

NATIONAL SPORTS ACADEMY "VASSIL LEVSKI"
DEPARTMENT: PSYCHOLOGY, PEDAGOGY AND SOCIOLOGY

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**PERSONAL QUALITIES AND CAREER LONGEVITY OF
ELITE LATVIAN ATHLETES**

SUMMARY

**of doctoral thesis for obtaining
an academic and scientific degree "Doctor", doctoral program
"Sports psychology", professional direction 7.6. Sports**

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INTRODUCTION

The study of personality has gained significant attention in the field of sports psychology. The interest of scientists, athletes, coaches and sports specialists is often focused on studying the profiles of personal characteristics of athletes who achieve the highest sports results, often close to the limit of human capabilities. It is known that an athlete's personality is influenced by their living conditions, the specifics of the sports environment, as well as society as a whole. In recent decades, researchers in sports psychology have shown increased interest in studying various aspects of athletic careers, including career transitions, dual career challenges, as well as the factors influencing individual athletes and the overall development of sports careers.

This dissertation focuses on studying personal qualities and skills that contribute to or form the foundation of a successful sports career. It explores the relationship between personality and the various stages of an athlete's career, analyzing the existing models and differences across individual career stages within different groups of elite athletes.

In theory, research on personality traits can be divided into two categories: (1) research of personality and sport, and (2) research of personality in sport. The former, known as the “common traits” approach, examines the relationship between personality in a broader sense and factors such as sport preferences, physical activity and athletic performance (Eysenck et al., 1982; Gee, 2010; Woodman et al., 2010; Allen et al., 2013; Allen, Laborde, 2014). The latter, the “contextual traits” approach, focuses on the specific traits individuals exhibit within the context of sport. In the “common traits” approach, research on personality and sport can be divided into three distinct but often overlapping thematic areas: (1) personality and sport preferences (interest in specific sports); (2) personality and physical activity (the influence of physical activities and sports on personality) and 3) personality and sports performance (including the personality characteristics of successful athletes, which is the focus of our research interest).

Despite Latvia's relatively small population (approximately 2 million), its athletes achieve considerable success in the international arena in various summer and winter sports. Athletes in individual sports tend to achieve greater international success, while success in team sports is recognized more at the national level or within foreign clubs. This study includes athletes from various sports disciplines and with differing levels of career success and duration.

The onset, duration and peak of a sports career are typically individual and vary in timing. It remains to be seen whether there are similarities and patterns in this process. Additionally, it is important to investigate which personality traits and skills characterize athletes with successful sports careers.

The onset of a sports career is largely determined by the conditions and opportunities available to the athlete. In the beginning, it is often the sports infrastructure closest to home, the recommendations of parents or peers, and the choices offered by the family. Further career

development is increasingly determined by professional sports coaches and various types of support (material, emotional, social).

Our research focuses on identifying the personal characteristics and skills that unite or differentiate athletes who compete at the highest level at different stages of their sports careers.

The research findings can serve as the basis for further targeted development and improvement of the psychological support system in Latvia. This will assist coaches and psychologists in identifying the most effective approaches for the preparation and management of athletes at various stages of their sports career.

The FIRST CHAPTER consists of two subchapters which summarize opinions and research results on the problem.

The first subchapter analyzes different approaches and criteria for defining and systematizing a sports career. It includes a historical review of theories and research on career stages and career transitions.

I.1.1. Career and career in sports

Alfermann and Stambulova (2007) define a career as a sports activity lasting several years, chosen voluntarily by the individual with the aim of reaching peak performance in one or several sports events. (Alfermann, Stambulova, 2007). The existing periodization employs different criteria, including age categories or levels of athletic achievement. There are two main models: the synthetic model and the structural model. The synthetic model of a sports career includes four objective features and two subjective features, and reveals the dynamic characteristics of a sports career, including its periodization and the resulting crises. The structural model of a sports career is based on the psychological structure of sports activity and focuses on the determining factors of athletic achievements. It also explores the direction of socialization within sports and investigates the motivation behind athletic participation (Alfermann, Stambulova, 2007).

I.1.2. Types and transitions of careers in sports

This section summarizes the types of sport careers and transitions described in the literature and research on career stages in sport. Researchers are increasingly looking at the impact of life outside of sports on the careers of athletes. Willemann, Alfermann and Lavallee (2004) focus their analysis on European research on career change and define a holistic model. A holistic approach includes both sport and post-sport careers, as well as transitional, non-sport areas of an athlete's life (Wylleman, Lavallee, 2004).

I.1.3. Studies related to career stages

Initially, researchers employed an exploratory methodology, utilizing open-ended questionnaires and interviews to investigate potential reasons for career termination (Lerch, 1984;

Mihovilovics, 1968) and to identify factors that influence the quality of career transitions from sports to life beyond athletics (Allison, Meyer, 1988; Werthner and Orlick, 1986). These studies are called retrospective studies. In their study, Lavalley et al. (1998) applied inductive content analysis to direct quotations from the published literature, supplementing their findings with structured interview data that provided additional information for the content analysis.

Since the 1990s, researchers (Grove et al., 1998; Lavalley et al., 1996; Lavalley et al., 1997) have begun utilizing new instruments specifically designed to examine sports careers in their studies on career transitions. In the course of the research, the need for a complex, multidimensional approach became evident. Wylleman et al. (1998) used an intraindividual or idiographic methodology, interviewing former Olympic athletes about the situations, behaviors, and emotions they experienced during their careers.

Recent research on career transitions includes topics such as: dual career transition from primary education to university education (Defruyt et al., 2019), transition from a regular school environment to an Olympic training center (Diehl et al., 2019), cultural transition (Samuel et al., 2019; Aggergaard, Ryba, 2014), maternity transition (Tekavc et al., 2015), transition from athlete to coach (Chroni et al., 2019) and sports transition due to changes in competition rules (Kiuppis, Stambulova, 2020).

Bruner, Erickson, Wilson, and Kote (Bruner et al., 2009) analyzed the perspective of sports career development and identified the most prevalent models and definitions in the field of career development research.

Willemann, Alfermann and Lavalley (2004) focused their research on European studies concerning career transitions.

Stambulova (1994) identified five stages of a sports career: preparation, beginning of specialization, intensive engagement in the chosen sport, climax, and the final stage followed by termination. Stambulova and Alfermann (2009) note the importance of a deeper understanding of context in the study of athlete careers and support system.

I.2. PERSONALITIES AND PERSONALITY ISSUES IN SPORTS

The second subchapter provides a brief historical overview of personality research theories. Opinions of leading world and European researchers in the field of sports psychology are presented and analyzed, outlining different approaches in the study of personality.

I.2.1. Personality theories and leading research approaches

The 1930s are considered as the beginning of modern personality theory, marked by what Howard and colleagues described as "a formal turning point." Three prominent scientists—Gordon Allport, Kurt Lewin, and Henry Murray—had a major influence on him. Friedman and Shustak note that Allport, Levin, Murray, and their collaborators established the foundation for the modern

understanding of personality, emphasizing that research should focus on the whole person rather than in isolated traits and components. (Friedman, Shustak, 2013).

This section reviews the most influential personality theories related to the researched problem.

The trait perspective, as noted by Jarvis (2006), assumes that an individual's personality depends on their genetics, or traits inherited from their parents. In contrast, social learning theory opposes this view. The “common traits” approach, focuses on the relationship between personality – broadly defined – and sport preferences, physical activity and sport performance (Eysenck et al., 1982; Gee, 2010; Woodman et al., 2010; Allen et al., 2013; Allen, Laborde, 2014).

Research examining the direct relationship between personality and sport preferences finds that individuals with higher levels of arousal, desire for strong feelings, extroversion, openness to experience, and/or emotional stability are more likely to engage in and participate in risky activities and sports such as mountaineering, mountain climbing, motorcycling and diving (Svebak, Kerr, 1989; Jack, Ronan, 1998; Янчева, Панайотов, 2002; Янчева, 2004; Tok, 2011 etc.).

The “contextual trait approach”, focuses on the traits that people display in the context of sport. Representatives of this approach pay attention to specific personality traits that appear during sports activities, such as sports anxiety (Smith et al., 2006), mental toughness (Gucciardi, 2012), resilience (Sarkar, Fletcher, 2014), aggression (Maxwell). , Moores, 2007), perfectionism (

I.2.2. Studies of personality in sports

Researchers in the field of sports psychology have always been interested in the question of whether personality traits can be used as predictors of sports performance. Ogilvie and Tutko (1966) made the first attempts to use personality differences to identify successful athletes. They found that high-performance athletes differed in eleven personality traits: aggressiveness, ability to coach others, dominance, conscientiousness, consistency, persistence, vigor, emotional differentiation, mental toughness, and trust.

