

# **Master Thesis**

Organised at the University of the Saarland  
Institute for Sport and Preventive Medicine  
International Master High Performance Sports

Under

Diplompsychologe Oskar Dawo

Univ. Prof. Dr. Sabine Schäfer

## **Personality and Motivation in Elite Young Athletes: A Comparative Study Between Individual and Team Sports**

by

**Harpreet Singh**

Matr. Nr.: 2581258

Email: S8htsing@uni-saarland.de

Saarbrücken, 01. October 2024

## **Abstract**

Personality and motivational aspects have been shown to affect athletic performance and sporting success. One of the most established theories to describe personality is the trait theory; the Big Five theory is one of the major trait theories. The three key factors that influence the motivation of the athlete are the need for security, power, and achievement. Most of the investigation of traits and motivation in individual and team sports has been conducted on the adult population. Less literature has been conducted on the young elite athlete population (aged 15-20 years). Also, previous studies have not compared the traits of the sports persons with those of the similarly aged non-sport persons. Thus, this study was conducted to investigate the sports and types of sports participation (team and individual sports) in relation to the personality traits and motive expression of the elite young athletic population (15-20 years). I hypothesized significant differences in personality traits and motivational aspects for 1) Between individual and team sports athletes and 2) Between sporting and non-sporting populations. The study was designed as a cross-sectional study. I used a self-reported questionnaire – designed by Satow (2020) – to collect the Big Five personality traits and motivation aspect-related data from 61 young elite athletes (Individual sports athletes = 42; Team sports athletes = 19) aged 15-20 years, who were randomly selected from an Elite Sports School in Germany. I used the normative data related to Big Five personality traits and motivation aspects of the non-sporting population from Satow(2020). I used the Shapiro-Wilk normality test and Levene's test to assess the normality and homogeneity of variance of the data; based on their results, I used two-sample t-tests or Mann-Witney U test to compare the individual and team sports athletes. Further, I used the one-sample t-tests to compare the normative values of the general population and data of the sporting population. I found that individual and team sports athletes were significantly different ( $p < 0.05$ ) for Extraversion, and Need for Power. Also, I found individual sport athletes and the general population were significantly different ( $p < 0.05$ ) for Openness, Agreeableness, Need for Achievement, and Need for Security, while team sport athletes and the general population were significantly different ( $p < 0.05$ ) for Neuroticism, Extraversion, Openness, and Agreeableness. The findings were similar to the previous literature. This study has various useful implications for coaches, and athletes.

# Table of Contents

**List of Figures.....I**

**List of Tables ..... II**

**1. Introduction ..... 1-3**

- 1.1. Introduction to the Study ..... 1-2
- 1.2. Objectives of the Study ..... 2
- 1.3. Hypotheses ..... 2
- 1.4. Definitions of the Terms ..... 3
- 1.5. Delimitations ..... 3
- 1.6. Relevance of the Study ..... 3

**2. Theoretical Background..... 4-9**

- 2.1. The Big Five Personality Traits ..... 4-5
  - 2.1.1. Openness to Experience..... 4
  - 2.1.2. Conscientiousness ..... 4
  - 2.1.3. Extraversion..... 4
  - 2.1.4. Agreeableness ..... 4-5
  - 2.1.5. Neuroticism ..... 5
- 2.2. Motivational Aspects ..... 5
  - 2.2.1. Need for Achievement..... 5
  - 2.2.2. Need for Power ..... 5
  - 2.2.3. Need for Security..... 5
- 2.3. Personality and Sports..... 6-9
  - 2.3.1. Big Five Personality Traits in Individual and Team Sports Athletes ..... 6-7
  - 2.3.2. Role of Personality Traits in Sporting Success ..... 7-9
  - 2.3.3. Personality Traits and Young Athletes ..... 9
- 2.4. Motivation Psychology and Sports ..... 9

**3. Methodology..... 10-12**

- 3.1. Research Design ..... 10
- 3.2. Sample ..... 10
  - 3.2.1. Selection of the Participants ..... 10
  - 3.2.2. Description of the Sample ..... 10
- 3.3. Survey Instrument..... 11
  - 3.3.1. Description of Questionnaire ..... 11

3.3.2. Validity and Reliability of the Questionnaire .....	11
3.4. Data Collection Procedure .....	11
3.4.1. Implementation of the Survey .....	11
3.4.2. Ethical Considerations .....	11
3.4.3. Data Protection Measures .....	11
3.5. Analysis Strategy .....	12
<b>4. Results.....</b>	<b>13-18</b>
4.1. Descriptive Statistics.....	13
4.1.1. Presentation of the Data Collected.....	13
4.1.2. Distribution of the Big Five Personality Traits.....	13
4.2. Comparison of Big Five Traits between Team and Individual Sport Athletes .....	14-15
4.2.1. Description of Analysis .....	14
4.2.2. Interpretation of the Results.....	14-15
4.3. Comparison of Big Five Traits between Individual Sport Athletes and Norm Population..	15-16
4.3.1. Description of Analysis .....	15
4.3.2. Interpretation of the Results.....	15-16
4.4. Comparison of Big Five Traits between Team Sport Athletes and Norm Population .....	17-18
4.4.1. Description of Analysis .....	17
4.4.2. Interpretation of the Results.....	17-18
<b>5. Discussion .....</b>	<b>19-21</b>
5.1. Summary of the Results .....	19
5.2. Discussion on the Results .....	19
5.2.1. Differences between Individual and Team Elite Sports Athletes .....	19
5.2.2. Differences between Elite Sports Athletes and Norm Population .....	19
5.3. Reflections on the Methodology .....	20
5.3.1. Merits of the Methodology .....	20
5.3.2. Limitations of the Methodology .....	20
5.4. Implications for Sport Psychology.....	20-21
5.4.1. For Coaches .....	20
5.4.2. For Athletes .....	20-21
<b>6. Summary .....</b>	<b>22-23</b>
<b>Bibliography .....</b>	<b>24-26</b>
<b>Appendix A.....</b>	<b>27-29</b>

**Appendix B .....30-35**

## List of Figures

Figure 1: Mean Scores of Individual Sports vs Team Sports Athletes in Big Five Factors. Significant differences were found in extraversion.....	14
Figure 2: Mean Scores of Individual Sports vs Team Sports Athletes in Motivation Factors. Significant difference was found in need for power .....	15
Figure 3: Mean Scores of Individual Sport Athletes vs Norm Populations in Big Five Factors. Significant differences were found in openness and agreeableness.....	16
Figure 4: Mean Scores of Individual Sport Athletes vs Norm Populations in Motivation Factors Significant differences were found in need for achievement and need for security .....	16
Figure 5: Mean Scores of Team Sport Athletes vs Norm Population in Big Five Factors. Significant differences were found in neuroticism, extraversion, openness and agreeableness .....	17
Figure 6: Mean Scores of Team Sport Athletes vs Norm Populations in Motivation Factors.....	18

## List of Tables

Table 1: Description of the Sample.....	10
Table 2: Cronbach Alpha of Factors in the Questionnaire from Satow(2021) .....	27
Table 3: Distribution of Personality traits of Individual Sport Athletes and Team Sport Athletes .....	13
Table 4: Comparison of Personality traits of Individual Sport Athletes and Team Sport Athletes .....	27
Table 5: Comparison of Personality traits of Individual Sport Athletes and Normative data of General Population .....	28
Table 6: Comparison of Personality traits of Team Sport Athletes and Normative data of General Population .....	29
Table 7: Normative Data from Satow(2021) .....	29

# Chapter 1

## Introduction

### 1.1. Introduction to the Study

Personality is defined as "... enduring characteristics and behavior that comprise a person's unique adjustment to life, including major traits, interests, drives, values, self-concept, abilities, and emotional patterns..." (APA,nd.). Various theories describe the structure and development of personality; one of them is the trait theory of personality. Trait theory, a prominent psychological theory, argues that personality comprises specific traits that remain relatively stable over time and across different situations (Costa & McCrae, 1992).

One of the major trait theories of personality is the Big Five personality theory. As per the Big Five personality, there are five traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Psychology Today,nd.). Big Five trait theory has also been extensively used to study personality traits in individual and team sports.

Motivational aspects are important for sports, as it helps athletes tap into their intrinsic and extrinsic drives to achieve optimal performance. The need for security, power, and achievement are key factors influencing an athlete's motivation. The need for security involves creating a stable environment that allows athletes to take risks without fear of negative consequences, enhancing their confidence and resilience (Karageroghis, n.d). The need for power reflects an athlete's desire to exert influence and control over their sporting journey. By encouraging leadership roles and self-directed training, athletes can feel empowered and motivated (Karageroghis, n.d).. Lastly, the need for achievement is characterized by an athlete's pursuit of excellence and high standards. Athletes driven by this need thrive on feedback and challenges, which can be supported by setting clear goals and providing regular feedback (Fry & Moore, 2019; Clancy, Herring & Campbell, 2017 ). Together, these factors create a comprehensive motivational framework that supports athletes in reaching their full potential and finding fulfillment in their sporting endeavors.

Most of the investigation of traits and motivation in individual and team sports has been conducted on the adult population. Less literature has been conducted on the young elite athlete's population (aged 15-20 years). Klein et al. (2017) studied the relationship between physical self-concepts and personality traits; Allen et al. (2021) studied the development of extraversion from childhood to adolescence. Even fewer studies have been conducted to investigate the personality of adolescent individual and team sports person. I found only one study that investigated the personality traits in adolescent team sport athletes (König-Görögh et al.,2017). Also, they haven't compared the traits of the sports persons with those of the similarly aged non-sport persons. Understanding the contrasting traits between individual



and team adolescents and how they vary from the traits of similar-aged persons could provide important insights into the impact of sports participation on youth development.

Thus, the aim of this study was to investigate the sports and types of sports participation (team and individual sports) in relation to the personality traits and motive expression of the elite young athletic population (15-20 years).

