



AALBORG UNIVERSITET

MASTER THESIS, 10. SEMESTER, PSYCHOLOGY



<https://unsplash.com/photos/Mf23RF8xArY>

Esport: The risks and benefits of pursuing a professional esports career
– A qualitative study

By Casper Lykke Pagter

Abstract

Gaming has evolved over the last couple of decades from a spare time activity to a competitive phenomenon known as esports. Esports has been growing rapidly since its infant days, and has become part of the mainstream media garnering millions of fans and viewers worldwide, at an increasing rate each year. This rapid growth and increased interest in esports means that many young adults are becoming more interested in pursuing esports as a possible professional career. But despite this increased interest in esports, research on the consequences of esports is still in its infancy, and researchers highlight a need for further studies to better understand the health impact of prolonged and early participation in esports. Therefore the aim of this thesis is to answer the following research question: *What are the possible negative and positive consequences of pursuing a career as an esports athlete?*

Findings from current studies have identified that esports athletes experience both negative and positive physical, psychological and social consequences in their pursuit of a professional esports career. In this master thesis data was collected from four qualitative interviews with current or former professional esports athletes that have been conducted and analyzed in order to find supportive, complementary or non-supportive evidence for the findings from current studies. The findings of the analysis support and complement many of the findings from current studies, by confirming previous findings or by adding new views or contexts. The participants in this study experienced the following negative consequences: worsening eyesight, poor sleep schedule, back and wrist pain, lethal repercussions, identity loss in relation to quitting esports, changes in temperament, gaming addiction, sacrificing personal life, missing out on important family events, neglecting relationships and dropping out of school in order to pursue an esports career, and harassment. But despite these negative consequences esports athletes also experienced many positive consequences such as: improved physical activity, improved sleep, personal development, acquiring competences, improved mood, improved reaction time, multitasking and decision making, improved ability to work under pressure, gaining new friendships, social support and comfort from teammates, improved social behavior, improved ability to work with other people, increased job opportunities and improved academic abilities. Additionally, some unique findings were discovered as

well. Firstly, esports is able to both negatively and positively impact sleep. But it seems that the determining factor might be the level of professionalism that the esports athlete exhibits. Secondly, extended and prolonged exposure to high game volume might be a risk factor for esports athletes physical health. Both of these findings could benefit from further research.

“Esport: The risks and benefits of pursuing a professional esports career
– A qualitative study”

Specialeafhandling, 10. Semester, Psykologi

Aalborg Universitet

15. august 2023

Specialets samlede antal tegn: 167948

Antal normalsider: 69,9

Udarbejdet af: Caper Lykke Pagter

Studienummer: 20164434

Tak til vejleder Thomas Borchmann for din uvurderlige vejledning

Tak til mor Ann og far Jesper for jeres evige støtte og forståelse

Tak til storebror Christian for altid at motivere og støtte mig

Tak til Pax og Gimli for at være de bedste pelsede læsemakkere man kunne ønske sig igennem studiet

Table of Contents

Chapter 1- Introduction	7
1.1 Introduction	7
1.2 Disposition	8
1.3 Defining Esports	8
Chapter 2 - Negative and Positive Consequences of Esports - Studies and Empirical Research	10
2.1 Negative Consequences of Esports	10
2.1.1 Physical Risks	11
2.1.1.1 Eye Fatigue	11
2.1.1.2 Sleep Dysfunction	12
2.1.1.3 Physiological Arousal	14
2.1.1.4 Musculoskeletal Injuries and Pain	15
2.1.1.5 Sedentary Behavior and Nutrition	16
2.1.1.6 Physical Injuries and Pain Affect Mental Health	18
2.1.2 Psychological Risks	18
2.1.2.1 Stress	19
2.1.2.2 Cognitive Fatigue	19
2.1.2.3 Disordered Gaming and Addiction	20
2.1.2.4 Mental Ill Health	21
2.1.3 Social Risks	22
2.1.3.1 Educational Risks	23
2.1.3.2 Neglecting Personal Life and Relationships in Favor of Esports	24
2.2 Positive Consequences of Esports	25
2.2.1 Physical Benefits	26
2.2.1.1 Physical Activity Level of Esports Athletes	26
2.2.1.2 Perceptual-Motor Skills	27
2.2.2 Psychological Benefits	28
2.2.2.1 Identity and Esports	28
2.2.2.2 Video Games as an Escape	31
2.2.2.3 Regulating Emotions Through Video Games	32
2.2.2.4 Cognitive Benefits	33
2.2.2.4.1 Reaction Time	33
2.2.2.4.2 Spatial Skills	34
2.2.2.4.3 Multitasking	35
2.2.2.4.4 Problem-Solving Skills	35
2.2.4 Social Benefits	36
2.2.4.1 Social Activities and Interpersonal Relationships	36
2.2.4.2 Gaming and Prosocial Behavior	37
2.2.4.3 Job Opportunities After an Esports Career	38
Chapter 3 - Method	40
3.1 Pragmatism	40
3.2 Collection of Data: Qualitative Interviews	42

3.2.1 Interview Guide and Interview Procedures	43
3.2.1.1 Online Interview	45
3.3 Transcription	46
3.4 Recruitment of Participants	46
3.5 Method for Analysis: Directed Content Analysis	47
3.6 Ethical Considerations	48
3.6.1 Informed Consent	49
3.6.2 Confidentiality and Anonymity	49
3.6.3 Consequences	50
3.6.4 The Researcher's Role	50
Chapter 4 - Analysis	52
4.1 Presentation of Participants	52
4.2 Negative Consequences	53
4.2.1 Negative Physical Consequences	53
4.2.1.1 Eyesight issues	53
4.2.1.2 Sleep dysfunction	54
4.2.1.2.1 Young athletes sacrifice sleep	55
4.2.1.3 Injuries and Pain	56
4.2.1.4 Lethal Consequences	57
4.2.2 Negative Psychological Consequences	57
4.2.2.1 Identity Loss	58
4.2.2.2 Changes in Temperament	58
4.2.2.3 Gaming Addiction	59
4.2.3 Negative Social Consequences	60
4.2.3.1 Sacrificing Personal Life	60
4.2.3.2 Missing out on Family Events	61
4.2.3.3 Neglecting Relationships	61
4.2.3.4 Abandoning Academic Endeavors	62
4.2.3.5 Harassment	62
4.3 Positive Consequences	63
4.3.1 Positive Physical Consequences	64
4.3.1.1 Improved Physical Activity	64
4.3.1.2 Improved Sleep	65
4.3.2 Positive Psychological Consequences	66
4.3.2.1 Personal Development	66
4.3.2.2 Acquisition of Competences	67
4.3.2.3 Improved Mood	68
4.3.2.4 Improved Reaction time, Multitasking and decision making	69
4.3.2.5 Improved Ability to Work Under Pressure	70
4.3.3 Positive Social Consequences	71
4.3.3.1 New Friendships	71
4.3.3.2 Gain Social Support from Teammates	72
4.3.3.3 Improved Social Behavior	73
4.3.3.4 Improved Ability To Work With People	74

4.3.3.5 Increased Job opportunities	75
4.3.3.6 Improved Academic Abilities	76
Chapter 5 - Discussion	78
5.1 Findings of the Analysis Compared to Findings from Current Studies	78
5.1.1 Supportive Findings of Negative Consequences	78
5.1.2 Complementary Findings of Negative Consequences	79
5.1.3 Supportive Findings of Positive Consequences	80
5.1.4 Complementary Findings of Positive Consequences	81
5.2 Discussion of findings	82
5.3 Implications of this thesis	83
5.3.1 Implications for future research	83
5.3.2 Limitations of the thesis	84
Chapter 6 - Conclusion	85
Literature list	87

Chapter 1- Introduction

1.1 Introduction

Gaming as a phenomenon has been growing tremendously fast in recent years, and its acceptance as a mainstream media is bigger than it was over a decade ago. Additionally, the awareness of the esports industry has been growing steadily as well, with over 1.8 billion people aware of esports compared to 1.6 billion in 2018. The esports audience has recorded numbers of 443 million people in 2019 with 198 million being esports enthusiasts. The massive surge in esports interest suggests that esports is not a niche like it used to be over a decade ago (Block, & Haack, 2021). Some statistics also show an increased interest that young males have in pursuing an esports career, some surveys found that 41.2 percent of males are interested in becoming an esports professional, while 29.8% of females were interested (Statista, 2022). But while there is an increased interest in the profession, it may prove hard to achieve a professional status as some researchers have found that very few make it as an esports professional (Griffiths, 2017), this presents an interesting dilemma that could have several consequences for the people trying to pursue an esports career. Research on the consequences of esports and gaming is still somewhat limited, in fact very few studies examine both the negative and positive outcomes (Granic et al., 2014), and researchers highlight a need for further studies in the field of esports to get a better understanding of the health impact of prolonged and early participation in esports, as well as the mental health outcomes and the physical and psychological demands of professional esports (Bányai et al. 2019; Shulze, et al., 2021).

As someone who has been playing video games for over two decades now, and followed the esports scene for many years i want to help contribute to the research in esports, by shedding some light on the various consequences that esports athletes experience as a result of pursuing an esports career and aim to answer the following research question; ***What are the possible negative and positive consequences of pursuing a career as an esports athlete?***

1.2 Disposition

This thesis is composed of 6 different chapters, initially chapter one will introduce the topic of inquiry, research question and the definition that this thesis will use for its understanding of what esports is. Chapter two will focus on presenting current studies on the consequences of esports. Chapter three will describe the methodology of this thesis, where the qualitative approach, philosophy of science, method of analysis, how participants were recruited and the ethical considerations of this thesis will be presented. Chapter four will present the analysis of the collected findings from the interviews with the participants. In chapter five the findings of the analysis will be discussed in relation to the current studies, and implications and limitations will also be discussed. Chapter six will present the conclusion of the thesis.

1.3 Defining Esports

While there is some disagreement on what should be considered an electronic sport (esports). Esports is commonly defined as competitive computer gaming, or competitive video gaming in a public setting. The defining feature of esports compared to casual or recreational gaming is therefore the participation in tournaments or leagues. Another important factor is that esports is run and overseen by official entities that dictates the way the game should be played, to standardize all competitions (Mendoza et al., 2022). This thesis will therefore use definition presented by Mendoza et al. (2022) which states that *“Esports consist of a number of organized video game competitions in which individuals or teams play by a set of established rules”*

Additionally what defines an esports athlete is important as well, as playing with a competitive intention isn't enough to be considered an esports athlete Mendoza et al. (2022) describes that what separates a esports athlete from casual or recreational gamers is that *“Competitive players are involved in organized tournaments which includes participating, training and preparing for it”* This thesis will be using this definition as well in order to establish an understanding of what can be considered an esports athlete. However, it is important to note that studies used in this thesis

might not have the same definition, since there is a large discrepancy among researchers when it comes to defining both esports and its athletes.

Chapter 2 - Negative and Positive Consequences of Esports - Studies and Empirical Research

This chapter of the thesis will aim to present current research on the possible negative and positive consequences that esports athletes may experience in their pursuit of a career as esports professionals. Several articles, systematic reviews, meta-analysis, books and studies have been identified and will be used to explain and present relevant risks and benefits of esports.

2.1 Negative Consequences of Esports

When looking at the well-being of esports athletes, it is vital to consider the possible negative impacts of extended hours of stationary training, engagement in hypercompetitive environments, exhaustion, performance barriers and constant fine motor movements (Shulze, et al., 2021). Studies have found that many esports athletes suffer from musculoskeletal injuries and pain (Rossoni, et al., 2023), as well as eye fatigue (Shulze, et al., 2021) and sleep dysfunction due to extended hours of using computer screens (DiFrancisco-Donoghue, et al., 2019; Zwibel, et al., 2019). Studies have also found that esports athletes could experience several mental health issues as well such as stress, depression and anxiety (Seng et al., 2021), due to poor sleep, performance related issues, injuries and pain (Rice, et al., 2016; Shulze, et al., 2021). Other studies have also found that esports athletes might be prone to disordered gaming as a result of the extended hours esports athletes play video games for (Maldonado-Murciano, et al., 2020). Additionally, some esports athletes might abandon educational goals (Salo, 2017; Winther, 2016), and social relationships in order to pursue their esports career (Xu, 2023). The possible negative consequences that esports athletes therefore might experience can be categorized as biological, psychological and social risk factors. This section of the thesis will therefore focus on topics such as; *Physical Risks, Psychological Risks and Social Risks*.

2.1.1 Physical Risks

The very nature of esports makes it a sedentary activity. In contrast to traditional sports, where athletes might sustain injuries of their tendons, nerves, bones, ligaments and soft tissue due to physical trauma and repetitive stress (Shulze, et al., 2021), esports athletes remain seated during gameplay and therefore their injuries are more akin to that of an office worker than a traditional sports athlete. The possible injuries that an esports athlete might sustain include, neck pain, back pain, wrist pain, hand pain, eye fatigue, metabolic dysregulation and disruption of the circadian rhythm (Zwibel, et al., 2019). The following section of the thesis will focus on the physical risks associated with an esports career such as; *Eye fatigue, Sleep dysfunction, Physiological arousal, Musculoskeletal injuries and pain, sedentary behavior and nutrition and Physical injuries and mental health.*

2.1.1.1 Eye Fatigue

One of the most common complaints of esports athletes is eye fatigue (DiFrancisco-Donoghue, et al., 2019; DiFrancisco-Donoghue, & Balentine, J. R., 2018; Sousa, et al., 2020; Zwibel, et al., 2019;). This condition is found in 90% of individuals who use a computer for more than 3 hours per day (Zwibel, et al., 2019). Some studies show that 45% and up to 56% of esports athletes suffer from this condition (DiFrancisco-Donoghue, et al., 2019; DiFrancisco-Donoghue, & Balentine, J. R., 2018). This isn't surprising considering the number of hours that esports athletes spent practice sitting in front of a screen on a daily basis. Some studies report that the average practice time for collegiate esports athletes span from 3-5 hours of practice daily (Zwibel, et al., 2019). Other studies have reported numbers as high as 8-10 hours a day (DiFrancisco-Donoghue, et al., 2019; DiFrancisco-Donoghue, & Balentine, J. R., 2018), and it is not unusual for professional esports athletes to practice and play for up to 12-14 hours every day (Happonen & Minashkina, 2019). Bearing in mind this does not include other forms of screen time such as television or mobile phone use (DiFrancisco-Donoghue, et al., 2022). For professional players the esports model requires players to practice up to 60 hours a week (Shulze, et al., 2021). These esports athletes fixate their eyes on a computer screen for long periods of time. In some studies more than 50% of the respondents report that a typical duration of play before they take a standing break is

more than 2 hours of play (DiFrancisco-Donoghue, et al., 2019; Zwibel, et al., 2019). Due to these many hours of gameplay practice, many esports athletes have what is known as computer vision syndrome, which is characterized by symptoms which include, tension headache, blurry vision and low back pain (Zwibel, et al., 2019). One of the possible explanations as to why eye fatigue occurs, is that the eye focusing mechanism in humans does not seem to be meant for computer generated pixel-images. The blurred edges, lack of definition and contrast increases strain on the eye (Akinbinu & Mashalla, 2014). These images are very demanding on the eyes, and frequent saccadic eye movements, accommodation and vergence increase while blink rates decrease which in turn fatigues the oculomotor system (Akinbinu & Mashalla, 2014; Zwibel, et al., 2019).

2.1.1.2 Sleep Dysfunction

Another common issue for esports athletes is sleeping problems, altered sleep patterns or insomnia (Zwibel, et al., 2019). As mentioned earlier, many esports athletes spend a lot of hours in front of computer screens. These computer screens commonly use light-emitting diodes (LEDS) which produce a light that we perceive as white, but it is actually on the blue light spectrum (DiFrancisco-Donoghue, et al., 2019; Tosini, et al., 2016). Light on the blue spectrum has shown to increase alertness and thought processing, but some research has also shown that excessive exposure to this light can impact our natural circadian rhythm and cause retinal and photoreceptor damage, and negatively affect sleep latency and duration, especially if the exposure happens before bedtime (DiFrancisco-Donoghue, et al., 2019; Zwibel, et al., 2019). Furthermore, studies have shown that exposure to blue light can alter and suppress the secretion of melatonin, which is a hormone that is an important marker of the natural circadian clock (Burgess, & Fogg, 2008; Tosini, et al., 2016).

But blue light emitting devices aren't the only risk factors when it comes to poor sleep quality and sleep disorders. Many professional and aspiring esports players experience not only a demand to be highly competitive and good at the video games they play, they also have to meet the demands of broadcasting their gameplay to fans online (Holden, et al., 2018). This phenomenon is known as streaming, and the players who engage in this activity are called streamers. Some streamers have reported streaming for 24 hours or more, continuously with minimal breaks, in order

to garner high viewership and to satisfy their fans who follow them, and sometimes pay money for the content they produce on sites such as Twitch.tv (Holden, et al., 2018; Shulze, et al., 2021). Another factor to consider is when video games are played. Since most esports athletes are young, commitments such as school, work and social activities might push practicing and playing video games into the late hours of the night (Peracchia & Curcio, 2018). Some esports players therefore sacrifice their sleep in order to achieve their gaming goals or to feel satisfied with the duration of the gaming session (Peracchia & Curcio, 2018; Shulze, et al., 2021). Some studies have found that high intensity video gameplay (high levels of pleasure during the behavior, loss of control during the behavior and impossibility to resist performing the behavior) is associated with poor sleep quality and poorer general mental health score (Altintas, et al., 2019; Shulze, et al., 2021). Additionally, studies on adults have found that 1 hour of video gaming increased the risk of poor sleep quality by 31%. And as hours of gameplay increase the reported levels of fatigue, insomnia and the later their bedtime and rise time increases as well (Exelmans, & Van den Bulck, 2015).

A study by Lee et al. (2021) compared the training schedule, sleep patterns and depression of esports professionals from South Korea, Australia and America. The average sleep time for all participants was about 6.8 hours of sleep per night. All participants had delayed sleep patterns and difficulty falling asleep with about 20 mins of sleep onset, but half of the participants exceeded the clinical cut-off for insomnia (30 mins), and experienced excessive daytime sleepiness. Furthermore, once asleep the esports athletes also experienced wakefulness during the night with an average WASO (Wakefulness after sleep onset) of 47.9 mins (Lee, et al., 2021). The Korean players trained daily, for far longer than their Australian and American peers (13 hours, 4,8 hours and 6.1 hours respectively). And while the American players trained from lunchtime to early evening, the Korean players trained from early afternoon to the middle of the night. Which displaced their sleep opportunity and increased their exposure to blue light right before bedtime. Additionally Korean players showed significantly higher depression scores when compared to the other two groups. In fact all the Korean players exceeded the clinical depression cut-off score (Lee, et al., 2021). The study correlates the high depression scores with number of awakenings, WASO, and hours of daily training time. They argue that

there is significant literature that supports the impact of sleep on depression, and that working excessively long hours is significantly associated with the development of depressive symptoms (Lee, et al., 2021). These findings are consistent with other studies involving traditional sports athletes. Studies have shown that many traditional sports athletes do not achieve the 7-9 hours of sleep recommended for adults. Additionally intensive training for traditional sports athletes is reported to cause sleep disturbances and mood changes (Lee, et al., 2021).