I. 2.3. Personality traits of elite athletes

This section of the dissertation summarizes the personality characteristics of elite athletes identified in the research of global, European and Bulgarian scientists, along with the findings from the latest studies in the sports psychology literature.

I.2.4. Psychological Skills

General psychological skills include goal setting, imagination, self-talk, emotional control, relaxation, automaticity, activation, and attentional control (Röthlin et al., 2020; Feddersen et al., 2020; Thomas, Over, 1994). Several authors argue that psychological skills are important for achieving optimal sports performance (Hardy et al., 1996; Савчева, 2023), and the benefits of psychological skills training have been widely reported (Vealey, 2007; Weinberg, Gould, 2007).

I.2.5. Mental Toughness

Mental toughness is defined as a psychological resource that allows a person to maintain or improve performance in difficult situations (Yankov et al., 2019; Bird et al., 2020). According to other definitions, mental toughness has a multifaceted structure that enables the continuous pursuit of functional excellence regardless of type (intrinsic or extrinsic), direction (positive or negative), degree (mild, or severe) and demands (McGeown et al., 2016; Manley et al., 2019).

I.2.6. Mindfulness

Mindfulness is defined as the conscious, non-judgmental focus in the present moment and a particular experience (Kabat-Zinn, 2003). It is also described as the ability to transition into the state of awareness, focus, and acceptance of present experiences (White, 2014). Mindfulness can also be conceptualized as a dispositional trait, referred to as dispositional mindfulness, and is regarded as a personality trait (Birrer et al., 2012; Medvedev et al., 2018) that can be improved through regular training (Mehrsafar et al., 2019; Nien et al., 2020; Röthlin et al., 2020).

I.3. Self-efficacy and model of career self-management

The Career Self-Management Model (CSM) focuses on the dynamic interplay between social cognition, environmental characteristics, and personality traits that promote or inhibit adaptive behavior, such as the career planning process, which this dissertation explores. Efficacy refers to an individual's belief in his or her ability to perform a specific task or behavior necessary to achieve a desired outcome (Bandura, 1986). Within the Career Self-Management Model (CSM), self-efficacy refers to “the perceived ability to cope with specific tasks necessary to prepare for, initiate, adapt to, or change career paths” (Lent, Brown, 2013).

I.4. Methods and results of personality research adapted for Latvia

I.4.1. Latvian Personality Questionnaire (LPA-v3).

In this section, the theoretical foundations of Latvian Personality Assessment questionnaire (LPA-v3) are presented, along with a comparison of its internal structure to that of two established personality questionnaires: the NEO Personality Inventory-Revised (NEO-PI-R) and the HEXACO Personality Inventory (HEXACO-PI). In the process of developing the Latvian Personality Assessment questionnaire, two taxonomies of personality traits were employed as a theoretical model: the five-factor model of personality traits (Five Factor Model, FFM; Costa, McCrae, 1992) and the six-factor model of personality traits (HEXACO) (Lee & Ashton, 2004). The internal structure model of the LPA-v3, derived from the factor analysis of the obtained results, partly aligns with the structure of both the NEO-PI-R and the HEXACO-PI questionnaires. However, in terms of content, it is more consistent with the model proposed by Lee and Ashton (Lee, Ashton, 2004). Nevertheless, the interpretation of certain LPA-v3 factors is more closely related to the five-factor personality model proposed by Costa and McCrae (Costa, McCrae, 1992).

I.4.2. Tests adapted in Latvia for studying psychological skills, mental toughness, and self-efficacy

I.4.2.1. Psychological Skills Inventory for Sports (PSIS-R5).

The Psychological Skills Test is widely used in sports to assess athletes' psychological skills and is amongst the most popular tools for measuring mental skills related to athletic performance. It was the first test designed to assess psychological skills from a multifaceted perspective, when Mahoney, Gabriel, and Perkins developed the PSIS in 1987 to assess mental skills of elite athletes (Mahoney, et al., 1987). The adaptation of this PSIS-R5 in Latvia took place in 1997, when Latvian researchers conducted a cross-cultural test adaptation study under the leadership of Professor K. Mahoney (Fernāte, 2008).

Mahoney (1998) found that elite athletes had clear goals for each day, less anxiety, higher self-confidence, higher motivation, and better control strategies. The test is suitable for determining psychological abilities of athletes of various levels.

I.4.2.2. Alternative version of the questionnaire on psychological effectiveness in sport (PPI-A).

Research shows that psychological efficiency influences athletes' performance during competitions (Gucciardi et al., 2009). The alternative version of the psychological effectiveness in sport (PPI-A) adapted to the Latvian language also includes a 4-factor model, encompassing determination, confidence, positive cognition and visualization, which is equivalent to the original version of the questionnaire.

I.4.2.3. Sports Mental Toughness Questionnaire (SMTQ).

The Latvian version of the Sports Mental Toughness Questionnaire (SMTQ) (Sheard, et al., 2009) also includes a 3-factor model, encompassing confidence, perseverance and control, which is also equivalent to the original Sheard's version of the questionnaire.

Both PPI-A (Golby, et al., 2007) and SMTQ (Sheard, et al., 2009) questionnaires were used to determine the level of psychological efficiency and mental toughness of Latvian athletes.

I.4.2.4. General Self-Efficacy Scale (GSE)

The General Self-Efficacy Scale (GSE) (Schwarzer, Jerusalem, 1995) examines perceptions of self-efficacy that facilitate goal setting, effort, persistence in overcoming obstacles, and recovery from setbacks.

The SECOND CHAPTER of the dissertation describes the research methodology, including the hypothesis, purpose, tasks, research object, subject, and the overall organization of the research.

II.1. Hypothesis

The theoretical analysis, combined with our practical observations, leads us to hypothesize that certain differences exist in the personality profiles of Latvian athletes, depending on factors such as the stage and type of their sports career, qualification level, and gender.

Thus, our hypotheses are related to the following assumptions:

- Athletes who gradually improve their performance over the course of their career and achieve peak success towards the end of their career will have higher mental toughness in sports, greater general self-efficacy, and relatively higher levels of openness to experience and extraversion.
- Athletes who have rapidly achieved success in their career are characterized by high levels of conscientiousness, self-discipline and dedication, as well as relatively higher overall psychological effectiveness in sports.

II.2. The purpose of the study

The purpose of this study is to investigate the relationship between the acquired psychological characteristics and skills of Latvian elite athletes, based on the theoretical analysis and their sports careers. Additionally, the study aims to identify possible differences related to the stages of the sports career as well as factors such as the level of qualifications, defined by the highest athletic achievements, age, and gender.

Tasks of the research

Tasks are:

1. To study, on the basis of theoretical analysis, the acquired mental qualities and skills of Latvian athletes engaged in different types of sports and possessing different types of sports careers.
2. To determine possible differences depending on the type of sports career, gender and qualification level.
3. To study the interrelationships of the studied indicators.
4. To reveal the influence of the studied indicators on athletes' sports careers.

II.3. Subject and object of the research

The subject of the study is the personality characteristics, mental toughness, self-efficacy and psychological skills of Latvian athletes at different stages and levels of their sports career, age and qualification level.

The object of the study is 109 elite athletes, both national and international level, aged 17 to 40, representing 19 different sports. Of them, 71 were males and 38 were females (*Table 1*).

Table 1. Number of persons included in the study by type of sport.

| A type of sport | Males | | Females | |
|-----------------------------|-------|---------|---------|---------|
| | n=71 | Age | n=38 | Age |
| Basketball | 4 | 25 – 34 | 11 | 18 – 31 |
| Beach Volleyball | 7 | 21 – 36 | 5 | 23 – 31 |
| Biathlon | 1 | 33 | 0 | - |
| Bobsleigh | 14 | 22 – 37 | 0 | - |
| Canoe | 1 | 22 | 0 | - |
| Cycling | 3 | 26 – 34 | 0 | - |
| Football | 4 | 22 – 29 | 0 | - |
| Freestyle wrestling | 0 | - | 1 | 31 |
| Judo | 1 | 31 | 0 | - |
| Kayaking | 7 | 19 – 35 | 2 | 17 - 18 |
| Luge | 5 | 19 – 25 | 4 | 21 - 25 |
| Modern pentathlon | 1 | 26 | 0 | - |
| Rugby | 1 | 23 | 0 | - |
| Sports shooting | 0 | - | 1 | 23 |
| Skeleton | 2 | 37 – 40 | 0 | - |
| Speed roller skating | 1 | 23 | 0 | - |
| Tennis | 0 | - | 2 | 22, 24 |
| Athletics | 16 | 17 – 35 | 11 | 20 - 34 |
| Volleyball | 3 | 23 – 34 | 1 | 19 |

For the purposes of the study, the objects were divided into groups based on the following criteria:

1) the stage of their sports career, categorized by age:

- Athletes at the beginning of their sports career (aged 17 to 20) – 12 athletes;
- Athletes at the mastery level of their sports career (aged 21 to 30) – 67 athletes;
- Athletes with a long career (aged 31 and over) – 30 athletes (Table 2).