## 1.2. Objectives of the Study

The study investigated the relationship between the type of sports participation and the personality traits and motivation aspects of the elite young athletic population (15-20 years) to answer following questions:

- What are the differences in the personality traits and motivation aspects between individual and team sport elite young athletes (aged 15-20 years)?
- How do the personality traits and motivation aspects of the individual-sport elite athletes compare to the similar aged norm population?
- How do the personality traits and motivation aspects of the team-sport elite athletes compare to the similar aged norm population?

## 1.3. Hypotheses

I hypothesize to observe significant differences in the Big Five personality traits between individual and team sport elite athletes. Based on the literature, I have the following hypothesis:

1. Team sports athletes would exhibit significantly different levels of extraversion than individual sports athletes (Nia & Besharat, 2010; Malinaukas et al., 2014; Shuai, et al., 2023).
2. Team sports athletes would exhibit significantly different levels of agreeableness than individual sports athletes (Nia & Besharat, 2010).
3. Team sports athletes would exhibit significantly different levels of conscientiousness than individual sports athletes (Shuai, et al., 2023).
4. Individual sports athletes would exhibit similar levels of openness to experience than team sports athletes (Shuai, et al., 2023).
5. Individual sports athletes would exhibit significantly different levels of neuroticism than team sports athletes (Kemarat et al., 2022).

Also, I hypothesize significant differences in the Big Five personality traits between athletes and similarly aged general norm population.

## 1.4. Definitions of Terms

- Athlete: Any individual that takes part in an organized sport.
- Personality: "...enduring characteristics and behavior that comprise a person's unique adjustment to life, including major traits, interests, motivational structure, values, self-concept, abilities, and emotional patterns."(APA,nd.)
- Trait Theory: A psychological theory that posits personality comprises of specific traits that are relatively stable over time and across different situations. (Costa & McCrae, 1992)
- Big Five Traits: A model of personality that includes five broad dimensions: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. (Psychology Today,nd.)
- Team Sports: Sports where athletes compete as part of a group or team, such as soccer, basketball, and volleyball.
- Individual Sports: Sports where athletes compete alone or independently of others, such as swimming, tennis, and golf.

## 1.5. Delimitations

This study focuses specifically on elite young athletes (ages 15-20) participating in organized team sports and individual sports.

## 1.6. Relevance of the Study

Understanding the differences in personality traits between individual and team sport athletes has various practical implications, such as contributing to the development of tailored coaching strategies, team selection processes, and mental training interventions. The insights from this study could help coaches and sports psychologists create more personalized training programs, aiding athletes' transitions from amateur to professional levels (Côté, 1999). Understanding these traits can assist in balancing athletic and educational aspirations, providing athletes with better career guidance (Conzelmann & Nagel, 2003).

Finally, this research could inform talent identification and recruitment strategies by helping sports organizations match athletes to environments that align with their psychological profiles, leading to better long-term development (Vaeyens, Lenoir, Williams, & Philippaerts, 2008).

## Chapter 2

### Theoretical Background

#### 2.1. The Big Five Personality Traits

One of the major trait theories of personality is the Big Five personality theory. As per the Big Five personality, there are five traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Psychology Today,nd.). Big Five trait theory has also been extensively used to study personality traits in individual and team sports.

A description of each trait is provided as follows:

##### 2.1.1. Openness to Experience

Openness to experience describes the degree the extent a person is curious and open to new experiences. It consists of qualities such as creativity, curiosity, and a preference for novelty and variety (McCrae & John, 1992; Piedmont, 1998). In sports, athletes with high openness to experience tend to experiment with new training techniques and strategies. These athletes also adapt easily to changes and perform relatively better under pressure (Allen, Greenlees, & Jones, 2013).

##### 2.1.2. Conscientiousness

Conscientiousness is described as being disciplined, organized, and focused towards goals. It consists of qualities like diligence, reliability, and a strong sense of responsibility (Roberts et al., 2009; Eysenck & Eysenck, 1985). In sports, athletes with high conscientiousness are very disciplined and organized. Such athletes are better at setting and achieving goals, maintaining focus, and dealing with challenges (Allen, Greenlees, & Jones, 2013). Conscientiousness is more prominent in team sports than individual sports (Shuai, et al.2023).

##### 2.1.3. Extraversion

Extraversion is described as being sociable, talkative, and assertive. It includes qualities such as enthusiasm, energy, and a tendency to seek out social interactions (Costa & McCrae, 1980). In sports, athletes with high extroversion are great in team settings in comparison to individual sports (Nia & Besharat, 2010). These athletes are more likely to assume leadership roles, inspire their teammates, and excel under pressure in high-stakes circumstances (Allen, Greenlees, & Jones, 2013).

##### 2.1.4. Agreeableness

Agreeableness is described as being cooperative, sympathetic, and friendly . It includes qualities like kindness, generosity, trust, and a desire for peaceful relationships (John & Srivastava, 1999). In sports,

athletes with high agreeableness have cooperative and team-oriented qualities. They are skilled at understanding other people's viewpoints and settling disagreements because of their empathy and compassion (Carron et al., 2005). Thus, agreeableness is more important for team sports athletes (Nia & Besharat, 2010).

### **2.1.5. Neuroticism**

Neuroticism is characterized by experiencing negative emotions such as anxiety, rage, and depression. It consists of qualities such as moodiness, emotional instability, and increased susceptibility to stress (McCrae & Costa, 1987). In sports, athletes with high neuroticism frequently experience performance anxiety and tension under duress, and they may also struggle with confidence and mental toughness. Their performance and capacity to handle competitive conditions may suffer as a result. (Allen, Greenlees, & Jones, 2013). Lower levels of neuroticism (or higher emotional stability) are beneficial in both individual and team sports (Ying, et al.2023). However, the impact may be more pronounced in individual sports where athletes must manage stress and pressure on their own.

## **2.2. Motivational Aspects**

Motivational aspects are integral to sports, as they help athletes tap into their intrinsic and extrinsic drives to achieve optimal performance. The need for security, power, and achievement are key factors influencing an athlete's motivation (Karageroghis, n.d.). They are described as follows:

### **2.2.1. Need for achievement**

It describes individuals with strong achievement motive with a tendency to try to do their best. These individuals are only satisfied when they have achieved their goals and they seek recognition for their performance (Satow,2020). People with a high need for achievement prefer tasks of moderate difficulty, seek feedback, and take personal responsibility for their performance (McClelland,1961).

### **2.2.2. Need for Power**

It describes individuals with a great need for power, and they want to make a mark on the world. These individuals want to shape things and take responsibility. They are only satisfied when they can control and influence important things (Satow,2020).

### **2.2.3. Need for Security**

It describes individuals with a pronounced need for security long for (inner) peace, order, and secure conditions. These individuals do not like surprises, and if they have the choice, they opt for security and against risk (Satow,2020).

## 2.3. Personality and Sports

### 2.3.1. Big Five Personality Traits in Individual and Team Sports Athletes

Big Five traits have been shown to influence team dynamics, leadership styles, communication patterns, and cohesion among teammates (Meyers et al., 2006). For example, extroverted athletes may thrive in team environments due to their sociability and assertiveness, while conscientious athletes adhere better to team strategies and responsibilities. Similarly, the Big Five traits manifest differently in individual sports settings (Shuai et al., 2023). The literature has found that individual and team sports athletes have distinct personality traits.

An overview of the literature that has contrasted the personality traits between individual and team sports athletes is provided as follows:

Team sports athletes have been shown to demonstrate higher levels of extraversion and agreeableness while a lower levels of conscientiousness than individual sports athletes. A review of the relevant literature is provided as follows:

Shuai et al. (2023) conducted a systematic review to evaluate the literature on the relationship between personality and athletic performance. They shortlisted 23 cross-sectional studies out of 4300 screened studies. They focused on literature that used Big Five model to assess personality. They found that openness, conscientiousness, extraversion, and agreeableness have a positive relationship with sports performance, while the opposite is found for neuroticism. Also, they found that conscientiousness and extraversion are two dominating traits in team sports. Also, they found that openness and agreeableness vary in different sports, but their benefits are unclear.

Kemarat et al. (2022) studied the personality traits of Thai adult male and female collegiate athletes (aged 18-25 years) from individual and team sports. The sample consisted of 237 athletes: 114 athletes from individual sports and 123 athletes from group sports. They used NEO five-factor inventory to measure the personality traits. They found no significant differences between individual and team sports athletes for any personality traits. However, they found that individual sports athletes had higher competitive anxiety(neuroticism), which indicates higher level of neuroticism than team athletes.

Klatt et al. (2021) investigated the personality traits and emotion regulation styles of 82 elite beach volleyball players. They used Big Five Inventory (BFI-10) to measure the personality traits. They found lower levels of neuroticism, agreeableness and conscientiousness compared to the norm while higher openness to change and extraversion in the elite beach volleyball players than the norm.

Fasold et al. (2019) investigated the personality traits of the 84 male handball goalkeepers from the 1<sup>st</sup> to 3<sup>rd</sup> German leagues. They used Big Five Inventory (BFI-10) with items adapted to sports context to measure the five personality dimensions. They found goal keepers exhibited higher agreeableness, conscientiousness, neuroticism while lower level of openness compared to normal population.

Bojanic et al.(2019) studied and compared the personality traits of adult male and female Serbian combat and team sports athletes (aged 20.95 years  $\pm$  1.787; n = 41 from combat sports and n = 108 from team sports). The authors used BFI Inventory to measure personality traits as per the Big Five model. They found that combat sports athletes had higher conscientiousness and lower neuroticism than team sports athletes.

Malinaukas et al. (2014) studied the relationship between personality traits and sports participation in Lithuanian adult male participants (aged 18-32 years). Their sample consisted of 376 participants, 169 athletes from various individual and team sports, and 207 non-athletes. They used NEO Five Factor inventory to measure the personality traits based on Big Five model. They found that athletes had higher conscientiousness than non-sports participants. Also, team sport athletes had higher extraversion than individual sport (endurance sports) athletes.

