturbances among athletes are discussed in more detail. As an example, a previous study has shown connections between negative perfectionism and depressive symptomology among Scandinavian soccer players (Jensen, Ivarsson, Fallby, Dankers, & Elbe, 2018). This thesis investigates how depressive symptomology correlates with negative perfectionism among competitive basketball, soccer and individual athletes. Via a statistical survey with 221 participants, a positive correlation between depressive symptomology and perfectionistic concerns was confirmed. Additionally, results indicated a connection between poor sleep quality and depressive symptomology.

In addition to these results, the thesis discusses appropriate treatment approaches. Aside from general therapy methods, coaches play a vital role in helping affected athletes. By creating an environment that encourages mental well-being, coaches can support depressed athletes and undertake preventive measures.

12.2. German

Aktuelle Zahlen und Prognosen der WHO zeigen, dass Depressionen sich immer mehr zu einer Volkskrankheit entwickeln. Bedenkt man die weltweite Anzahl an Menschen mit depressiven Erkrankungen, wäre es utopisch anzunehmen, dass sich keine Leistungssportler/Innen unter den Patienten befänden. Obwohl mehrere Studien sich des Forschungsfeldes angenommen haben, scheint das Thema „Leistungssportler mit Depressionen“ noch nicht vollends im öffentlichen Diskurs angekommen zu sein. De facto sehen sich betroffene AthletInnen, speziell in Sportkreisen, noch immer großen Stigmata ausgesetzt. Um diesem Zustand entgegenzuwirken, informiert diese Arbeit über generelle und für Athleten spezifische Risikofaktoren, Symptome und Krankheitsverläufe. Zusätzlich zu generellen Risikofaktoren kann die Entstehung von Depressionen bei AthletInnen vermehrt mit spezifischen Problemfeldern, welche durch das leistungsbezogene Anforderungsprofil begünstigt werden können, zusammenhängen. Insbesondere Schlafmangel und perfektionistische Charakterzüge stehen im Fokus dieser Arbeit. Vorangegangene Studien haben Korrelationen zwischen negativem Perfektionismus und depressiven Erkrankungen bei Athleten aufgezeigt (Jensen, Ivarsson, Fallby, Dankers, & Elbe, 2018). Eine der zentralen Fragestellungen dieser Diplomarbeit ist, inwieweit diese Korrelationen auf SportlerInnen aus den Bereichen Basketball, Fußball und Einzelsport zutreffen. Im Zuge einer statistischen Erhebung von 221 LeistungssportlerInnen konnte eine Korrelation zwischen Depressionen und negativem Perfektionismus aufgezeigt werden. Zusätzlich zeigten die Ergebnisse eine Verbindung zwischen Schlafstörungen und Depressionen. Über diese Ergebnisse hinaus bespricht die Arbeit geeignete Behandlungsansätze. Neben klassischen Therapiemaßnahmen kommt dabei den BetreuerInnen eine große Rolle zu. Mit der Schaffung eines Umfeldes, das für die seelische Gesundheit der Athleten förderlich ist, können TrainerInnen betroffenen SportlerInnen helfen und auch Präventivmaßnahmen setzen.

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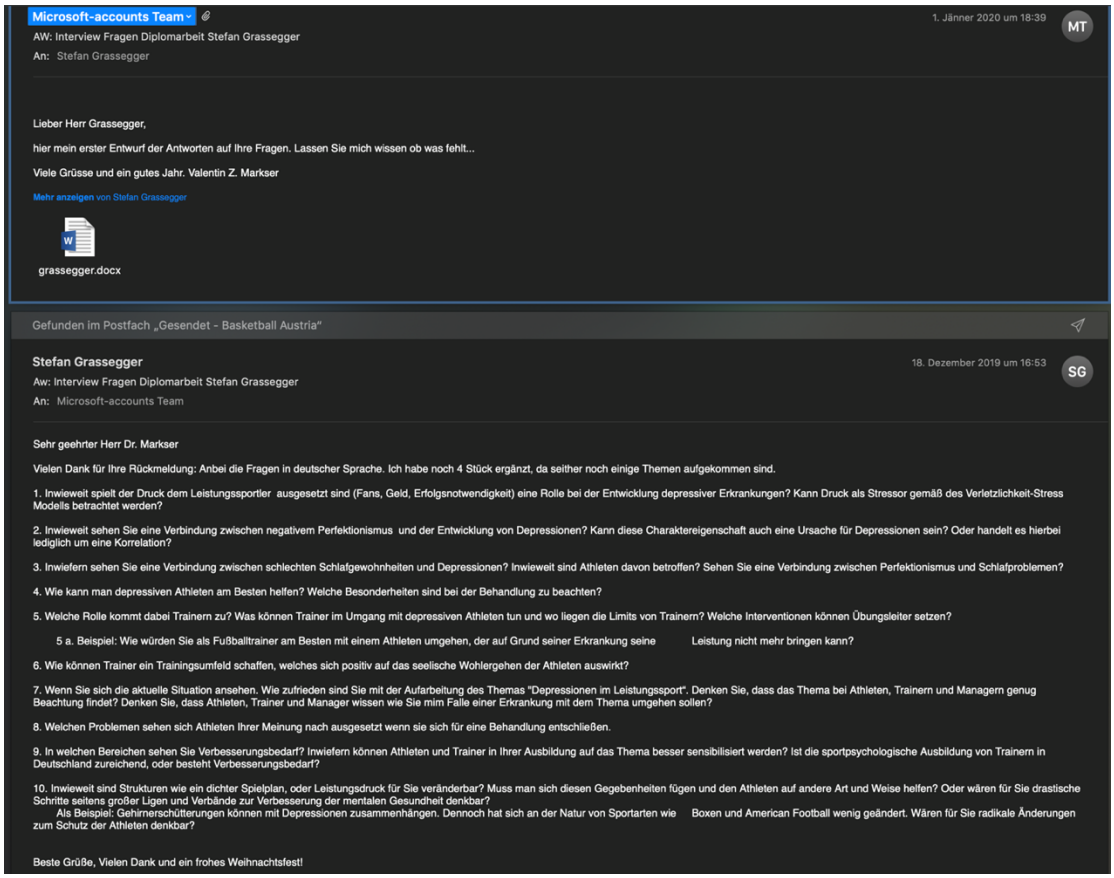
14. Appendix

14.1. E-Mail correspondence with Dr. Valentin Markser



Microsoft-accounts Team — 1. Jänner 2020 um 18:39 — MT

AW: Interview Fragen Diplomarbeit Stefan Grassegger

An: Stefan Grassegger

Lieber Herr Grassegger,

hier mein erster Entwurf der Antworten auf Ihre Fragen. Lassen Sie mich wissen ob was fehlt...