Table 2. Distribution of the examined persons in groups by age.

| Age | Males | Females | Total |
|--------------------|-------|---------|-------|
| | n=71 | n=38 | n=109 |
| 17 to 20 | 6 | 6 | 12 |
| 21 to 30 | 43 | 24 | 67 |
| 31 and over | 22 | 8 | 30 |

2) the development course of their sports career, categorized by achievements:

- "Fast career" marked by an initial rise followed by a decline, with the best results achieved at a young age – 33 athletes;
- "Flat career" exhibiting a stagnant pattern, with the best results achieved at the national level – 27 athletes;
- "Gradually ascending career" marked by a long-term success, with the best results achieved at Olympic and world championship level – 49 athletes (*Table 3*).

Table 3. Distribution of the examined persons in groups depending on achievements.

| Qualification level | Males | Females | Total |
|---|-------|---------|-------|
| | n=71 | n=38 | n=109 |
| Highest career results achieved at the youth and junior world and European championships | 17 | 16 | 33 |
| Best career results achieved at national level | 17 | 10 | 27 |
| Best career results achieved at Olympic Games and world championships | 22 | 37 | 49 |

II.4. Research methodology

To achieve the purpose and tasks of the research, we applied a complex methodology which includes:

II.4.1. Latvian Personality Survey (LPA-v3) (Perepjolkina et al., 2011).

The questionnaire consists of 100 statements grouped into six scales: Neuroticism, Extraversion, Openness to Experience, Favorability, Conscientiousness, Honesty and Modesty. Each scale has 4 subscales with 4 items. An additional four statements were included to form a Lie scale, which assesses the tendency to give socially desirable answers.

A 5-point Likert-type scale is used to evaluate each item (from 1 - "does not apply to me" to 5 - "applies to me completely"). Initial results at the subscale level can range from 4 to 20 points, and at the personality factor level - from 16 to 80 points.

II.4.2. Sports Mental Toughness Questionnaire (SMTQ) (Sheard et al., 2009), adapted to Latvian conditions by Astaficevs et al. (Astaficevs et al., 2020).

The Sports Mental Toughness Research Questionnaire includes 14 items divided into three scales: Confidence, Constancy and Control.

II.4.3. Psychological Performance Inventory Alternative version (PPI-A; Golby et al., 2007), adapted to Latvian conditions by Astaficevs et al. (Astaficevs et al., 2020).

The alternative version of the Psychological Efficacy Survey (PPI-A) (Golby et al., 2007) is a revised version of Lehr's original version (1986). Golby et al. (2007) used factor analysis of the original Psychological Efficacy Questionnaire to identify four factors and confirm the existence of a general psychological resilience factor. The questionnaire consists of 14 points combined in four scales: Determination, Self-Belief, Positive Cognition, Visualization.

Responses were rated on a 5-point Likert-type scale, with values ranging from 1 to 5, where 1 indicates "almost never" and 5 signifies "almost always."

II.4.4. General Self-Efficacy Scale (GSE) (Schwarzer, Jerusalem, 1995), adapted to Latvian conditions by Astaficevs et al. (Astaficevs et.al., 2020).

The General Self-Efficacy Survey (GSE) scale (Schwarzer & Jerusalem, 1995) consists of 10 statements designed to measure one's beliefs about one's abilities and coping skills when faced with difficult life situations. When evaluating the answers, a Likert-type scale is used, with values ranging from 1 to 4, where 1 indicates "completely disagree" and 4 signifies "completely agree".

II.4.5. Psychological Skills in Sports Questionnaire (PSIS-R5) (Mahoney (1989), adapted to Latvian conditions by Fernāte (Fernāte, 2008).

The questionnaire included 45 questions, grouped into 6 scales applicable to sports: Anxiety Management (10 questions), Concentration (6 questions), Self-Confidence (9 questions), Motivation (7 questions), Mental Preparation (6 questions) and Team Emphasis (7 questions) (Mahoney, 1989). A 5-point Likert-type scale is used for evaluation.

II.5. Organization of the research

The study was conducted between March 2018 and April 2022 and consisted of four stages.

In the first stage (March 2018 - March 2019), literary sources related to the dissertation were reviewed. A theoretical analysis was conducted, which served as the foundation for formulating the initial hypothesis of the study. Information was collected, and a database was created for tests adapted to Latvian conditions for studying athletes. A pilot study was conducted using the selected tests to assess athletes' psychological skills and determine the type of primary motivation among other factors. The statistical analysis of the obtained results was conducted, and scientific reports were prepared. The research findings were presented at scientific conferences and congresses, and potential directions for further research on the topic were defined.

In the second stage (April 2019, April 2021), criteria for the inclusion of study participants were defined. The methods for the research were selected and the rationale for their choice was provided. Meanwhile, review and analysis of the scientific literature on the topic continued, and guidelines and deadlines for further research were established.

In the third stage (November 2021 - September 2023), the pilot study was completed. Statistical analysis and interpretation of the data obtained in the study were conducted, and presentation materials were prepared to showcase the results and conclusions.

During the fourth stage (October 2023 - May 2024), the complete dissertation was written and presented for discussion to the Department of Psychology, Pedagogy and Sociology.

The THIRD CHAPTER of the dissertation describes analysis and interpretation of results of the study

III. ANALYSIS AND INTERPRETATION OF RESULTS

The results obtained in the analysis of variance were initially analyzed separately for each research method employed in the study.

III.1. Analysis of the study results on personality traits

For testing personality traits, the Latvian Personality Research Questionnaire (LPA-v3; Perepjolkina et al., 2011) was employed. The results from the analysis of variance revealed that the highest values were found for the conscientiousness factor ($M = 58.35$; $SD \pm 8.4$) (*Table 4*).

Table 4. Results from the variation analysis of the data from LPA-v3.

| Factors | N | M | SD | Min | Max |
|-------------------------------|----------|----------|-----------|------------|------------|
| Lie | 109 | 54.3 | 9.3 | 32 | 75 |
| Neuroticism | 109 | 42.81 | 7.3 | 27 | 70 |
| Extraversion | 109 | 52.62 | 8.4 | 31 | 74 |
| Openness to Experience | 109 | 44.35 | 10.09 | 16 | 71 |
| Conscientiousness | 109 | 58.35 | 8.44 | 32 | 74 |
| Favorability | 109 | 52.71 | 9.84 | 26 | 71 |
| Honesty and Modesty | 109 | 55.89 | 7.65 | 35 | 72 |

The studied athletes rated the honesty and modesty factor highly $M = 55.89$; $SD \pm 7.7$. The lowest scores were obtained on the neuroticism factor $M = 42.81$; $SD \pm 7.3$. The studied athletes also gave relatively low ratings of openness to experience $M = 44.45$; $SD \pm 10.1$.

The results of the comparative data analysis of the LPA-v3 questionnaire on the gender factor show that females are more likely to give socially desirable answers than males, with the Lie scales $M = 58.50$; $SD \pm 8.5$ and $M = 52.87$; $SD \pm 9.1$ for females and males respectively (*Table 5*).

One of the research tasks was to investigate the personality characteristics of athletes with different types of sports careers according to the highest achieved result.

The first group includes athletes with a "fast career". The athlete's best result at the European or world level was achieved at the youth or junior age.

The second group comprises athletes with a so-called "flat career", who achieved their best results at the national level.

Table 5. Results of analysis of variance of personal factors by gender.

| Factors | Males | | | Females | | |
|-------------------------------|-------|-------|-------|---------|-------|-------|
| | N | M | SD | N | M | SD |
| Lie | 71 | 52.87 | 9.18 | 38 | 58.50 | 8.47 |
| Neuroticism | 71 | 42.25 | 6.78 | 38 | 43.84 | 8.19 |
| Extraversion | 71 | 53.14 | 9.26 | 38 | 51.66 | 6.50 |
| Openness to Experience | 71 | 43.68 | 9.67 | 38 | 45.61 | 10.84 |
| Conscientiousness | 71 | 57.72 | 9.06 | 38 | 59.53 | 7.10 |
| Favorability | 71 | 51.85 | 10.15 | 38 | 54.32 | 9.12 |
| Honesty and Modesty | 71 | 55.54 | 8.34 | 38 | 56.55 | 6.21 |

The third group consists of athletes with a so-called "gradually ascending career," who achieve their best result, an award-winning position, at the Olympic Games, European championships, or World championships. The result is achieved gradually, peaking in the second half of the career or at the end (H.Стамбулова, 2013).