2.1.1.3 Physiological Arousal

Participating in esports and playing video games can elicit physiological outcomes such as increased heart rate and systolic blood pressure. In a study by Sousa et al. (2020), they found that both FPS (first person shooter) and MOBA (Multiplayer online battle arena) games activated the sympathetic nervous system. But FPS games resulted in a larger change from low to peak heart rate and systolic blood pressure when compared to the MOBA game. The gaming situation itself can elicit increased heart rate. For esports professionals their heart rate increases at the beginning of the match and toward the end of the game, and is higher when they are facing a real human opponent in game, compared to computer or AI opponents (Watanabe, et al., 2021). Not only does the games themselves elicit physiological arousal, but the environment and situations in which they take place might also be a factor, such as esports competitions and tournaments (Watanabe, et al., 2021).

These physiological effects are akin to those of aerobic exercise, but they may not provide the same benefits that would have been received from performing regular exercise activities (Shulze, et al., 2021; Sousa, et al., 2020). The main difference is that esports elicit these physiological changes due to catecholamines and stress hormones produced by the adrenal glands, due to the low level of physical activity. While aerobic exercise elicits the changes due to physical exertion and oxygen demands of the muscles (Sousa, et al., 2020). Studies have not investigated the long term effects of catecholamines and stress hormones on esports players. However, studies have shown that extended exposure to high levels of catecholamines due to stressful work environments, may cause cardiovascular disorders such as myocardial infarction and stroke, hypertension, type 2 diabetes, reduced immune function, cortisol to cardiovascular disease and cognitive impairment (Lundberg,

2005). Additionally studies argue that due to the increased heart rate and systolic blood pressure that happen during esports other cardiovascular alterations such as arrhythmia might be expected to occur as well (Rossoni, et al., 2023).

2.1.1.4 Musculoskeletal Injuries and Pain

In order to perform at the highest level, esports players spend many hours doing repetitive movements with their fingers, hands, arms, shoulders and wrist while using a keyboard, mouse or gamepad, in sedentary positions for extended periods of time with sub-optimal posture (Rossoni, et al., 2023; Shulze, et al., 2021). These repetitive movements and sub-optimal posture, are two of the main reasons for the cause of musculoskeletal complaints for esports players (Rossoni, et al., 2023). In a Danish study 42,6% of the esports players reported musculoskeletal pain. They found that the most common types of injuries and pain sites are located in the back (31,3%), neck (11.3%) and shoulders (11.3%) (Lindberg, et al., 2020). Other studies have similar findings with 35% of the participants having neck or back pain, and 30% of the participants having hand or wrist pain (Zwibel, et al., 2019).

Research on poor posture while gaming has shown that within 30 minutes of gameplay, there was forward displacement of the head compared with the spine. Remaining in this forward head position for prolonged periods of time stresses the cervicothoracic junction and paraspinal muscles which causes muscle tension. Esports athletes are therefore at increased risk of cervical strain and cervicogenic and tension headaches (Zwibel, et al., 2019). The forward displacement of the head can also lead to significant decrease in shoulder external rotator strength (Zwibel, et al., 2019) and anomalies in the cervical spine and muscles which could have repercussions for the lower back as well. It is not uncommon for esports athletes to show early signs of degeneration in neural disks and roots, radiculopathies and peripheral compressions (Rossoni, et al., 2023). Additionally a slumping posture increases the force on the intervertebral discs which can result in herniations (Zwibel, et al., 2019). Many of the gaming chairs that esports players use have backrests which promote flattened lumbar lordosis and posterior pelvic tilt, which causes increased muscle tension in the paraspinal muscles and weakens abdominal muscles (Zwibel, et al., 2019). Competitive esports players execute more than 300

actions per minute, predisposing to repetitive and chronic injuries. Hand and wrist injuries such as Carpal or ulnar tunnel syndromes, elbow pain and De Quervain's tendinopathy are common diagnoses for esports players (Rossoni, et al., 2023).

Injuries and chronic pain are problematic for esports athletes, it limits their participation in esports-related activities and the amount of hours they can practice (Lindberg, et al., 2020). As the esports model requires players to practice up to 60 hours a week, conditions such as chronic pain and musculoskeletal injuries could lead to early retirement for esports athletes (Shulze, et al., 2021). And even though physical therapists urge players to rest or take time off to heal, many esports athletes feel if they do take time off that they will lose their competitive edge or be replaced (Sabtan, et a., 2022). Many esports athletes may also be hesitant to seek treatment for their injuries due to fear of public perception, which could result in loss of starting spots, sponsorships or a risk of being seen as weak or making excuses for poor performance (Migliore, 2021). This results in players not taking the time off they need to heal their injuries. This has resulted in many cases where players had to retire at a relatively young age due to severity of their health issues (Sabtan, et a., 2022). An example of this is a case with one of the most valued League of Legends players nicknamed UZI. A 22 year old Chinese player, who had to retire in June 2020, due to chronic shoulder and wrist injuries. UZI stated that he went to the hospital for a checkup and the doctor told him his arms were similar to that of a 40 to 50 year old (Sabtan, et a., 2022). Studies on early retirement due to injuries and chronic pain, has shown to be a likely contributor to mental disorders in traditional elite sport athletes (Rice, et al., 2016). Newer studies have shown similar conditions for esports athletes stating they experience financial struggles and challenges getting a job after retiring from esports, (Hong & Hong, 2023).

2.1.1.5 Sedentary Behavior and Nutrition

As mentioned earlier, the amount of time that esports athletes spend practicing and honing their skills, vary from 3-10 hours (and sometimes as high as 14 hours) of daily practice. This means that a large amount of their daily hours is spent in a sedentary position playing games. Some studies have found that remaining in a seated position for more than 3 hours had a negative effect on vascular health (Zwibel, et al., 2019). Furthermore prolonged sitting and a lack of physical activity

has independently shown a significant increase in the risk of mortality regardless of muscle strength (DiFrancisco-Donoghue et al., 2022). Survey data from a study by DiFrancisco-Donoghue et al. (2019) reported that more than 40% of their esports athlete participants did not engage in any forms of physical exercise or activity. Additionally, for those who did exercise, it might not be enough to undo the negative health effects of prolonged sitting (DiFrancisco-Donoghue et al., 2022). According to Zwibel et al. (2019) this could signal a high prevalence of exercise deficit disorder (less than 60 mins of daily physical activity) for esports athletes. Another factor to consider when looking at the sedentary lifestyle of esports athletes is that the majority of aspiring esports athletes are involved in some form of schooling (High school to college), which adds additional hours of sedentary activity to their daily routines (Shulze, et al., 2021). The sedentary behavior also influences their dietary patterns. In a Polish study by Szot et al. (2022) they found that many Polish esports athletes had poor dietary habits such as irregular eating of meals, sweetening of hot drinks, frequent snacking and fried meats. Additionally, one study has found that a large amount of online gamers calories come from sweetened and caffeinated beverages. Which has been associated with health conditions such as diabetes, obesity and cardiovascular diseases (Cemelli, et al., 2016). But it is worth mentioning that many esports players do exhibit healthy dietary habits such as proper hydration during the day and consumption of mainly non-sparkling water (Szot, et al., 2022). Looking at the health risks involved in not only poor nutrition but also a largely sedentary lifestyle does raise several health concerns. Therefore, following a personalized diet and avoiding a sedentary lifestyle should be a high priority for the enhancement and wellbeing of esports players (Rossoni, et al., 2023).

However, although traditionally esports athletes have been characterized as inactive and unhealthy due to the extended hours of sedentary behavior, many esports athletes do workout and exercise a considerable amount (Rossoni, et al., 2023; Shulze, et al., 2021). A more extensive examination into the physical activity level of esports athletes will be conducted in section 2.2.1 detailing the physical benefits of esports.

2.1.1.6 Physical Injuries and Pain Affect Mental Health

Physical injuries and pain may also affect the mental health of esports athletes. Studies have shown that physical illness is frequently accompanied by symptoms of mental disorders like depression (Olver & Hopwood, 2013). Studies have also shown that chronic pain can lead to depressive symptoms (Nicholas, et al., 2009), as well as mood and anxiety disorders (McWilliams, 2003). Additionally lack of sleep has been shown to instigate or further exacerbate anxiety disorders (Chellappa & Aeschbach, 2022), and there is an association between sleep deprivation and major depression in young adults (Roberts & Duong, 2014). Physical risks are therefore important to consider, since they not only affect the physical health of esports athletes but can also have serious ramifications for their mental health, and in the worst cases cause symptoms or mental disorders.

2.1.2 Psychological Risks

The psychological demands placed on traditional sports athletes have long been regarded as relevant, and the demands on esports athletes are no exception. Studies have identified numerous psychological demands that esports athletes deal with, such as motivation, concentration, emotion regulation, communication, team cohesion and anger management (Cottrell, et al., 2019). When it comes to competitive play, and especially championship tournaments where games can have up to five matches that last for more than one hour each, there is a contentious demand on esports athletes to exhibit high levels of concentration and effective player interactions. Furthermore, some of these tournaments have the potential to garner millions of spectators, leading to performance related anxiety (Cottrell, et al., 2019). Other studies have found other mental health risks of esports such as addiction, cognitive fatigue, isolation, anxiety, depression, stress, alexithymia, Internet gaming disorder and gambling (Palanichamy, et al., 2020; Rossoni, et al., 2023; Shulze, et al., 2021; Zwibel, et al., 2019). The competitive nature of esports gaming puts esports athletes under a lot of mental stress, and it's easy for players to burn out and collapse from the extremely long practice hours (Sabtan, et al., 2022). Given that psychological demands impact the performance of esports players it is worth considering potential sources of psychological risk factors for esports players (Shulze,

et al., 2021). This section of the thesis will focus on *stress, cognitive fatigue, Disordered gaming and addiction and mental ill health*.

2.1.2.1 Stress

Stress is a common issue especially in the workplace, about 83% of workers in the US report suffering from work-related stress, with 25% stating that their job is the main stressor in their lives (Boyd, 2023). Esport athletes are no exception when it comes to experiencing stress. Just like any other profession or sport, certain aspects of their work can induce stress (Shulze, et al., 2021). In a study by Sabtan et al. (2022) they interviewed six esports coaches that work with professional League of legends players. All of the coaches agreed that stress has a significant impact on the players performance. A problem that one of the coaches mentioned was that while they are spending a lot of time practicing the game, they spend very little time nurturing the mind and managing stress levels. And added that, while mechanical skill is what gets you there, it makes no difference if the player cannot manage the stress. Some of these stressors are technical issues and antisocial behavior from teammates (Poulus, et al., 2020). Many professional esports athletes are not used to playing in team environments due to the fact that prior to becoming a professional they usually play on their own with randomly selected teammates while playing by themselves. This can result in some players having a negative attitude and non-cooperative personality, which can be damaging to a team's environment and add stress (Sabtan, et a., 2022). Furthermore, stage fright is common among many esport athletes as they are not used to playing on a stage in front of thousands of people. So for young adults to transition from their comfortable rooms to a big stage is a huge step compared to traditional sports. And many rookie esport athletes may underperform due to the change in environment making them stressed and nervous (Sabtan, et a., 2022).

2.1.2.2 Cognitive Fatigue

Cognitive fatigue or mental fatigue is the psychobiological state that is caused by prolonged periods of demanding cognitive activity. Both repetitive and prolonged duration activities can cause cognitive fatigue. And it has shown to negatively impact physical performance for traditional sports athletes (Russell, et al., 2019). Cognitive fatigue has also shown to decrease attentional abilities, which can lead to

compromised performance for esports athletes. Cognitive fatigue could therefore be a key component for esports performance as players are required to perform at peak cognitive ability, as well as motor behavioral tasks for many hours during competition (Thomas, et al., 2019). A study by Sousa et al. (2020) evaluated 17 professional esports athletes before and after a gaming session. They found that while players exhibited faster response time after having competed, they did however have lower executive functioning accuracy after 2.5 hours of gameplay, and their response style was more impulsive. They proposed that increased cognitive fatigue may decrease esports performance, due to lower accuracy, especially for esports players of FPS games (Sousa, et al., 2020).

2.1.2.3 Disordered Gaming and Addiction

While many people play video games recreationally without any problems, others become addicted (Shulze, et al., 2021). Addiction to video games is known as gaming disorder which is characterized by a pattern of persistent or recurrent gaming behavior, which may be online or offline. The behavior is manifested by three primary components. Impaired control over gaming (Frequency, duration, intensity, onset, termination). Increased priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities. And lastly continued or escalated gaming despite the occurrence of negative consequences, such as significant impairment in personal, educational, social, family or other important areas of functioning (*ICD-11 for Mortality and Morbidity Statistics*, 2023). Certain gaming motivations have been associated with gaming addiction. such as, coping with daily stressors and escapism, online relationships and mastery, excitement and challenge, completion and recognition (Kuss, 2013). Escapism is a common motivation for media usage such as video games. Escapism can be defined as a way to avoid or flee the problems of the individual's life. Individuals might therefore use video games to avoid unpleasant mood states and troublesome thoughts caused by challenging life situations (Hastall, 2017). In a study by Bányai et al. (2019) they found that escapism was one of the most critical motivations in disordered gaming, and that it was a common predictor for disordered gaming.

A study by Maldonado-Murciano et al. (2022). Compared professional esports athletes to non professional gamers and their risk of developing gaming disorder.

Their study indicated that professional esports athletes are at greater risk of developing disordered gaming and presented higher vulnerability through increased time spent gaming and prevalence rates of disordered gaming. But This finding does have some problematic aspects to it. One of the symptoms of disordered gaming that is being measured for is excessive gaming. This symptom might not inherently be problematic for professional esports athletes since it represents a professional activity that is part of their career. Professional esports athletes need to invest a lot of time into playing the game, and spend many hours practicing in order to excel professionally and perform at high levels. Disordered gaming in the context of esports could therefore reflect workaholism or work addiction tendencies rather than disordered gaming. (Maldonado-Murciano, et al., 2020). In a study by Evren et al. (2020), they found that lifetime presence of non-suicidal self-injury was related to gaming disorder among young esports athletes in Turkey. These findings remained significant even when they controlled for other psychological disorders such as depression, anxiety and neuroticism. Gaming disorder and non-suicidal self-injury may therefore share risk factors such as depression, anxiety and neuroticism. Evren et al. (2020) proposed that gaming disorder and self harm may be maladaptive coping mechanisms for managing negative affect, such as depression and anxiety. Gaming disorder in relation to other mental disorders may be particularly problematic for esports athletes (Shulze, et al., 2021).

2.1.2.4 Mental Ill Health

While more attention is being brought to the health of esports athletes, only few research studies have examined what causes mental ill health in esports (Smith, et al., 2022). Additionally, there is a general lack of studies and data documenting the prevalence of mental health disorders among esports athletes (Shulze, et al., 2021). Research on traditional sports athletes have indicated that elite athletes experience the same high-prevalence for mental disorders (i.e. anxiety, depression) as the rest of the general population (Rice, et al., 2016). However, they experience different stressors such as injuries, poor performance fatigue and problems with coaching. While also going through critical periods such as retirement and performance impairment which all are likely to contribute to mental disorders (Rice, et al., 2016;Shulze, et al., 2021). These are issues that many esports athletes deal with as

well, although their injuries and fatigue levels are different, to an extent the issues traditional athletes face are similar to those of esports athletes.

In a study by Seng et al. (2021) they found that the prevalence of stress among 69 esports athletes was 26.1%, while depression and anxiety levels were 43.5% and 46.4% respectively. They also found that there was a significant association between stress and sleep patterns. This is in line with other studies on esports athletes that show poor sleep quality was associated with higher depression scores (Lee, et al., 2021). A study by Smith et al. (2022) examined the predictors of mental ill health in esports athletes. In their study 313 esports athletes from The United Kingdom completed a survey that included measures of stressors resulting from competing in esports, sleep quality, burnout and social phobia anxiety, as well as outcome measures of mental ill health (Smith, et al., 2022). Their findings indicate that factors such as stress, poor sleep quality, burnout and social phobia anxiety all were significant and positive predictors of general mental ill health (signs of anxiety and depression), and were to varying degrees able to predict severe mental ill health (symptoms of depression). Sleep was the greatest predictor and significantly predicted 33.7% of the variance of general signs of mental ill health, and 49.2% of the variance of more severe depression. This is in line with previous studies (Lee, et al., 2021; Seng et al., 2021) indicating that sleep could be a key factor for understanding mental ill health for esports athletes.

2.1.3 Social Risks

Prioritizing esports over school and social aspects of one's life does pose some social risks. Studies have found that although not everyone neglects activities such as school and socializing with family and friends in favor of esports activities some individuals do (Delello et al., 2021). Due to lack of support for esports as a career at a societal level, many esports players neglect or even abandon educational goals in order to pursue their dream of becoming professional esports athletes (Salo, 2017; Winther, 2016). Furthermore, esports athletes might be neglecting interpersonal relationships due to excessive gaming, which could negatively impact social and relational aspects of esports athletes life (Chung et al., 2019). This section of the

thesis will therefore focus on; *Educational risks* and *Neglecting personal life and relationships in favor of esports*.

2.1.3.1 Educational Risks

Many young esports athletes opt to drop out of high school or university, sacrificing their educational goals and risking it all in order to pursue a professional esports career (Salo, 2017; Winther, 2016). Additionally, anecdotal evidence suggests that only a small percentage of the total number of esports athletes generate sufficient income to support themselves financially. So while some become successful and financially independent, the vast majority of esports athletes will have little chance of becoming successful and financially independent (Griffiths, 2017). Esports athletes are therefore taking a big risk by not continuing their studies, since if they fail at esports they have very few skills that can be transferred to other professions outside of esports (Sabtan, et al., 2022). The risks of sacrificing their education is further exacerbated by two challenges that esports athletes face. One of the main challenges is that esports careers often end very early, some reports have estimated that an average esports career only lasts a few years (Hollist, 2015). Another challenge is the seasonal nature of gaming. Esports is industry driven and the trends, cycles, and changes in the games and within the game industry can be quick. This means that the game an esports athlete plays may fall out of favor for another game, and their skills may not always be fully transferable to other similar games (Salo, 2017).

There are also social conditions that accentuates the educational risks that esports athletes experience. One of the big challenges that esports athletes face is the lack of social support structures and societal norms that do not encourage nor consider esports a serious career. This means that esports athletes develop their skills on their own, without coaching, strategic planning or target-oriented approaches. They only reach this level of support once they have proven their skills to independent organizations and join a team. Unlike traditional sports where this is the other way around, coaches help and support talented individuals along with other goals, to develop skills and reach a level of mastery (Salo, 2017). These issues are also prevalent in Denmark, where organizations such as *Danmarks Idrætsforbund* (DIF) and *Team Danmark* do not consider esports real sports and therefore do not provide

aid and support for esports athletes who are undergoing education (Winther, 2016). These organizations support traditional Danish sports athletes by combining education and sports by working together with schools in order to provide flexible school hours and exams, access to supplementary education and the possibility of extending the period for the education itself (*Gymnasial Ungdomsuddannelse*, n.d.). Since esports athletes in Denmark don't have these benefits, and lack the support to develop their esports skills and educational goals simultaneously, they are often left struggling trying to manage both their esports goals and educational duties (Winther, 2016). Some studies have also shown that collegiate esports players (32.8% of participants) neglected their homework or school in order to watch, play or compete in esports (Delello et al., 2021).