Nia and Besharat (2010) studied and compared the personality traits of adult male and female Iranian team and individual sports athletes (aged 22.35  $\pm$  2.25 years; n = 92 for team sports, n = 42 for individual sports). The authors used NEO Personality Inventory-Revised to measure the personality traits as per Big Five model. They found that individual sports athletes had higher conscientiousness and lower agreeableness than team sports athletes.

Overall, the literature has distinct findings on the conscientiousness of individual and team sports. However, there is a clear agreement on the higher level of extraversion and agreeableness in team sports athletes than in individual sports athletes.

### **2.3.2. Role of Personality Traits in Sporting Success**

Previous has found the relationship between personality traits and sporting success. It has been observed that high levels of conscientiousness and extroversion have positive effects on the sports performance (Yang et al., 2024; Nia & Besharat, 2010; Mollazadeh et al., 2020). The reason for this could be that high level of conscientiousness indicates disciplined, goal-oriented and high levels of self control in the athletes, which helps to follow intense training required for sporting success. Another important trait that differentiates high sporting success is neuroticism: it is reported that lower levels of neuroticism is imperative for sporting success (Allen, Greenlees & Jones, 2013, Woodman & Hardy, 2001).

An overview of the recent literature is provided as follows:

Yang et al. (2024) conducted a meta-analysis to study the relationship between personality traits and athletic performance using a sample of 4,101 athletes across 18 studies. Their findings revealed that conscientiousness and extroversion were significantly correlated with higher athletic performance, while Neuroticism, Openness, and Agreeableness showed no significant effects.

Piepiora(2021a) studied the personality traits of adult male Polish athletes (aged 20 to 29 years) from 20 individual sports disciplines. The sample consisted of 600 athletes, which was further divided into champions (n = 56) and other athletes (n = 544). The author used NEO Five Factor Inventory questionnaire to measure personality traits as per Big Five model. They found that champions had higher extraversion, agreeableness, and conscientiousness, and lower neuroticism than other athletes.

Piepiora(2021b) studied the personality traits of adult male Polish athletes (aged 20 to 29 years) from 10 team sports. The sample consisted of 300 athletes that was further divided into champions (n = 13) and other athletes (n = 287). The author used NEO Five Factor Inventory questionnaire to measure personality traits as per Big Five model. They found that champion team sports athletes had lower neuroticism, higher extraversion and openness to experiences than other athletes.

Piepiora and Piepiora(2021) studied the personality traits of adult male Polish athletes (aged 20 and 29 years). The sample consisted of 1260 athletes from various individual and team sports, which was divided into champions (n = 118) and other athletes (n = 1142). The authors used NEO five-factor Personality Questionnaire to measure the personality traits as per the Big Five model. They found that champions has lower neuroticism and higher extraversion, openness to experience, agreeableness and conscientiousness than other athletes. But they argued that lower level of neuroticism is the most distinguishing factor between champions and other athletes. However, they also emphasized personality differences should be interpreted as the result of athletes' success rather than the cause of athletes' success.

Azita et al.(2019) studied the effectiveness of psychological preparation program on improving sports performance in 68 female futsal players (aged 18-22 years) and how their personality traits mediate these effects. They used five-factor personality questionnaire to assess the personality traits. They found that performance improvements were moderated by neuroticism. Players with higher levels of neuroticism showed a stronger connection between psychological training and performance improvement, suggesting neuroticism plays a critical role in how athletes benefit from psychological preparation.

Overall, the traits that make an athlete successful are similar: high level of extraversion and a low level of neuroticism. But there is a variation for the levels of agreeableness, conscientiousness, and openness

to experiences between individual and team sports athletes: successful team sports athletes have higher openness to experiences, while successful individual sports athletes have higher agreeableness and conscientiousness. But it is merely a result and not the causation of successful sports.

### 2.3.3. Personality Traits and Young Athletes

I found only a single study that studied the personality traits of adolescent athletes. The overview of the study is provided as follows:

König-Görögh et al. (2017) studied and compared the personality traits of junior male and female handball athletes (aged  $15.96 \pm 1.2$  years) between ages, gender, and playing positions. The sample consisted of 164 athletes (31.7 % males and 68.3% females), which was further divided into different age groups: Group 1 (14-15 years), Group 2 (15-17 years), and Group 3 (17-18 years). The authors used the Big Five Questionnaire to measure the personality traits based on the Big Five model. They found that younger athletes had higher openness and neuroticism. They also observed differences across different playing positions.

## 2.4. Motivation Psychology and Sports

Motivation in sports is shaped by athletes' needs for power, achievement, and security, which influence their drive and performance in both individual and team settings. The need for power motivates athletes to take charge, inspire teams, and dominate their opponents. In individual sports, this need is subtler but still significant, as athletes strive to excel, break records, or achieve a status that allows them to influence their sport (Marheni, Purnomo, & Cahyani, 2019). In team sports, the need for power is more pronounced, especially among leaders like team captains, who motivate their teammates and manage team dynamics (Jowett & Cockerill, 2003; Charbonneau & Kelloway, 2001). The need for achievement drives athletes to push their limits, seek continuous improvement, and set high performance standards, relying on internal factors such as effort and ability (Duda & Hall, 2001; KUNVARSING, 2020). In individual sports, this motivation is crucial for success, as athletes depend on their own abilities, while in team sports, achievement is influenced by the group's dynamics and requires balancing personal and team goals (Zuber, Schmid, & Conzelmann, 2020). The need for security, equally important, helps athletes maintain focus and consistency by providing a stable environment, which is essential for effective training and recovery from setbacks (Wylleman, Alfermann, & Lavallee, 2004; Gould & Dieffenbach, 2022). In individual sports, this manifests through structured training and clear goals, while in team sports, a secure and supportive team environment is vital for optimal performance (Zuber, Schmid, & Conzelmann, 2020). Overall, understanding these motivational needs—power, achievement, and security—offers valuable insights into how athletes can be supported to reach their full potential.



## Chapter 3

### Methodology

#### 3.1. Research Design

This study is designed to be conducted as a cross-sectional study. I used the questionnaire developed by Satow(2021) to measure the big five personality traits and selected factors of motivation psychology. The details of the questionnaire are presented in the remainder of the chapter.

#### 3.2. Sample

##### 3.2.1. Selection of the Participants

The study focuses on investigating the personality traits and motivation psychology of elite young athletes. My selection criteria for the participants were the following:

- The age range should be 15-20 years.
- They should play individual sports or team sports at an elite level.

##### 3.2.2. Description of the Sample

The study focused on a group of 61 young elite athletes, aged 15-20 years, from a diverse range of sports disciplines, randomly selected from an Elite Sports School in Germany. The description of the sample is provided in table 1 as follows:

Type	Male Count	Female Count	Total
Individual Sports Athletes	23	19	42
Team Sports Athletes	14	5	19

**Table 1: Description of the Sample**

The participants were divided into two main groups based on their individual or team sports engagement. A total of 42 athletes participated in individual sports, including various disciplines such as athletics, gymnastics, taekwondo, triathlon, climbing, golf, rhythmic gymnastics, swimming, tennis, table tennis, race walk, badminton, and mountain biking. This group comprised 19 females and 23 males. On the other hand, 19 athletes, consisting of 5 females and 14 males, were involved in team sports, specifically football, handball, and volleyball. This demographic representation aimed to provide a balanced view of personality traits across different types of sports engagements.

### **3.3. Survey Instrument**

#### **3.3.1. Description of Questionnaire**

To collect data on the personality traits of the athletes, the study utilized the German version of the personality trait test questionnaire developed by Dr. Lars Satow(2021). This comprehensive questionnaire measures the Big 5 personality factors—Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Additionally, it was augmented to include measures for Need for Security, Need for power, and Need for Achievement to assess the motivation psychology.

#### **3.3.2. Validity and Reliability of the Questionnaire**

The questionnaire from Satow(2021) is a valid and reliable survey instruments with the Cronbach Alpha value for each scale exceeding 0.70 score (Appendix A).

### **3.4. Data Collection Procedure**

#### **3.4.1. Implementation of the Survey**

The data collection process spanned from December 2023 to January 2024. Initially, an information sheet was provided to each participant (provided in the appendix B), detailing the study's objectives and what their participation would involve. After obtaining their consent, they were asked to provide basic demographic information— age, gender, and sports discipline. Following this, the athletes were given the test questionnaire to complete. Participants were instructed to complete the questionnaire anonymously to encourage honest responses, with the assurance that their responses would be confidential and used solely for research purposes.

#### **3.4.2. Ethical Considerations**

The participants consists of younger school students. Thus, prior to their participation, all participants and their parents were informed about the study's purpose, what their involvement would entail, and the confidentiality and anonymity of their responses. Consent was obtained, with the option to withdraw from the study at any point without any repercussions.

#### **3.4.3. Data Protection Measures**

In line with ethical guidelines, measures were taken to protect the data and privacy of participants. The collected data were stored securely and accessible only to the research team. These steps ensured that any personal information was protected and used responsibly and ethically.

### 3.5. Analysis Strategy

The data were categorized based on the type of sports—individual or team sports. I used Shapiro Wilk Normality test to assess the normality of data of each group for each measured personality trait and motivational psychology factor. Similarly, I used Levene’s test to assess the homogeneity of variances of the groups. For normally distributed and homogeneous variance data, I used two-sample t-tests to compare individual and team sports athletes. For data that did not follow a normal distribution, I used the Mann-Witney U test. Further comparisons were made between each group and the normative values of a similar age group in the general population (Satow,2020), using one-sample t-tests. I used RStudio using R version 4.2.3 for all statistical analysis.

## Chapter 4

### Results

#### 4.1. Descriptive Statistics

##### 4.1.1. Presentation of the Data Collected

The mean and standard deviation of the individual and team sports athletes from the sample are provided in Table 5 in appendix and demonstrated in Figures 1 and 2 in results for each personality trait and motivational psychology factors.