Table 6. Results of data variation analysis in groups with different career development courses.

| Factors | First group | | | Second group | | | Third group | | |
|-------------------------------|-------------|-------|-------|--------------|-------|------|-------------|-------|-------|
| | N | M | SD | N | M | SD | N | M | SD |
| Lie | 33 | 56.18 | 10.31 | 27 | 54.78 | 7.33 | 49 | 53.96 | 9.62 |
| Neuroticism | 33 | 42.97 | 8.10 | 27 | 43.85 | 8.57 | 49 | 42.12 | 5.94 |
| Extraversion | 33 | 50.33 | 8.59 | 27 | 51.56 | 7.74 | 49 | 54.76 | 8.26 |
| Openness to Experience | 33 | 44.21 | 9.92 | 27 | 43.15 | 7.93 | 49 | 45.10 | 11.31 |
| Conscientiousness | 33 | 59.12 | 10.97 | 27 | 58.70 | 6.65 | 49 | 57.63 | 7.42 |
| Favorability | 33 | 54.24 | 10.07 | 27 | 51.89 | 9.51 | 49 | 52.12 | 9.94 |
| Honesty and Modesty | 33 | 57.15 | 5.51 | 27 | 54.26 | 9.11 | 49 | 55.94 | 8.00 |

The analysis of the results according to the career course reveals that the conscientiousness personality factor has the highest values across all groups, while the neuroticism factor shows the lowest values among the studied athletes (*Fig. 1*).

Athletes in the "fast career" group show the highest average values on the conscientiousness factor $M = 59.12$; $SD \pm 11$. In the "flat career" group, this indicator has lower values $M = 58.7$;

SD ± 6.66 , while athletes in the “gradually ascending career” group show the lowest values on the conscientiousness factor $M = 57.63$; SD ± 7.42 (Table 6).

The second aspect of the research focuses on studying personality characteristics of athletes at different stages of their sports careers, categorized by the athletes’ age.

The first group includes athletes "at the beginning of their career," aged 17 to 20.

The second group includes athletes in the stage of "career development and mastery," aged 21 to 30.

The third group includes athletes in the "long career" stage, aged 31 to 40 (Wylleman, Lavalée, 2004). The results obtained in the study are shown in figure 2.

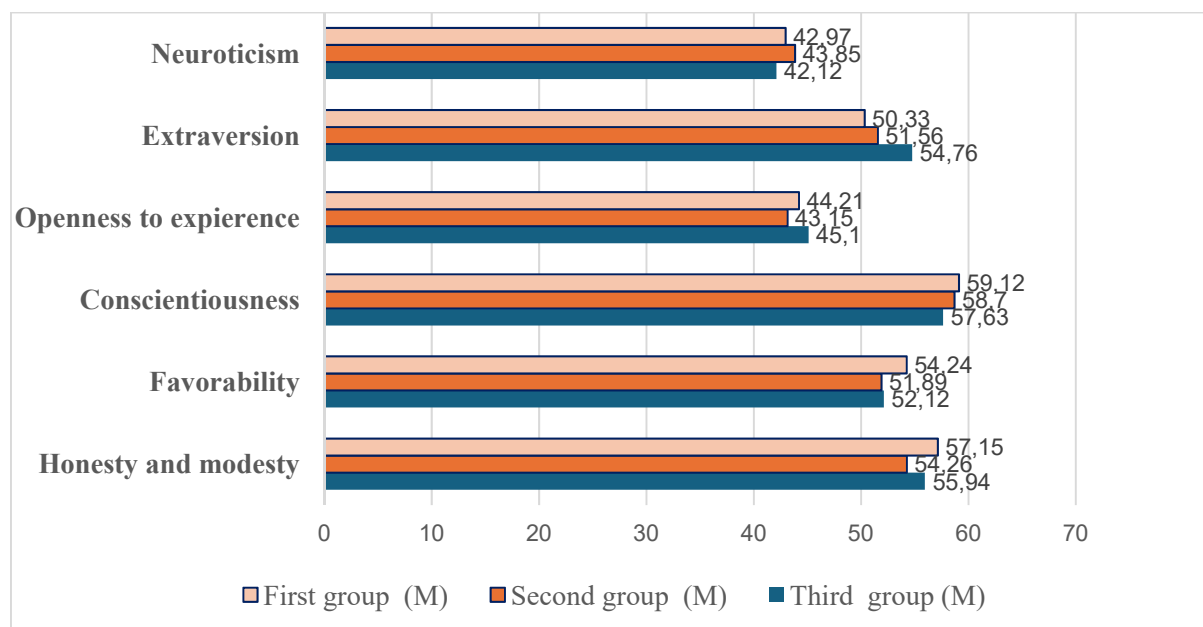


Figure 1. Distribution of mean values for three groups of athletes with different career development courses, from LPA-v3.

All groups have the highest results on the consciousness personality factor: the first group at $M = 57.58$; SD ± 10.6 ; the second group at $M = 57.28$; SD ± 8.8 and the third group at $M = 58.8$; SD ± 6.8 .

Table 7. Results of variance analysis of personality factors for three career groups by age, from LPA-v3.

| Factors | First group | | | Second group | | | Third group | | |
|-------------------------------|-------------|-------|-------|--------------|-------|------|-------------|-------|-------|
| | N | M | SD | N | M | SD | N | M | SD |
| Neuroticism | 12 | 43.92 | 6.33 | 67 | 42.25 | 7.01 | 30 | 43.60 | 8.33 |
| Extraversion | 12 | 51.25 | 9.13 | 67 | 52.49 | 7.95 | 30 | 53.47 | 9.26 |
| Openness to Experience | 12 | 42.25 | 8.60 | 67 | 43.81 | 8.86 | 30 | 46.40 | 12.87 |
| Conscientiousness | 12 | 57.58 | 10.55 | 67 | 58.28 | 8.80 | 30 | 58.80 | 6.80 |
| Favorability | 12 | 52.67 | 8.93 | 67 | 53.49 | 9.74 | 30 | 50.97 | 10.47 |
| Honesty and Modesty | 12 | 54.33 | 6.37 | 67 | 56.84 | 7.23 | 30 | 54.40 | 8.86 |

Athletes of the second and third groups have the lowest results on the neuroticism factor $M=42.25$; $SD \pm 7$ and $M = 43.6$; $SD \pm 8.3$, while the first group shows the lowest result on the Openness to Experience factor $M = 42.25$; $SD \pm 8.6$ (Table 7).

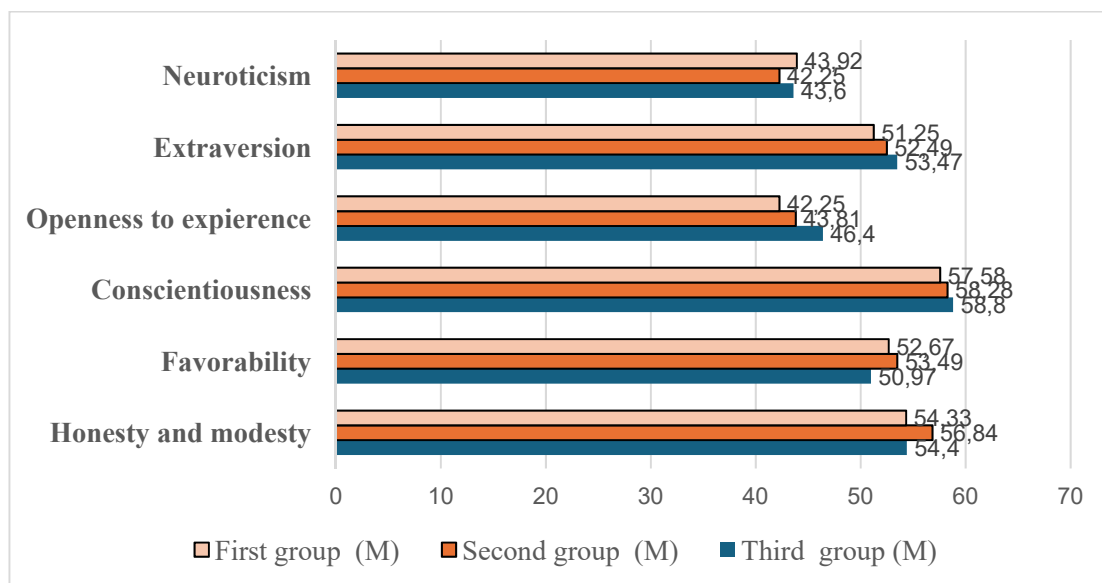


Figure 2. Distribution of mean values for three sports career groups by age from LPA-v3

III.2. Analysis of research results on psychological skills

For the study of psychological skills, we used the sport-specific test PSIS-R5 (Mahoney, 1989), which is the Latvian version of the adaptation for the study of psychological skills in sports.

The descriptive statistics revealed that the mean value for all six psychological skills across all participants was $M = 64.95$; $SD \pm 8.4$. In comparison, the mean value in the initial study was lower, at $M = 59.3$; $SD \pm 9.2$ (Mahoney, M. et al., 1987).