Viele Grüsse und ein gutes Jahr. Valentin Z. Markser

Mehr anzeigen von Stefan Grassegger

grassegger.docx

Gefunden im Postfach „Gesendet - Basketball Austria"

Stefan Grassegger — 18. Dezember 2019 um 16:53 — SG

Aw: Interview Fragen Diplomarbeit Stefan Grassegger

An: Microsoft-accounts Team

Sehr geehrter Herr Dr. Markser

Vielen Dank für Ihre Rückmeldung: Anbei die Fragen in deutscher Sprache. Ich habe noch 4 Stück ergänzt, da seither noch einige Themen aufgekommen sind.

1. Inwieweit spielt der Druck dem Leistungssportler ausgesetzt sind (Fans, Geld, Erfolgsnotwendigkeit) eine Rolle bei der Entwicklung depressiver Erkrankungen? Kann Druck als Stressor gemäß des Verletzlichkeit-Stress Modells betrachtet werden?

2. Inwieweit sehen Sie eine Verbindung zwischen negativem Perfektionismus und der Entwicklung von Depressionen? Kann diese Charaktereigenschaft auch eine Ursache für Depressionen sein? Oder handelt es hierbei lediglich um eine Korrelation?

3. Inwiefern sehen Sie eine Verbindung zwischen schlechten Schlafgewohnheiten und Depressionen? Inwieweit sind Athleten davon betroffen? Sehen Sie eine Verbindung zwischen Perfektionismus und Schlafproblemen?

4. Wie kann man depressiven Athleten am Besten helfen? Welche Besonderheiten sind bei der Behandlung zu beachten?

5. Welche Rolle kommt dabei Trainern zu? Was können Trainer im Umgang mit depressiven Athleten tun und wo liegen die Limits von Trainern? Welche Interventionen können Übungsleiter setzen?

5 a. Beispiel: Wie würden Sie als Fußballtrainer am Besten mit einem Athleten umgehen, der auf Grund seiner Erkrankung seine Leistung nicht mehr bringen kann?

6. Wie können Trainer ein Trainingsumfeld schaffen, welches sich positiv auf das seelische Wohlergehen der Athleten auswirkt?

7. Wenn Sie sich die aktuelle Situation ansehen. Wie zufrieden sind Sie mit der Aufarbeitung des Themas "Depressionen im Leistungssport". Denken Sie, dass das Thema bei Athleten, Trainern und Managern genug Beachtung findet? Denken Sie, dass Athleten, Trainer und Manager wissen wie Sie mim Falle einer Erkrankung mit dem Thema umgehen sollen?

8. Welchen Problemen sehen sich Athleten Ihrer Meinung nach ausgesetzt wenn sie sich für eine Behandlung entschließen.

9. In welchen Bereichen sehen Sie Verbesserungsbedarf? Inwiefern können Athleten und Trainer in Ihrer Ausbildung auf das Thema besser sensibilisiert werden? Ist die sportpsychologische Ausbildung von Trainern in Deutschland zureichend, oder besteht Verbesserungsbedarf?

10. Inwieweit sind Strukturen wie ein dichter Spielplan, oder Leistungsdruck für Sie veränderbar? Muss man sich diesen Gegebenheiten fügen und den Athleten auf andere Art und Weise helfen? Oder wären für Sie drastische Schritte seitens großer Ligen und Verbände zur Verbesserung der mentalen Gesundheit denkbar?
Als Beispiel: Gehirnerschütterungen können mit Depressionen zusammenhängen. Dennoch hat sich an der Natur von Sportarten wie Boxen und American Football wenig geändert. Wären für Sie radikale Änderungen zum Schutz der Athleten denkbar?

Beste Grüße, Vielen Dank und ein frohes Weihnachtsfest!

1. Inwieweit spielt der Druck dem Leistungssportler ausgesetzt sind (Fans, Geld, Erfolgsnotwendigkeit) eine Rolle bei der Entwicklung depressiver Erkrankungen? Kann Druck als Stressor gemäß des Verletzlichkeit-Stress Modells betrachtet werden?

Die psychischen und sozialen Belastungen sind zwei von drei wichtigen Ursachen der psychischen Störungen und Erkrankungen. Da im Leistungssport beide Belastungen zum Wesen des Sports gehören und im medialen Zeitalter immer massiver werden, sind die beiden eine wesentliche Ursache für die Gefährdung der seelischen Gesundheit in diesem Bereich.

2. Inwieweit sehen Sie eine Verbindung zwischen negativem Perfektionismus und der Entwicklung von Depressionen? Kann diese Charaktereigenschaft auch eine Ursache für Depressionen sein? Oder handelt es hierbei lediglich um eine Korrelation?

Depression, wie alle anderen Anfälligkeiten, gibt es nicht isoliert von der Persönlichkeit und die Übergänge zwischen der Gesundheit und Krankheit sind fließend. Die starke Ausprägung perfektionistische oder zwanghafte und mit hohen Ansprüchen an sich selbst verbundenen Charaktereigenschaften, erhöht die Gefahr der seelischen Krisen. Inwieweit am Ende eine Depression oder andere seelische Störung entstehen, hängt von viele anderen Faktoren ab.

3. Inwiefern sehen Sie eine Verbindung zwischen schlechten Schlafgewohnheiten und Depressionen? Inwieweit sind Athleten davon betroffen? Sehen Sie eine Verbindung zwischen Perfektionismus und Schlafproblemen?

Schlafstörungen sind ernstzunehmende Risikofaktoren für alle seelische Störungen. Deshalb gehören Schlafhygiene und Schlafregulation zu den wichtigen sportpsychiatrischen Maßnahmen im Leistungssport.

4. Wie kann man depressiven Athleten am besten helfen? Welche Besonderheiten sind bei der Behandlung zu beachten?

Wie bei allen seelischen Krisen und Störungen ist es wichtig dem Athleten den Eindruck zu vermitteln, dass er mehr ist als ein Leistungsträger und dass man ihn als Gesamtpersönlichkeit sieht und schätzt. Am besten hilft man den Athleten indem man sich Kenntnisse über die seelischen Störungen im Leistungssport aneignet und den Athleten genügend Zeit für die Behandlung und Rehabilitation einräumt. Dem Athleten würde es helfen wenn er wüsste, dass er für die Behandlung genauso viel Verständnis und Zeit bekommt wie bei der Behandlung einer Muskelzerrung oder Gelenkverletzung.