##### 4.1.2. Distribution of the Big Five Personality Traits

The results of Shapiro Wilk tests and Levene's test is provided in the table 3. The scores of individual and team sports athletes were normally distributed except for team sports athletes in extraversion and openness. Also, the variances for each statistical comparisons were homogeneous for all the personality traits and motivation factors.

Traits		Shapiro Wilk test p value	Levene's test p value
Neuroticism	Individual Sports	0,28	0,19
	Team Sports	0,51	
Extraversion	Individual Sports	0,75	0,70
	Team Sports	0,004*	
Conscientiousness	Individual Sports	0,60	0,62
	Team Sports	0,16	
Openness	Individual Sports	0,39	0,80
	Team Sports	0,04*	
Agreeableness	Individual Sports	0,57	0,06
	Team Sports	0,2	
Need for Achievement	Individual Sports	0,63	0,13
	Team Sports	0,44	
Need for Power	Individual Sports	0,19	0,35
	Team Sports	0,33	
Need for Security	Individual Sports	0,20	0,39
	Team Sports	0,07	

\*Significance at 0.05 level of significance

**Table 3: Distribution of Personality traits of Individual Sport Athletes and Team Sport Athletes**

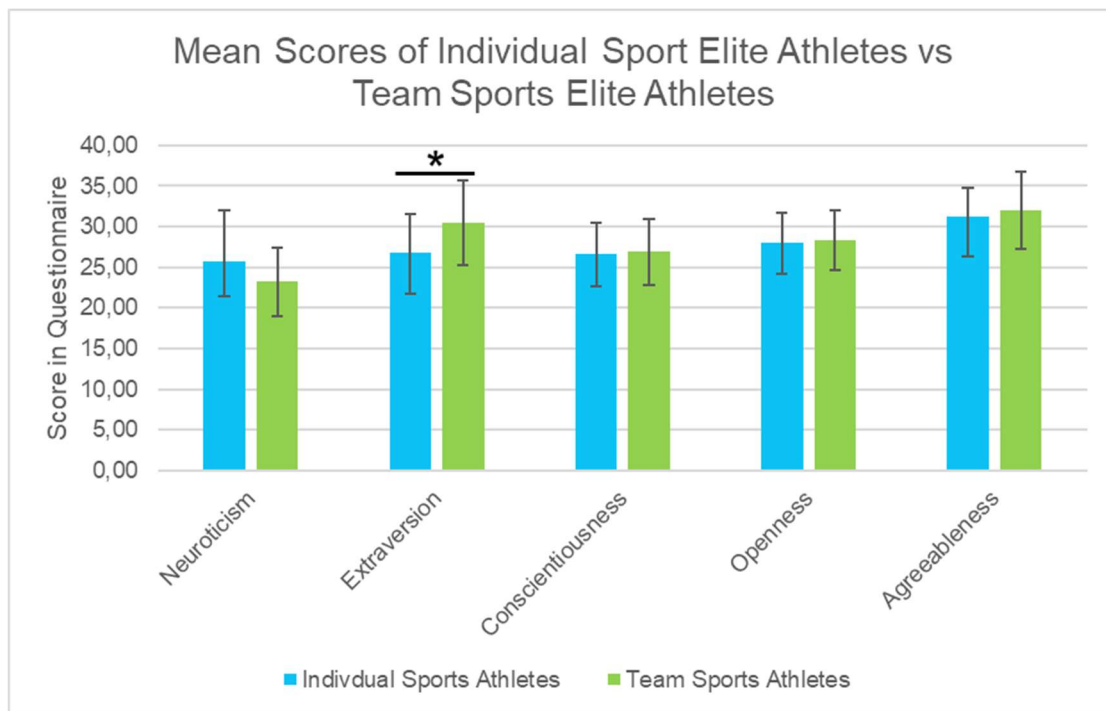
## 4.2. Comparison of Big Five Traits between Team and Individual Sport Athletes

### 4.2.1 Description of Analysis

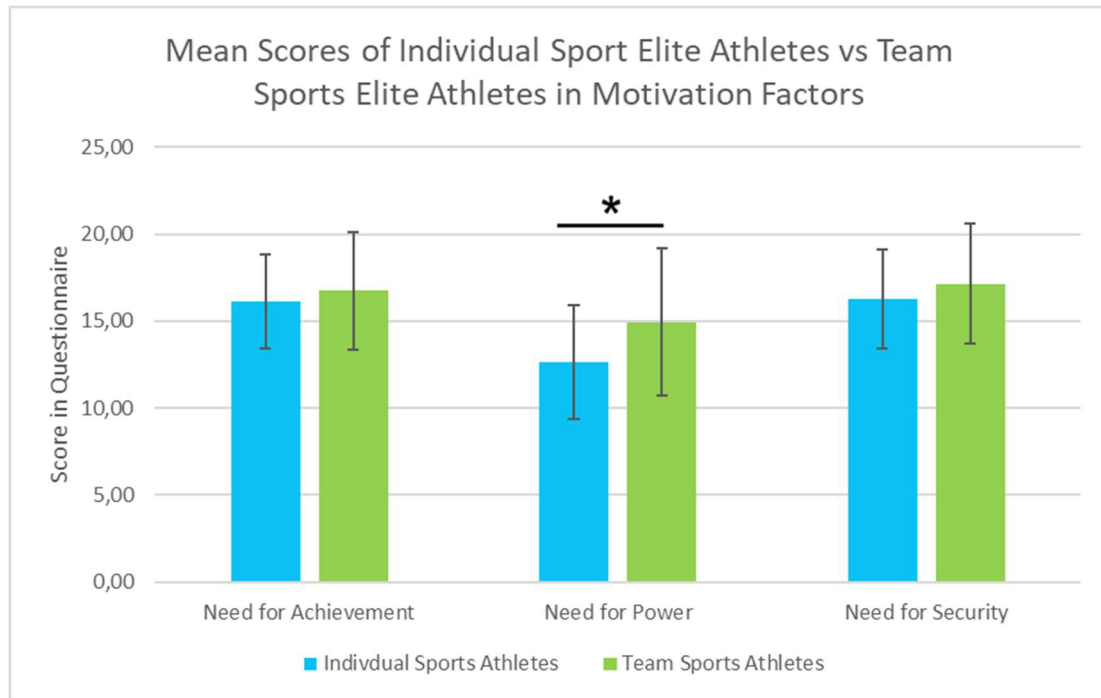
Mann Whitney U test was used for comparing the team and individual sports athletes for extraversion and openness due to the non-normal distribution of team sports athletes. For the rest of the comparisons, an independent two-sample t-test was used as the assumptions of normality and homogeneity of variance were met.

### 4.2.2. Interpretation of the Results

The results of the comparison are provided in table 4 (in appendix A), figure 1 and figure 2. The analysis found that individual sports athletes and team sports athletes were significantly different ( $p < 0.05$ ) for Extraversion and Need for Power while no significant difference were found for the other Big 5 traits and motivation factors. Team sports athletes had significantly higher extraversion and need for power than individual sports athletes, as shown in table 4 (appendix A).



**Figure 1: Mean Scores of Individual Sports vs Team Sports Athletes in Big Five Factors. Significant differences were found in extraversion.**



**Figure 2: Mean Scores of Individual Sports vs Team Sports Athletes in Motivation Factors. Significant difference was found in need for power**

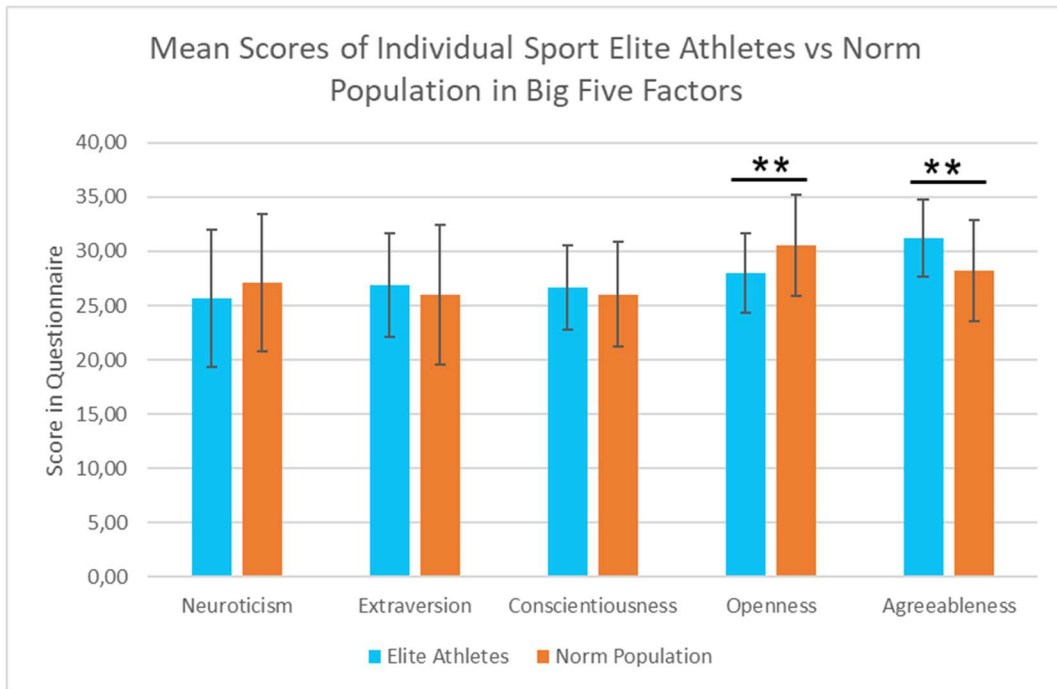
### 4.3. Comparison of Big Five Traits between Individual Sport Athletes and Norm Population