The choice of abandoning educational endeavors in favor of esports could pose a risk for post-career opportunities since there might be a lack of societal appreciation for the potentially transferable skills of an esports career (Salo, 2017). But there do exist some post-career opportunities for esports players and their specific skill sets. These will be explained in section 2.2.4.3. Job opportunities after an esports career.

2.1.3.2 Neglecting Personal Life and Relationships in Favor of Esports

Spending upwards of 14 hours a day practicing their video game skills (Happonen & Minashkina, 2019), esports athletes may be neglecting aspects of their personal lives and relationships. As mentioned earlier, esports athletes are at increased risk of disordered gaming (Maldonado-Murciano, et al., 2020), which may negatively impact the quality of interpersonal relationships and lead to social isolation and significant impairment in personal, family and social areas of functioning (Chung et al., 2019). But due to the dynamics and motivations for gaming as professional athletes, some researchers argue that the excessive video gaming of professional esports athletes is a by-product of the activity being their job. They therefore argue that the condition is more akin to that of workaholism rather than disordered gaming (Griffiths, 2017; Maldonado-Murciano, et al., 2020). One of the underlying assumptions of workaholism is that when an individual spends too much time at work, other areas are neglected such as family or important relationships. Individuals who exhibit high

work addiction report greater interference with social and intimate relationships and workaholism has been associated with family dysfunction, weak marital cohesion and marital disaffection (Matuska, 2010). In an interview with Alex Chu also known as Xpecial (A professional esports player), he described how playing for up to 14 hours a day does not leave much time for a personal life. He also mentioned that he had to break up with his girlfriend due to the demands of pro gaming, which makes it difficult to maintain a relationship. He described how he was essentially married to League of Legends, and couldn't maintain both his relationship and professional career (Jacobs, 2015). Another professional player called Søren Bjerg who goes by the name "Bjergsen" also mentioned how he worked harder than a lot of people, and that he basically had to sacrifice everything from; time with friends, family, personal interests and hobbies in order to achieve his goals (Xu, 2023). In a study by Delello et al. (2021) they found that while many of their participants did not neglect socializing with friends or family in order to watch, play or compete in esports, 22.4% of collegiate esports players did neglect socializing in person with friends or family in order to spend time on esports activities.

2.2 Positive Consequences of Esports

There are many important reasons as to why some people may choose to pursue a career as an esports athlete. It can give them a sense of self-actualisation by competing in tournaments, achieving various goals and receiving positive reinforcements from peers. Many esports athletes also report finding intrinsic pleasure from their activities. and some professional esports athletes also create positive relationships among themselves, which fulfills their needs for socialization (Seo, 2016). Joining an esports team may also have a positive influence on healthy habits and physical activity level (DiFrancisco-Donoghue et al., 2022). Playing video games can also provide esports athletes with an avenue to escape or find relief from hardship (McInroy, & Mishna, 2017) or experience positive feelings (Granic et al., 2014). Several cognitive benefits have also been identified such as increased reaction time and problem solving skills (Fritzen, 2021). There have been identified three categories of benefits (Biological, psychological and social) that esports athletes might experience. This section of the thesis will therefore focus on; *Physical Benefits, Psychological Benefits and Social Benefits*

2.2.1 Physical Benefits

While esports is a sedentary activity, studies have found that the energy expenditure for amateur esports athletes is 40% higher when playing video games compared to just sitting idly by, due to their high number of actions per min (APM). The APM of amateur esports athletes is only about 50-100 APM while top athletes have been found to make as much as 500-600 APM. Which could indicate that the energy spent for esports athletes at the elite level might be even higher (Kocak, 2021). Being a part of an esports team might also help promote a healthier lifestyle. Professional teams often have more structure in their routines, access to more resources and are incentivized by a team of coaches and health professionals to stay healthy. Some universities and colleges also offer health services for collegiate esports teams, although these services vary greatly, and most don't have the same resources as professional teams, and the players don't have the same amount of time to commit to physical exercise (DiFrancisco-Donoghue et al., 2022). Furthermore, Since accurate and faster movements are required to compete in professional esports, many players often spend a significant amount of time training and competing for better performance (Kim et al., 2022). This section of the thesis will therefore focus on the *Physical activity level of esports athletes and Perceptual-motor skills*.

2.2.1.1 Physical Activity Level of Esports Athletes

Despite the popular belief that esports athletes are inactive and unhealthy due to their extended hours of sedentary game play (Rossoni, et al., 2023; Shulze, et al., 2021), some studies have shown that many professional esports athletes are physically active (Giakoni-Ramírez et al., 2022; Kari et al., 2019). In a study by Giakoni-Ramírez et al. (2022), they found that 92.7% of their sample of professional esports athletes had a moderate to high level of physical activity. In another study by Kari et al. (2019) they found that professional and high-level esports athletes exercise physically about 1.08 hours every day. Which is higher than the physical activity level that the World Health Organization's (WHO) recommends for both children of 5-17 years (60 minutes daily) and adults of 18-64 years (21 minutes daily). In their study they found that many of the esports athletes did not exercise due to improved competitive performance, but rather due to their awareness concerning the benefits of a healthy lifestyle. Almost half of their respondents (47%)

considered the upkeep of their overall health as their main reason for daily physical exercise, While more than half (55.6%) believed that it had a positive side effect on their competitive careers as well. Only one respondent considered physical activity as a way to prevent injuries (Kari et al., 2019). But esports athletes are not all equally physically active, an Australian study has found that the top 10% of esports athletes are significantly more physically active compared to the bottom 90% of esports athletes (Trotter et al., 2020). But the training regimes and amount of physical exercise by top-ranked esports athletes may promote physical activity by inspiring amateurs and new esports players to be more physically active, since some consider them idols or role models (Kari et al., 2019).

Research has also shown that physical activity exercises such as; training (Flexibility, strength, range of motion, endurance and balance), Various stretching exercises and concentric, isometric and eccentric muscle contractions all could help decrease pain and prevent the musculoskeletal injuries that esports professionals face (Migliore, 2021). The benefit of physical activity (if done correctly) could therefore help prevent one of the negative consequences that many esports athletes experience.

2.2.1.2 Perceptual-Motor Skills

In order to excel at esports, one has to have exceptionally fine motor skills. It is essential for esports athletes to have perceptual-motor abilities such as anticipation, eye-hand coordination and peripheral perception in order to achieve a high-level of performance (Kim et al., 2022). In a study by Kim et al. (2022) they compared the perceptual-motor abilities of 8 professional esports athletes and 8 amateur gamers. They found that professional esports athletes had greater anticipation timing skills (response time of about 30 ms) than amateur gamers, and instead of waiting for the stimulus (opponent) to arrive they reacted before the stimulus arrived. They also had better anticipation timing accuracy than junior tennis and table tennis players, which suggest esports play may have a higher demand on anticipation in shorter time windows (Kim et al., 2022). In addition, they found that professional esports athletes also had a broader visual perception field, akin to that of professional handball and basketball athletes. This ability is important in competitive environments due to the major role it has in processing visual information. This finding suggests that intensive

esports training can expand the visual field and result in a wider peripheral perception of the visual field (Kim et al., 2022). Another study by Pluss et al. (2020), found that professional esports athletes were faster and better at speed-accuracy tasks (Rapidly clicking and switching between targets on a computer), than both recreational esports players and the control group. And as the difficulty of the tasks increased they were less susceptible to a speed-accuracy trade-off. They also displayed faster two-choice response times and were better at using or ignoring information preceding a stimulus to inform subsequent action, when compared to the control group (Pluss et al., 2020).

2.2.2 Psychological Benefits

Playing video games, partaking in esports activities and joining an esports team can have several positive effects on individuals' personal growth, mental well-being and identity (Granic et al., 2014; Kauwelo & Winter, 2016; Seo, 2016). Authors like Fritzen (2021) argue that gaming and esports in healthy and safe environments can increase individuals' self esteem and self confidence, by becoming more competent, autonomous and experiencing relatedness (Fritzen, 2021). Playing video games can also serve as a way to cope with the difficulties of life (McInroy, & Mishna, 2017), and to experience positive emotions (Granic et al., 2014). This section of the thesis will focus on these aspects and cover subjects such as; *Identity, Video Games as an Escape and Regulating emotions Through Video Games*. As Well as a subcategory called *Cognitive Benefits*

2.2.2.1 Identity and Esports

Being a part of an esports team, and pursuing an esports career, help shape esports athletes' identity, and many find the career very enjoyable, since they experience a sense of self development and can express themselves creatively and socially (Kauwelo & Winter, 2016; Seo, 2016). Esports activities foster social interactions with other esports athletes, which for some develop and turn into personal friendships, which increases their social identification with the activity. Many professional athletes even describe their teams or play groups as extended family, and that they share common ideas, values and treat each other like family (Seo, 2016). Collegiate esports programs help validate esports athletes' identity; being a part of a group of like-minded teammates reinforced their choice in pursuing an

esports career, and made them feel proud of themselves which raised their confidence. Some collegiate esports programs also provide visible markers that identify them as esports athletes such as jerseys, t-shirts and backpacks with the players in-game name and team or school logo, which makes them feel a sense of pride, prestige and personal confidence (Kauweloa & Winter, 2016). Both the social aspects and the visible markers meant a lot to some of the esports athletes, as they had previous experiences of ridicule and stigma such as being regarded as a nerd, which led to some suppressing their interest in gaming and feeling embarrassed. The esports program allowed them to feel like themselves, and wear clothing that represented them with pride and confidence, which made them feel happy (Kauweloa & Winter, 2016).

Esports athletes can also find a sense of self-actualisation from their pursuits of an esports career. Some participants in a study by Seo (2016), stated that they grew up playing video games for fun, which gave them certain experiences and specialized skills for playing video games. With the rise in popularity for video games, many of these gamers saw opportunities to put their developed skills into pursuing an aspirational career, which offers them a sense of social recognition, self-esteem and accomplishments (Seo, 2016). And while many esports athletes consider esports to be a serious activity where achieving results, and getting social recognition matters, many still value these activities for being enjoyable, and self-motivating. This creates a juxtaposition between esports as being casual leisure and work at the same time (Seo, 2016). This is what some researchers call a serious leisure “career” (Seo, 2016), and according to Stebbins (1982, as cited in Kauweloa & Winter, 2016) have shown to provide amateurs with benefits such as enhanced self-image and a greater sense of belonging to the group.

Esports can also have a positive effect on individuals' identity by providing them with an avenue to develop certain personal skills. According to Fritzen (2021) and based on his work with esports athletes. He experienced that when individuals become a part of an esports team and start to use their abilities in conjunction with others who share their passion and goals they feel a sense of competence, autonomy and relatedness, which in turn creates a sense of inner motivation. His perspective is

based on the self-determination theory (SDT) by Ryan & Deci (2000), combined with his real life experiences working with esports athletes (Fritzen, 2021).

One of the central aspects of (SDT) is that mental well being lies in the self-realisation and actualisation of the individual's potential, and is needed for the individual to be fully functioning (Ryan & Deci, 2001). SDT assumes that individuals are evolved to be inherently active, and intrinsically motivated and oriented toward developing naturally through integrative processes. These qualities are not learned but inherent in human nature. Yet, they still develop over time and play a central role in learning and are affected by social environments (Deci & Ryan, 2014). For these natural processes of intrinsic motivation and integration to operate effectively toward healthy development and psychological well being, humans need particular nutriments both biological and psychological. Within the SDT perspective there is a primary focus on psychological nutriments and their dynamics within social environments. According to SDT there are at least three universal psychological needs, specifically needs for competence, autonomy and relatedness; these are essential nutriments for optimal development, mental well-being and mature relationships (Deci & Ryan, 2014).

The need for competence refers to our desire to perform actions that have an effect on the environment and to attain valued outcomes within it, to engage in challenges we feel we can overcome and to experience a sense of mastery (Deci & Ryan, 2000). Many young esports athletes are passionate about gaming, and spend thousands of hours practicing and getting better at the games they play. But many of them experience a lack of understanding for their love for games and acknowledgement for their gaming abilities, from their environment (family and friends). Thus when they join a form or organized esports (Organisation, club or highschool team) they finally feel praised, acknowledged and respected for their achievements and abilities, this experience creates a feeling of competence and mastery (Fritzen, 2021). Professional esports athlete Bjergsen has also described how playing League of Legends professionally made him more confident and helped him become competent, which made him realize that he could be good at things if he puts effort into them (Xu, 2023).

The need for relatedness refers to our desire to feel connected with other people, to love and care, and to be loved and cared for, to feel a sense of belonging and intimacy with others and experience meaningful relationships (Deci & Ryan, 2000). Being a part of an esports team means you get to be together and play with other people who share your passion and as a team have common goals. The team is dependent on one another, and it is required that the team has a good leader and a solid plan in order to win. It is also required that the team communicates well and perform their individual roles as well as they can. The team also evaluates the match or practice regardless of victory or defeat, in order to improve, not only as an individual but also as a team, which creates a sense of relatedness for the players (Fritzen, 2021).

The need for autonomy refers to our desire to make choices or decisions that emanate from within ourselves, and are consistent with our own values and integrated sense of self, and to self-organize and regulate our own behavior (Deci & Ryan, 2000). From the perspective of an esports athlete, they get to choose which esports they would like to join, which game they want to practice and which organizations they would like to join. They also experience autonomy when practice begins, as there are many different actions, choices and decisions to make that they have to decide on their own (Fritzen, 2021).

2.2.2.2 Video Games as an Escape

Many young esports athletes have experienced being bullied for being “nerds” (Fritzen, 2021), anecdotal evidence indicates that children experiencing bullying victimization may use gaming as a form of escapism (McInroy, & Mishna, 2017). Professional esports athlete Bjergsen, has described how League of Legends brought him out of a dark place, and how he used it as an escape from school, bullying and his struggles in life (Xu, 2023). Some people choose to actively disengage themselves from troubling thoughts and unpleasant mood states caused by challenging real life situations. This phenomenon is called Escapism, and as mentioned earlier is defined as a way to avoid real life problems by engaging in media consumption such as video games (Hastall, 2017). While many regard escapism as mainly a negative or dysfunctional way to cope with life challenges, as it does not solve the issues at hand (Hastall, 2017), or even might lead to addiction

(Hussain et al., 2021). Research has shown that it can have several positive effects for individuals experiencing hardship (Hastall, 2017; Hussain et al., 2021).

Some studies have shown that gaming could help individuals (especially youth) with emotional regulation, because it provides them with relaxation, to forget their problems and to manage their anger. This can potentially help mediate the impact of bullying. While escapism is mostly perceived as a negative coping strategy, the emotional relief provided by escapism during stressful periods, may be an important factor in facilitating well-being and perseverance (McInroy, & Mishna, 2017). Further, if an individual's motivation for escapism is derived from distressing feelings of loneliness, playing multiplayer games can help an individual connect with family and friends, and meet other people online who share similar interests (Hastall, 2017). Other positive effects of escapism have also been documented such as; Distraction, mood enhancement, improved well-being, increased confidence and restored energy (Hastall, 2017), enjoyment, stress-coping, social connection expressing emotions and psychological well-being (Hussain et al., 2021). Some of the positive effects of escapism such as relaxation and mood enhancement have shown to reduce depression and anxiety as well as improve physical and mental health, which should be helpful in dealing with the struggles and challenges these individuals face (Hastall, 2017).

2.2.2.3 Regulating Emotions Through Video Games

According to Granic et al. (2014), and based on the uses and gratifications theory, One of the main reasons why individuals use diverse forms of media are to manage their moods and to enhance their emotional state (Ruggiero, 2000, as cited in Granic et al., 2014). For children and youth gaming may be one of the most efficient and effective ways by which they generate positive feelings. And several studies have found a causal relation between improved mood or increased positive emotion and playing one's preferred video game. For example, one study suggests that playing puzzle games with short-term commitments and a high degree of accessibility can improve players mood, ward off anxiety and promote relaxation (Russoniello et al., 2009, as cited in Granic et al., 2014).

Playing video games has also been suggested to elicit some of the most intense and positive emotional experiences. For instance many gamers report feeling an intense sense of pride after succeeding against great adversity, and will often seek the experience again. Another positive emotional experience that is often described by gamers is flow or transportation. During this experience they are deeply immersed in an intrinsically rewarding activity that elicits a high sense of control while simultaneously evoking a loss of self consciousness (Granic et al., 2014). Flow has, according to some studies, been repeatedly associated with positive outcomes for adolescents such as commitment and achievement in high school, higher self esteem and less anxiety. Additionally adaptive regulation strategies such as acceptance, problem solving, and reappraisal seem to be rewarded in gaming contexts and appears to be fundamental for many video games, since their use is concretely and clearly linked to goal achievement. These adaptive regulation strategies have also repeatedly been associated with less negative affect, lower levels of depressive symptoms and social support (Granic et al., 2014).

2.2.2.4 Cognitive Benefits

Playing video games is often described as intellectually lazy and sedating, but contrary to this conventional belief, it turns out that playing games promotes a wide range of cognitive skills. Especially action games such as first person shooters have shown to promote faster and more accurate attention allocation, higher spatial resolution in visual processing and enhanced mental rotation abilities (Granic et al., 2014). Other cognitive skills that have also been identified are abilities such as; increased multitasking, strategic thinking, quick decision making, faster reaction time, capabilities to work under pressure, spatial skills, cooperation and coordination (Fritzen, 2021). This section of the thesis will focus on a few of these cognitive benefits such as; *Reaction time, Spatial skills, Multitasking and Problem-solving skills*.

2.2.2.4.1 Reaction Time

Quick reaction time is required to perform at a high level in esports. Players must react to different acoustic and visual stimuli before making the correct decision as quickly as possible. Responding incorrectly or too slow can lead to defeat, therefore acting not only quickly but also correctly is paramount to achieving victory (Bickmann

et al., 2021). In a study by Richardson et al (2014) they found that people who play video games have enhanced visual processing and significantly faster reaction time compared to the general population regardless of gender. Another study by Kang et al (2020), compared the reaction time of professional esports athletes with professional baseball players and the general population. Esports athletes were significantly faster on neurocognitive function tests such as the Tower of London test than both the general population and the baseball players. This may indicate that they have a more economic use of working memory when planning and manipulating temporarily retained information. It is therefore likely that working memory is an important part in improving gaming skills (Kang et al., 2020). Other studies have shown that there is no significant difference between the reaction time of professional esports athletes, casual gamers and traditional sports athletes. But all three groups had faster reaction time compared to the general population, which indicates that sports and esports activities both increase reaction time (Bickmann et al., 2021). Other factors that might impact reaction time is the amount of time esports athletes play games for. One study found that esports athletes that play more than 14 hours a week had faster reaction times than those who played less than 14 hours (Ersin et al., 2022). Additionally the type of game that an esports athlete plays may have an impact on reaction time. Since not every game is fast-paced or requires split-second decision making (Granic et al., 2014), different games may therefore affect reaction times to a different extent (Bickmann et al., 2021).