5. Welche Rolle kommt dabei Trainern zu? Was können Trainer im Umgang mit depressiven Athleten tun und wo liegen die Limits von Trainern? Welche Interventionen können Übungsleiter setzen?

Siehe unter 4.

5 a. Beispiel: Wie würden Sie als Fußballtrainer am besten mit einem Athleten umgehen, der auf Grund seiner Erkrankung seine Leistung nicht mehr bringen kann?

Siehe unter 4.

6. Wie können Trainer ein Trainingsumfeld schaffen, welches sich positiv auf das seelische Wohlergehen der Athleten auswirkt?

Siehe unter 4.

7. Wenn Sie sich die aktuelle Situation ansehen. Wie zufrieden sind Sie mit der Aufarbeitung des Themas "Depressionen im Leistungssport“. Denken Sie, dass das Thema bei Athleten, Trainern und Managern genug Beachtung findet? Denken Sie, dass Athleten, Trainer und Manager wissen wie Sie im Falle einer Erkrankung mit dem Thema umgehen sollen?

Durch die Gründung der Robert-Enke-Stiftung in Deutschland wird über Depression viel häufiger in der Öffentlichkeit diskutiert. Mit dem Referat, Institut und Gesellschaft für Sportpsychiatrie und -psychotherapie haben wir ein Netzwerk der Behandler aufgebaut. Aber im System Leistungssport selbst hat sich nichts Grundlegendes geändert. Nach wie vor ist man nicht bereit die seelische Gesundheit in die gesamtmedizinische Versorgung aufzunehmen, nach wie vor wird mentale Stärke und seelische Gesundheit verwechselt und nach wie vor unterscheidet man nicht zwischen Sportpsychologie und Sportpsychiatrie.

8. Welchen Problemen sehen sich Athleten Ihrer Meinung nach ausgesetzt, wenn sie sich für eine Behandlung entschließen.

Derzeit müssen die Athleten, aufgrund der noch vorherrschendenden mangelnden Aufklärung und Vorurteile, damit rechnen, dass man ihre mentale Stärke und Leistungsfähigkeit und sogar die Fortsetzung der Sportkarriere anzweifelt. Deshalb werden die Behandlungen in der Regel geheim gehalten oder als unklare körperliche Beschwerden gemeldet. Ich kenne Sportler die Antibiotika schlucken damit sie Zeit bekommen, um notwendige psychotherapeutische und sportpsychiatrische Behandlungen durchzuführen.

9. In welchen Bereichen sehen Sie Verbesserungsbedarf? Inwiefern können Athleten und Trainer in Ihrer Ausbildung auf das Thema besser sensibilisiert werden? Ist die sportpsychologische Ausbildung von Trainern in Deutschland zureichend, oder besteht Verbesserungsbedarf?

Die Sportverbände und Vereine müssten sich schon aus eigenem Interesse der seelischen Gesundheit der Spieler genau so intensiv wie die der körperlichen Gesundheit widmen. Neben der sportpsychologischen Betreuung brauchen wir sportpsychiatrische Beratung in jedem größeren Verband und Verein. Und die Trainerausbildung müsste dringend, neben sportpsychologischen Inhalten, auch durch sportpsychiatrische Themen ergänzt werden.

10. Inwieweit sind Strukturen wie ein dichter Spielplan, oder Leistungsdruck für Sie veränderbar? Muss man sich diesen Gegebenheiten fügen und den Athleten auf andere Art und Weise helfen? Oder wären für Sie drastische Schritte seitens großer Ligen und Verbände zur Verbesserung der mentalen Gesundheit denkbar?
Als Beispiel: Gehirnerschütterungen können mit Depressionen zusammenhängen. Dennoch hat sich an der Natur von Sportarten wie Boxen und American Football wenig geändert. Wären für Sie radikale Änderungen zum Schutz der Athleten denkbar?

Wenn man die seelische Gesundheit der Athleten ernst nimmt, dann gibt es nichts was nicht eine Überprüfung und Anpassung an neueste wissenschaftliche Studien unterzogen werden könnte. Dazu gehören nicht nur der immer enger werdende Spielkalender

sondern auch die Spielregel und Kleiderschutz sowie die technische Anpassung des Spielgeräts. Ähnliche Anpassungen gab es schon immer in der Sportgeschichte wie im Boxen oder Automobilsport. Es ist nicht einsehbar warum dies im Fußball und Kamp- und Kontaktsportarten mit Kopfverletzungen nicht möglich sein sollte.

14.2. Questionnaire English

Influences on the psychological well-being of competitive athletes

Welcome!

Dear participants of this survey,
I would like to thank you very much for taking part.

The most important news first: The completion of this survey will take you about 15 - 20min =)

This survey is conducted to collect data for a diploma thesis written at the Department of Psychology and Philosophy at the University of Vienna. The goal of the paper is to examine how perfectionism, sleeping habits, competitive and social anxieties, as well as the mental health of competitive athletes are connected to each other.
Of course, all of your data will be collected anonymously and will be treated as confidential. Through the anonymity of this study no coach, teammate, opposing athlete, fan or member of the media is able to get the information provided by you. You can withdraw from the survey and study at any time. If there are any questions, please do not hesitate to contact me. You will find my contact information below.

The survey consists of seven parts that will ask you to give information about your sleeping habits, your feelings before and during a competition, your personal standards, as well as your emotional well-being.

Please try to answer these questions as honestly as possible.

If you have any questions, feel free to contact me at any time.

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Influences on the psychological well-being of competitive athletes

Biographical Information

To start the survey, please tell us about yourself and your athletic career up to this point.

* 1. Age

1

* 2. Gender

- ◯ Male
- ◯ Female
- ◯ Other (please indicate)

* 3. Family status

- ◯ Single
- ◯ in a Relationship
- ◯ Married
- ◯ Divorced
- ◯ Other (Please indicate)

* 4. Do you have children?

- ◯ No
- ◯ Yes (if so, please indicate how many)

* 5. What sport do you compete in?

- ◯ Basketball
- ◯ Soccer
- ◯ Individual sports (Please indicate which one)

* 6. What is the highest level you have ever competed at?

* 7. What is the biggest achievement of your career (so far)?

* 8. Do you have any other occupation than your sport?

- [ ] enrolled in University
- [ ] School
- [ ] Office Job
- [ ] Working as a youth coach
- [ ] Nothing
- [ ] Other (please indicate)

* 9. Does that occupation (or lack thereof) help you relax or stress you?