The motivation scale demonstrates the highest values $M = 71.26$; $SD \pm 13.4$, followed by self-confidence $M = 67.26$; $SD \pm 15.9$ and concentration skills scale $M = 66.40$; $SD \pm 15.65$. The mental preparation $M = 56.84$; $SD \pm 13.2$ and anxiety control scales $M = 61.72$; $SD \pm 13$ show the lowest values (*Table 8*).

Our results are close to those obtained by Mahoney et al. (Mahoney, M. et al., 1987). Although the numerical values of the current study differ from those reported by Mahoney et al., a consistent similar trend and overlap can be observed when comparing the results for each test scale separately. In both studies the highest scores were obtained on the Motivation and Self-Confidence scales, and the lowest scores on the mental preparation scale.

Table 8. Results of variance analysis for PSIS-R5 data.

| Parameters | N | M | SD | Min | Max |
|---------------------------|-----|-------|-------|------|-------|
| Anxiety control | 109 | 61.72 | 12.98 | 17.5 | 90.0 |
| Concentration | 109 | 66.40 | 15.65 | 20.8 | 95.8 |
| Self-confidence | 109 | 67.26 | 15.93 | 22.2 | 97.2 |
| Mental preparation | 109 | 56.84 | 13.16 | 25.0 | 91.7 |
| Motivation | 109 | 71.26 | 13.44 | 35.7 | 100.0 |
| Team emphasis | 109 | 66.22 | 11.74 | 32.1 | 92.9 |
| Mean value | 109 | 64.95 | 8.40 | 40.1 | 83.6 |

Comparing the results obtained for males and females in the PSIS-R5 test, it can be observed that males score higher than females in the self-assessment of all psychological skills (*Table 9*).

Table 9. Distribution of means and standard deviations for females and males on the PSIS-R5.

| Parameters | Males | | | Females | | |
|---------------------------|-------|-------|-------|---------|-------|-------|
| | N | M | SD | N | M | SD |
| Anxiety control | 71 | 64.65 | 11.06 | 38 | 56.25 | 14.60 |
| Concentration | 71 | 69.42 | 12.78 | 38 | 60.74 | 18.85 |
| Self-confidence | 71 | 70.78 | 13.94 | 38 | 60.68 | 17.46 |
| Mental preparation | 71 | 56.98 | 13.04 | 38 | 56.57 | 13.55 |
| Motivation | 71 | 73.34 | 13.03 | 38 | 67.39 | 13.50 |
| Team emphasis | 71 | 66.40 | 11.58 | 38 | 65.88 | 12.17 |
| Mean value | 71 | 66.93 | 7.28 | 38 | 61.26 | 9.17 |

The average scores ranged from $M = 56.98$; $SD \pm 13.0$ (mental preparation) to $M = 73.34$; $SD \pm 13.0$ (motivation) in male athletes, and from $M = 56.25$; $SD \pm 14.6$ (anxiety control) to $M = 67.39$ $SD \pm 13.5$ (motivation) in female athletes. The overall mean score for all psychological skills was $M = 66.93$; $SD \pm 7.3$ for males, and $M = 61.26$; $SD \pm 9.2$ for females (*Table 9*).

Male athletes generally rated their psychological skills higher. In our study, higher average values were observed compared to those reported in the original study, ranging from $M = 59.3$; $SD \pm 9.2$ to $M = 60$; $SD \pm 11.9$ (Mahoney, M. et al., 1987). These findings align with other previous studies, which also showed that male athletes tend to score relatively higher than female athletes, with $M = 72.1$ for males and $M = 69.1$ for females (Meyer et al., 1996).

The results of comparative analysis by gender revealed statistically significant differences in four of the psychological skills studied, i.e. anxiety control, concentration, self-confidence and motivation. All results demonstrated significantly higher values in males (*Table 10*).

Table 10. Results of the comparative analysis on the gender factor

| | AC | Concentration | Self-Confidence | MP | Motivation | TE |
|------------------|-------|---------------|-----------------|------|------------|------|
| Kruskal-Wallis H | 7,994 | 4,882 | 6,211 | ,124 | 4,927 | ,012 |
| Df | 1 | 1 | 1 | 1 | 1 | 1 |
| Asymp. Sig. | ,005 | ,027 | ,013 | ,725 | ,026 | ,913 |

a. Kruskal Wallis Test

The results of variance analysis for groups with differing career development course revealed that the overall average value of psychological skills was highest in the first, “fast career,” group $M = 65.45$; $SD \pm 8.4$, which included athletes who achieved their best sports results at the youth and junior levels (*Fig. 3*).

Similar values were observed among the athletes in the third, "gradually ascending career," group, $M = 65.21$; $SD \pm 6.6$. The lowest values for mean value of all psychological skills were found in the second, "flat career," group $M = 63.86$; $SD \pm 11.1$.

The results of the study on psychological skills show that the first, “fast career”, group has the highest scores in both motivation $M = 70.57$; $SD \pm 13.9$ and self-confidence $M = 68.19$; $SD \pm 15.8$ scales. The skills related to anxiety control are the least developed $M = 60.30$; $SD \pm 12.8$.

The second, “flat career”, group scored the highest values in motivation $M = 73.94$; $SD \pm 13.4$ and team emphasis $M = 69.05$; $SD \pm 11.5$ scales, while mental preparation showed the lowest values $M = 50.0$; $SD \pm 10.0$.

Table 11. The results of the variance analysis for three groups with different career courses in the PSIS-R5.

| Parameters | First group | | | Second group | | | Third group | | |
|--------------------|-------------|-------|-------|--------------|-------|-------|-------------|-------|-------|
| | N | M | SD | N | M | SD | N | M | SD |
| Anxiety control | 33 | 60.30 | 12.79 | 27 | 60.00 | 16.04 | 49 | 63.62 | 11.13 |
| Concentration | 33 | 67.93 | 16.09 | 27 | 65.58 | 15.91 | 49 | 65.81 | 15.45 |
| Self-confidence | 33 | 68.19 | 15.79 | 27 | 64.61 | 19.77 | 49 | 68.09 | 13.71 |
| Mental preparation | 33 | 60.73 | 13.17 | 27 | 50.00 | 10.00 | 49 | 57.99 | 13.47 |
| Motivation | 33 | 70.57 | 13.92 | 27 | 73.94 | 13.40 | 49 | 70.26 | 13.21 |
| Team emphasis | 33 | 65.04 | 13.83 | 27 | 69.05 | 11.47 | 49 | 65.46 | 10.25 |
| Mean value | 33 | 65.45 | 8.42 | 27 | 63.86 | 11.13 | 49 | 65.21 | 6.59 |

The third, “gradually ascending career”, group scored the highest values in the motivation scale $M = 70.26$; $SD \pm 13.2$, followed by self-confidence scale $M = 68.08$; $SD \pm 13.7$, while skills related to mental preparation were the least valued $M = 57.99$; $SD \pm 13.5$ (Table 11).

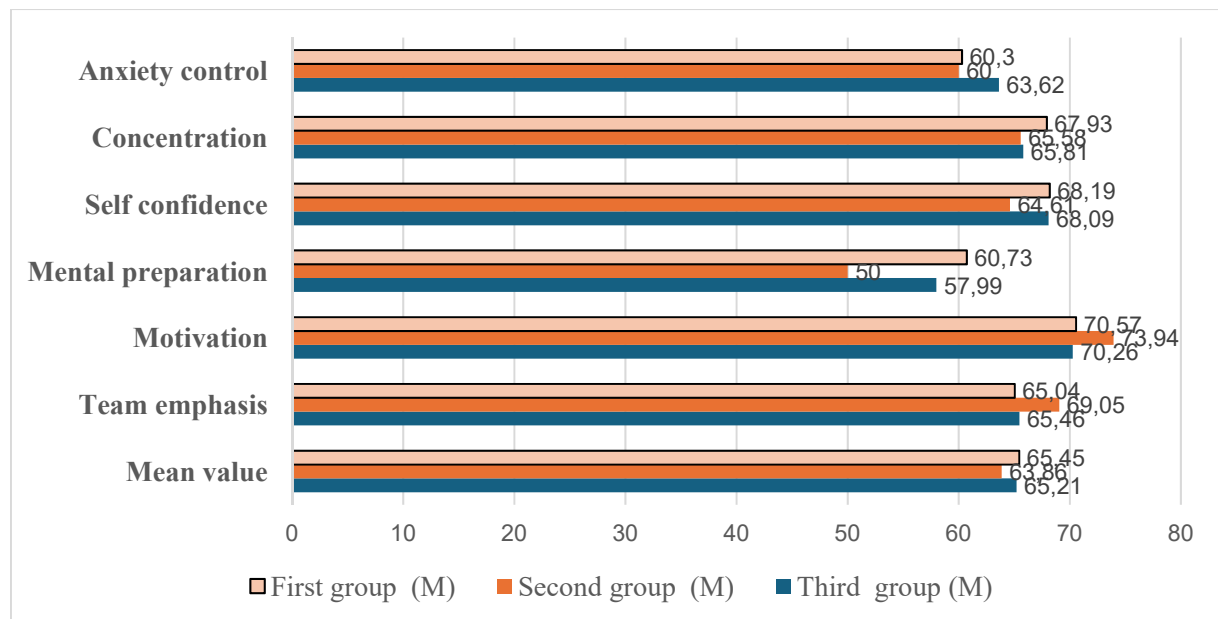


Figure 3. Distribution of mean values for three groups by career development course from PSIS-R5.