2.2.2.4.2 Spatial Skills

Playing video games has shown to increase spatial skills (Granic et al., 2014). In a study by Uttal et al. (2013), they wanted to find out if spatial skills could be improved by various forms of training. They meta-analyzed 217 research studies investigating the training of spatial skills. From this meta-analysis they found that recreational activities such as playing video games (specifically shooting games) improve spatial skills as much as formal courses (high school and university level) and laboratory exercises meant to improve spatial skills. Their findings also show that people who play video games had substantially better working memory and spatial skills when compared to the regular population (Uttal et al., 2013). Further, this research shows that spatial skills can be trained with video games by just playing for brief periods, and the effects last over an extended period, and crucially these skills transfer to

other spatial tasks not related to video games (Granic et al., 2014; Uttal et al., 2013). Studies have shown that professional esports athletes are better than professional baseball players and the general population when it comes to the Mental Rotation test. Their findings indicate that esports athletes have excellent spatio-temporal cognitive abilities, and suggest that this is an important ability to perform well when gaming (Kang et al., 2020).

2.2.2.4.3 Multitasking

In a study by Chiappe et al. (2013) they examined whether action video games (Specifically FPS games) could improve multitasking in high workload environments. They pre-tested two groups of people with no action video game experience using the Multi-Attribute Task Battery (MATB). One group served as a control group and the other group would play a minimum of 5 hours a week for 10 weeks. They found that playing action video games did indeed enhance performance on secondary tasks without interfering with the primary tasks, and that those who played the most showed greater improvement. Their results demonstrate that action video games can increase people's ability to perform additional tasks by increasing attentional capacity (Chiappe et al., 2013).

2.2.2.4.4 Problem-Solving Skills

Strategic video game play may be associated with increased problem solving skills. In a study by Adachi & Wiloughby (2013), they found a longitudinal relationship between strategic video game play and self-reported problem-solving skills. Their analysis showed that adolescents who played strategic games over a long period of time, also increasingly self-reported greater problem solving skills over time compared to participants who reported less strategic video game play. Additionally they found an indirect relationship between strategic video gaming and higher academic grades. Specifically strategic video game play resulted in higher self-reported problem-solving skills which in turn is a predictor of higher academic grades. Thus playing video games (Strategy games) may help adolescents perform better in school (Adachi & Wiloughby, 2013). Other studies have also found that specific game elements support problem-solving skills more than others. Elements such as; Collaboration, feedback paired with interactivity and embedded assessments. Additionally games with collaborative elements (role playing and social

gameplay) had a significant impact on the development of problem solving skills compared to non-collaborative games (Kailani et al., 2019).

2.2.4 Social Benefits

Studies have found several social benefits that esports athletes might experience. The relationships that esports athletes create among themselves have found to be positive, and fulfills their needs for socialization, and is one of the main reasons why many esports athletes chose to work in the industry (Seo, 2016). Some esports athletes have also experienced teasing, bullying and lack of support and understanding from friends and family when it comes to their passion for gaming. Being a part of an esports team with like-minded people can make the person feel respected, acknowledged and create a sense of community (Fritzen, 2021). And while many believe that people who play video games lack social skills, some studies have also found that gaming may actually facilitate pro social behavior (Granic et al., 2014). And while there may be a lack of societal appreciation for the skills that esports players have, leaving them with little opportunities for a different career path afterwards (Sabtani, et al., 2022). There have been identified several possibilities within the industry itself (Salo, 2017), and some outside of the industry as well such as the military and naval occupations (Fritzen, 2021). Due to these social benefits this part of the thesis will focus on *Social activities and interpersonal relationships, Gaming and prosocial behavior and Job opportunities after an esports career.*

2.2.4.1 Social Activities and Interpersonal Relationships

Although esports athletes spend a lot of their time together online through computer-mediated activities, engaging in various offline social activities are highly valued by both professional esports athletes and amateur players and help to maintain and reinforce a teams capacity to coordinate (Freeman & Wohn, 2019). Some of the most popular offline social activities that players do together is playing other games, board games or watching other professional esports athletes play on YouTube or live streaming sites such as Twitch. But they also engage in what they describe as “normal” or “traditional” activities that offline friends often do such as; going to the movie theaters, amusement parks, going out for food and drinks,

attending sports events, etc. The type of activities that different esports teams and players engage in also depend on the individuals' personalities, personal preferences and culture (Freeman & Wohn, 2019). In the study by Freeman & Wohn (2019) they found that esports athletes made an exerted effort to arrange face to face interactions and that professional players would even spend a large amount of time, money and effort arranging special events, parties, vacations and team building activities. They also found that simply eating together on a regular basis brought teammates together which quickly led to close interpersonal relationships. They found that esports athletes wanted to form a team bond and share laughs, and that the friendships they create lead to social support where they help each other with real life emergencies. In their study they found that both amateur and professional esports athletes confirmed that offline social activities with their teammates increased their team coordination positively (Freeman & Wohn, 2019).

2.2.4.2 Gaming and Prosocial Behavior

Studies have shown that contrary to typical stereotypes of the average gamer being a socially isolated inept nerd who spends most of their time alone, over 70% of gamers play their games in social settings with their friends either cooperatively or competitively (Granic et al., 2014). Some games like *World of Warcraft*, a massively multiplayer online game (MMO), have large virtual social communities where people interact with each other, and players must decide who to trust and reject, and how to effectively lead a group. The social skills and prosocial behavior that gamers learn from these immersive social interactions might be transferable to other relational contexts outside of the gaming environment (Granic et al., 2014). According to Granic et al (2014), studies have shown that games that are designed to reward effective cooperation, support and helping behaviors, might promote the acquisition of prosocial skills for the players. Some studies have shown that playing prosocial games, consistently related to or predicted prosocial behavior. Playing prosocial games led to short and long-term effects on helping behaviors in children. Additionally violent video games have also shown to have the ability to promote prosocial behavior. But the determining factor for whether playing violent video games will promote prosocial behavior and not antisocial behavior depends on whether the games are played cooperatively versus competitively. Players that play violent video games that encourage cooperative game play, are more likely to exhibit

helpful behavior both online and offline, than those who do not. Playing violent video games socially reduces feelings of hostility compared with playing alone, and playing violent video games cooperatively seems to decrease players' access to aggressive cognitions (Granic et al., 2014).

2.2.4.3 Job Opportunities After an Esports Career

Despite the lack of transferable skills to other professions outside of the gaming industry, there are some post-career opportunities for esports athletes that are related to coaching, broadcasting and other activities related to the game industry (Salo, 2017). Some retired esports athletes decide to become esports coaches, which serves an advisory role (Meng-Lewis et al., 2021). Their main function is to help esports athletes develop and become better together as a team and to identify and work on their weaknesses and strengths, much like other types of traditional team sports (Suncho, 2020). Another job that esports athletes could pursue is that of a shoutcaster. A shoutcaster is an esports commentator who describes the action live, and provides the viewers with play-by-play analysis which adds to the viewer experience. It is required that the shoutcaster knows the ins and outs of the game they commentate on, it is therefore usually gamers who become shoutcasters (Suncho, 2020). Streaming (Broadcasting gameplay live to an audience) is another prolific career option for esports athletes (Suncho, 2020). But one does not just become a successful streamer, while it does take skill, it also takes a bit of luck, being in the right place at the right time. The salary also varies greatly between streamers, while some of the most popular streamers make thousands of dollars each month, smaller streamers' salaries can vary from 50 to 1500 dollars a month (Jovanovic, 2023).

There are also other possibilities for esports athletes. The abilities of gamers and esports athletes have garnered the attention of some professions outside the gaming industry. Some of these are shipping companies and the military (Especially jobs such as air traffic controller and radar operator). The reasoning is that these professions favor cognitive abilities that gamers and esports athletes have such as; the ability to multitask, strategic thinking, spatial skills, quick thinking and cooperation just to mention a few (Fritzen, 2021). But compared to jobs within the gaming industry, these professions would require individuals to undergo a certain level of

education (Fritzen, 2021), so the transition from esports athlete to air traffic controller would take some time.

Chapter 3 - Method

The aim of this chapter is to provide a transparent and cohesive presentation of the methodological approach used in the empirical study of the thesis. The Chapter will present the ideals of science that have guided this empirical study., the methods and procedures used for data collection, how participants were recruited, the method of analysis, as well as ethical considerations.

3.1 Pragmatism

This thesis uses pragmatism as its philosophical and theoretical scientific foundation and methodological approach. Pragmatism is a philosophical position which posits that language and knowledge are not copies of reality, but are tools used to understand and master an ever-changing world (Kvale & Brinkmann, 2015), it can be described as an idea about ideas. As Louis Menand put it;

“Ideas are not ‘out there’ waiting to be discovered, but are tools - like forks and knives or microchips - that people devise to cope with the world in which they find themselves” (Menand, 2002, as cited in Brinkmann, 2013).

Pragmatism was originally developed by American philosophers Pierce, James and Dewey during the transition from the 19th to the 20th century (Kvale & Brinkmann, 2015), and was first introduced by William James as a method that was used to settle unending metaphysical disputes. Its goal for these disputes was to interpret each notion, by looking at their respective practical consequences. Since if there was no practical difference, then it would mean that they both were practically the same, and thus would result in an idle dispute (James & Sheffield, 2019). Pragmatism does not involve itself with metaphysical concepts like truth and reality, instead it accepts that there can be single or multiple realities that are open to empirical inquiry. And while pragmatists doubt that reality can ever be determined conclusively, they do believe in an objective reality, but this reality is grounded in an environment that can only be encountered through human experience (Kaushik & Walsh, 2019). Thus, for pragmatists reality is a normative concept, and maintain that reality is what works. They therefore argue that scientific claims cannot be abstracted from contingent

beliefs, habits and experiences. Pragmatists consider reality as true when it aids in establishing satisfactory relations with other aspects of our experiences (Kaushik & Walsh, 2019). Therefore, the question of whether or not an inquiry is scientific or leads to true knowledge, has been replaced by the pragmatic question of whether or not it leads to useful knowledge, as such, good research is research that works (Kvale & Brinkmann, 2015).

One of the goals of pragmatism, according to Dewey, is to dissolve all forms of strict distinctions between scientific and human cognition. As such science can be described as a condensed form of human cognition, or a focused form of the mastery that we as people experience and exhibit by living in the world. Another view that Dewey's pragmatism posits is that humans are not passive spectators, we do not receive stimuli passively but experience it through actions. Therefore, experiences are not passive occurrences, but aspects of the everyday activities that people engage with in the world and with each other (Brinkmann, 2013). In pragmatism, thinking is what we do, when we have to solve a problem, and is defined by Dewey as an;

“Active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it, and the further conclusions to which it tends” (Dewey, 1910, as cited in Brinkmann, 2013).

As such, thinking is partially about testing the foundation of assumptions and to develop new assumptions in the light of further assumptions. Additionally, we do not face any problem with a blank slate or naive mind, we face it with certain acquired habitual modes of understanding, and with a particular store of previously evolved meanings (Dewey, 1910, as cited in Brinkmann, 2013).

The pragmatic foundation is used to create a framework for qualitative research, that seeks to understand the world through experiences and actions, and that knowledge acquisition is the combination of action and reflection (Kaushik & Walsh, 2019). This allows for an inquiry of the negative and positive consequences of pursuing a professional career for esports athletes that is multifaceted, and views these athletes' experiences of these consequences as both relevant and scientific. Furthermore, it

allows one to approach the research question with prior knowledge and habitual modes of understanding (Brinkmann, 2013). Additionally, the pragmatist foundation fits well with this thesis directed approach for analysis (see section 3.5), as it makes explicit the reality that researchers rarely work from naive perspectives (Hsieh & Shannon, 2005).

3.2 Collection of Data: Qualitative Interviews

The collection of data will be done through qualitative interviews. The qualitative interview is a tool that helps the interviewer to gain an understanding of how the interviewee views the world and to explore the meaning of their experiences, through values, thoughts and actions and to uncover their life stories (Kvale & Brinkmann, 2015). The interview process can be described as an active way of constructing knowledge through a contextual, linguistic, narrative and pragmatic relation between the interviewer and the interviewee. The knowledge that is constructed through interviews relates to knowledge ideals inherent in philosophies such as phenomenology, hermeneutics and pragmatism which is used in this study. (Kvale & Brinkmann, 2015).

However, there are many types of qualitative interviews, ranging from exploratory discussions that have very little to no structure at all, to highly structured interviews where the interviewer adheres to a strict protocol. This thesis will utilize a qualitative approach that falls in the middle and utilizes aspects from both of these approaches called the semi-structured interview (Magaldi & Berler, 2020). Semi-structured interviews are versatile and flexible as they allow for both open-ended questions and specific or structured questions. This interview design can be described as a conversation in which the interviewer knows what they want to cover, and has a set of questions, and knowledge and understanding of the topic to help guide the exchange. One of the goals for this interview design is to facilitate a safe space in which the individual feels comfortable enough to reflect upon their experiences and provide the interviewer with an in-depth understanding of the topic. This can be achieved through open-ended questions and improvised follow-up questions that allow for reciprocity between the interviewer and the interviewee. Compared to the structured interview - where each question is administered in a particular order and

consistent across all the interviews conducted - the structure of the semi-structured interview also allows for a more flexible and free flowing order in which the questions are asked since the order in which questions are administered depends on the content of the conversation and the individual's responses. (Magaldi & Berler, 2020).

The semi-structured qualitative interview allows for a flexible and versatile safe space where esports athletes openly can describe the negative and positive consequences of pursuing an esports career, and their experience of these consequences in their daily lives. Additionally, the framework enables the usage of both open-ended questions and topic specific questions, which allows for a more flexible and explorative approach to how the interviews will be conducted (Kvale & Brinkmann, 2015; Magaldi & Berler, 2020). Additionally, this interview format also lends itself well to the directed content analysis approach in this thesis, as open-ended questions can lead to new aspects of a phenomenon, and the structured part of the interview format helps to ask specific questions about the predetermined categories.

3.2.1 Interview Guide and Interview Procedures

The free-flowing nature of a semi-structured interview approach allows for a flexible interview process that permits the interviewer to ask questions that are situation specific and therefore not necessarily relevant for other participants. And while this can produce a variety of rich and complex data, it is important that the interviewer does not become overwhelmed or lose sight of the purpose of the interview. Structure in the form of predetermined questions and a solid foundation of knowledge on the current literature that encompasses the research question is therefore important, in order to maintain focus on the scope of the interview and to produce manageable data (Magaldi & Berler, 2020). This structure is also known as an interview guide, and it is a list of questions that directs the interview towards the core of the research topic. The questions should be worded carefully and concise, as not to be leading and should be presented in an open-ended way. The interview guide itself should be flexible and loose in such a way as to allow for a dialogue to emerge between the interviewer and the interviewee. And usually the interview guide begins with introductory questions of less sensitive nature, in order to provide

comfort and create a safe and open environment, in which more sensitive material can be discovered (Magaldi & Berler, 2020).

The interview guide in this thesis is made in accordance with these considerations and guidelines. The interview guide questions in this thesis are based on the themes, theories and prior empirical research that I have outlined and explained in chapter 2. The questions are grouped into four different categories and are all open-ended, and invite the interviewee to explore and reflect on their experiences, and to describe them through their own thoughts and feelings. The goal is to make sure these questions are concise and easy to understand, while trying to make sure they do not influence the participant in a leading way. Additionally, a reminder for probing questions that help the interviewee reflect and further explore their experiences have also been included in the interview guide (See appendix 1).

The interview procedure in this thesis is made up of five stages. The first stage is the introduction, where the interviewer will explain the purpose of the study and answer any question or clarify any confusion that the interviewee might have before conducting the interview. The interviewees also have their rights (such as anonymity and refusal to answer certain questions) explained before the interviewer asks for consent and their signature (See section 3.6.1 for informed consent). In the second stage the interviewer will ask some simple introductory questions for the interviewee such as asking them to introduce themselves, how long they have been playing esports etc. The purpose of these simple introductory questions is to ease the interviewee into the situation, and to help them feel safe, and hopefully create an open environment where they feel comfortable. The third stage consists of open questions concerning experiences of positive and negative consequences of pursuing an esports career, without referring to a specific topic. The purpose of this stage is to allow them to talk about what first comes to mind, and to think freely and to reflect on these consequences without having to contextualize them to any predetermined topic. The fourth stage consists of three categories of open questions that are based on the themes described in chapter 2. The purpose of this stage is to ask questions about the physical, psychological and social consequences in an open-ended way in order to discover new aspects not yet described in the literature, or to confirm or discover opposing views for current theoretical and empirical

research. The last stage consists of a few final questions that allow the interviewee to add some final statements about their experience as an esports athlete such as advice for others who want to pursue an esports career, and conditions that could be improved upon when it comes to the esports world.

While the interview guide provides a detailed structure and procedure, it is important to note that it is not meant to be followed meticulously, as some questions may not be relevant to some participants, and other questions might emerge due to the content of the conversation. Therefore a more loose approach is to be taken, as not to disrupt the flow of the interview by using a rigid structure.

3.2.1.1 Online Interview

For this thesis the interviews will be conducted online through Zoom or Discord. Both of these are online platforms that allow webcam communication between participants and the interviewer. These two platforms were chosen for their ease of accessibility and compliance with the EU's General Data Protection Regulations (GDPR) (Aalborg Universitet, 2023; *Privacy Policy Update and GDPR FAQ*, 2022). In addition, some participants were not familiar with Zoom or did not have it installed, and therefore preferred to do the interview on a platform they were familiar with such as Discord. The online interview also made it possible to recruit (see section 3.4 for a more in depth description of this process) esports athletes at an international level, and since many esports athletes travel to different countries or locations to compete in tournaments or practice in different regions, it made it easier not only to arrange, but also allowed for a flexible time schedule at which the interviews could take place. The flexibility was crucial since many of the participants were quite busy and had to postpone interviews due to different circumstances, but the online aspect made it easy to reschedule and conduct the interviews. However, one of the downsides of conducting an interview online, rather than in person is that non-verbal cues cannot be picked up on as easily, since you are not present and in the same room as the individual (Kvale & Brinkmann, 2015). But this format could also have had a positive impact on the participants since they are used to communicating through online platforms, and could conduct the interview from the comfort and safety of their home.

Overall the participants preferred the online format, and appreciated the possibility of fast and easy rescheduling.

3.3 Transcription

In this thesis the interviews will be recorded using Audacity, which is a GDPR compliant audio recording software (Audacityteam, 2022). After the recordings have been conducted they will be uploaded to Good Tape, which is an AI service that helps by turning audio files into precisely transcribed text (*Good Tape*, n.d.-b). This will help speed up the transcription process as it can be a quite arduous and time consuming process, and thereby allow for a faster analysis of the recorded content. But in order to ensure that the transcription is as precise and done verbatim, the researcher will also listen to the audio recording while reading through the AI transcribed text file in order to fix any inaccuracies or errors, before conducting the analysis. It is also important to note that Good Tape is GDPR-compliant as they do not store any of the data provided, and the uploaded recording is deleted immediately after the transcription is done (*Good Tape*, n.d.-a). Transcription of interviews can be described as a way of turning recorded verbal data from the qualitative interview, and converting it into a written form, which then can be analyzed (Kvale & Brinkmann, 2015). But this transformation from verbal statements to written text is not without its shortcomings. Inevitably some information will be lost in this process as the interview situation is an interaction between the interviewer and interviewee that encompasses not only what is said, but also has aspects of non verbal communication, the tone and pace in which certain things are said, irony for example is notorious for being hard to convey through written text (Kvale & Brinkmann, 2015). But these aspects of the interview are not deemed as important factors for this thesis, as it focuses on analyzing the content of the interviews.