Relax Indifference Stress

* 10. On average: How many hours of individual practice do you have per week? (during a competition phase)

0 20 40

* 11. On average: How many hours of team/group practice do you have per week? (during a competition phase)

0 20 40

* 12. On average: How many hours of competition do you have per week? (during a competition phase)

0 20 40

* 13. On average: How many times do you get checked by a physiotherapist or doctor per week? (Includes taping, preparation etc. prior to practice and competition) -> During competition phase

0 7 14

* 14. On average: How many times do you get physical treatment by a physiotherapist or doctor per week? (during competition phase)

Influences on the psychological well-being of competitive athletes

Emotional Well-Being

Please answer these questions regarding your emotional well-being as honestly as possible.

4

* 15. Below is a list of the ways you might have felt or behaved over the last week. Please indicate how often you have felt this way during the past week.

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	○	○	○	○
2. I did not feel like eating; my appetite was poor.	○	○	○	○
3. I felt that I could not shake off the blues even with help from my family or friends.	○	○	○	○
4. I felt I was just as good as other people.	○	○	○	○
5. I had trouble keeping my mind on what I was doing.	○	○	○	○
6. I felt depressed.	○	○	○	○
7. I felt that everything I did was an effort.	○	○	○	○
8. I felt hopeful about the future.	○	○	○	○
9. I thought my life had been a failure.	○	○	○	○
10. I felt fearful.	○	○	○	○
11. My sleep was restless.	○	○	○	○
12. I was happy.	○	○	○	○
13. I talked less than usual.	○	○	○	○
14. I felt lonely.	○	○	○	○
15. People were unfriendly.	○	○	○	○
16. I enjoyed life.	○	○	○	○
17. I had crying spells.	○	○	○	○
18. I felt sad.	○	○	○	○
19. I felt that people dislike me.	○	○	○	○
20. I could not get "going."	○	○	○	○

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* 16. Have you ever received professional help for mental health problems in the past? (Doctor, Sports Psychologist, Therapy)

- ◯ Yes
- ◯ No

* 17. Are you currently receiving professional help for mental health problems? (Doctor, Sports Psychologist, Therapy)

- ◯ Yes
- ◯ No

* 18. Are you keeping a personal diary at the moment?

- ◯ Yes
- ◯ No

Influences on the psychological well-being of competitive athletes

Self-Image and Social (media) habits

Please describe your self-image and your recent social habits

* 19. On Average: How many hours per week do you spend on the phone / internet / video game console / computer? (During the competition phase)

0 20 40

* 20. On Average: How many hours per week do you spend on social media such as Facebook, Instagram etc.? (During the competition phase)

0 20 40

* 21. On average: How many times per week do you interact with fans during the competition phase?

Never	Rarely (1-2 times per week)	Sometimes (2-3 times per week)	Regularly (3-6 times per week)	Everyday
◯	◯	◯	◯	◯

* 22. Do you interact with fans on social media?

- ◯ Yes
- ◯ No

* 23. Please indicate how strongly you agree with the following statements

	Strongly disagree	Disagree	Agree	Strongly Agree
1. I feel that I am a person of worth, at least on an equal plane with others.	○	○	○	○
2. I feel that I have a number of good qualities.	○	○	○	○
3. All in all, I am inclined to feel that I am a failure.	○	○	○	○
4. I am able to do things as well as most other people.	○	○	○	○
5. I feel I do not have much to be proud of.	○	○	○	○
6. I take a positive attitude toward myself.	○	○	○	○
7. On the whole, I am satisfied with myself.	○	○	○	○
8. I wish I could have more respect for myself.	○	○	○	○
9. I certainly feel useless at times.	○	○	○	○
10. At times I think I am no good at all.	○	○	○	○

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* 24. Please indicate how much the following problems have bothered you during the past week.

	Not at all	A little bit	Somewhat	Very much	Extremely
1 I am afraid of people in authority	○	○	○	○	○
2I am bothered by blushing in front of people	○	○	○	○	○
3 Parties and social events scare me	○	○	○	○	○
4I avoid talking to people I don't know	○	○	○	○	○
5 Being criticized scares me a lot	○	○	○	○	○
6 Fear of embarrassment causes me to avoid doing things or speaking to people	○	○	○	○	○
7 Sweating in front of people causes me distress	○	○	○	○	○
8 I avoid going to parties	○	○	○	○	○
9 I avoid activities in which I am the centre of attention	○	○	○	○	○
10 Talking to strangers scares me	○	○	○	○	○
11 I avoid having to give speeches	○	○	○	○	○
12 I would do anything to avoid being criticized	○	○	○	○	○
13 Heart palpitations bother me when I am around people	○	○	○	○	○
14 I am afraid of doing things when people might be watching	○	○	○	○	○
15 Being embarrassed or looking stupid is among my worst fears	○	○	○	○	○
16 I avoid speaking to anyone in authority	○	○	○	○	○
17 Trembling or shaking in front of others is distressing to me	○	○	○	○	○

Sleeping and Leisure Time Habits

Please describe your sleeping and leisure time habits in the last month

* 25. How many hours of sleep during the night did you get on average?

0 6 12

* 26. In recent times (over the last month)…

	Never	Rarely	Sometimes	Frequently	Always
1 I take afternoon naps lasting two or more hours	○	○	○	○	○
2 I use stimulants when I train/compete (e.g caffeine)	○	○	○	○	○
3 I exercise (train or compete) late at night (after 7pm)	○	○	○	○	○
4 I consume alcohol within 4 hours of going to bed	○	○	○	○	○
5 I go to bed at different times each night (more than ±1 hour variation)	○	○	○	○	○
6 I go to bed feeling thirsty	○	○	○	○	○
7 I go to bed with sore muscles	○	○	○	○	○
8 I use light-emitting technology in the hour leading up to bedtime (e.g laptop, phone, television, video games)	○	○	○	○	○
9 I think, plan and worry about my sporting performance when I am in bed	○	○	○	○	○
10 I think, plan and worry about issues not related to my sport when I am in bed	○	○	○	○	○
11 I use sleeping pills/tablets to help me sleep	○	○	○	○	○
12 I wake to go to the bathroom more than once per night	○	○	○	○	○

	Never	Rarely	Sometimes	Frequently	Always
13 I wake myself and/or my bed partner with my snoring	◯	◯	◯	◯	◯
14 I wake myself and/or my bed partner with my muscle twitching	◯	◯	◯	◯	◯
15 I get up at different times each morning (more than ±1 hour variation)	◯	◯	◯	◯	◯
16 At home, I sleep in a less than ideal environment (e.g too light, too noisy, uncomfortable bed/pillow, too hot/cold)	◯	◯	◯	◯	◯
17 I sleep in foreign environments (e.g hotel rooms)	◯	◯	◯	◯	◯
18 Travel gets in the way of building a consistent sleep-wake routine	◯	◯	◯	◯	◯

* 27. How often do you get to see friends and/or family (not including fellow athletes / teammates / coaches)

Never	Rarely (1-2 times per week)	Sometimes (2-3 times per week)	Regularly (3-6 times per week)	Everyday
◯	◯	◯	◯	◯

* 28. How often do you participate in past time activities with teammates/fellow athletes/ coaches?