#### 4.3.1. Description of Analysis

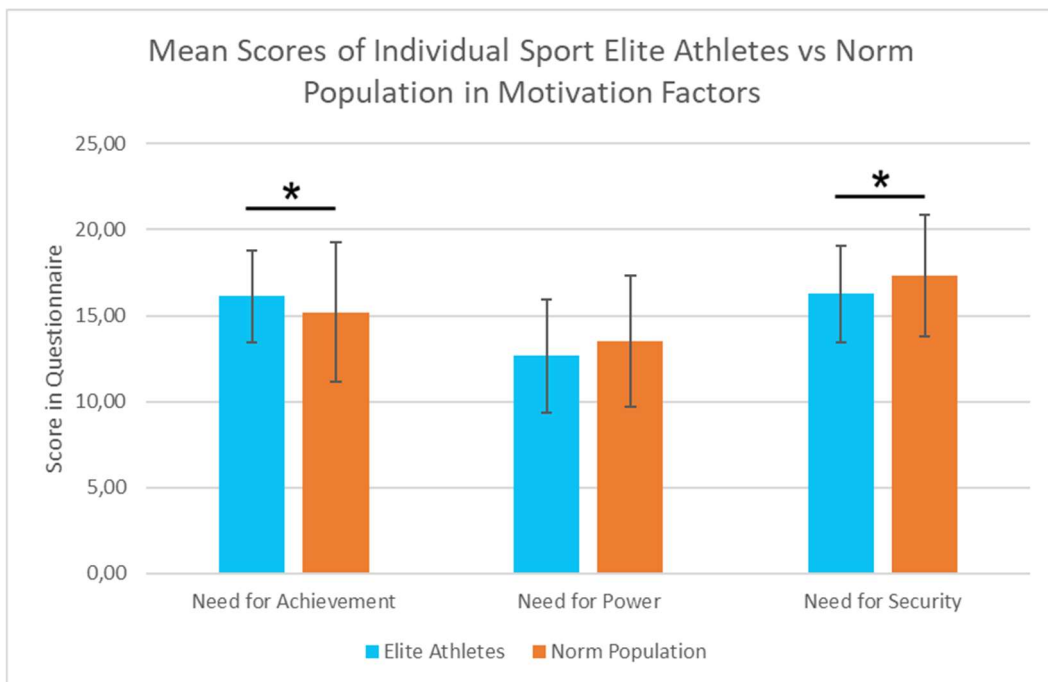
One sample t-test was used for all the comparison. The data for the norm population was taken from Satow(2021); they are also provided in table 6 in the appendix.

#### 4.3.2. Interpretation of the Results

The results of the comparison are provided in table 5 (in appendix A), figure 3 and figure 4. The analysis found that individual sport athletes and general population were significantly different for Openness ( $p < 0.01$ ), Agreeableness ( $p < 0.01$ ), Need for Achievement ( $p < 0.05$ ) and Need for Security ( $p < 0.05$ ) while we found no significant differences for other Big 5 traits and motivation factors. Individual sport athletes had significantly lower openness and need for security while higher agreeableness and need for achievements than general populations.



**Figure 3: Mean Scores of Individual Sport Athletes vs Norm Populations in Big Five Factors. Significant differences were found in openness and agreeableness.**



**Figure 4: Mean Scores of Individual Sport Athletes vs Norm Populations in Motivation Factors. Significant differences were found in need for achievement and need for security.**

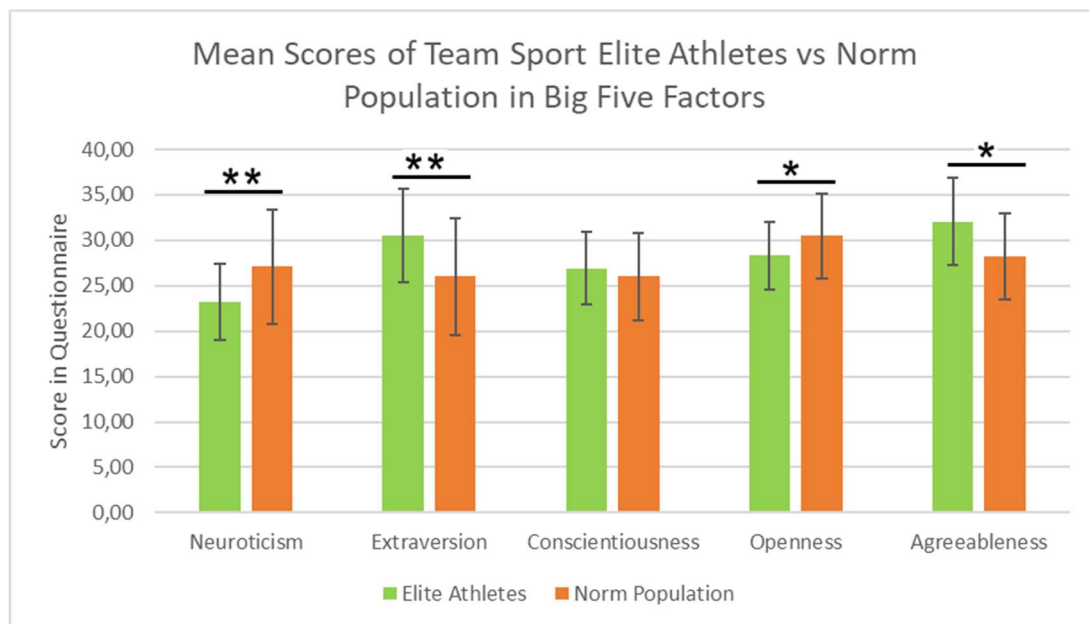
## 4.4. Comparison of Big Five Traits between Team Sport Athletes and Norm Population

### 4.4.1. Description of Analysis

One sample t-test was used for all the comparison. The data for the norm population was taken from Satow(2021); they are also provided in table 7 in the appendix.

### 4.4.2. Interpretation of the Results

The results of the comparison are provided in table 6 (in appendix), figure 5 and figure 6. The analysis found that team sport athletes and the general population were significantly different for Neuroticism ( $p<0.01$ ), Extraversion ( $p<0.01$ ), Openness ( $p<0.05$ ), and Agreeableness ( $p<0.05$ ) while no significant differences found in other Big 5 factors and motivation factors. Team sports athletes had significantly higher extraversion and agreeableness while lower neuroticism and openness than the general population.



**Figure 5: Mean Scores of Team Sport Athletes vs Norm Population in Big Five Factors. Significant differences were found in neuroticism, extraversion, openness and agreeableness.**



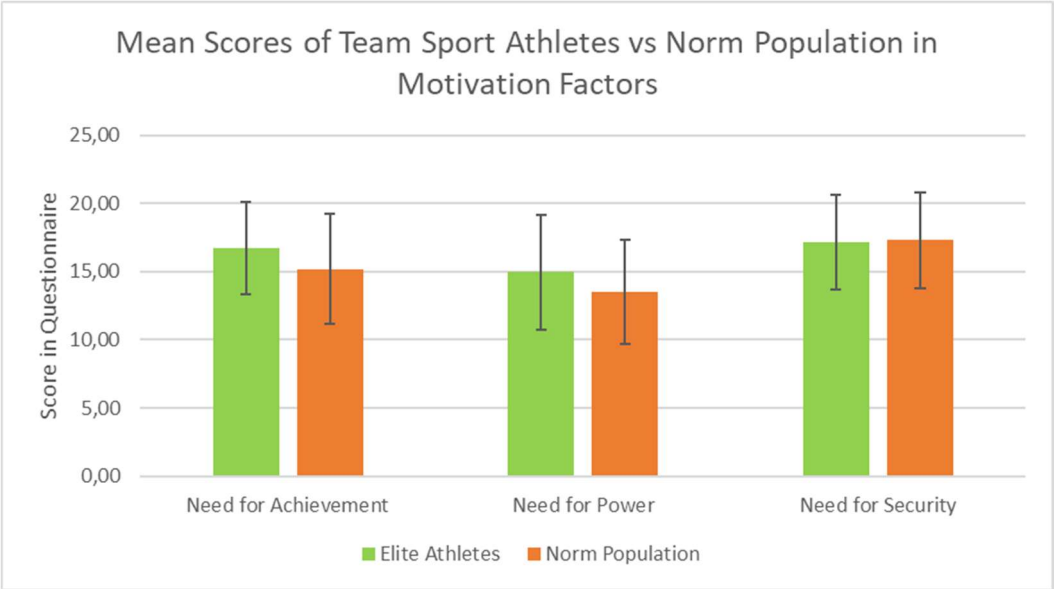


Figure 6: Mean Scores of Team Sport Athletes vs Norm Populations in Motivation Factors.

## Chapter 5

### Discussion

#### 5.1. Summary of the Results:

There are three major results of the study:

- Team sports elite athletes had higher extraversion and need for power while lower neuroticism than individual sports athletes.
- Individual sports elite athletes had significantly higher agreeableness and need for achievement and significantly lower openness and need for security than the general population.
- Team sports elite athletes had significantly higher extraversion and agreeableness and significantly lower neuroticism and openness than the general population.

#### 5.2. Discussion on the Results

##### 5.2.1. Differences between Individual and Team Elite Sports Athletes

I hypothesized that there would be differences between individual and team sports elite athletes; team sport elite athletes would have higher extraversion and agreeableness than individual sport elite athletes would have higher openness and neuroticism. I also hypothesized there would be differences between the elite athletes and the general population. I found that there were significant differences between individual and team sports elite athletes, and also between elite athletes and general populations, which proves the hypothesis to be true. I found that team sports athletes had significantly ( $p < 0.05$ ) higher extraversion and need for power while lower neuroticism than individual sports athletes. This finding is in line with the concurrent literature (Shui et al., 2023; Malinaukas et al., 2014; Piepiora, 2021b).

An interesting insight is that the findings from my sample, which aged 15-20 years old, were similar to the previous literature that used older and culturally different population. This further reinforces the concept that traits remain constant throughout life.

##### 5.2.2. Differences between Elite Sports Athletes and Norm Population

I found that individual sports elite athletes had significantly higher agreeableness and need for achievement and significantly lower openness and need for security than general population. Moreover, I found that team sports elite athletes had significantly higher extraversion and agreeableness and significantly lower neuroticism and openness than general population. These findings are in line with the concurrent literature (Piepiora, 2021a; Piepiora and Piepiora, 2021).