3.4 Recruitment of Participants

In order to encapsulate and investigate the negative and positive consequences of pursuing an esports career, I had to get in touch with people who are currently active in the competitive esports scene, or someone who has had prior experience in the esports scene as an esports athlete. I have attempted to recruit Individuals who fall

under the categories of; professional, semi professional, up-coming talent, casual or retired esports athletes, and regardless of gender in this thesis, as they all have experiences that are valid for the research question in this thesis. In order to get in touch with these individuals, I have attempted to contact various organizations, clubs and teams through emails, social media platforms such as; LinkedIn, Twitter and Facebook, as well as the streaming platform Twitch.tv. These teams and organizations have been contacted regardless of status, and both high end professional teams and smaller community level clubs have been contacted. I have also received help from individuals that I have been recommended by various professionals in the field, who have helped me get in contact with esports athletes for the purpose of conducting the interviews in this thesis. Since esports athletes sometimes start their career at an early age, people above and below the age of 18 are valid to interview. But conducting interviews with individuals under the legal age of consent, would require additional consent from parents or legal guardians (Sullivan et al., 2012). For an in depth presentation of the participants see section 4.1.

3.5 Method for Analysis: Directed Content Analysis

After the interviews have been conducted and transcribed, the content will be analyzed. Content analysis is a general term describing multiple analytical approaches, that all have in common that they are flexible methods for analyzing text data. There are three distinct approaches; directed, conventional, and summative (Hsieh & Shannon, 2005). Directed content analysis is an approach that is used when existing theory or prior research about a phenomenon exists, but is deemed inadequate and in need of further elaboration. As researchers highlight a need for further studies on the effects of prolonged and early participation in esports, especially with a focus on the physical and psychological consequences (Bányai et al. 2019; Granic et al., 2014; Shulze, et al., 2021), directed content analysis is chosen as the method of analysis in this thesis. Directed content analysis allows for the use of existing theory, research and knowledge to help focus the research question and to provide predictions about variables of interest or the relationship among variables, thereby helping to determine initial coding schemes or relationships between codes (Hsieh & Shannon, 2005).

Directed content analysis is also guided by a structured process, where researchers use existing theory or prior research to identify key concepts or variables as initial coding categories (Hsieh & Shannon, 2005). In this thesis the key categories for the negative and positive consequences are physical, psychological and social (see chapter 2 for detailed descriptions of the categories), and these key categories are then made up of specific sub-categories (injuries, pain, stress, etc). The objective of the analysis is to identify and categorize all instances of negative and positive consequences that the participants have experienced in their pursuit of an esports career (Hsieh & Shannon, 2005). The first step in the analysis process is therefore to thoroughly read the transcripts and highlight all text that appears to represent a negative or positive consequence. The second step in the analysis is then to code all the highlighted passages using the predetermined codes. Any text that cannot be categorized or does not fall under any sub-categories with the initial coding schemes will be given a new code. The goal of the analysis is to offer supporting and non-supporting evidence for the current studies and theories, and to extend and enrich the research field with newly identified sub-categories regarding the negative and positive consequences of pursuing an esports career (Hsieh & Shannon, 2005).

3.6 Ethical Considerations

Qualitative research creates new knowledge and provides us with a better understanding of the human experience. But examining people's private life, through interviews, and publishing their statements and experiences raises several ethical considerations (Kvale & Brinkmann, 2015). Therefore when conducting qualitative research (or any kind of research for that matter) it is important to be aware of what constitutes ethical research, and how to design and execute said research in a way that is regarded as morally acceptable (Sullivan et al., 2012). This section of the thesis will explore both the ethical considerations that have influenced the research process of this thesis such as; *Informed consent, confidentiality and anonymity, consequences and the researcher's role*. Additionally, this thesis has strived to adhere to what Sullivan et al (2012), calls for *Genuine and competent research*, this means that the research conducted in this thesis needs to be done in an honest and truthful way. As such lying about findings, intentionally inventing data, or deliberately

misinterpreting my participants statements and quotes in a misleading way would be deemed unethical (Sullivan et al., 2012).

3.6.1 Informed Consent

Informed consent is the basic principle that participants of the study need to be adequately informed about the general purpose of the study, how the interview and study will be conducted and about the potential benefits and risks of participating. This information is therefore vital, and participants need to be fully informed so they can make a choice whether to participate or not (Brinkmann, 2013; Kvale & Brinkmann, 2015; Sullivan et al., 2012). Additionally, participants must know what will be required from them, and how the information they give is used. It is also important that the information is clearly communicated and in a language that the participants understand (Sullivan et al., 2012). This was a concern in this study, since recruitment of participants has been done at an international level, and some participants are not Danish citizens. As such some participants were asked if they preferred to be given the information in English or Danish. Informed consent is done to ensure that participation in the study is done voluntarily, and to also inform participants of their rights, such as withdrawal from the study at any time, refusal to answer certain questions and that their data and information also can be withdrawn from the study at any point (Brinkmann, 2013; Kvale & Brinkmann, 2015). In order to follow these requirements and to ensure that the participants of this study were fully informed, a four page document (see appendix 2) detailing the purpose, how the interview is conducted, how the information is used and their rights, as well as additional information (how their data is stored, and channels for complaints) was provided. This document also required them to sign in two ways, first to check a box and provide additional info such as name and signature, to ensure that they understood the purpose of the study, and consented to how the interview would be conducted.

3.6.2 Confidentiality and Anonymity

Confidentiality in research is somewhat different from the common sense understanding of “*confidential*” as meaning “*you tell me and i won't tell anyone else*”. confidentiality instead refers to how we as researchers use the information we collect, who it might be shared with, and in what format it will be presented as (Sullivan et al., 2012). Anonymity refers to whether information that we present

reveal or can be identified as relating to specific individuals (Kvale & Brinkmann, 2015; Sullivan et al., 2012). Anonymity was of great concern to some participants in this study, as some of them are well-known esports athletes from prestigious teams or organizations, and therefore statements about negative experiences or consequences could potentially harm their reputation. As such the participants' anonymity must be protected, they have therefore been given pseudonyms (false names) instead of their real names, as well as any information about team names, places they lived, nationality, age and other identifiable information has been edited out or changed in both the study and the transcription (Sullivan et al., 2012), this means that their identity is only known to me. Recordings will also be deleted after transcription to ensure they stay anonymous, and to ensure confidentiality they have been given clear information on how their data is stored, used and for what purpose (see section 3.6.1 for more details on consent), before they sign the declaration of consent.

3.6.3 Consequences

When conducting qualitative research it is important to consider the possible consequences (stress, negative affect, etc) that the interview situation can cause the participant (Kvale & Brinkmann, 2015). The goal should therefore be on minimizing and preventing any harm to the participant, and to make sure that the beneficence always outweighs the risks involved in the study. In order to ensure the participants safety, and to make sure that participation does not cause them distress or negative affect, any sensitive topic that is not directly related to the negative and positive consequences of pursuing an esports career, will not be investigated, or asked probing questions about. Additionally, since some participants are esports professionals, and represent certain teams and the esports community, it is important that the data presented in this study does not harm the athletes, teams or community (see confidentiality and anonymity section 3.6.2).

3.6.4 The Researcher's Role

The role of the researcher entails integrity, and is responsible for ensuring the quality of the scientific knowledge and ethical decisions that are made during the study. The data that is published therefore needs to be as precise and representative to the field of study as possible, and the methodological approach needs to be as transparent

as possible (Kvale & Brinkmann, 2015). As such this chapter strives to provide as much transparency as possible in order to live up to this ethical requirement.

Chapter 4 - Analysis

This chapter will start off with a short but in-depth presentation of the participants, afterwards the findings from the interviews conducted for this thesis will be presented, and is separated into themes that are categorized as either negative or positive consequences.

4.1 Presentation of Participants

In total four individuals of varying experience in the esports industry were interviewed. Two are currently active in the esports scene, and two were former esports athletes where one is still working in the esports industry. The participants will be presented in more detail (although anonymously) below.

Elise (EL)

EL is 28 years old and is currently playing professional Counter-Strike (CS) on a Danish esports team. She originally came from Sweden and has played professionally for various teams, including some she created herself, for almost a decade. She started playing CS when she was 12 years old, and chose to drop out of school to pursue her career in esports.

Søren (SN)

SN is a Danish 26 year old former esports athlete with over a decade of experience that played both League of Legends (LOL) and CS. He managed to attain high rank in the solo queue ladder in LOL but did not play on any teams. Later he managed to compete on smaller teams in CS with the role of team captain. Afterwards he worked in esports as a journalist, coach and educator.

Jonas (JS)

JS is a Danish 22 year old currently active and aspiring esports athlete, who has been playing CS competitively for about 4 years, and recently joined a professional organization. He has been playing CS since 2017 and started to play competitively in 2019. His role is team captain, and his team plays in the "Power Liga 3rd division"

Christian (CN)

CN is a 40 year old former esports athlete with over two decades of esports experience. He started out as an amateur esports athlete for 3 years and later became a professional esports athlete competing competitively in Call of Duty (COD) for about 4 years as a team captain. After his career as a player in esports, he has worked as an esports and sports consultant, founder of multiple esports organizations, team manager, educator, coach and much more.

4.2 Negative Consequences

This section of the analysis will present the findings that emerged during the analysis of the interview material, which relate to the negative consequences of the pursuit of an esports career. This section contains the following topics; *Analysis of Negative Physical Consequences, Analysis of Negative Psychological Consequences, Analysis of Negative Social Consequences.*

4.2.1 Negative Physical Consequences

All participants described experiencing various negative physical consequences in their pursuit of an esports career. This section of the analysis will focus on the following consequences; *Eyesight Issues, Sleep Dysfunction, Injuries and Pain, Lethal Consequences.*

4.2.1.1 Eyesight issues

Eyesight issues were mentioned by three participants. EL described how she has experienced getting worse eyesight as a result of participating in esports due to prolonged hours playing video games and looking at her phone screen

“...My eyesight has worsened a bit because I've been looking at the screen too much. Both on my phone and on the computer. My eyesight has gotten a little bad” (EL, appendix 3).

EL mentioned that worsened eyesight is the worst physical consequence that she has experienced. Additionally, she describes how it can induce headaches after long hours of staying at the computer

“The worst thing for me is that my eyesight has worsened a bit. It's not much, but you can feel it a bit at times, if I sit on the computer for 12 hours, I get a bit of a headache at the end” (EL, appendix 3).

When CN was asked about physical consequences he described how someone he knew possibly had eyesight issues due to esports, but that he isn't completely sure if esports was the cause of it.

“Uh, yes, I have... But it's about vision. I don't know if it comes from esports or if it's something else. He's just had an operation on his eyesight or something. He had some problems once with his vision being blurred. .” (CN, appendix 6).

4.2.1.2 Sleep dysfunction

All participants agreed that esports have affected their sleep and sleep patterns to some extent, as its activities are often done in the evening or night. Especially tournaments and lower division matches impact the sleep of esports athletes, as many of these tournaments have scheduling issues which means they play late at night and start early in the morning. This affects the esports athletes negatively. SN describes how the late night activities of esports make it hard to maintain a sleep schedule

“...It is that esports is mostly an evening and night thing, so it would be the circadian rhythm and maintaining a good circadian rhythm that would be negatively affected” (SN, appendix 4)

JS mentioned how qualification matches, and tournaments sometimes can last until late at night which disrupts sleep schedules, and then they have to wake up early and play again.

“so both qualifications... Can take several hours in the middle of the night but also just planned tournaments it may well be that they have planned a little too

many matches on Saturday because then if it is a lan event Then it ends at 3 o'clock on Sunday then all matches except the final must be decided Before Sunday for example and then you sit until. 3 o'clock at night on Saturday And must get up at. 10 the next day to play a match, and such things, and it can be a little stressful sometimes” (JS, appendix 5).

EL described how she dislikes playing tournament matches late at night, since a lack of sleep negatively affects her mood and personality.

“We ended up playing the cup final at three in the morning. And for someone who goes to bed at 21:00 I was very tired at the end and very grumpy... I felt that I was not my true self. I was a worse version of myself, both as a person and as a teammate. I just think it sucked to be there, to be honest.” (EL, appendix 3)

4.2.1.2.1 Young athletes sacrifice sleep

Two participants mentioned that younger esports athletes and those of lower ranked tiers have a bad sleep schedule, and that they don't really understand the consequences of sacrificing or postponing their sleep for esports. SN described how when he was younger he had a harder time adhering to a sleep schedule, since he prioritized esports over school at the time.

“Yes, when I was younger it wasn't as easy, but it was one of my personal priorities that told me that I think esports was more important than let's say school... So having to do homework and wake up on time and a good sleep schedule and stuff like that, that's something I found out later when I got a little older” (SN, appendix 4)

CN described how esports athletes at lower levels of esports have a tendency to not be able to balance their sleep schedule, and that it affects how well they play.

“But I would say in general, if you are at the top level, you are absolutely completely in balance with when you sleep and all that. At the level just below that, people tend not to be able to balance it and keep track of it, unfortunately. And it affects them. They don't think it affects them, but it affects them. I have

no doubt about that. You can see that in the results and things like that” (CN, appendix 6)

4.2.1.3 Injuries and Pain

When asked about the negative consequences of esports in regards to injuries and pain, two of the participants reported experiencing serious to minor injuries or pain due to their participation in esports. Two participants reported not experiencing any injuries or pain themselves, but one of them described how someone they knew experienced injuries and pain related to esports participation. EL described how prolonged gaming, in a bad chair with bad posture and minimal physical exercise for 9 years resulted in her experiencing back pain

“I used to sit in a really bad gaming chair... you sit like a fucking potato sack, you're almost lying in it and gaming. I went to a physiotherapist because I had so much pain in my back. She said it was one of the worst things she had seen, it was ... I've been sitting really badly and playing for long periods of time..” (EL, appendix 3)

This sentiment is also shared by CN, who stressed the importance of staying physically active, having a good chair and keeping a good posture. And describes how another esports athlete had to quit esports altogether due to an injury related to esports participation.

“...injuries if you do not take care of your body while participating in eSports. I mean... I've seen people get “musearme”... he simply had to stop participating in eSports.” (CN, appendix 6)

JS described how he experiences a little bit of strain and tenderness in his wrists after a long day of playing, but that its not anything serious

“...So I have had some small things. Of course, there has been something once in a while on long days where you have had a slightly sore wrist or something, right, in relation to sitting with a mouse for many hours” (JS, appendix 5).

But while JS does not experience any major injuries or pain in his shoulders, wrists and back in relation to esports participation, he does mention that he experiences his ears taking a “beating” due to high game volume and music.

“Well, there is, you could say my ears have probably taken a beating once in a while with loud sound and loud music and stuff like that” (JS, Appendix 5)

4.2.1.4 Lethal Consequences

One participant mentioned that if esports athletes and gamers forget to take care of themselves, don't exercise and eat unhealthy, then it can have lethal consequences. CN described how one guy forgot to take his medication because he dozed off at the computer and died because of it, and another who died of a blood clot.

“...He was sitting and gaming. And was completely dozing off in the chair and all that. And took some uhh. He forgot to take his medicine. Or something like that. Then he had an epileptic fit and died of it...”

“...And then there was someone I've only met. Once at a lan event. I remember being told he was actually dead too. But he just kept on going. He ended up getting a blood clot. As actually relatively young. 35 or something like that. So that's also some of the things. That comes with esports. If you don't do it the right way” (CN, appendix 6)

CN did mention that these occurrences rarely happen, and that usually esports can help by promoting a healthy lifestyle where people start to take care of themselves and actually lose weight (see section 4.3.1.1).

4.2.2 Negative Psychological Consequences

Two participants described experiencing some negative psychological consequences as a result of pursuing an esports career. This section of the analysis focuses on the following consequences; *Identity Loss, Changes in Temperament, Gaming Addiction.*

4.2.2.1 Identity Loss

Two participants described the negative feelings associated with not being a part of esports, and how it affects their identity. EL talked about how gaming is a part of her identity and she would feel lost without it.

“my identity, you know, with gaming, I have... My entire adult life has been in gaming and working in gaming, right? So that's the life I know. So let's say tomorrow, gaming disappeared from my life, I was fired from my job, I had no friends in gaming. I wouldn't have known what to do. I would have felt like I was trapped in a place where I didn't...

...I mean, the thought of not having to do that, for example, is an empty thought, so I just feel like, okay, who am I as a human being if I'm not a gamer anymore?”
(EL, appendix 3).

EL added that during covid when physical esports tournaments were canceled she had an identity crisis.

“I was depressed during covid, because my life was going to tournaments, both playing them and watching them, and during covid everything was closed... So I ended up having an identity crisis where I didn't find gaming fun during covid.”
(EL, appendix 3).

CN described how he almost became depressed when he quit esports, and how becoming older and having to abandon a job as a professional esports athlete affects athletes negatively.

“I almost went into a depression. But that's because you had something you felt passionate about... And to give up making a living from your hobby I think is just extremely hard for a lot of young people.” (CN, appendix 6).

4.2.2.2 Changes in Temperament

One participant described how esports sometimes is so frustrating that it can increase one's temperament. EL described that esports has increased her

temperament, and that esports can make her fuming with rage at times, which sometimes results in broken equipment.

“...I might feel like I have a higher temperament, like I get frustrated in a different way by gaming than I do by arguing with my boyfriend...”

...sometimes, you know, you can get so angry in gaming, I feel like it's burning inside, I'm fucking furious...

...I've broken a few mice over the years, and keyboards, because I've slammed my hand directly into it. But I'm never violent as a human being against people, but against my stuff, phones fly to the wall sometimes and you know, things like that” (EL, appendix 3).

EL added that its specifically losing that she feels is a different type of frustration that can make her so furious

“...but I feel like my temperament is maybe a little different in gaming situations because I get frustrated, but it's because I want to win so badly, and if you don't win, it creates a different type of frustration” (EL, appendix 3)

4.2.2.3 Gaming Addiction

One participant described how esports can result in gaming addiction. CN talked about how gaming addiction is a thing, and that he has seen examples of people that have become addicted to video games in a way that negatively affected their lives.

“Game addiction. You can get addicted. I've seen examples of people who have become... And it's especially the much younger group. For them, it becomes one of those things they have to have... In the sense that they simply can't let it go, and they can't let it go to the extent that it negatively affects their lives...”

...it's rare, thankfully. But it's important to know that you can be, and it's something that exists” (CN, appendix 6).

4.2.3 Negative Social Consequences

Three participants talked about how they have experienced several negative social consequences as a result of pursuing and participating in esports. This section of the analysis will focus on the following consequences; *Sacrificing Personal Life, Missing out on Family Events, Neglecting Relationships, Abandoning Academic Endeavors, Harassment*

4.2.3.1 Sacrificing Personal Life

Two participants described that pursuing an esports career requires some sacrifices such as not being able to have a full time job, having children or personal interests. EL described that having a child can make it harder to succeed in esports as you have to prioritize your child over gaming.