Never	Rarely (1-2 times per week)	Sometimes (2-3 times per week)	Regularly (3-6 times per week)	Everyday
◯	◯	◯	◯	◯

Influences on the psychological well-being of competitive athletes

Anxiety before and during the competition

Many athletes get tense or nervous before or during games, and competitions. This even happens to pro athletes. Please read each question. Then, indicate the statement that says how you USUALLY feel before or while you compete in sports. Please be as truthful as you can.

* 29. Before or while I compete in sports:

	Not at all	A little bit	Pretty much	Very much
1. It is hard to concentrate on the game.	◯	◯	◯	◯
2. My body feels tense.	◯	◯	◯	◯
3. I worry that I will not play well.	◯	◯	◯	◯
4. It is hard for me to focus on what I am supposed to do.	◯	◯	◯	◯
5. I worry that I will let others down.	◯	◯	◯	◯
6. I feel tense in my stomach.	◯	◯	◯	◯
7. I lose focus on the competition.	◯	◯	◯	◯
8. I worry that I will not play my best.	◯	◯	◯	◯
9. I worry that I will play badly.	◯	◯	◯	◯
10. My muscles feel shaky.	◯	◯	◯	◯
11. I worry that I will mess up during the competition.	◯	◯	◯	◯
12. My stomach feels upset.	◯	◯	◯	◯
13. I cannot think clearly during the competition.	◯	◯	◯	◯
14. My muscles feel tight because I am nervous.	◯	◯	◯	◯
15. I have a hard time focusing on what my coach tells me to do	◯	◯	◯	◯

Influences on the psychological well-being of competitive athletes

Reflection on your view on certain aspects of competitive experiences in sport

The purpose of this, second-to-last, part of the questionnaire is to identify how you view certain aspects of your competitive experiences in sport. Simply choose the answer that best describes how you view each statement.

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* 30. To what extent do you agree or disagree with the following statements?

	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
If I do not set the highest standards for myself in my sport, I am likely to end up a second-rate athlete.	◯	◯	◯	◯	◯
Even if I fail slightly in competition, for me, it is as bad as being a complete failure.	◯	◯	◯	◯	◯
I hate being less than the best at things in my sport.	◯	◯	◯	◯	◯
If I fail in competition, I feel like a failure as a person.	◯	◯	◯	◯	◯
The fewer mistakes I make in competition, the more people will like me.	◯	◯	◯	◯	◯
It is important to me that I be thoroughly competent in everything I do in my sport.	◯	◯	◯	◯	◯
I think I expect higher performance and greater results in my daily sport-training than most athletes.	◯	◯	◯	◯	◯
I feel that other athletes generally accept lower standards for themselves in sport than I do.	◯	◯	◯	◯	◯
I should be upset if I make a mistake in competition.	◯	◯	◯	◯	◯
If a team-mate or opponent (who plays a similar position to me) plays better than me during competition, then I feel like I failed to some degree.	◯	◯	◯	◯	◯
If I do not do well all the time in competition, I feel that people will not respect me as an athlete.	◯	◯	◯	◯	◯
I have extremely high goals for myself in my sport.	◯	◯	◯	◯	◯

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	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
I set higher achievement goals than most athletes who play my sport.	◯	◯	◯	◯	◯
People will probably think less of me if I make mistakes in competition.	◯	◯	◯	◯	◯
If I play well but only make one obvious mistake in the entire game, I still feel disappointed with my performance.	◯	◯	◯	◯	◯

* 31. Are you keeping a training documentary at the moment (e.g. training diary)

◯ Yes

◯ No

Influences on the psychological well-being of competitive athletes

Evaluation of your personal expectations

Almost done! Please take your time to answer these final questions

* 32. Describe your standards for yourself during competition

	Never	Rarely	Sometimes	Often	Mostly	Always
During competitions / games, I strive to be as perfect as possible.	○	○	○	○	○	○
During competitions / games, it is important to me to be perfect in everything I attempt.	○	○	○	○	○	○
During competitions / games, I feel the need to be perfect.	○	○	○	○	○	○
During competitions / games, I am a perfectionist as far as my targets are concerned.	○	○	○	○	○	○
During competitions / games, I have the wish to do everything perfectly.	○	○	○	○	○	○
During competitions / games, I feel extremely stressed if everything does not go perfectly.	○	○	○	○	○	○
After competitions / games, I feel depressed if I have not been perfect.	○	○	○	○	○	○
During competitions / games, I get completely furious if I make mistakes.	○	○	○	○	○	○
During competitions / games, I get frustrated if I do not fulfill my high expectations.	○	○	○	○	○	○
If something does not go perfectly during competitions / games, I am dissatisfied with the whole competition/game.	○	○	○	○	○	○

Influences on the psychological well-being of competitive athletes

14

33. Final (optional) question: How do you see yourself as a person? What kind of person do you want to become?

15

14.3. Questionnaire German

Einflüsse auf das psychische Wohlergehen von Leistungssportlern

1. Herzlich WIllkommen!

Liebe Teilnehmer,
Ich möchte Ihnen zuerst dafür danken, dass Sie an dieser Studie teilnehmen.

Das wichtigste zuerst: Diese Befragung wird ca. 15 -20 Minuten dauern =)

Diese Befragung dient der Datenerhebung für eine Diplomarbeit an der Psychologisch Philosophischen (Lehramt) Fakultät der Universität Wien. Diese Arbeit untersucht die Verbindung von Perfektionismus, Schlafgewohnheiten, Lampenfieber, sozialen Ängsten und dem psychischen Wohlergehen von Leistungssportlern. Alle Daten, die Sie zur Verfügung stellen werden natürlich vertraulich behandelt. Dies bedeutet, dass weder Coaches, noch Mitspieler oder Kontrahenten ihre persönlichen Daten einsehen können. Auch Fans und Pressevertreter haben selbstverständlich keine Einsicht in Ihre Antworten.
Sie können die Studie jederzeit abbrechen. Weiters können Sie mich bei Fragen jederzeit unter den unten angegebenen Kontaktwegen erreichen.

Die Befragung besteht aus sieben Teilbereichen, die unter anderem das psychische Wohlergehen und persönliche Ansprüche, sowie Schlafgewohnheiten erheben.