The second approach to analyzing the results is by the stage of the sports career, depending on the athlete's age. The first group consists of athletes aged 17-20, who are at the "beginning of

their career". The second group includes athletes aged 21-30, who are at the "career development and mastery" stage. The third group comprises athletes aged 31-40, who are in the "long career" stage (Wylleman, Lavallee, 2004). The results obtained in the study are shown in figure 4.

The analysis of the average values for each group revealed that athletes in the second and third groups exhibited similar results, with $M = 65.07$; $SD \pm 8.2$ and $M = 65.04$; $SD \pm 8.6$. Relatively lower values were found in the first group $M = 64.07$; $SD \pm 9.5$.

Table 12. Results from the variation analysis of the data from PSIS-R5 for different career groups by age.

| Parameters | First group | | | Second group | | | Third group | | |
|---------------------------|-------------|-------|-------|--------------|-------|-------|-------------|-------|-------|
| | N | M | SD | N | M | SD | N | M | SD |
| Anxiety control | 12 | 54.58 | 15,22 | 67 | 61.60 | 12.35 | 30 | 64.83 | 12,71 |
| Concentration | 12 | 64.59 | 13.82 | 67 | 66.85 | 16.52 | 30 | 66.11 | 14,71 |
| Self-confidence | 12 | 66.91 | 18.44 | 67 | 67.17 | 15.50 | 30 | 67.59 | 16,41 |
| Mental preparation | 12 | 57.63 | 13.38 | 67 | 57.09 | 13.04 | 30 | 55.96 | 13,74 |
| Motivation | 12 | 75.89 | 10.77 | 67 | 71.48 | 14.59 | 30 | 68.92 | 11,38 |
| Team emphasis | 12 | 64.88 | 7.62 | 67 | 66.20 | 12.27 | 30 | 66.79 | 12,13 |
| Mean value | 12 | 64.07 | 9.49 | 67 | 65.07 | 8.21 | 30 | 65.04 | 8,65 |

The second group rated the following skills above the mean value: motivation $M = 71.48$; $SD \pm 14.6$, self-confidence $M = 67.17$; $SD \pm 15.5$, concentration $M = 66.85$; $SD \pm 16.5$, team emphasis $M = 66.20$; $SD \pm 12.3$, while anxiety control skills $M = 61.6$; $SD \pm 12.3$ and mental preparation $M = 57.09$; $SD \pm 13.0$ were rated below average.

The third group rated the following skills above the overall average: motivation $M = 68.92$; $SD \pm 11.4$, self-confidence $M = 67.59$; $SD \pm 16.4$, team emphasis $M = 66.79$; $SD \pm 12.1$ and concentration $M = 66.11$; $SD \pm 14.7$. Meanwhile, anxiety control $M = 64.83$; $SD \pm 12.7$ and mental preparation $M = 55.96$; $SD \pm 13.7$ were below the overall mean.

The first group (athletes who are at the beginning of their career at the time of the study) showed the highest score in the motivation scale $M = 75.89$; $SD \pm 10.8$) and the self-confidence scale $M = 66.91$; $SD \pm 18.4$. Concentration $M = 64.59$; $SD \pm 13.8$ and team emphasis $M = 64.88$; $SD \pm 7.6$ were slightly below the overall mean. The skill to control anxiety $M = 54.58$; $SD \pm 15.2$ was the least rated skill in this group, and mental preparation was also low at $M = 57.63$; $SD \pm 13.4$ (Table 12).

The results indicate a strong desire to participate in the chosen sport and willingness to take action to achieve high results, but also insufficient athletic maturity and insufficiently developed skills necessary to manage stress and anxiety.

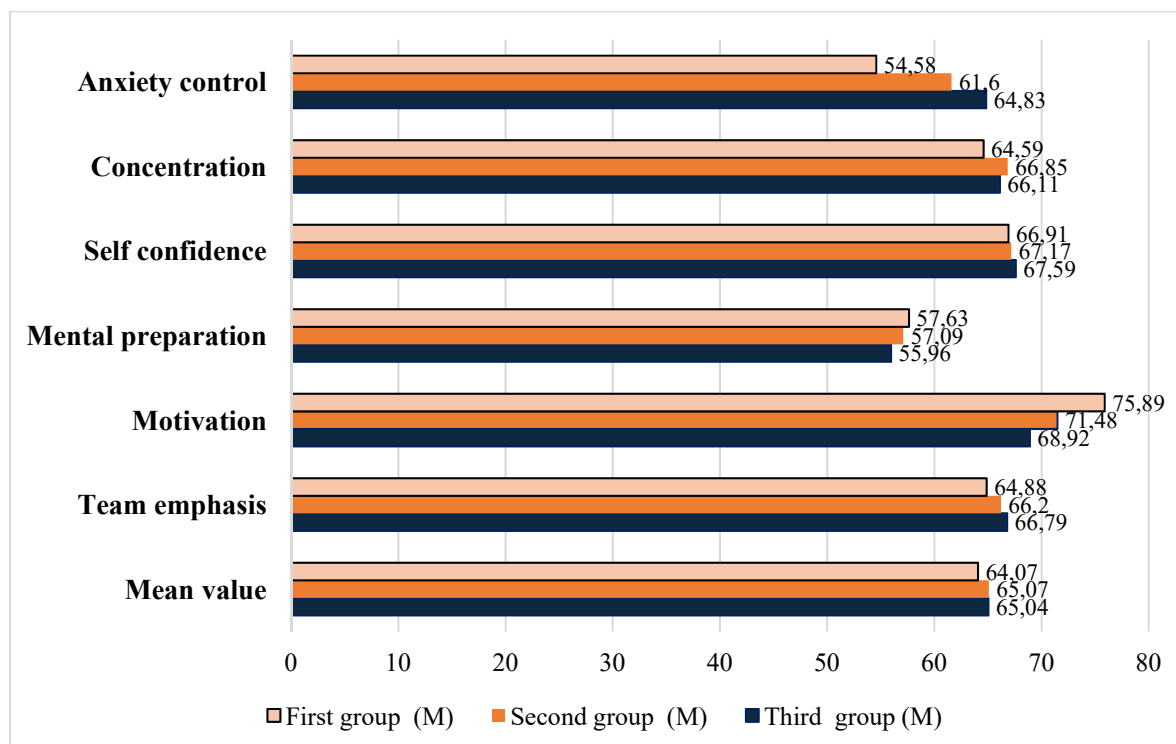


Figure 4. Distribution of mean values from PSIS-R5 for three sports career groups by age.

III.3. The analysis of the results from psychological effectiveness studies

The results of the descriptive statistics of the PPI-A questionnaire were similar to those of the original study (Golby et al., 2007). In our study, the highest scores were observed in the positive cognition scale $M=15.94$; $SD\pm 2.3$, while the lowest scores were found in the visualization scale $M=10.96$; $SD\pm 2.5$ (Table 13). This trend was also evident in the original study (Golby et al., 2007).

Table 13. Results of the analysis of variance of PPI-A scales data.

| Parameters | N | M | SD | Min | Max |
|---------------------------|-----|-------|------|------|------|
| Determination | 109 | 12.45 | 1.78 | 8.0 | 15.0 |
| Self-belief | 109 | 12.42 | 1.35 | 9.0 | 16.0 |
| Positive cognition | 109 | 15.94 | 2.31 | 9,0 | 20.0 |
| Visualization | 109 | 10.96 | 2.54 | 3.0 | 15.0 |
| Total | 109 | 51.78 | 5.28 | 39.0 | 63.0 |

The most significant deviation between our study and the original study was observed in the self-belief scale. In the original study the mean score was $M=15.9$; $SD\pm 2.2$, whereas in our study the mean score was $M=12.42$; $SD\pm 1.4$.