“You can play Counter-Strike until you're in your thirties, but if you want to have a child on the side with a house, it gets a little harder. Because then you have to prioritize your kids instead of gaming, and you have to make sacrifices if you want to game” (EL, appendix 3).

EL also mentioned that an esports lifestyle does not leave much room for personal interests that she wants to do such as streaming.

“I think gaming is fun, I used to stream a lot, I don't stream as much anymore, I don't have time for it anymore, because if we practice from 10:00 to 17:00, then I have to make dinner or go shopping, do laundry and wash and be an adult. So you don't have much time to have a normal life after that if you want to stream as well” (EL, appendix 3).

JS described that he puts himself at the expense of achieving a professional esports career, as such he can't have a full time job, save up money and buy certain things like his peers.

“I don't work full-time, for example, I just work just enough to cover my expenses, etc. And then the rest of the time is basically playing and trying to reach the professional level. Whereas many others my age, they might work a full-time job and have a good amount of money and car and all that stuff..”

..so maybe you put yourself at the expense of wanting to achieve something further in life..." (JS, appendix 5).

4.2.3.2 Missing out on Family Events

Two participants described missing out on important family events such as, birthdays, weddings, funerals, etc, due to tournament matches. EL described that one of the hardest things is missing out on family events, as tournaments and important matches have to be prioritized.

"You can't go home and travel to a wedding. If you have a game, it can't be moved. You have to prioritize it. It's one of the hardest things, not being able to go to every event you want to be a part of. Sometimes you have to say, no, I can't come home for my aunt's wedding, or my uncle's funeral. Because you have your job, and you can't just travel away from the computer for so many days, unless it's a very close family" (EL, appendix 3).

JS also mentioned having to cancel family events in order to compete in tournaments.

"but there are, how can you say, birthdays or other events where you might have a match or something like that where you have to cancel" (JS, appendix 5).

4.2.3.3 Neglecting Relationships

One participant described that it is hard to balance relationships and an esports career at the same time. CN talked about the difficulties of maintaining both an esports career and a relationship, and mentioned that ultimately one has to choose one or the other, or wait with having a relationship till after.

"It's hard to be in a relationship. I was in a relationship for 7 years during the time I was in esports. Balancing that is... It can be tricky. Because it requires extreme dedication to be able to reach that 0.01% and you either need someone who is very understanding. Or you simply have to wait with a relationship until after that. That's just the way it is." (CN, appendix 6).

When asked why it is difficult to maintain a relationship while pursuing an esports career, he mentioned that having to play for 70 hours a week, and

prioritizing gaming over a relationship and other aspects of your life affects those aspects.

“The point is, if you’re gaming 70 hours a week like I was, there aren’t many hours left in the day to take care of everything else like a girlfriend, family, friends, second job if you don’t do it full time, school. Then it also affects all those things... That said, no one wants to be in a relationship where you never see a partner if you’re gaming instead.” (CN, appendix 6).

4.2.3.4 Abandoning Academic Endeavors

Two participants mentioned how esports can negatively affect academic success, as people choose to opt out of school in order to pursue a professional esports career where very few people make it. CN described how very few don’t make it as a professional player, and that he was very lucky to make it.

“There are a lot of people who don’t succeed in an esports career. I was lucky. I was really lucky, I feel. I think I also made some lucky choices. But only 0.01% make it through... It’s a hell of a chance to take... Because there are a lot of people who don’t succeed in getting where they want to be” (CN, appendix 6).

EL mentioned that she chose to drop out of school just before finishing her degree, and that she thinks it was a very poor decision on her part, as it would have been a good idea to have the certificate.

“I had two months of school left. Even though I haven’t used that education for anything, it would be nice to have it on paper, right? Like, okay, I’m done with school. So that was really stupid. But those were the decisions I made back then.” (EL, appendix 3)

4.2.3.5 Harassment

Two participants describe how harassment in esports negatively affects people’s mental health and mood, EL as the only female professional esports athlete in this study provided a unique perspective on the ongoing harassment women face daily while participating in esports. EL described how both women

and men experience harassment in esports, but the harassment that women face is different just because they are women.

“In gaming, you get hate whether you’re a woman or a man. But women get hate for being women, while men get hate for being bad. And that’s really weird. It should be the same...”

... You’ll always get a comment, like, you have nothing to do here, you’re fucking bad, your family should die, you should die, you’re ugly, you’re fat. Well, you know, you get that every day.” (EL, appendix 3)

EL then further elaborated on how these comments can negatively affect people who might be insecure, and how that feeds into self doubt.

“For me, it felt a bit like I was unsure of myself. Okay, am I really ugly? Am I really fat? You know, you go through a phase where you’re like, you don’t quite know who you are or what you want, and then everyone else tells you what you are. Like, you’re fat or you’re ugly. And then you think, okay, am I really ugly?” (EL, appendix 3).

When asked about how esports can negatively affect people’s mood, JS mentioned how some people online only play to make other people angry, and that losing games while receiving hateful comments affects him negatively.

“On the negative side, it’s not always possible to play with your friends and teammates, etc. So sometimes you meet people who play just to piss people off, and that can also affect you negatively...”

...if you lose a lot of games where you’ve just been hammered with mean comments and stuff like that all day long, it can also have a negative effect” (JS, appendix 5).

4.3 Positive Consequences

This section of the analysis will focus on the positive consequences that participants described experiencing in their pursuit of an esports career that emerged during the

analysis of the interview material. This section contains the following topics; *Analysis Of Positive Physical Consequences, Analysis of Positive Psychological Consequences, Analysis of Positive Social Consequences.*

4.3.1 Positive Physical Consequences

All participants describe experiencing positive physical consequences as a result of their pursuit of an esports career. This section of the analysis focuses on the following consequences; *Positive Impact on Physical Activity, Improved Sleep.*

4.3.1.1 Improved Physical Activity

Esports can have a positive impact on athletes physical activity, as it has various benefits to not only players in-game performance, but also to other aspects such as prevention of injuries and pain. Esports athletes also encourage each other to exercise, and to have a healthier lifestyle. All participants agreed that esports increased their physical activity, and that they felt more active because of it. CN described how people have lost weight due to esports participation, and how his own lifestyle was better when he was pursuing a career as a professional esports athlete.

“He has also gone from being heavily overweight to... And has lost 80 kilos or something through eSport and his dreams for it. He felt he had to do that. And sure enough. It sharpens you. It makes you sharper to be more healthy. I can confirm that myself today. Back then I was also 50-60 kilos less at least. My shape was much better when I was dedicated and wanted to be a professional.
(CN, appendix 6)

JS emphasized that esports makes you more active, as it's something that motivates you to keep going, and something to look forward to after school or work, and something that gets you up on your days off.

“...when you come home from school, or now it's work when you come home from that, I still have, what can you say, something to do, so I don't just, for example, lie in bed all day, or something like that, right? And also on days off, so

I have something to get up for, and I can exercise and all of those kinds of things” (JS, appendix 5)

4.3.1.2 Improved Sleep

All participants agreed that sleep is important, and that they valued keeping a regular and healthy 8 hour sleep schedule in order to perform better and to watch other teams' games. SN described how important a good 8 hour sleep schedule was for his ingame abilities, and calls it a turning point for his performance.

“I started to play better When I had gotten let's say 8 hours of sleep And I had slept through the night...I could feel that it was the turning point of my performance it changed because my sleep schedule was good... because esports is much more of a mental sport than it is a physical sport.” (SN, appendix 4)

EL also described how important a good sleep schedule is for performance, and not only for herself but also for her teammates.

“I like things to stay the same every day. Because I feel like if I have a good routine, then I can also have a good routine on my important match days. If I keep the routine, then I have no excuse to be different or perform differently on the days I have important matches so I think having a good sleep schedule is easy.

I'm also strict on getting my teammates to keep a good sleep schedule for us. It's insanely important to be the best version of yourself every day.” (EL, appendix 3)

JS added that another motivational factor to keep a good sleep schedule is to be able to get up in time and watch some of the teams he wants to compete against or play for in the future play their games.

“So, not only your own training and your own personal game, but also just the fact that you want to see some of the best matches and some of the teams that

you would like to play against or play for in the future see them play and things like that It can also help you get up and get to bed early” (JS, appendix 5)

4.3.2 Positive Psychological Consequences

All participants experienced various positive psychological consequences in their pursuit of an esports career. This section will focus on the following consequences; *Personal Development, Acquisition of Competences, Positive Effects on Mood, Improved Reaction time, Multitasking and Decision Making, Improved Ability to Work Under Pressure.*

4.3.2.1 Personal Development

When asked how esports affected their identity, all participants described that it had a positive impact on their identity, and that the personal development they experience in their pursuit of an esports career is what shaped their identity and personality. EL, described that she has become more open-minded through esports, and has learnt that having discussions can be healthy, which is something she has struggled with in her childhood.

“I feel like I've learned to accept that we can agree to disagree. Because I was extremely bad at that in my childhood. And in gaming, you don't have time to have big arguments about why you disagree... You get an open mind to the fact that there are other perspectives than what you think is right and wrong” (EL, appendix 3)

SN described that the personal development he went through as a person is one of the first positive things that come to mind when he thinks about his pursuit of a professional career.

“Well, the first positive thing about pursuing an esports career, in my opinion, is personal development because you're going to be working with four people who don't know you, so if you don't have some personal development along your journey, you're not going to get very far” (SN, appendix 4)

CN mentioned that he has experienced that people develop and experience positive changes through esports, people become less shy, and start to believe in themselves, and people who are arrogant become more humble.

“I've seen a lot of people go from not believing in themselves to actually having something to believe in. I've also experienced someone who has gone from being a braggart to being much more humble.” (CN, appendix 6).

4.3.2.2 Acquisition of Competences

Another aspect that had a positive impact on all participants was the acquisition of various competencies and skills. Participants described how they identified with these newfound competencies by becoming leaders, disciplined and being able to communicate, prioritize and focus on various objectives, as well as being able to manage resources. SN described how esports helps you develop many unseen abilities, and that skills such as becoming more responsible and disciplined are the most common but also the most important.

“Number two is that you gain so many skills that you can't see. You gain invisible skills by competing... The way you receive and give criticism, the way you evaluate, showing up on time, keeping a calendar voluntarily, scheduling matches, being disciplined about your own training. You have some responsibilities, some obligations that four other people expect you to have and can live up to...”

...Being responsible is 100% Number 1 and being disciplined is Number 2 because, well, those are definitely the two you see the most” (SN, appendix 4).

JS talked about how playing counter-strike and being a leader for his team has taught him how to be a leader, and also to be less anxious and more confident and responsible.

“The leadership role has developed me a lot compared to when I started back then and went to primary school, when I was what can you say a more shy and quiet type... Whereas now that I can take some responsibility, I dare to stand up with my opinion and not be afraid to say what I feel about the whole situation and things like that. Where I'm sure that it's based on, if not 100%, then at least a

very large percentage of it, has come through Counter Strike and through getting a leadership role” (JS, appendix 5)

CN also mentioned that there are many abilities that people develop through esports such as, prioritizing, staying focussed, resource management and dealing with anxiety.

“Firstly, he learned to prioritize, what to prioritize first, what is it you need to focus on. You figure out what maps you need to focus on. What are the tasks, what are the tactics you need to focus on, etc. or tactical aspects...

...One of the things I've found that has benefited the most is resource management. almost no matter what game you're playing, you'll learn how to use finances and balance a budget...

...He was one of the most anxious boys and was almost going home, because he was homesick and everything like that. And couldn't communicate with anyone. So I put him in charge of a team. Told him you need to communicate to the others now, and then he blossomed” (CN, appendix 6).

4.3.2.3 Improved Mood

All participants agreed that esports had a positive effect on their mood. Two participants described how succeeding in esports creates very strong and positive emotions. JS described that when you succeed in esports, that it creates a lot of positive emotion, and creates success experiences that he doesn't get elsewhere.

“Winning your first game and seeing all the things that you've been practicing and talking about work and just hearing the joy in your teammates' voices, the positive words and the excitement and things like that, just all those things, it just creates a joy and a success experience that I don't see myself getting anywhere else” (JS, appendix 5).

JS also described feeling immense joy, and pride in winning tournaments, and that it's a feeling that is very hard to describe.

“that feeling when you get to stand on a stage at the end and lift a trophy high... That feeling that you just have, you're the best there is in here, it gives you a feeling that you can't explain how it feels... You're so happy And you're so touched and proud of yourself” (JS, appendix 5).

CN also described how these success experiences in esports positively affect people, and that it's an amazing feeling when things finally work out, even if you lose the game.

“Absolutely, through victories, through these success experiences. When you just succeed with something tactically, even if you lose a game with it. Even after you lose the game and reflect with your teammates and feel that they are as passionate about it as you are. It's a great feeling” (CN, appendix 6).

CN also further described that he believes that esports can positively affect people's mood by being a way to regulate aggressive emotions, and thereby creates less crime.

“I firmly believe that esports creates less crime. Creates less violence. Because you get those things done, through gaming, you get a lot of your aggression worked out there.” (CN, appendix 6).

4.3.2.4 Improved Reaction time, Multitasking and decision making

Faster reaction time, better decision making and increased multitasking abilities by participating in esports, were reported by three participants. Two of the participants also described how these abilities translate to other activities outside of the esports scene. E1 mentioned that she feels her reaction time has gotten better as well as her multitasking abilities by playing video games and training her aim.

“In gaming, you have to train a lot of reaction time and a lot of multitasking, and I think I've gotten better at that in gaming. you have courses where you train raw aim, where you have to have a better and better time...”

“...But yes, reaction time and multitasking is something I've gotten better at. Now I can easily do four things at the same time.” (EL, appendix 3).

When asked about the cognitive consequences of pursuing an esports career SN described how esports participation increased his reaction time and ability to make the right decisions.

“Yes 100% Also just making decisions in contexts outside of esports... The first thing you notice is 100% the hand to eye coordination that you have and the ability to react... also in terms of making decisions, you are much better at assessing positives and negatives” (SN, appendix 4).

JS described how important it is for esports athletes to train their brain in order to multitask in stressful situations, which enables them to better communicate, use their keyboard and mouse while also making split second decisions.

“What you learn is to multitask... All in a stressful period or even just when it's not so stressful, but in relation to multitasking while sitting and doing different things on a keyboard and mouse and at the same time thinking and talking all this automatically makes you more fresh in terms of your mindset We do so many things at the same time when we sit and play so therefore we just automatically keep training our brain” (JS, appendix 5).

4.3.2.5 Improved Ability to Work Under Pressure

Three participants described that esports participation has helped them to withstand pressure in stressful situations, which enables them to think and work under pressure. When asked further about decision making SN described how pressure doesn't affect you as much since you are used to stressful environments while participating in esports.

“Yes, also just the fact that pressure in general doesn't affect you as much because you're going to be in these stressful situations all the time... you harden yourself to become better in other situations when it comes to being under pressure” (SN, appendix 4)

JS also mentioned that one of the things he has gotten better at while participating in esports is making decisions in stressful situations

“Having to make decisions, especially in hectic moments When a lot is happening and there are many people talking at the same time and being able to calm everyone down and at the same time make a good call... What different tactics to use, and learning how to keep a cool head even if things get a bit hectic all of a sudden or a slightly stressful situation happens perhaps” (JS, appendix 5).

4.3.3 Positive Social Consequences

All participants described experiencing many positive social consequences in their pursuit of an esports career. This section will focus on the following consequences; *New Friendships, Social Support from Teammates, Improved social behavior, Improved Ability to Work With People, Increased Job Opportunities, Improved Academic Abilities*

4.3.3.1 New Friendships

The friendships that esports athletes make in their pursuit of an esports career was described as the most valued consequence by all participants. For some of the participants, the social aspects and friendships they made were the primary reason they pursued an esports career, and some even described their teammates as family, or brothers in arms. EL described how she thinks that the best thing about playing CS is the friends you get, and how your teammates become like family members

“I feel like the best thing about Counter-Strike is probably the friends you make, the experiences you can have traveling to places you might not be able to go...

...We're like a little family, that's what gaming is, you become a little family, because you talk every day, you play together every day, and when you're not playing together, you write together, so you're constantly in contact with your teammates. So it becomes a family vibe” (EL, appendix 3).

SN described how the relationships you build in esports are what matters, not necessarily the games themselves, as they were more a tool to get these unique team experiences and social interactions.

“You get a lot more camaraderie on the team and you really feel like you get to know the people better. And then you also feel that you have this team feeling of winning and losing together. So it's definitely the team element, it's not so much the games themselves. They were more of a tool to be able to get some of these social and team experiences”

“...I've made lifelong friends through it now Because I've been competing for like 10 years” (SN, appendix 4).

CN also described how important the friendships he made in esports was to him, as they were a group who could relate to one another when others couldn't.

“The friendships too, I'd say. It means a lot. It's a group that can relate to each other. Because we were all kind of frowned upon from other sides. But then we had each other to lean on, us nerds.” (CN, appendix 6)

4.3.3.2 Gain Social Support from Teammates

All participants mentioned receiving support from their teammates not only in game but also out of game. One aspect that two participants mentioned is that teammates become someone to talk to when times are tough, who listens to them and understands them. SN described how teammates influence one's mood, abilities to handle conflicts and as a way to talk about personal issues.

“You've had an influence on your teammates and your teammates have had an influence on you and it's everything from how your mood has been to how you deal with conflict, to if you have something personal you want to talk to people about and you don't think you can talk to your parents about it. Then you have people who are willing to hear it out because you've spent so many hours together” (SN, appendix 4).

This sentiment was shared by JS who described how teammates provide a secure outlet to talk about different issues.

“you have some teammates, in case you've had a bad day, or there are some things that are bothering you, that you can talk to about it. And you know that they know that you have their back, but also that they have your back, and things like that, so another kind of comfort in a way” (JS, appendix 5).

4.3.3.3 Improved Social Behavior

All participants described how participating in esports have helped them to develop social skills like being less judgemental towards others, talking to people offline, or the consequences of posting on social media. EL talked about how she became less judgemental through gaming, and learned that it matters more how people treat her, than how they look.

“I feel like gaming helped me because it made me less judgmental as a human being... because I sit and play with someone I don't know who this person is, what he looks like, or what race, ethnicity, or what they care about I don't know, I just know that we play the same game and we both like it, and then the fact that I could judge people by whether they were nice to me, or whether I thought they were funny or whether they were mean...”

...So I felt like the prejudices you might have against others and stuff disappeared more because I could experience people from a one-on-one point of view” (EL, appendix 3).

JS described that, speaking with people online through esports, has increased his ability to talk to people offline, since it made him less shy, and mentioned that meeting and talking to people for the first time is just as difficult online as it is offline

“You learn how to talk to people because it's just as hard to meet people online and talk to them for the first time as it is to do it in real life, I would say. But I feel like I've just maybe practiced it a little bit instead because you're not as shy

because you're used to doing it through a headset or through a screen.” (JS, appendix 5).