Beantworten Sie die Fragen bitte so ehrlich wie möglich!

Sollten Fragen auftauchen, kontaktieren Sie mich bitte jederzeit.

Stefan Grassegger
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Einflüsse auf das psychische Wohlergehen von Leistungssportlern

2. Biographische Informationen

Erzählen Sie uns bitte zu Beginn von sich selbst und ihrem bisherigen sportlichen Werdegang.

* 1. Alter

* 2. Geschlecht

- ◯ Männlich
- ◯ Weiblich
- ◯ Sonstiges (Bitte angeben)

1

* 3. Familien Status

- ◯ Ledig
- ◯ in einer Beziehung
- ◯ Verheiratet
- ◯ Geschieden
- ◯ Sonstiges (Bitte angeben)

* 4. Haben Sie Kinder?

- ◯ Nein
- ◯ Ja (wenn ja, bitte geben Sie an wie viele)

* 5. Welchen Sport üben Sie aus?

- ◯ Basketball
- ◯ Fußball
- ◯ Einzelsport (Bitte Sportart angeben)

* 6. Was war der höchste Wettkampf (bzw die höchste Liga) bei dem Sie je teilgenommen haben?

* 7. Was ist der größte Erfolg Ihrer bisherigen Karriere?

* 8. Gehen Sie neben Ihrer Sportart einer anderen Beschäftigung nach?

- ◯ Studium
- ◯ Schule
- ◯ Büro Job
- ◯ Jugendtrainer
- ◯ Keine Beschäftigung
- ◯ Sonstiges (bitte angeben)

* 9. Löst diese Beschäftigung (oder das Fehlen einer Beschäftigung) bei Ihnen Entspannung oder Stress aus?

Entspannung Gleichgültigkeit Stress

* 10. Im Durchschnitt: Wie viele Stunden verbringen Sie mit Individualtraining in der Woche? (Während der Wettkampfphase)

0 20 40

* 11. Im Durchschnitt: Wie viele Stunden verbringen Sie mit Mannschaftstraining / Gruppentraining in der Woche? (Während der Wettkampfphase)

0 20 40

* 12. Im Durchschnitt: Wie viele Stunden verbringen Sie mit Wettkämpfen in der Woche?

0 20 40

* 13. Im Durchschnitt: Wie oft werden Sie in der Woche von einem Physiotherapeuten oder Arzt durchgecheckt? (Während der Wettkampfphase) -> Beinhaltet auch Taping und dergleichen

0 7 14

* 14. Im Durchschnitt: Wie oft werden Sie von einem Physiotherapeuten oder Arzt behandelt? (Während der Wettkampfphase)

0 7 14

Einflüsse auf das psychische Wohlergehen von Leistungssportlern

3. Emotionales Wohlergehen

Bitte beantworten Sie die folgenden Fragen so ehrlich wie möglich.

* 15. Sie sehen nun eine Liste von Aussagen. Bitte geben Sie an wie oft Sie sich in der letzten Woche genau so wie beschrieben gefühlt haben.

3

	Kaum oder Nie (weniger als 1 Tag)	Hin und Wieder (1-2 Tage)	Öfters (3-4 days)	Die meiste Zeit / Die ganze Zeit (5-7 days)
1. Dinge, die mich normal nicht stören, haben mich gestört.	○	○	○	○
2. Ich konnte nichts essen; Ich war appetitlos.	○	○	○	○
3. Ich konnte, trotz der Hilfe meiner Familie und meiner Freunde, meine Schlechte laune nicht abschütteln.	○	○	○	○
4. Ich fühlte mich genau so gut wie andere Menschen.	○	○	○	○
5. Ich hatte Konzentrationsprobleme bei meinen Aktivitäten.	○	○	○	○
6. Ich fühlte mich depressiv.	○	○	○	○
7. Alles was ich getan habe war anstrengend.	○	○	○	○
8. Ich blickte zuversichtlich in die Zukunft.	○	○	○	○
9. Ich fühlte mich als ob mein Leben gescheitert wäre.	○	○	○	○
10. Ich war ängstlich.	○	○	○	○
11. Ich konnte nur schlecht schlafen.	○	○	○	○
12. Ich war glücklich.	○	○	○	○
13. Ich habe weniger gesprochen als sonst.	○	○	○	○
14. Ich fühlte mich einsam.	○	○	○	○
15. Die Menschen um mich herum waren unfreundlich.	○	○	○	○
16. Ich genoss mein Leben.	○	○	○	○
17. Ich hatte Weinkrämpfe.	○	○	○	○
18. Ich war traurig.	○	○	○	○
19. Mir kam vor als ob mich Menschen nicht leiden konnten.	○	○	○	○

4

	Kaum oder Nie (weniger als 1 Tag)	Hin und Wieder (1-2 Tage)	Öfters (3-4 days)	Die meiste Zeit / Die ganze Zeit (5-7 days)
20. Ich kam nicht in die Gänge.	◯	◯	◯	◯

* 16. Haben Sie je professionelle Hilfe für Probleme mit Ihrer psychischen Gesundheit in Anspruch genommen? (Ärzte, Sportpsychologen, Therapie)

◯ Ja

◯ Nein

* 17. Nehmen Sie momentan professionelle Hilfe für Probleme mit Ihrer psychischen Gesundheit in Anspruch? (Ärzte, Sportpsychologen, Therapie)

◯ Ja

◯ Nein

* 18. Führen Sie momentan ein persönliches Tagebuch?

◯ Ja

◯ Nein

Einflüsse auf das psychische Wohlergehen von Leistungssportlern

4. Selbstwahrnehmung und soziale Gewohnheiten

Beschreiben Sie bitte ihr Selbstbild und ihre aktuellen sozialen Gewohnheiten

* 19. Im Durchschnitt: Wie viele Stunden verbringen sie pro Woche vor dem Handy / PC / TV / der Spielekonsole (Während der Wettkampfperiode)

0 20 40

* 20. Im Durchschnitt: Wie viele Stunden verbringen sie pro Woche auf sozialen Medien? (Facebook, Instagram, Twitter etc) (Während der Wettkampfperiode)

0 20 40

* 21. Wie oft interagieren sie in einer Woche während der Wettkampfphase durchschnittlich mit Fans?

Nie	Selten (1-2 mal pro Woche)	Manchmal (2-3 mal pro Woche)	Regelmäßig (3-6 mal pro Woche)	Täglich
◯	◯	◯	◯	◯

5

* 22. Interagieren Sie mit Fans auf Social Media Plattformen?

- ◯ Ja
- ◯ Nein

* 23. Geben Sie an, wie sehr Sie folgenden Statements zustimmen.