Table 14. Distribution of means and standard deviations of PPI-A scores for females and males.

| Parameters | Males | | | Females | | |
|---------------------------|-------|-------|------|---------|-------|------|
| | N | M | SD | N | M | SD |
| Determination | 71 | 12.59 | 1.70 | 38 | 12.18 | 1.92 |
| Self-belief | 71 | 12.31 | 1.32 | 38 | 12.63 | 1.40 |
| Positive cognition | 71 | 16.17 | 2.21 | 38 | 15.53 | 2.46 |
| Visualization | 71 | 11.37 | 2.40 | 38 | 10.21 | 2.64 |
| Total | 71 | 52.44 | 5.13 | 38 | 50.55 | 5.41 |

A detailed descriptive statistical analysis of the results for males and females revealed that men scored slightly higher in three parameters: determination $M = 12.59$; $SD \pm 1.7$, positive cognition $M = 16.17$; $SD \pm 2.2$, and visualization $M = 11.37$; $SD \pm 2.4$, as well as a higher total value of all scales.

Compared to males, females showed higher results only on the self-belief scale $M = 12.63$; $SD\pm 1.4$ (Table 14).

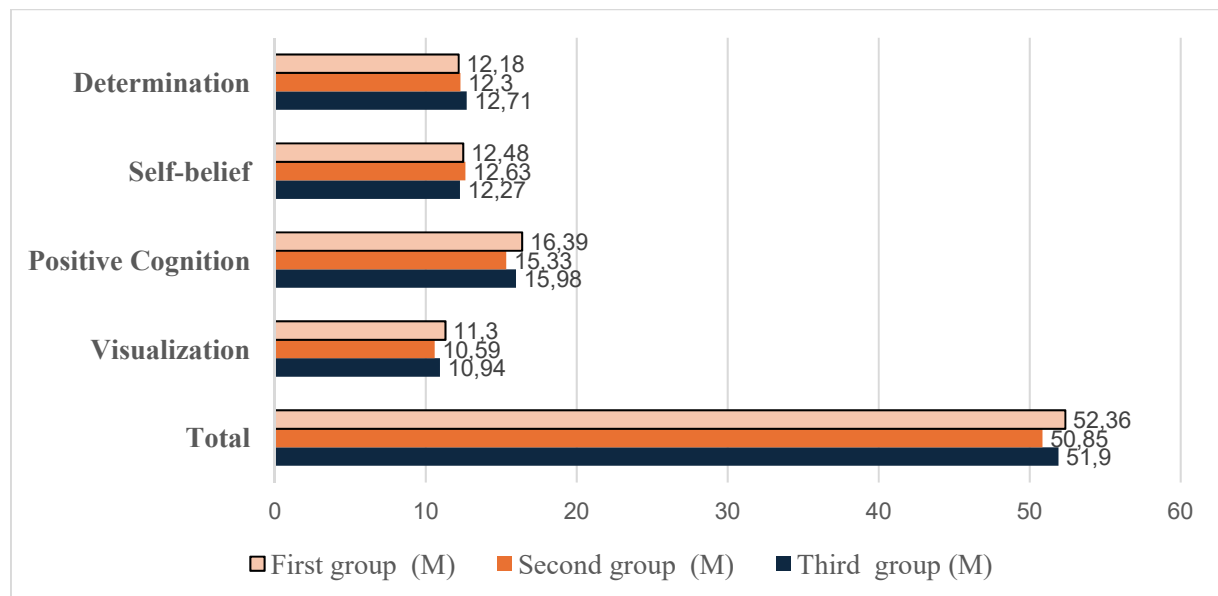


Figure 6. Distribution of mean values for PPI-A results, for three sports career groups based on the course of career development.

An analysis of the results across three career groups categorized by athletic achievement revealed that athletes in the third group (“gradually ascending career”) scored the highest on the determination scale $M = 12.71$; $SD \pm 1.8$. Athletes in the second group (“flat career”) demonstrated a higher score on the self-belief scale $M = 12.63$; $SD \pm 1.3$ compared to the other two groups. Athletes in the first group (“fast career”) demonstrated the highest score on the positive cognition $M=16.39$; $SD\pm2.11$ and visualization $M=11.30$; $SD\pm2.64$ scales, as well as a higher overall psychological effectiveness in sports $M = 52.36$; $SD \pm 5.59$ (Fig. 6). These results support the importance of positive cognition and visualization as key components of athletic performance, contributing to rapid and high-level athletic success.

Analyzing the results categorized by the duration of the career and athletes’ age, it is revealed that the athletes in the phase of “career development and mastery” (the second group), have the highest indicators among the three groups: self-belief scale $M = 12.58$; $SD\pm1.4$, visualization scale $M=11.21$; $SD\pm2.2$ and the total value of all scales $M=51.88$; $SD\pm5.18$. Athletes with a “long career” (the third group) showed relatively high scores on the determination $M=12.8$; $SD\pm1.6$ and positive cognition $M=16.23$; $SD\pm2.5$ scales. Athletes “at the beginning of their career” (the first group) demonstrated higher scores in the determination scale $M=12.3$; $SD\pm1.9$ and positive cognition scale $M=16.17$; $SD\pm2.6$ than the second group, but lower than the third group (Fig. 7). This may indicate the future growth potential of this group of athletes.

The variance in the values of the three variable groups for the PPI-A factors did not show statistically significant differences across athletes’ career stages based on their age.

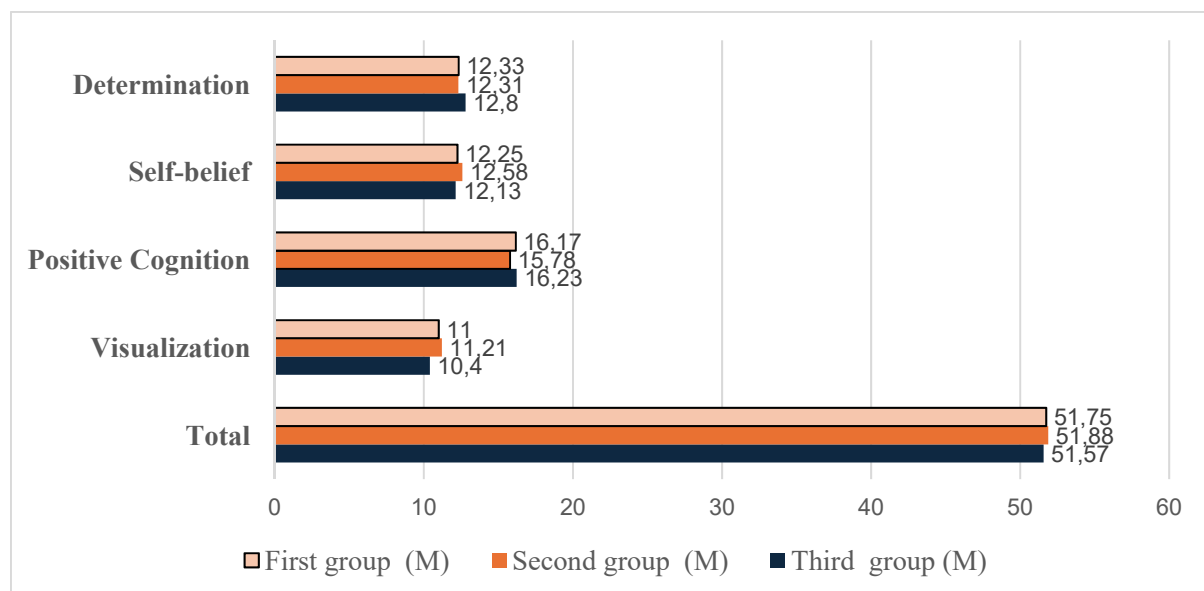


Figure 7. Distribution of mean values of PPI-A results for three sports career groups by age.

III.4. Analysis of the results of a study on mental toughness

The results of the survey on mental toughness in sports (SMTQ) revealed that the confidence scale had the highest scores $M = 17.77$; $SD \pm 3$. Our results aligned with those of the original study, where the confidence scale $M = 18.5$; $SD \pm 3.3$ was also the most prominent. The results are almost identical regarding the lowest result, which is on the control scale, with $M=11.4$; $SD\pm 2.3$ at baseline and $M=11.39$; $SD \pm 2.2$ in our study. The overall result of the test scales is quite close, with $M=43.61$; $SD\pm 5$ in our study and $M=43.7$; $SD \pm 5.7$ in the original (Sheard et al., 2009) (Table 15).

The analysis of the results from the survey on mental toughness in sport revealed that the confidence scale was rated the highest $M=17.77$; $SD\pm 3$. Our results align with those from the original research (Sheard et al., 2009), where the confidence scale was also the leading one. The results coincide as regards the lowest value, which is on the control scale, and the total result of the questionnaire scales (Table 13).