4.3.3.4 Improved Ability To Work With People

One of the skills that all participants mentioned as having developed as a result of participating in esports is being able to work with other people. SN described how playing on an esports team taught him how to work with other people, by learning to give and receive criticism.

“the more you play on a team, the more you understand how things work, and the more criticism you receive, and if it's given in the right way, well, the more you understand that this criticism is not meant for you personally... you realize, like, okay, this is not about me as a person, but it's about what I can do to be better for the team so that we as a team can develop”. (SN, appendix 4).

JS talked about how you learn to work with other people through esports, and how this skill transcends gaming as it is a skill that can be applied to occupations outside of gaming.

“...you work in a team, if you can put it that way Because no matter what you do, you're going to work with other people to a certain extent, and you could say, can you be a good team player? Whether it's in a game or whether it's in real life in a workplace or wherever it is, it will always help you, you could say, it's also one of the skills you have when you've played on a team for a long time” (JS, appendix 5).

CN described how he learned to work on a team and having to sometimes work with people you don't necessarily like in order to do what is best for the team, and still work it out as a professional.

“The approach to how you act towards other people. Whether you're a leader. Or what other role you have on a team. It's also something that's important when you go out and work somewhere. As I mentioned, I brought Simon into the team, who I didn't like... But Simon and me. We knew that it was about us having a job to do. And then you talk to each other with respect...So in that way. I also think

you learn a lot of things. How to be part of a team. And how to collaborate in a company” (CN, appendix 6)

CN described that one of the most important skills that he has observed working with esports athletes is that they learn how to work and collaborate on a team.

“Collaboration. The whole collaboration thing. That’s probably the top one. Still is... When you talk about eSports. But it’s also one of the roles that we’ve clearly seen some positive results on.” (CN, appendix 6)

4.3.3.5 Increased Job opportunities

All participants agreed that the skills you learn in esports are applicable and beneficial for other occupations both within and outside of the esports industry. The participants also mentioned that esports participation can lead to other jobs after a professional esports career. EL talked about how esports can lead to other jobs within the esports scene, such as mental coach and manager.

“I feel like a lot of people choose a different career after gaming, but at the same time within gaming. A lot of people become esports psychiatrists, some become mental coaches, some become trainers, some become managers. I feel like there are a lot of job opportunities in esports after you’ve been gaming.” (EL, appendix 3)

CN talked about how his experience as a leader for the team he played with in the past is one of the reasons he has his current job.

“I learned how to be a leader back then. That’s also one of the things I think is why I’m sitting here today. But in that way, you learn a lot of things on the side that you can use in your working life. No matter what you’re going to work with.” (CN, appendix 6).

CN mentioned that there are over 110 different job titles within the esports industry that one could go for after an esports career. He also mentioned that

athletes can get lots of different interests during their career that can help them with jobs outside of esports.

“Then I would also say that the esports industry itself is filled with all kinds of different jobs. 110 different jobs, that’s what I’m working with, so I know there are 110 different job titles that you can have...”

There are a lot of interests that can grow out of esports, both in marketing, making websites, being a manager, sports psychologist, creating content... So in that sense, I think the possibilities are endless” (CN, appendix 6)

CN also described that some industries actively look for esports athletes or gamers, as their unique skill set is valuable to them.

“The air traffic controller education here in Denmark, almost prioritizes finding people from gaming or eSports. Because they are able to balance a lot of things and can analyze heights and all that. It’s something you learn to analyze and work with as an eSport player” (CN, appendix 6).

4.3.3.6 Improved Academic Abilities

Three participants described how esports helped them to become better at different academic aspects such as math, languages, to stay focused and being able to speak up in class. EL described how esports helped her to become better at speaking English and German, as well as math.

“The positive thing in school was my English. My English was really good. Because I spoke English a lot, the grammar got better, specifically by gaming, I got a little bit better at languages. I’m not so good at German, but I’ve had German teammates. So my German was non-existent, it was basic back then. So it helped me that you had someone you also talked to on the computer by gaming...”

...I’ve always been bad at math, but numbers, and remembering numbers, I got a little better at, because it’s very important to count the money system in Counter-Strike. So because of gaming, I got better at math.” (EL, appendix 3).

SN described how competing in esports make you feel less anxiety in school, and that you have an easier time speaking up in class.

“...When you've played and competed on teams, you feel that fear of having to say things disappear, let's say the teacher asks an open-ended question, you don't mind raising your hand and trying to answer it and giving it a shot” (SN, appendix 4).

CN talked about how esports can help you keep focus in school, and how he as an agent for professional players have encouraged them to also prioritize school.

“They've managed to stay focused where they were supposed to stay focused. When I was an agent for my players, I told them, when you play games, you play games. When you're in school, you're in school...So I also told them to prioritize their school, which they did.” (CN, appendix 6)

Chapter 5 - Discussion

In this chapter the findings of the analysis will be compared to the current studies presented in chapter 2, in order to find supportive and complementary findings. Afterwards a discussion of the findings will be conducted, and lastly the implications of this thesis will be discussed as well. This chapter focuses on the following topics; *Findings of the analysis compared to findings from current studies, Discussion of findings, Implications.*

5.1 Findings of the Analysis Compared to Findings from Current Studies

This section will focus on comparing the current findings of this thesis to the existing studies presented in chapter 2 in order to offer supporting evidence or expand the field of research by presenting findings that complement findings from current studies. This will be done for both the negative and positive consequences. This section will present the following topics; *Supportive findings of negative consequences, Complementary findings of negative consequences, Supportive findings of positive consequences, Complementary findings of positive consequences.*

5.1.1 Supportive Findings of Negative Consequences

The findings of the analysis show that all participants experienced some negative physical, psychological and social consequences that support findings from current studies by pursuing an esports career. All participants agreed that pursuing an esports career poses various negative risks such as eyesight issues, poor sleep and altered sleep patterns, back, wrist, hand and shoulder pain, gaming addiction, sacrificing personal life, missing out on family events, neglecting relationships and abandoning academic endeavors. All of these findings are supportive of findings from current studies, since studies have found that some esports athletes do experience eyesight issues (DiFrancisco-Donoghue, et al., 2019; DiFrancisco-Donoghue, & Balentine, J. R., 2018), back, hand, wrist neck and shoulder pain (Lindberg, et al., 2020; Rossoni, et al., 2023; Shulze, et al., 2021;

Zwibel, et al., 2019), gaming addiction (Maldonado-Murciano, et al., 2020; Shulze, et al., 2021), sacrificing their personal life, missing out on family events and neglecting time with family, friends and significant others for esports (Delello et al., 2021; Jacobs, 2015; Xu, 2023), as well as dropping out of school in order to pursue an esports career (Salo, 2017; Winther, 2016).

5.1.2 Complementary Findings of Negative Consequences

There are several findings of the negative consequences that complement findings from current studies. JS described that his ears took a beating due to high volume of the game and music, this finding has not been mentioned in the research presented in chapter 2, but as prolonged sedentary behavior and exposure to computer screens have shown to produce several negative effects, prolonged gaming with high volume could present another risk for potential ear injuries or pain.

CN described the lethal consequences esports can have. While esports is not inherently a dangerous activity, the health related problems that the sedentary lifestyle associated with an esports career could have lethal consequences. This finding complements research that states that there is a significant increase in mortality due to prolonged sitting and lack of physical activity (DiFrancisco-Donoghue et al., 2022). Additionally one meta review has found that there could be a risk of cardiac arrest and stroke due to an esports lifestyle (Shen & Cicchella, 2023).

Two participants described the negative effects that leaving esports have on athletes mental health and identity. EL experienced identity loss and depression during covid since she could not participate in esports in the same way, and CN described almost becoming depressed when he quit esports. This finding complements research that has found that retirement for traditional sports athletes could contribute to mental disorders (Rice, et al., 2016; Shulze, et al., 2021).

EL mentioned that esports can increase her temperament, and that it's specifically losing that makes her feel frustrated and furious. This finding complements research

that describes that gaming can make people so frustrated that it changes their mental state (Sabtan, et al., 2022).

Two participants described that harassment in esports can have a negative effect on people's mental health and mood. EL described that women face a different type of harassment than men, and that it can make people insecure. JS mentioned that receiving hateful comments while playing affects him negatively. While no research presented in chapter 2 describes harassment, one of the meta reviews used does talk about harassment, but that is in relation to online harassment from fans on social media (Shulze, et al., 2021). This finding complements the field of research by providing insight into a different type of harassment, and its effects on both men and women.

5.1.3 Supportive Findings of Positive Consequences

The findings of the analysis show that all participants experienced positive physical, psychological and social consequences that support findings from current studies as a result of pursuing an esports career. All participants agreed that pursuing an esports career helped them to get physically active, undergo positive personal development, acquire competences, improved reaction time, multitasking and decision making, new friendships, gain social support from teammates, improved social behavior and increased job opportunities. All of these findings are supportive of findings from current studies as studies have found that professional esports athletes are physically active (Giakoni-Ramírez et al., 2022; Kari et al., 2019), experience a sense of self development (Kauwelo & Winter, 2016; Seo, 2016), acquire skills and competences (Fritzen, 2021), gain faster reaction time and improved multitasking abilities (Chiappe et al., 2013; Granic et al., 2014;), gain close friendships, where teammates provide comfort and social support (Freeman & Wohn, 2019), gain improved prosocial behavior through online social interactions (Granic et al., 2014), and lastly that the pursuit of an esports career can lead to multiple job opportunities both within the esports scene and outside it (Fritzen, 2021; Suncho, 2020).

5.1.4 Complementary Findings of Positive Consequences

There is one finding of the analysis of positive consequences that provides a non-supportive or contradictory view from the findings of current studies, and several complementary findings. Various studies have found that sleep dysfunction is a common issue among esports athletes (Peracchia & Curcio, 2018; Shulze, et al., 2021; Zwibel, et al., 2019), and this thesis is no exception, however one finding of the analysis shows that esports can also improve one's sleep, as esports athletes experience better performance, and can scout other teams matches with a good sleep schedule. At first glance this finding does provide some contradictory evidence to the negative effects esports have on sleep. But perhaps these findings are not mutually exclusive, for a comprehensive discussion on this finding see section 5.2

All participants experienced that esports had a positive effect on their mood, and while findings from current studies also describe positive effects on athletes mood, the reasons why differ. Current research focuses on escapism and the emotional regulating abilities that video games offer and while this view was also shared by one participant who mentioned that esports can be a way to regulate aggression. The finding of the analysis that complements the field of research is the positive effect succeeding in esports has on athletes' mood. One participant mentioned feeling immense joy and pride, and another mentioned that having successful experiences, even if it results in a game loss, provides positive feelings.

Three participants described that by participating in esports and being exposed to stressful and competitive environments such as tournaments on a regular basis has improved their ability to work under pressure. This ability was briefly mentioned by one author (Fritzen, 2021), in chapter 2 without further elaboration as to how or why. This finding of the analysis therefore complements the field of research by providing insight into why esports athletes have an improved ability to work under pressure.

All participants described that their ability to work with other people has improved as a result of their pursuit of an esports career. Esports athletes need to be able to communicate (give and receive constructive criticism) and collaborate (even with people they don't like) effectively with their team as it is paramount in order to

succeed and grow, not only as an athlete but also as a team. Previous studies have shown that playing games which reward effective cooperation promotes helping behaviors in children (Granic et al., 2014), as such these findings complement the field of research by providing additional insight into how esports can promote prosocial behavior.

Three participants described that esports improved academic abilities such as, mastering different languages as teams are composed of members from different cultures, being better at math as many games have important economic systems that one needs to keep track of, being less anxious to speak up in class and being able to stay focused in school. Other studies have shown that playing certain types of games can increase one's performance in school by improving problem-solving skills, the findings in this study therefore complements the field of research by providing additional insight into how the skills that athletes get from esports can lead to academic success.

5.2 Discussion of findings

Overall the findings of this thesis have either supported or complemented the current studies and research presented in chapter 2. However one unique finding of this study was that participants both experienced sleep dysfunction and improved sleep as a result of pursuing an esports career. This finding seems contradictory at first, but in relation to the population interviewed in this thesis, it seems that as esports athletes begin their journey they sacrifice sleep in order to achieve certain goals, but as their professionalism increases and they join better and better teams, and ascend the professional ladder, they start to value and take care of their sleep patterns as it is important for their overall performance. As such it seems that it is possible for esports to both negatively impact sleep, but also improve it, the determining factor seems to be the level of professionalism that the athletes exhibit. This finding is similar to what other studies have found in relation to physical activity where professional athletes are more physically active than their amateur counterparts. Another unique finding of this thesis was the implication that prolonged exposure to high game volume while playing could have a negative effect on athletes physical

health. As one participant mentioned his ears took a beating due to high game volume and music, this was something I have not encountered in any of the studies describing the consequences of esports. High game volume could grant athletes an advantage in certain games where sounds are vital for reading your opponents moves, as such esports athletes might play with volume levels that could prove to be detrimental to their health.

5.3 Implications of this thesis

In this section of the discussion the implications of this thesis will be discussed. First a discussion of the implications for future research and then a discussion of the limitations of the thesis.

5.3.1 Implications for future research

Esports is a fast growing industry, but despite this rapid growth and interest in esports, the field is still somewhat unexplored in the field of psychology and many researchers describe a need for more research on the physical, psychological and social impact of esports on athletes. The goal of this thesis was to investigate the possible negative and positive consequences that esports athletes experience in their pursuit of an esports career. This was done through interviews with four people who succeeded in becoming professional esports athletes. While all four participants described several negative and positive consequences, it should be noted that they mostly described positive experiences in their pursuit of an esports career, despite the negative consequences. It might therefore be beneficial to the field of research to include people who have tried to pursue an esports career and failed, as their experience could be different to the ones who succeeded, in order to get a better understanding of the consequences athletes experience in their pursuit of an esports career.

The findings of this thesis generally support or complement findings from current studies on the consequences of pursuing an esports career. However several interesting findings of this thesis would benefit from further investigation. First, esports can both negatively and positively impact sleep. The findings indicate that there is a shift in the impact that esports has on sleep, as athletes' level of

professionalism evolve and they attain better positions and higher status within the esports scene. Longitudinal research on the impact of professionalism could shed light on how consequences evolve and why professional athletes experience more positive consequences compared to their amateur counterparts. Secondly, the finding that high game volume might have a negative impact on athletes' health. Therefore, more research into the impact of high levels of game volume could be beneficial in order to get a better understanding of the possible consequences it poses.

5.3.2 Limitations of the thesis

There are several limitations of this thesis. Firstly, the sample size of participants in this thesis was relatively small with only four people total, all of whom were current or previous esports professionals from either Denmark or Sweden. This may limit the generalizability of the findings as the consequences found in this thesis may not apply to amateur athletes or other professionals across different cultures. Secondly, the research presented in chapter 2 was limited to books, articles and studies written in either Danish or English, therefore some pertinent research may not have been included. Thirdly, only one female athlete was interviewed in this thesis. More female participants could have been beneficial as it could have provided additional insight into the unique consequences that women face in the pursuit of an esports career.

Chapter 6 - Conclusion

The goal of this thesis has been to answer the research question: *What are the possible negative and positive consequences of pursuing a career as an esports athlete?* This has been done by presenting current research on the consequences that esports athletes face in their pursuit of an esports career, as well as interviewing former and current professional esports athletes who have experienced the consequences of pursuing an esports career.

The findings of the analysis support or complement much of the current research, by confirming what previous studies have found or by adding new perspectives. In general the participants described experiencing various negative and positive consequences as a result of pursuing an esports career. Some of the negative physical consequences described were, worsening eyesight, poor sleep schedule, back and wrist pain, and that esports can have lethal consequences for some people. They also experienced negative psychological consequences such as identity loss and depression in relation to quitting esports, changes in temperament and that some people become addicted to video games. Additionally, they experienced many negative social consequences such as sacrificing personal life, missing out on important family events, neglecting relationships and dropping out of school to pursue an esports career, as well as online harassment. But despite these negative consequences the pursuit of an esports career also presents positive consequences. The participants described experiencing positive physical consequences such as improved physical activity and sleep, and positive psychological consequences such as, personal development, acquiring competences, improved mood, improved reaction time, multitasking and decision making, as well as improved ability to work under pressure from prolonged exposure to stressful environments. Lastly, they experienced many positive social consequences as well, like gaining new friendships that provide them with social support and comfort, improved social behavior and improved ability to work with other people, increased job opportunities and improved academic abilities.

Additionally, findings of the analysis showed that esports can both negatively and positively impact sleep as the participants experienced both in their pursuit of an esports career. However, it seems that the determining factor for whether sleep is impacted negatively or positively depends on the level of professionalism that the

athletes exhibit, as they became more professional they started to take care of their sleep as it is important for the best performance. Another interesting finding was that high game volume might pose a risk for esports athletes physical health, as prolonged exposure to high volume could cause injuries to the ears. This finding complements findings from current studies that found that prolonged sedentary behavior and staring at computer screens can have negative physical consequences. This thesis has been able to support and complement many of the findings of current studies on the negative and positive consequences that esports athletes experience in their pursuit of an esports career, as well as some unique findings that could benefit from further research.

Literature list

Adachi, & Willoughby, T. (2013). More Than Just Fun and Games: The Longitudinal Relationships Between Strategic Video Games, Self-Reported Problem Solving Skills, and Academic Grades. *Journal of Youth and Adolescence*, 42(7), 1041–1052. <https://doi.org/10.1007/s10964-013-9913-9>

Akinbinu TR, Mashalla YJ. Impact of computer technology on health: computer vision syndrome (CVS). *Med Practice Rev*. 2014;5(3):20-30.
doi:10.5897/MPR2013.0121

Altintas, Karaca, Y., Hullaert, T., & Tassi, P. (2019). Sleep quality and video game playing: Effect of intensity of video game playing and mental health. *Psychiatry Research*, 273, 487–492. <https://doi.org/10.1016/j.psychres.2019.01.030>

Audacityteam. (2022). Desktop Privacy Notice. Audacity®. Retrieved May 5, 2023, from, <https://www.audacityteam.org/about/desktop-privacy-notice/>

Bányai, Griffiths, M. D., Király, O., & Demetrovics, Z. (2019). The Psychology of Esports: A Systematic Literature Review. *Journal of Gambling Studies*, 35(2), 351–365. <https://doi.org/10.1007/s10899-018-9763-1>

Bickmann, Wechsler, K., Rudolf, K., Tholl, C., Froböse, I., & Grieben, C. (2021). Comparison of Reaction Time Between eSports Players of Different Genres and Sportsmen. *International journal of eSports research*, 1(1), 1–16. <https://doi.org/10.4018/IJER.20210101.oa1>

Block, & Haack, F. (2021). eSports: a new industry. *SHS Web of Conferences*, 92, 04002–. <https://doi.org/10.1051/shsconf/20219204002>

Boyd, D. (2023, February 15). Workplace Stress - The American Institute of Stress. The American Institute of Stress. <https://www.stress.org/workplace-stress>

Brinkmann. (2013). *Kvalitativ udforskning af hverdagslivet*. (1. udgave.). Hans Reitzel.

Burgess, & Fogg, L. F. (2008). Individual differences in the amount and timing of salivary melatonin secretion. *PloS One*, 3(8), e3055–e3055.