	Ich stimme überhaupt nicht zu	Ich stimme nicht zu	Ich stimme zu	Ich stimme vollkommen zu
1. Ich bin wertvoll als Mensch. Mindestens gleich wertvoll wie meine Mitmenschen.	◯	◯	◯	◯
2. Ich habe viele gute Qualitäten.	◯	◯	◯	◯
3. Alles in allem bin ich geneigt dazu zu sagen, dass ich ein Versager / eine Versagerin bin.	◯	◯	◯	◯
4. Ich kann Aufgaben genau so gut bewältigen wie meine Mitmenschen.	◯	◯	◯	◯
5. Ich denke nicht, dass ich viel habe worauf ich stolz sein kann.	◯	◯	◯	◯
6. Ich habe ein positives Selbstbild von mir.	◯	◯	◯	◯
7. Alles in allem bin ich zufrieden mit mir selbst.	◯	◯	◯	◯
8. Ich wünschte, ich würde mich mehr selbst respektieren.	◯	◯	◯	◯
9. Ich fühle mich definitiv nutzlos von Zeit zu Zeit.	◯	◯	◯	◯
10. Manchmal denke ich, dass ich keine guten Qualitäten habe.	◯	◯	◯	◯

* 24. Bitte geben Sie an, wie sehr Sie diese Probleme in der letzten Woche geplagt haben.

	Überhaupt nicht	Ein bisschen	Hin und wieder	Sehr	Extrem
1 Ich habe Angst vor Autoritätspersonen.	◯	◯	◯	◯	◯
2 Mir ist es unangenehm, wenn ich vor anderen Menschen rot werde.	◯	◯	◯	◯	◯
3 Partys und soziale Anlässe verängstigen mich.	◯	◯	◯	◯	◯

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	Überhaupt nicht	Ein bisschen	Hin und wieder	Sehr	Extrem
4 Ich vermeide es mit Menschen zu reden, die ich nicht kenne.	○	○	○	○	○
5 Kritisiert zu werden macht mir viel Angst.	○	○	○	○	○
6 Die Angst bloßgestellt zu werden, hindert mich daran Dinge zu versuchen oder mit Menschen zu sprechen.	○	○	○	○	○
7 Vor anderen Menschen zu schwitzen bereitet mir Unbehagen.	○	○	○	○	○
8 Ich vermeide es auf Parties zu gehen.	○	○	○	○	○
9 Ich vermeide Aktivitäten bei denen ich im Rampenlicht stehe.	○	○	○	○	○
10 Mit Fremden zu reden macht mir Angst.	○	○	○	○	○
11 Ich vermeide es Reden zu halten.	○	○	○	○	○
12 Ich würde alles dafür tun um nicht kritisiert zu werden.	○	○	○	○	○
13 Herzrasen stört mich wenn ich in Gegenwart von anderen Menschen bin.	○	○	○	○	○
14 Ich habe Angst davor Dinge zu machen, wenn andere Menschen zusehen.	○	○	○	○	○
15 Sich vor andern schämen zu müssen oder dumm auszusehen ist eine meiner Hauptängste.	○	○	○	○	○
16 Ich vermeide es mit Autoritätspersonen zu sprechen.	○	○	○	○	○
17 Es stresst mich vor anderen Menschen zu zittern.	○	○	○	○	○

5. Gewohnheiten beim Schlaf und bei Freizeitaktivitäten

Beschreiben Sie bitte Ihre Schlafgewohnheiten und Ihre Freizeitgestaltung im vergangenen Monat.

* 25. Wie viele Stunden konnten Sie durchschnittlich nachts schlafen?

0 6 12

* 26. Über den Zeitraum der letzten 30 Tage...

	Nie	Kaum	Manchmal	Oft	Immer
1 Ich mache am Nachmittag Nickerchen, die länger als 2 Stunden dauern.	○	○	○	○	○
2 Ich benutze Stimulantien beim Training/bei Wettkämpfen (zB Koffein).	○	○	○	○	○
3 Ich trainiere/habe Wettkämpfe nach 19 Uhr.	○	○	○	○	○
4 Ich konsumiere Alkohol 4 Stunden oder weniger vor dem Einschlafen.	○	○	○	○	○
5 Ich gehe jede Nacht zu einer anderen Zeit ins Bett (mehr als ±1 Stunde Unterschied)	○	○	○	○	○
6 Ich gehe durstig ins Bett	○	○	○	○	○
7 Ich gehe mit Muskelkater ins Bett	○	○	○	○	○
8 Ich benutze lichtabgebende Technologie direkt (< 1 Stunde) vor dem Schlafengehen (Handy, PC, etc.)	○	○	○	○	○
9 Ich denke, plane und sorge mich um meine sportlichen Leistungen, wenn ich im Bett liege.	○	○	○	○	○
10 Ich denke, plane und sorge mich um Themen die nichts mit meinem Sport zu tun haben, wenn ich im Bett liege.	○	○	○	○	○

	Nie	Kaum	Manchmal	Oft	Immer
11 Ich benutze Tabletten/Medikamente um einzuschlafen	◯	◯	◯	◯	◯
12 Ich muss nachts öfters als 1 mal auf die Toilette.	◯	◯	◯	◯	◯
13 Ich wecke mich und/oder meinen Partner/meine Partnerin mit meinem Schnarchen auf	◯	◯	◯	◯	◯
14 Ich wecke mich und/oder meinen Partner/meine Partnerin mit meinem Muskelzucken auf	◯	◯	◯	◯	◯
15 Ich stehe jeden morgen zu komplett verschiednen Zeiten auf (mehr als ±1 Stunde Unterschied)	◯	◯	◯	◯	◯
16 Ich schlafe zu Hause in einem suboptimalen Umfeld (z.B. zu kalte / warme Raumtemperatur, zu laute Umgebung, unbequemes Bett etc.)	◯	◯	◯	◯	◯
17 Ich schlafe oft auswärts. zB Hotelzimmer	◯	◯	◯	◯	◯
18 Reisen machen es mir unmöglich einen konstanten Schlafrythmus zu halten	◯	◯	◯	◯	◯

* 27. Wie oft sehen Sie Familie und Freunde? (ausgenommen Mannschaftskollegen, Coaches etc.)

Nie	Kaum (1-2 mal pro Woche)	Manchmal (2-3 mal pro Woche)	Regelmäßig (3-6 mal pro Woche)	Täglich
◯	◯	◯	◯	◯

* 28. Wie oft unternehmen Sie etwas mit Mitspielern, Coaches etc.?