### **5.3. Reflections on the Methodology**

#### **5.3.1. Merits of the Methodology**

The study was conducted with a number of measures to maintain maximum scientific standards while keeping it feasible. First, I used the definition of personality described by the Big Five Personality theory (Psychology Today,nd.); this allowed to provide a standardized definition for the personality. Second, I used a standardized questionnaire designed by Satow(2021) to measure the personality and motivation factors of the study sample. Third, I selected elite athletes (aged) from an elite sports school in Germany to have an elite sports population representation. Fourth, I used the normative data of the general population provided by Satow(2021) to compare it with the data of the elite athletes. Last, I also used statistically appropriate tests to analyze the collected data to answer the research question.

#### **5.3.2. Limitations of the Methodology**

The study also had several limitations that could be improved in future studies. First, I used self-report measures to assess the personality traits and motivation factors, and these measures have limitations such as being subject to biases and inaccuracies (Johnson,1981). Second, I used the sample of athletes from a single elite sports school; future studies should collect data from multiple such schools. Last, I used the cross-sectional design, which limits the ability to establish the causality between personality and sports participation.

### **5.4. Implication for Sport Psychology**

#### **5.4.1. For Coaches:**

- Utilize personality test results to select athletes for various sports disciplines, ensuring a good fit between their traits and the demands of the sport.
- Adapt coaching techniques based on the specific personality traits of each athlete to maximize their performance and engagement.
- Recognize potential leaders within the team through personality assessments and provide them with opportunities to develop their leadership skills through mentorship and additional responsibilities.

#### **5.4.2. For Athletes:**

- Personality trait tests might help gain a better understanding of individual strengths and weaknesses, allowing for targeted personal development.

- Can help develop personalized coping strategies for managing stress and pressure. Techniques such as visualization, mindfulness, and relaxation exercises can be tailored to fit athletes' personalities, enhancing their mental resilience.

### **5.5. Recommendations for Future Studies:**

Future studies should implement the following changes:

- Include elite athletes from multiple elite sports schools in Germany.
- A gender comparison should also be conducted for individual vs team elite sports athletes to examine how they interact and perform in sports (Eagly & Wood, 2013).
- A comparison of elite sports athletes vs the general population might help identify prominent traits in elite athletes (Allen & Laborde, 2014).
- A bigger sample size should be used in future studies.

## Chapter 6

### Summary

Personality and motivational aspects have been shown to affect athletic performance and sporting success. Various theories describe the structure and development of personality; one of them is the trait theory of personality. One of the most established trait theory to describe personality is the Big Five theory. As per the Big Five personality theory, there are five traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience (Psychology Today, nd.). Big Five trait theory has also been extensively used to study personality traits in individual and team sports. Motivational aspects are important for sports, as they help athletes tap into their intrinsic and extrinsic drives to achieve optimal performance. The three key factors that influence the motivation of the athlete are the need for security, power, and achievement. Most of the investigation of traits and motivation in individual and team sports has been conducted on the adult population. Less literature has been conducted on the young elite athlete population (aged 15-20 years). Also, previous studies have not compared the traits of the sports persons with those of the similarly aged non-sport persons. Thus, this study was conducted to investigate the sports and types of sports participation (team and individual sports) in relation to the personality traits and motive expression of the elite young athletic population (15-20 years). I hypothesized significant differences in personality traits and motivational aspects for 1) Between individual and team sports athletes and 2) Between sporting and non-sporting populations. The study was designed as a cross-sectional study. I used a self-reported questionnaire – designed by Satow (2021) – to collect the Big Five personality traits and motivation aspect-related data from 61 young elite athletes (Individual sports athletes = 42; Team sports athletes = 19) aged 15-20 years, who were randomly selected from an Elite Sports School in Germany. I used the normative data related to Big Five personality traits and motivation aspects of the non-sporting population from Satow(2020). I used the Shapiro-Wilk normality test and Levene's test to assess the normality and homogeneity of variance of the data; based on their results, I used two-sample t-tests or Mann-Witney U test to compare the individual and team sports athletes. Further, I used the one-sample t-tests to compare the normative values of the general population and data of the sporting population. I found that the team sports elite athletes had significantly different ( $p < 0.05$ ) extraversion, need for power, and neuroticism than individual sports elite athletes, with higher values reported for extraction and need for power while lower values were reported for neuroticism in the team sports elite athletes. Also, I found that the individual sports elite athletes had significantly different ( $p < 0.05$ ) agreeableness, need for achievement, openness, and need for security than the general population, with higher values reported for agreeableness and need for achievement while lower values reported for openness and need for security in individual sports elite athletes. Finally, I found that the team sports elite athletes had significantly different ( $p < 0.05$ ) extraversion, agreeableness, neuroticism, and openness than the general population,

with higher values reported for extraversion and agreeableness and lower values reported for neuroticism and openness in team sport elite athletes. The findings were similar to the previous literature that used older and culturally different populations. This further reinforces the concept that traits remain constant throughout life. This study has various useful implications for coaches and athletes. Coaches can utilize personality test results in the appropriate selections of the athletes by matching their traits with the demands of the sports; they can adapt the coaching techniques based on the personality traits of the athletes to maximize performance; and they can recognize potential leaders within the team. Athletes can use the results of the personality traits to better understand their strengths and weaknesses and develop better personalized coping strategies for managing stress and pressure. This study could be extended in the future with bigger sample sizes, including elite athletes from multiple elite sports schools in Germany. This could enable further studies such as a gender comparison between individual vs team elite sports athletes to examine how they interact and perform in sports (Eagly & Wood, 2013), or a more comprehensive comparison of elite sports athletes vs general population that might help identify prominent traits in elite athletes (Allen & Laborde, 2014).

## Bibliography

- Allen, M. S., Greenlees, I., & Jones, M. (2013). Personality in sport: A comprehensive review. *International Review of Sport and Exercise Psychology*, 6(1), 184-208.
- Allen, M. S., Greenlees, I., & Jones, M. (2011). An investigation of the five-factor model of personality and coping behaviour in sport. *Journal of Sports Sciences*, 29(8), 841-850. <https://doi.org/10.1080/02640414.2011.565064>.
- Allen, M. S., & Laborde, S. (2014). The role of personality in sport and physical activity. *Current Directions in Psychological Science*, 23(6), 460-465.
- American Psychological Association. (n.d.). Personality. American Psychological Association. Retrieved August 26, 2023, from <https://www.apa.org/topics/personality>.
- Azita, H., Mousavi, M. V., Shahla, P., & Hamidreza, T. (2019). Effectiveness of psychological preparation program on sport performance of futsal girl players: mediating role of personality. *Journal of Research in Medical and Dental Science*, 7, 92-101.
- Bojanić, Ž., Nedeljković, J., Šakan, D., Mitić, P. M., Milovanović, I., & Drid, P. (2019). Personality traits and self-esteem in combat and team sports. *Frontiers in Psychology*, 10, 2280. <https://doi.org/10.3389/fpsyg.2019.02280>.
- Carron, A. V., et al. (2005). Cohesion in sport teams: Past, present and future. In S. Jowett & D. Lavallee (Eds.), *Social psychology in sport* (pp. 161-182).
- Charbonneau, D., Barling, J., & Kelloway, E. K. (2001). Transformational leadership and sports performance: The mediating role of intrinsic motivation. *Journal of Applied Social Psychology*, 31(7), 1521-1534. <https://doi.org/10.1111/j.1559-1816.2001.tb02686.x>.
- Clancy, R. B., Herring, M. P., & Campbell, M. J. (2017). Motivation measures in sport: A critical review and bibliometric analysis. *Frontiers in Psychology*, 8, 348. <https://doi.org/10.3389/fpsyg.2017.00348>.
- Conzelmann, A., & Nagel, S. (2003). Professional careers of the German Olympic athletes. *International Review for the Sociology of Sport*, 38(3), 259-280.
- Costa, P. T., Jr., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, 38(4), 668-678.
- Côté, J. (1999). The influence of the family in the development of talent in sport. *The Sport Psychologist*, 13(4), 395-417.
- Duda, J. L., & Hall, H. (2001). Achievement goal theory in sport: Recent extensions and future directions. In R. N. Singer, H. A. Hausenblas, & C. M. Janelle (Eds.), *Handbook of Sport Psychology* (2nd ed., pp. 417-443). Wiley.
- Eagly, A. H., & Wood, W. (2013). The nature-nurture debates: 25 years of challenges in understanding the psychology of gender. *Perspectives on Psychological Science*, 8(3), 340-357.
- Eysenck, H. J., & Eysenck, M. W. (1985). *Personality and individual differences: A natural science approach*. Plenum Press.
- Fasold, F., Inzenhofer, V., Lingner, K., Noël, B., & Hüttermann, S. (2019). Personality traits of handball goalkeepers. *Journal of Human Sport and Exercise*, 15, 283-293. <https://doi.org/10.14198/jhse.2020.152.04>.
- Fry, M. D., & Moore, E. W. G. (2019). Motivation in sport: Theory and application. In M. H. Anshel, T. A. Petrie, & J. A. Steinfeldt (Eds.), *APA handbook of sport and exercise psychology: Sport*