<https://doi.org/10.1371/journal.pone.0003055>

Cemelli, Burris, J., & Woolf, K. (2016). Video games impact lifestyle behaviors in adults. *Topics in Clinical Nutrition*, 31(2), 96–110.

<https://doi.org/10.1097/TIN.0000000000000062>

Chellappa, & Aeschbach, D. (2022). Sleep and anxiety: From mechanisms to interventions. *Sleep Medicine Reviews*, 61, 101583–101583.

<https://doi.org/10.1016/j.smr.2021.101583>

Chiappe, Conger, M., Liao, J., Caldwell, J. L., & Vu, K.-P. L. (2013). Improving multi-tasking ability through action videogames. *Applied Ergonomics*, 44(2), 278–284.

<https://doi.org/10.1016/j.apergo.2012.08.002>

Chung, T. D., Sum, S., Chan, M., Lai, E., & Cheng, N. (2019). Will esports result in a higher prevalence of problematic gaming? A review of the global situation. *Journal of Behavioral Addictions*, 8(3), 384–394.

<https://doi.org/10.1556/2006.8.2019.46>

Cottrell, McMillen, N., & Harris, B. S. (2019). Sport psychology in a virtual world: Considerations for practitioners working in eSports. *Journal of Sport Psychology in Action*, 10(2), 73–81.

<https://doi.org/10.1080/21520704.2018.1518280>

Deci, E. L., & Ryan, R. M. (2014). Self-Determination Theory. In *SAGE Publications Ltd eBooks* (pp. 416–437). SAGE Publishing.

<https://doi.org/10.4135/9781446249215.n21>

Deci, & Ryan, R. M. (2000). The “What” and “Why” of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry*, 11(4), 227–268.

https://doi.org/10.1207/S15327965PLI1104_01

Delello, McWhorter, R. R., Roberts, P., Dockery, H. S., De Giuseppe, T., & Corona, F. (2021). The Rise of eSports: Insights Into the Perceived Benefits and Risks for College Students. *International journal of eSports research*, 1(1), 1–19.

<https://doi.org/10.4018/IJER.20210101.0a5>

DiFrancisco-Donoghue, Balentine, J., Schmidt, G., & Zwibel, H. (2019). Managing the health of the eSport athlete: an integrated health management model. *BMJ Open Sport & Exercise Medicine*, 5(1), e000467–e000467.

<https://doi.org/10.1136/bmjsem-2018-000467>

DiFrancisco-Donoghue, & Balentine, J. R. (2018). Collegiate eSport: Where Do We Fit In? *Current Sports Medicine Reports*, 17(4), 117–118.

<https://doi.org/10.1249/JSR.0000000000000477>

DiFrancisco-Donoghue, Werner, W. G., Douris, P. C., & Zwibel, H. (2022). Esports players, got muscle? Competitive video game players' physical activity, body fat, bone mineral content, and muscle mass in comparison to matched controls. *Journal of Sport and Health Science*, 11(6), 725–730.

<https://doi.org/10.1016/j.jshs.2020.07.006>

Ersin, Tezeren, H. C., Ozunlu Pekiavas, N., Asal, B., Atabey, A., Diri, A., & Gonen, İ. (2022). The relationship between reaction time and gaming time in e-sports players. *Kinesiology (Zagreb, Croatia)*, 54(1), 36–42.

<https://doi.org/10.26582/k.54.1.4>

Evren, C., Evren, B., Dalbudak, E., Topcu, M., & Kutlu, N. (2020). Relationship of Internet gaming disorder symptom severity with non-suicidal self-injury among young adults. *Düşünen Adam Psikiyatri Ve Nörolojik Bilimler Dergisi*.

<https://doi.org/10.14744/dajpns.2019.00063>

Exelmans, & Van den Bulck, J. (2015). Sleep quality is negatively related to video gaming volume in adults. *Journal of Sleep Research*, 24(2), 189–196.

<https://doi.org/10.1111/jsr.12255>

Freeman, & Wohn, D. Y. (2019). Understanding eSports Team Formation and Coordination. *Computer Supported Cooperative Work*, 28(1-2), 95–126.

<https://doi.org/10.1007/s10606-017-9299-4>

Fritzen, M. (2021). *Sådan forvandler esport mennesker*. BoD – Books on Demand. (184 pages)

Giakoni-Ramírez, Merellano-Navarro, E., & Duclos-Bastías, D. (2022). Professional Esports Players: Motivation and Physical Activity Levels. *International Journal of Environmental Research and Public Health*, 19(4), 2256–.

<https://doi.org/10.3390/ijerph19042256>

Good Tape. (n.d.-a). Retrieved May 5, 2023, from, <https://www.mygoodtape.com/security>

Good Tape. (n.d.-b). Retrieved May 5, 2023, from <https://www.mygoodtape.com/about>

Granic, Lobel, A., & Engels, R. C. M. E. (2014). The Benefits of Playing Video Games. *The American Psychologist*, 69(1), 66–78. <https://doi.org/10.1037/a0034857>

Griffiths. (2017). The psychosocial impact of professional gambling, professional video gaming & eSports. *Casino & Gaming International*, 28, 59–63.

Gymnasial ungdomsuddannelse. (n.d.). tilgået d. 02.04.2023, fra <https://www.teamdanmark.dk/uddannelse/gymnasial-ungdomsuddannelse>

Happonen, A., & Minashkina, D. (2019). Professionalism in Esport: Benefits in Skills and Health & Possible Downsides. *LUT Scientific and Expertise Publications*. (41 pages)

Hastall, M. R. (2017). Escapism. *The International Encyclopedia of Media Effects*, 1–8. <https://doi.org/10.1002/9781118783764.wbieme0154>

Jung Hong, H., & Han Hong, S. (2023). Esports Players' Transition out of Esports: Is There Life After Esports? *Hawaii International Conference on System Sciences*, 3882–3891.

<https://scholarspace.manoa.hawaii.edu/items/0c6854db-0eaf-4f5f-a003-2223565f961f>

Kailani, S., Newton, R., & Pedersen, S. (2019). Game-Based Learning and Problem-solving Skills: A Systematic Review of the Literature. *EdMedia + Innovate Learning*, 1127–1137. <https://www.learntechlib.org/primary/p/210119/>

Kang, Kang, K. D., Lee, J. W., Nam, J. J., & Han, D. H. (2020). Comparison of Psychological and Cognitive Characteristics between Professional Internet Game Players and Professional Baseball Players. *International Journal of Environmental Research and Public Health*, 17(13), 4797–. <https://doi.org/10.3390/ijerph17134797>

Kari, T., Siuttila, M., & Karhulahti, V. (2019). An Extended Study on Training and Physical Exercise in Esports. *Advances in Game-Based Learning Book Series*, 270–292. <https://doi.org/10.4018/978-1-5225-7461-3.ch010>

Kaushik, & Walsh, C. A. (2019). Pragmatism as a Research Paradigm and Its Implications for Social Work Research. *Social Sciences (Basel)*, 8(9), 255–. <https://doi.org/10.3390/socsci8090255>

Kauwelo, S., & Winter, J. (2016). Collegiate E-sports as Work or Play. *DiGRA/FDG '16 - Proceedings of the First International Joint Conference of DiGRA and FDG*, 13.

Kim, H., Kim, S., & Wu, J. (2022). Perceptual-Motor Abilities of Professional Esports Gamers and Amateurs. *Journal of Electronic Gaming and Esports*, 1(1). <https://doi.org/10.1123/jege.2022-0001>

Kocak, U. Z. (2021). Are eSports more than just sitting? A study comparing energy expenditure. *Journal of Comparative Effectiveness Research*, 11(1), 39–45. <https://doi.org/10.2217/cer-2021-0223>

Kuss. (2013). Internet gaming addiction: current perspectives. *Psychology Research and Behavior Management*, 6(default), 125–137.

<https://doi.org/10.2147/PRBM.S39476>

Kvale, & Brinkmann, S. (2015). *Interview : det kvalitative forskningsinterview som håndværk*. (3. udgave.). Hans Reitzel.

Lee, Bonnar, D., Roane, B., Gradisar, M., Dunican, I. C., Lastella, M., Maisey, G., & Suh, S. (2021). Sleep Characteristics and Mood of Professional Esports Athletes: A Multi-National Study. *International Journal of Environmental Research and Public Health*, 18(2), 664–. <https://doi.org/10.3390/ijerph18020664>

Line Lindberg, Simon Bay Nielsen, Mads Damgaard, Ole Rolskov Sloth, Michael Skovdal Rathleff, & Christian Lund Straszek. (2020). Musculoskeletal pain is common in competitive gaming : a cross-sectional study among Danish esports athletes.

Lundberg. (2005). Stress hormones in health and illness: The roles of work and gender. *Psychoneuroendocrinology*, 30(10), 1017–1021.

<https://doi.org/10.1016/j.psyneuen.2005.03.014>

Magaldi, & Berler, M. (2020). Semi-structured Interviews. In *Encyclopedia of Personality and Individual Differences* (pp. 4825–4830). Springer International Publishing. https://doi.org/10.1007/978-3-319-24612-3_857

Maldonado-Murciano, Guilera, G., Montag, C., & Pontes, H. M. (2022). Disordered gaming in esports: Comparing professional and non-professional gamers. *Addictive Behaviors*, 132, 107342–107342. <https://doi.org/10.1016/j.addbeh.2022.107342>

Matuska, Kathleen M. “Workaholism, Life Balance, and Well-Being: A Comparative Analysis.” *Journal of Occupational Science*, vol. 17, no. 2, 2010, pp. 104–11, <https://doi.org/10.1080/14427591.2010.9686681>.

McInroy, & Mishna, F. (2017). Cyberbullying on Online Gaming Platforms for Children and Youth. *Child & Adolescent Social Work Journal*, 34(6), 597–607. <https://doi.org/10.1007/s10560-017-0498-0>

McWilliams. (2003). Mood and anxiety disorders associated with chronic pain: An examination in a nationally representative sample. *Pain.*, 106(1-2), 127–133. <https://doi.org/info:doi/>

Mendoza Torrico, Guillermo & Bonilla, Iván & Chamarro, Andres & Jimenez, Manuel. (2022). Defining what an esports player is. A systematic review on the samples used in esports research.

Meng-Lewis, Y., Wong, D., Zhao, Y., & Lewis, G. A. (2021). Understanding complexity and dynamics in the career development of eSports athletes. *Sport Management Review*, 25(1), 106–133. <https://doi.org/10.1016/j.smr.2020.08.003>

Migliore, L. (2021). Prevention of Esports Injuries. In *Handbook of Esports Medicine* (pp. 213–240). Springer International Publishing AG. https://doi.org/10.1007/978-3-030-73610-1_9

Nicholas, Coulston, C. M., Asghari, A., & Malhi, G. S. (2009). Depressive symptoms in patients with chronic pain. *Medical Journal of Australia*, 190(7), S66–S70. <https://doi.org/10.5694/j.1326-5377.2009.tb02473.x>

Olver, & Hopwood, M. J. (2013). Depression and physical illness. *Medical Journal of Australia*, 1(6), 9–12. <https://doi.org/10.5694/mjao12.10597>

Palanichamy, Sharma, M., Sahu, M., & Kanchana, D. (2020). Influence of Esports on stress: A systematic review. *Industrial Psychiatry Journal*, 29(2), 191–199. https://doi.org/10.4103/ipj.ipj_195_20

Peracchia, & Curcio, G. (2018). Exposure to video games: effects on sleep and on post-sleep cognitive abilities. A sistematic review of experimental evidences. *Sleep*

Science (São Paulo, SP), 11(4), 302–314.

<https://doi.org/10.5935/1984-0063.20180046>

Pluss, M. A., Novak, A. R., Bennett, K. J. M., Panchuk, Coutts, A. J., & Fransen, J. (2020). Perceptual-motor Abilities Underlying Expertise in Esports. *Journal of Expertise*, 3(2), 133–143. <https://www.journalofexpertise.org/>

Poulus, Coulter, T. J., Trotter, M. G., & Polman, R. (2020). Stress and Coping in Esports and the Influence of Mental Toughness. *Frontiers in Psychology*, 11, 628–628. <https://doi.org/10.3389/fpsyg.2020.00628>

Privacy Policy Update and GDPR FAQ. (2022, May 31).

<https://support.discord.com>. Retrieved May 3, 2023, from

<https://support.discord.com/hc/en-us/articles/360003858092-Privacy-Policy-Update-and-GDPR-FAQ>

Richardson, B., Ellis, D., Greenwald, R. C. A., Cherry, J., & Meador, C. (2014). Reaction Times Differences In Video Game And Non Video Game Players [Poster]. Central Washington University.

<https://digitalcommons.cwu.edu/cgi/viewcontent.cgi?article=1689&context=source>

Rice, Purcell, R., De Silva, S., Mawren, D., McGorry, P. D., & Parker, A. G. (2016). The Mental Health of Elite Athletes: A Narrative Systematic Review. *Sports Medicine (Auckland)*, 46(9), 1333–1353. <https://doi.org/10.1007/s40279-016-0492-2>

Roberts, & Duong, H. T. (2014). The prospective association between sleep deprivation and depression among adolescents. *Sleep (New York, N.Y.)*, 37(2), 239–244. <https://doi.org/10.5665/sleep.3388>

Rossoni, Vecchiato, M., Brugin, E., Tranchita, E., Adami, P. E., Bartesaghi, M., Cavarretta, E., & Palermi, S. (2023). The eSports Medicine: Pre-Participation Screening and Injuries Management-An Update. *Sports (Basel)*, 11(2), 34–.

<https://doi.org/10.3390/sports11020034>

Russell, Jenkins, D., Rynne, S., Halson, S. L., & Kelly, V. (2019). What is mental fatigue in elite sport? Perceptions from athletes and staff. *European Journal of Sport Science*, 19(10), 1367–1376. <https://doi.org/10.1080/17461391.2019.1618397>

Ryan, & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52(1), 141–166. <https://doi.org/10.1146/annurev.psych.52.1.141>

Sabtan, Cao, S., & Paul, N. (2022). Current practice and challenges in coaching Esports players: An interview study with league of legends professional team coaches. *Entertainment Computing*, 42, 100481–. <https://doi.org/10.1016/j.entcom.2022.100481>

Salo, M. (2017). Career Transitions of eSports Athletes: A Proposal for a Research Framework. *International Journal of Gaming and Computer-Mediated Simulations*, 9(2), 22–32. <https://doi.org/10.4018/ijgcms.2017040102>

Seng, P. H., Affandi, M. a. B. N., Kamaruzzaman, N. N. B., A, D. K., Panierselvam, P., & Mohammed, A. S. (2021). A Cross Sectional Study On The Benefit And Health Issues Among Esport Players. *NVEO - NATURAL VOLATILES & ESSENTIAL OILS Journal | NVEO*, 3922–3938. <https://www.nveo.org/index.php/journal/article/view/994>

Seo. (2016). Professionalized consumption and identity transformations in the field of eSports. *Journal of Business Research*, 69(1), 264–272. <https://doi.org/10.1016/j.jbusres.2015.07.039>

Shen, & Cicchella, A. (2023). Health Consequences of Intensive E-Gaming: A Systematic Review. *International Journal of Environmental Research and Public Health*, 20(3), 1968–. <https://doi.org/10.3390/ijerph20031968>

Shulze, Marquez, M., & Ruvalcaba, O. (2021). The Biopsychosocial Factors That Impact eSports Players' Well-Being: A Systematic Review. *Journal of Global Sport Management*, ahead-of-print(ahead-of-print), 1–25. <https://doi.org/10.1080/24704067.2021.1991828>

Smith, Sharpe, B., Arumham, A., & Birch, P. (2022). Examining the Predictors of Mental Ill Health in Esport Competitors. *Healthcare (Basel)*, 10(4), 626–.

<https://doi.org/10.3390/healthcare10040626>

Sousa, Ahmad, S. L., Hassan, T., Yuen, K., Douris, P., Zwibel, H., & DiFrancisco-Donoghue, J. (2020). Physiological and Cognitive Functions Following a Discrete Session of Competitive Esports Gaming. *Frontiers in Psychology*, 11, 1030–1030.

<https://doi.org/10.3389/fpsyg.2020.01030>

Statista. (2022, March 2). *Gamers wanting to become professional worldwide in 2020, by gender*.

<https://www.statista.com/statistics/1132968/professionals-gamers-gender/#statisticContainer>

Sullivan, C., Gibson, S., & Riley, S. (2012). Doing Your Qualitative Psychology Project. In *SAGE Publications Ltd eBooks*. <https://doi.org/10.4135/9781473914209>

Suncho, S. (2020, December 6). *20+ eSports Job Roles to Consider After Finishing Your Gaming Career*. eSports Lane.

<https://esportslane.com/esports-job-profiles-non-gaming/>

Szot, Frączek, B., & Tyrała, F. (2022). Nutrition Patterns of Polish Esports Players. *Nutrients*, 15(1), 149–. <https://doi.org/10.3390/nu15010149>

Thomas, Rothschild, J., Earnest, C. P., & Blaisdell, A. (2019). The Effects of Energy Drink Consumption on Cognitive and Physical Performance in Elite League of Legends Players. *Sports (Basel)*, 7(9), 196–. <https://doi.org/10.3390/sports7090196>

Tosini, Ferguson, I., & Tsubota, K. (2016). Effects of blue light on the circadian system and eye physiology. *Molecular Vision*, 22, 61–72.

Trotter, Coulter, T. J., Davis, P. A., Poulus, D. R., & Polman, R. (2020). The Association between Esports Participation, Health and Physical Activity Behaviour.

International Journal of Environmental Research and Public Health, 17(19), 7329–.
<https://doi.org/10.3390/ijerph17197329>

Uttal, Meadow, N. G., Tipton, E., Hand, L. L., Alden, A. R., Warren, C., & Newcombe, N. S. (2013). The Malleability of Spatial Skills: A Meta-Analysis of Training Studies. *Psychological Bulletin*, 139(2), 352–402.
<https://doi.org/10.1037/a0028446>

Watanabe, Saijo, N., Minami, S., & Kashino, M. (2021). The effects of competitive and interactive play on physiological state in professional esports players. *Heliyon*, 7(4), e06844–e06844. <https://doi.org/10.1016/j.heliyon.2021.e06844>

Winther, D. (2016, February 18). *Danmarks Idrætsforbund nægter at anerkende e-sport som idræt - Esportsmagasinet.dk*. Esportsmagasinet.dk.
<https://esportsmagasinet.dk/danske-e-sportsudoevere-maa-se-langt-efter-team-danmark-stoette-da-dif-ikke-vil-anerkende-e-sport-som-idraet/>

Xu, D. (2023, April 8). *Bjergsen retires from LoL esports*. Esports.net.
<https://www.esports.net/news/lol/bjergsen-retires-from-lol-esports/>

Zwibel, Difrancisco-Donoghue, J., Defeo, A., & Yao, S. (2019). An osteopathic physician's approach to the esports athlete. *The Journal of the American Osteopathic Association*, 119(11), 756–762. <https://doi.org/10.7556/jaoa.2019.125>

Aalborg Universitet (2023). *Zoom sikkerhed*. Retrieved May 3, 2023, from, <https://www.its.aau.dk/vejledninger/aau-zoom/zoom-sikkerhed> [1 s]