Nie	Kaum (1-2 mal pro Woche)	Manchmal (2-3 mal pro Woche)	Regelmäßig (3-6 mal pro Woche)	Täglich
◯	◯	◯	◯	◯

6. Anspannung vor oder während Wettkämpfen

Viele Athleten (selbst Profis) sind angespannt oder nervös vor Wettkämpfen. Lesen Sie bitte die Statements und geben Sie an wie Sie sich NORMALERWEISE vor / bei Wettkämpfen fühlen.

* 29. Vor oder während eines Wettkampfes:

	Gar nicht	Ein bisschen	Ziemlich	Sehr
1. Es ist schwierig sich auf das Spiel zu konzentrieren.	○	○	○	○
2. Mein Körper ist angespannt.	○	○	○	○
3. Ich befürchte, dass ich nicht gut spielen werde.	○	○	○	○
4. Es ist schwierig für mich, meine Aufgaben im Spiel umzusetzen.	○	○	○	○
5. Ich habe Angst, dass ich andere im Stich lasse.	○	○	○	○
6. Ich fühle mich unwohl in der Magengegend	○	○	○	○
7. Ich verliere meinen Fokus auf den Wettkampf.	○	○	○	○
8. Ich habe Ansgt, dass ich nicht mein Bestes geben kann.	○	○	○	○
9. Ich habe Angst, dass ich schlecht abschneiden / performen werde.	○	○	○	○
10. Meine Muskeln werden zittrig.	○	○	○	○
11. Ich habe Angst, dass ich während des Wettkampfes etwas vermassele.	○	○	○	○
12. Mir ist schlecht.	○	○	○	○
13. Ich kann während des Wettkampfes nicht mehr klar denken.	○	○	○	○
14. Meine Muskeln sind auf Grund meiner Nervosität komplett angespannt.	○	○	○	○
15. Ich tue mir schwer mich auf die Anweisungen meines Trainers zu fokussieren.	○	○	○	○

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7. Ihre Ansichten zu Aspekten ihrer Wettkampferfahrung

In diesem, vorletzten Teil, möchten wir, dass Sie Aspekte ihrer Wettkampferfahrungen bewerten. Identifizieren Sie wie sehr Sie den einzelnen Statements zustimmen.

* 30. Wie sehr stimmen Sie folgenden Statements zu?

	Ich stimme überhaupt nicht zu	Ich stimme nicht zu	Weder Zustimmung noch Widerspruch	Ich stimme zu	Ich stimme vollkommen zu
Wenn ich nicht das Maximum von mir verlange, werde ich als zweitklassiger Athlet enden.	○	○	○	○	○
Selbst wenn ich nur ein bisschen bei einem Wettkampf versage, werte ich es als komplettes Versagen.	○	○	○	○	○
Ich hasse es nicht der Beste in meinen Wettkampfbereichen zu sein.	○	○	○	○	○
Wenn ich beim Wettkampf versage, fühle ich mich als Versage auf ganzer Linie.	○	○	○	○	○
Je weniger Fehler ich im Wettkampf mache, desto mehr werde ich von meinen Mitmenschen gemocht.	○	○	○	○	○
Es ist mir wichtig in allen Aspekten meiner Disziplin kompetent zu sein.	○	○	○	○	○
Ich verlange bessere Leistungen und Resultate in meiner täglichen Vorbereitung als die meisten meiner Kontrahenten.	○	○	○	○	○
Ich denke, dass andere Athleten generell niedrigere Standards für sich selbst haben als ich.	○	○	○	○	○
Nach einem Fehler verärgert zu sein ist eine natürliche Reaktion während eines Wettkampfes.	○	○	○	○	○

	Ich stimme überhaupt nicht zu	Ich stimme nicht zu	Weder Zustimmung noch Widerspruch	Ich stimme zu	Ich stimme vollkommen zu
Wenn ein Gegner oder Mitspieler (der in einer ähnlichen Rolle ist) besser spielt als ich, fühle ich mich als hätte ich versagt.	◯	◯	◯	◯	◯
Wenn ich nicht jedes Mal meine Leistung bringe, habe ich das Gefühl, dass meine Mitmenschen mich nicht als Athlet respektieren.	◯	◯	◯	◯	◯
Ich habe extrem hohe Ziele in meiner Sportart.	◯	◯	◯	◯	◯
Meine Ziele sind höher, als die Ziele der meisten Kontrahenten.	◯	◯	◯	◯	◯
Meine Mitmenschen werden vermutlich weniger von mir halten, wenn ich im Wettkampf Fehler begehe.	◯	◯	◯	◯	◯
Auch wenn ich sonst gut performe: Ein einziger offensichtlicher Fehler reicht mir aus um von meiner Leistung enttäuscht zu sein.	◯	◯	◯	◯	◯

* 31. Führen Sie eine eigene Trainingsdokumentation? (zB Trainingstagebuch)

◯ Ja

◯ Nein

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8. Evaluierung Ihrer Wettkampferwartungen

Fast am Ziel! Bitte beantworten Sie die finalen Fragen.

* 32. Beschreiben Sie Ihre Ansprüche an sich selbst während eines Wetkampfes.

	Nie	Selten	Manchmal	Oft	Meistens	Immer
Während Wettkämpfen / Spielen will ich so perfekt wie möglich sein.	○	○	○	○	○	○
Während Wettkämpfen / Spielen ist es wichtig bei allem was ich versuche perfekt zu sein.	○	○	○	○	○	○
Während Wettkämpfen / Spielen verspüre ich den Drang perfekt zu sein.	○	○	○	○	○	○
Während Wettkämpfen / Spielen bin ich ein Perfektionist was meine Ziele angeht.	○	○	○	○	○	○
Während Wettkämpfen / Spielen wünsche ich mir, dass ich alles perfekt machen könnte.	○	○	○	○	○	○
Während Wettkämpfen / Spielen fühle ich mich extrem gestresst, wenn nicht alles perfekt nach Plan verläuft.	○	○	○	○	○	○
Nach Wettkämpfen / Spielen fühle ich mich niedergeschlagen wenn meine Leistung nicht perfekt war.	○	○	○	○	○	○
Während Wettkämpfen / Spielen drehe ich bei Fehlern durch.	○	○	○	○	○	○
Während Wettkämpfen / Spielen bin ich frustriert wenn ich meinen hohen Anforderungen nicht gerecht werde.	○	○	○	○	○	○
Wenn während Wettkämpfen / Spielen etwas nicht perfekt verläuft, bin ich unzufrieden mit dem gesamten Resultat.	○	○	○	○	○	○

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9.

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33. Finale (optionale) Frage: Wie sehen Sie sich selbst als Person? Was für eine Person wollen Sie in Zukunft sein?

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