- psychology (pp. 273–299). American Psychological Association. <https://doi.org/10.1037/0000123-015>.
- Gould, D., & Dieffenbach, K. (2002). Overcoming performance slumps: Psychological strategies for coaches and athletes. *Journal of Physical Education, Recreation & Dance*, 73(8), 50-56. <https://doi.org/10.1080/07303084.2002.10607703>.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102-138).
- Johnson, J. A. (1981). The "self-disclosure" and "self-presentation" views of item response dynamics and personality scale validity. *Journal of Personality and Social Psychology*, 40(4), 761-769. <https://doi.org/10.1037/0022-3514.40.4.761>.
- Jowett, S., & Cockerill, I. M. (2003). Olympic medallists' perspective of the athlete–coach relationship. *Psychology of Sport and Exercise*, 4(4), 313-331. [https://doi.org/10.1016/S1469-0292\(02\)00011-0](https://doi.org/10.1016/S1469-0292(02)00011-0).
- Kemarat, S., Theanthong, A., Yeemin, W., & Suwankan, S. (2022). Personality characteristics and competitive anxiety in individual and team athletes. *PLOS ONE*, 17(1), e0262486. <https://doi.org/10.1371/journal.pone.0262486>.
- Klatt, S., Rückel, L. M., Wagener, S., & Noël, B. (2021). Personality traits and emotion regulation styles of elite beach volleyball dyads: Examination of intra-team differences, performance and satisfaction levels. *Frontiers in Psychology*, 12, 719572.
- Klein, M., Fröhlich, M., & Emrich, E. (2017). Self-concept in adolescents: Relationship between sport participation, motor performance and personality traits. *Sports*, 5(2), 22. <https://doi.org/10.3390/sports5020022>.
- Kunvarsing, R. A. (2020). Achievement motivation and sports. *JournalNX*, 6(10), 498-500.
- Malinauskas, R., Dumciene, A., Mamkus, G., & Venckunas, T. (2014). Personality traits and exercise capacity in male athletes and non-athletes. *Perceptual and Motor Skills*, 118(1), 145–161. <https://doi.org/10.2466/29.25.PMS.118k13w1>.
- Marheni, E., Purnomo, E., & Cahyani, F. I. (2019, February). The role of motivation in increasing achievement: Perspective sports psychology. In *2nd International Conference on Sports Sciences and Health 2018* (pp. 59-62). Atlantis Press.
- McClelland, D. C. (1961). *The achieving society*. Van Nostrand.
- McCrae, R. R., & Costa, P. T., Jr. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*, 52(1), 81-90.
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, 60(2), 175-215.
- Meyers, L. S., Gamst, G., & Guarino, A. J. (2006). *Applied multivariate research: Design and interpretation*. Sage Publications.
- Mollazadeh, M., Zandi, H. G., Rostamizadeh, M., & Kateb, M. Y. (2020). Comparison of personality characteristics of athletes in team and individual sport. *International Journal of Motor Control and Learning*, 2(1), 2–8. <https://doi.org/10.29252/ijmcl.2.1.2>.
- Nia, M. E., & Besharat, M. A. (2010). Comparison of athletes' personality characteristics in individual and team sports. *Procedia - Social and Behavioral Sciences*, 5, 808–812. <https://doi.org/10.1016/j.sbspro.2010.07.189>.
- Piedmont, R. L. (1998). *The revised NEO personality inventory: Clinical and research applications*. Springer Publishing Company.



- 
- Piepiora, P. (2021a). Assessment of personality traits influencing the performance of men in team sports in terms of the Big Five. *Frontiers in Psychology*, 12, 679724. <https://doi.org/10.3389/fpsyg.2021.679724>.
- Piepiora, P. (2021b). Personality profile of individual sports champions. *Brain and Behavior*, 11(6), e02145. <https://doi.org/10.1002/brb3.2145>.
- Piepiora, P., & Piepiora, Z. (2021). Personality determinants of success in men's sports in the light of the Big Five. *International Journal of Environmental Research and Public Health*, 18(12). <https://doi.org/10.3390/ijerph18126297>.
- Psychology Today. (n.d.). Big 5 personality traits. Retrieved April 20, 2024, from <https://www.psychologytoday.com/us/basics/big-5-personality-traits>.
- Satow, L. (2020). B5T® Big-Five-Persönlichkeitstest: Testmanual und Normen (ISBN 978-3-949416-01-9). <https://www.drstatow.de/tests/persoenlichkeitstest/>.
- Satow, L. (2020). B5T® Big-Five-Persönlichkeitstest: Test- und Skalendokumentation (ISBN 978-3-949416-00-2). <https://www.drstatow.de/tests/persoenlichkeitstest/>.
- Schneider, B. (2001). *Personality and organizations*. Psychology Press.
- Shuai, Y., Wang, S., Liu, X., Kueh, Y. C., & Kuan, G. (2023). The influence of the five-factor model of personality on performance in competitive sports: A review. *Frontiers in Psychology*, 14, 1284378. <https://doi.org/10.3389/fpsyg.2023.1284378>.
- Vaeyens, R., Lenoir, M., Williams, A. M., & Philippaerts, R. M. (2008). Talent identification and development programmes in sport: Current models and future directions. *Sports Medicine*, 38(9), 703-714.
- Woodman, T., & Hardy, L. (2001). Stress and anxiety. In R. N. Singer, H. A. Hausenblas, & C. M. Janelle (Eds.), *Handbook of Sport Psychology* (2nd ed., pp. 290-318).
- Wylleman, P., Alfermann, D., & Lavallee, D. (2004). Career transitions in sport: European perspectives. *Psychology of Sport and Exercise*, 5(1), 7-20. [https://doi.org/10.1016/S1469-0292\(02\)00049-3](https://doi.org/10.1016/S1469-0292(02)00049-3).
- Yang, J., Yang, H. J., Choi, C., & Bum, C. (2024). Relationship between athletes' Big Five model of personality and athletic performance: Meta-analysis. *Behavioral Sciences*, 14(1), 71. <https://doi.org/10.3390/bs14010071>.
- Zuber, C., Schmid, M. J., & Conzelmann, A. (2020). Achievement-motivated behavior in individual sports: Evidence for the construct and criterion validity of the AMBIS-I coach-rating scale. *Journal of Sports Science & Medicine*, 19(1), 10-19.

## Appendix A

Factor	Cronbach Alpha
Neuroticism	0,90
Extraversion	0,86
Conscientiousness	0,76
Openness to Experience	0,76
Agreeableness	0,78
Need for Achievement	0,81
Need for Power	0,77
Need for Security	0,83

**Table 2: Cronbach Alpha of Factors in the Questionnaire from Satow(2021)**

Traits		Mean	±	SD	Statistic value	p-value
Neuroticism	Individual Sports	25,67	±	6,30	1,8	0,08
	Team Sports	23,21	±	4,17		
Extraversion	Individual Sports	26,86	±	4,75	222	0,01*
	Team Sports	30,47	±	5,16		
Conscientiousness	Individual Sports	26,67	±	3,86	-0,21	0,84
	Team Sports	26,89	±	4,01		
Openness	Individual Sports	28,00	±	3,67	390	0,89
	Team Sports	28,32	±	3,73		
Agreeableness	Individual Sports	31,19	±	3,53	-0,7	0,49
	Team Sports	32,05	±	4,78		
Need for Achievement	Individual Sports	16,12	±	2,69	-0,69	0,49
	Team Sports	16,74	±	3,40		
Need for Power	Individual Sports	12,64	±	3,30	-2,09	0,04*
	Team Sports	14,95	±	4,25		
Need for Security	Individual Sports	16,26	±	2,82	-0,99	0,33
	Team Sports	17,16	±	3,44		

\*Significant at 0.05 level of significance

**Table 4: Comparison of Personality traits of Individual Sport Athletes and Team Sport Athletes**

Traits		Mean ± SD	t statistic	p value
Neuroticism	Elite Athlete	25,67 ± 6,30	-1,44	0,16
	Norm Population	27,1 ± 6,31		
Extraversion	Elite Athlete	26,86 ± 4,75	1,18	0,24
	Norm Population	26 ± 6,43		
Conscientiousness	Elite Athlete	26,67 ± 3,86	1,17	0,25
	Norm Population	26 ± 4,82		
Openness	Elite Athlete	28,00 ± 3,67	-4,49	<0,001**
	Norm Population	30,5 ± 4,67		
Agreeableness	Elite Athlete	31,19 ± 3,53	5,57	<0,001**
	Norm Population	28,2 ± 4,7		
Need for Achievement	Elite Athlete	16,12 ± 2,69	2,22	0,03*
	Norm Population	15,2 ± 4,04		
Need for Power	Elite Athlete	12,64 ± 3,30	-1,65	0,11
	Norm Population	13,5 ± 3,82		
Need for Security	Elite Athlete	16,26 ± 2,82	-2,39	0,02*
	Norm Population	17,3 ± 3,54		

*Elite Athlete: Data from the sample*

*Norm Population: Normative data of similar aged population from Satow(2021).*

*\*Significant at 0.05 level of significance*

*\*\*Significant at 0.001 level of significance*

**Table 5: Comparison of Personality traits of Individual Sport Athletes and Normative data of General Population**

Traits		Mean	± SD	t statistic	p value
Neuroticism	Elite Athlete	23,21	± 4,17	-4,03	<0,001**
	Norm Population	27,1	± 6,31		
Extraversion	Elite Athlete	30,47	± 5,16	3,79	0,001**
	norm Population	26	± 6,43		
Conscientiousness	Elite Athlete	26,89	± 4,01	1,01	0,33
	Norm Population	26	± 4,82		
Openness	Elite Athlete	28,32	± 3,73	-2,6	0,02*
	Norm Population	30,5	± 4,67		
Agreeableness	Elite Athlete	32,05	± 4,78	3,55	0,002*
	Norm Population	28,2	± 4,7		
Need for Achievement	Elite Athlete	16,74	± 3,40	1,97	0,06
	Norm Population	15,2	± 4,04		
Need for Power	Elite Athlete	14,95	± 4,25	1,51	0,15
	Norm Population	13,5	± 3,82		
Need for Security	Elite Athlete	17,16	± 3,44	-0,18	0,86
	Norm Population	17,3	± 3,54		

*Elite Athlete: Data from the sample*

*Norm Population: Normative data of similar aged population from Satow(2021).*

*\*Significant at 0.05 level of significance*

*\*\*Significant at 0.001 level of significance*

**Table 6: Comparison of Personality traits of Team Sport Athletes and Normative data of General Population**

N	E	C	A	O	LM	SM	MM	H	Stanine	Häufigkeit
10-16	10-13	10-16	10-20	10-19	6,7	6-10	6	4-6	<b>1</b>	4%
17,18	14-16	17-19	21-24	20,21	8,9	11,12	7,8	7	<b>2</b>	7%
19-21	17-20	20,21	25,26	22-24	10,11	13,14	9	8	<b>3</b>	12%
22-24	21-23	22-24	27-29	25,26	12,13	15,16	10,11	9,10	<b>4</b>	17%
25-28	24-27	25,26	30,31	27,28	14,15	17	12,13	11	<b>5</b>	20%
29-31	28-30	27-29	32,33	29-31	16,17	18,19	14,15	12	<b>6</b>	17%
32-34	32,33	30,31	34,35	32,33	18,19	20,21	16-18	13	<b>7</b>	12%
35-37	34,35	32,33	36,37	34,35	20,21	22	19,20	14,15	<b>8</b>	7%
38-40	36-40	34-40	38-40	36-40	22-24	23,24	21-24	16	<b>9</b>	4%
27.07	25.99	25.97	30.54	28.16	15.20	17.30	13.48	11.30	<b>M</b>	
6.31	6.43	4.82	4.67	4.70	4.04	3.54	3.82	2.52	<b>SD</b>	

**Table 7: Normative Data from Satow(2021)**

## Appendix B

Questionnaire  
Dr. Lars Satow

B5T® Big-Five-Persönlichkeitstest

Alter: \_\_\_\_\_

Geschlecht: männlich  weiblich  anderes

Sport: \_\_\_\_\_

### Anleitung:

Inwieweit treffen die folgenden Aussagen auf Sie zu? Antworten Sie möglichst offen und ehrlich. Es gibt keine richtigen oder falschen Antworten. Achten Sie darauf, dass Sie keine Aussage auslassen.

Nr.	Fragen	Trifft gar nicht zu	Trifft Eher nicht zu	Trifft Eher zu	Trifft genau zu
1	Ich bin eine ängstliche Person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	Im privaten Bereich habe ich schon mal Dinge gemacht, die besser nicht an die Öffentlichkeit kommen sollten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	Am glücklichsten bin ich dann, wenn viele Menschen mich bewundern und großartig finden, was ich mache.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	Ich grübele viel über meine Zukunft nach.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	Oft überwältigen mich meine Gefühle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	Ich bin mir in meinen Entscheidungen oft unsicher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	Ich bin gerne mit anderen Menschen zusammen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	Oft werde ich von meinen Gefühlen hin- und her gerissen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	Ich bin ein Einzelgänger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	Ich will immer neue Dinge ausprobieren.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	Ich bin in vielen Vereinen aktiv.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	Ich bin ein gesprächiger und kommunikativer Mensch.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	Ich kann Menschen verstehen, die sagen, dass andere Dinge wichtiger sind als Einfluss und Politik.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	Ich habe schon immer ein starkes Bedürfnis nach Sicherheit und Ruhe verspürt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Nr.	Fragen	Trifft gar nicht zu	Trifft Eher nicht zu	Trifft Eher zu	Trifft genau zu
15	Auch kleine Bußgelder sind mir sehr unangenehm.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16	Ich fühle mich oft unsicher.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17	Ich verspüre oft eine große innere Unruhe.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18	Im Grunde bin ich oft lieber für mich allein.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19	Ich bin sehr pflichtbewusst.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20	Ich bin ein höflicher Mensch.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21	Meine Aufgaben erledige ich immer sehr genau.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22	Ich helfe anderen, auch wenn man mir es nicht dankt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23	Ich habe immer wieder Streit mit anderen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24	Ich träume oft von einem ruhigen Leben ohne böse Überraschungen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25	Am glücklichsten bin ich dann, wenn ich mich geborgen fühle.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26	Wenn ich die Wahl hätte, würde ich in meinem Leben gerne weltbewegende Entscheidungen treffen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27	Für mehr Einfluss würde ich auf vieles verzichten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28	Ich mache mir oft unnütze Sorgen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29	Ich habe schon mal Dinge weiter erzählt, die ich besser für mich behalten hätte.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30	Für mehr Anerkennung würde ich auf vieles verzichten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31	Ich war schon als Kind sehr ordentlich.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32	Ich gehe immer planvoll vor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33	Es fällt mir sehr leicht, meine Bedürfnisse für andere zurückzustellen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34	Ich bin sehr kontaktfreudig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35	Ich kann mich gut in andere Menschen hineinversetzen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36	Ich komme immer gut mit anderen aus, auch wenn sie nicht meiner Meinung sind.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37	Ich habe schon immer ein starkes Bedürfnis verspürt nach meinen eigenen Maßstäben der Beste zu sein.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38	Ich bin oft ohne Grund traurig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39	Ich achte sehr darauf, dass Regeln eingehalten werden.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Nr.	Fragen	Trifft gar nicht zu	Trifft Eher nicht zu	Trifft Eher zu	Trifft genau zu
40	Ich bin ein neugieriger Mensch.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41	Ich diskutiere gerne.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42	Ich habe meine festen Prinzipien und halte daran auch fest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43	Tief in meinem Innersten gibt es eine Sehnsucht nach Einfluss und Macht.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44	Ich kann schnell gute Stimmung verbreiten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45	Ich reise viel, um andere Kulturen kennenzulernen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46	Ich gehe gerne auf Partys.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47	Wenn ich mich einmal entschieden habe, dann weiche ich davon auch nicht mehr ab.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48	Ich mache eigentlich nie Flüchtigkeitsfehler.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49	Ich bin oft nervös.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50	Am liebsten ist es mir, wenn alles so bleibt, wie es ist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51	Auch kleine Schlampereien stören mich.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
52	Ich lerne immer wieder gerne neue Dinge.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
53	Ich beschäftige mich viel mit Kunst, Musik und Literatur.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
54	Ich achte darauf, immer freundlich zu sein.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
55	Ich habe schon mal etwas unterschlagen oder nicht gleich zurückgegeben.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
56	Ich bin ein Egoist.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
57	Ich würde meine schlechte Laune nie an anderen auslassen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
58	Ich interessiere mich sehr für philosophische Fragen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
59	Ich lese viel über wissenschaftliche Themen, neue Entdeckungen oder historische Begebenheiten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
60	Ich habe viele Ideen und viel Fantasie.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
61	Ich habe schon immer ein starkes Bedürfnis nach Anerkennung und Bewunderung verspürt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Nr.	Fragen	Trifft gar nicht zu	Trifft Eher nicht zu	Trifft Eher zu	Trifft genau zu
62	Am glücklichsten bin ich dann, wenn ich Verantwortung übernehmen kann und wichtige Entscheidungen treffen darf.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
63	Wenn ich die Wahl hätte, würde ich ein Leben in Sicherheit und Frieden wählen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
64	Ich bin unternehmungslustig.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
65	Ich stehe gerne im Mittelpunkt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
66	Tief in meinem Innersten gibt es eine Sehnsucht danach der Beste sein zu wollen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
67	Ich träume oft davon, berühmt zu sein.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
68	Ich träume oft davon, wichtige Entscheidungen für Politiker oder andere mächtige Menschen zu treffen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
69	Für ein sicheres Leben ohne böse Überraschungen würde ich auf vieles verzichten.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
70	Wenn mir jemand hilft, erweise ich mich immer als dankbar.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
71	Tief in meinem Innersten gibt es eine Sehnsucht nach Ruhe und Geborgenheit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
72	Ich habe schon mal über andere gelästert oder schlecht über sie gedacht.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



---

# Consent Form for Participation in Psychology Personality Trait Questionnaire

**Study Title:**

Personality and Motivation in Elite Young Athletes: A Comparative Study Between Individual and Team Sports

**Researcher:**

Harpreet Singh, student of Internation masters in high performance sports , Saarland University

---

**Introduction:**

You are invited to participate in a research study conducted as part of my master's thesis project in sport psychology. The purpose of this study is to understand the personality traits of young elite athletes. Your participation is completely voluntary, and you may withdraw at any time without any penalty.

---

**Purpose of the Study:**

The aim of this study is to examine the personality traits of elite individual sport athletes and elite team sport athletes and also to compare them with norm population . The information gathered will contribute to a better understanding of how different sports may influence personality.

---

**Procedures:**

If you agree to participate in this study, you will be asked to complete a questionnaire that includes questions about your personality traits, your age, your gender, and the sport you play. The questionnaire should take approximately 15-20 minutes to complete.

---

**Confidentiality:**

All information collected in this study will be kept strictly confidential. Your responses will be anonymized, and no personally identifiable information (such as your name) will be collected. Data will be stored securely and will only be accessible to the researcher and their supervisor.

---

**Voluntary Participation and Right to Withdraw:**

Participation in this study is entirely voluntary. You are free to choose not to participate or to withdraw from the study at any time without any negative consequences. If you decide to withdraw, any data you have provided will be destroyed and not used in the study.

---

**Potential Risks and Benefits:**

There are no known risks associated with participating in this study. While you may not directly benefit from participating, your involvement will contribute to valuable research that may benefit future athletes and the field of sports psychology.

---

**Contact Information:**

If you have any questions about this study, please feel free to contact me at [S8htsing@uni-saarland.de](mailto:S8htsing@uni-saarland.de)

---

**Consent:**

By signing below, you acknowledge that you have read and understood the information provided above, and you consent to participate in this study. You also acknowledge that you are aware of your right to withdraw at any time.

**Participant's Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

---

Thank you for your participation!

## **Declaration of Independent Work**

I hereby declare that I have developed and written the enclosed master thesis entirely on my own and have not used outside sources without declaration in the text. Any concepts or quotations applicable to these sources are clearly attributed to them. This master thesis has not been submitted in the same or substantially similar version, not even in part, to any other authority for grading and has not been published elsewhere. I am aware of the fact that a misstatement may have serious legal consequences.

Saarbrücken, 01. October 2024

Harpreet Singh