Table 15. Results from the variation analysis of the data from SMTQ.

| Parameters | N | M | SD | Min | Max |
|-------------------|-----|-------|------|------|------|
| Confidence | 109 | 17.77 | 3.00 | 10.0 | 24.0 |
| Constancy | 109 | 14.45 | 1.44 | 11.0 | 18.0 |
| Control | 109 | 11.39 | 2.21 | 4.0 | 16.0 |
| Total | 109 | 43.61 | 4.97 | 29.0 | 55.0 |

The analysis of mental toughness in sports (SMTQ) test results for male and female groups shows that the scores are very similar on two of the three scales (Table 16). The scores for both groups were identical on the control scale $M = 11.7$ and relatively close on the constancy scale, with slightly higher mean value for males $M = 14.56$ than females $M = 14.24$.

Table 16. Distribution of mean values and standard deviations for females and males on SMTQ and GSE scores.

| Parameters | Males | | | Females | | |
|------------------------------|-------|-------|------|---------|-------|------|
| | N | M | SD | N | M | SD |
| Confidence | 71 | 18.37 | 2.69 | 38 | 16.66 | 3.26 |
| Constancy | 71 | 14.56 | 1.74 | 38 | 14.24 | 1.38 |
| Control | 71 | 11.7 | 2 | 38 | 11.7 | 2.48 |
| Total | 71 | 44.63 | 4.43 | 38 | 41.68 | 5.39 |
| General Self-efficacy | 71 | 32.56 | 3.6 | 38 | 31.08 | 3.75 |

Males scored higher values on the confidence scale $M = 18.37$; $SD \pm 2.7$ and the total of all scales $M = 44.63$; $SD \pm 4.4$, suggesting greater confidence and overall mental toughness in sports compared to female participants.

The results obtained in the study give grounds for claiming that athletes whose careers are ascending gradually (third group) generally have a higher level of mental toughness required in sports $M = 44.45$; $SD \pm 4.56$, with a particularly high score on the confidence scale $M = 18.04$; $SD \pm 2.99$. The lowest scores $M = 42.37$; $SD \pm 5.9$ were demonstrated by athletes with “flat careers” (second group), with a particularly low score on the control scale $M = 10.63$; $SD \pm 2.4$ (Fig. 8).

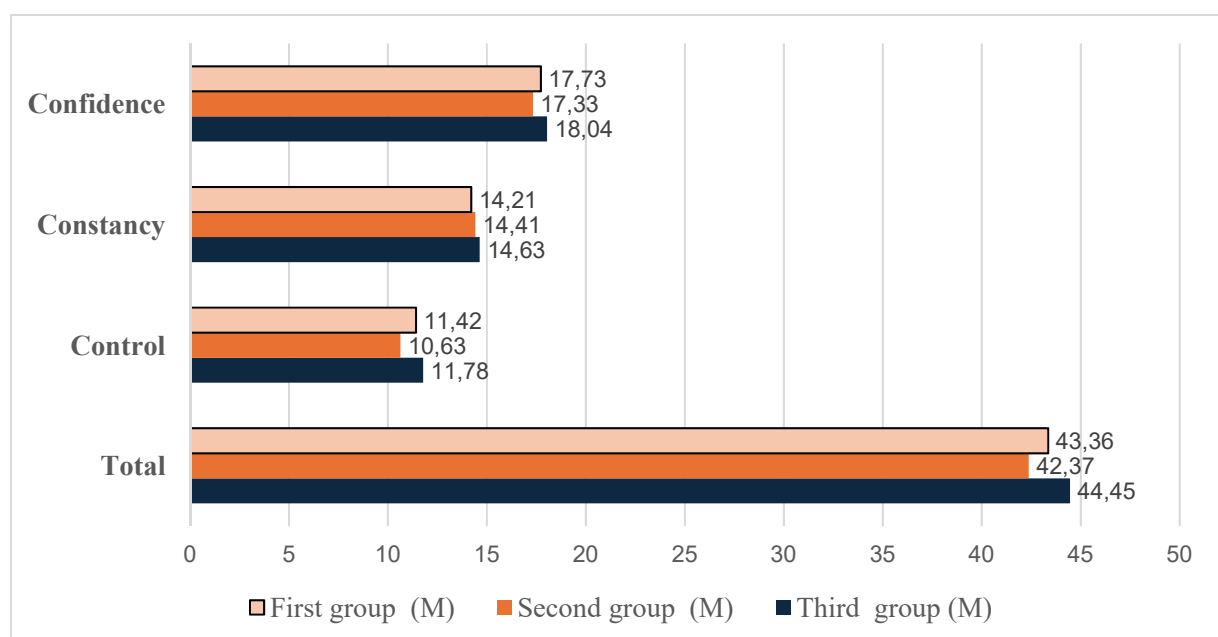


Figure 8. Distribution of mean values of SMTQ results for three career groups by career courses.

The analysis of the SMTQ results, based on athletes' career stages categorized by age, reveals that second and third groups demonstrate the highest overall indicators of mental toughness, with $M = 43.85$; $SD \pm 4.7$ and $M = 43.73$; $SD \pm 5.2$ respectively (Fig. 9).

Athletes in the third group show higher results on the confidence scale $M = 18.3$; $SD \pm 3.28$ and on the constancy scale $M = 14.57$ $SD \pm 1.3$. Athletes in the early stages of their careers have a greater need to manage self-control, particularly in situations that require plan adjustments, as well as to regulate their anger and emotions.

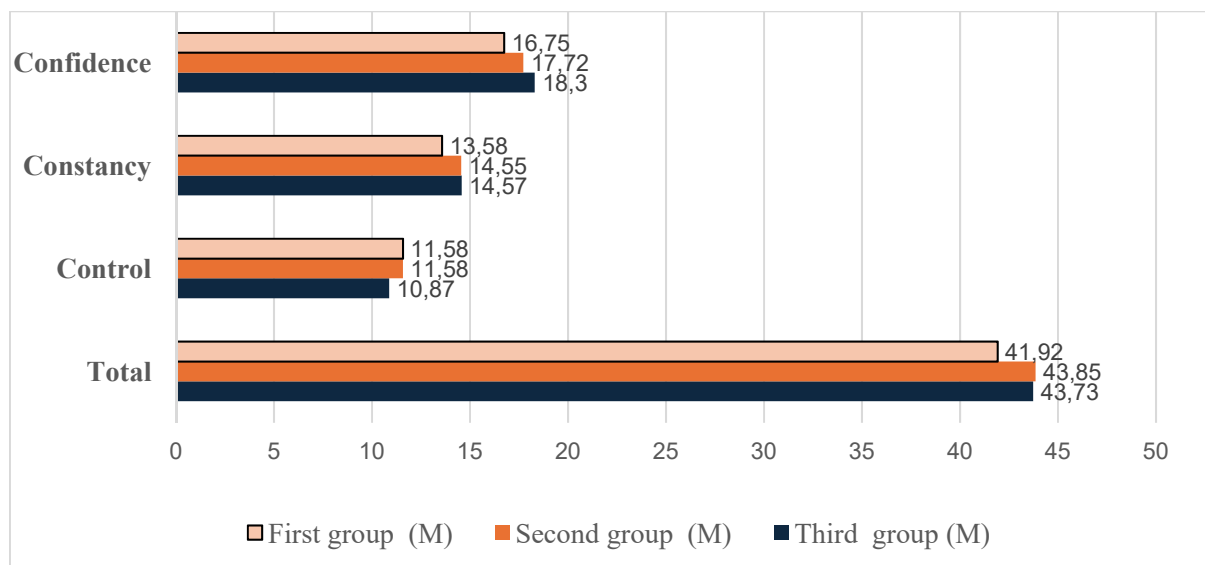


Figure 9. Mean values from SMTQ for athletes across three career groups by age.

III.5. Analysis of the results of the general self-efficacy study

The results of our study reveal that the total General Self-Efficacy score is $M = 32.05$; $SD \pm 3.7$ (Table 17), which is higher than the result obtained in the initial studies $M = 29.48$; $SD \pm 5.3$ (Schwarzer & Jerusalem, 1995) and the result of the previous study conducted in Latvia $M = 31.62$; $SD \pm 4.17$. (Astaficevs, et. al., 2020).

Table 17. Results of variance analysis of GSE questionnaire data

| Parameters | N | M | SD | Min | Max |
|-----------------------|-----|-------|------|------|------|
| General Self-efficacy | 109 | 32.05 | 3.71 | 21.0 | 40.0 |

A comparison of the results between female and male athletes indicates that males have higher general self-efficacy $M = 32.56$; $SD \pm 3.6$ than females $M = 31.08$; $SD \pm 3.8$ (Table 16).

Grouping the athletes by career progression, the highest mean result at $M = 32.71$; $SD \pm 3.96$ was observed in athletes with a gradually ascending career (third group), while the lowest result $M = 30.37$; $SD \pm 2.9$ was found in athletes whose highest sporting results were achieved at national level (second group) (Fig. 10). These results give grounds for assuming that general self-efficacy is an essential factor in building a successful sports career and is characteristic of high-achieving athletes.

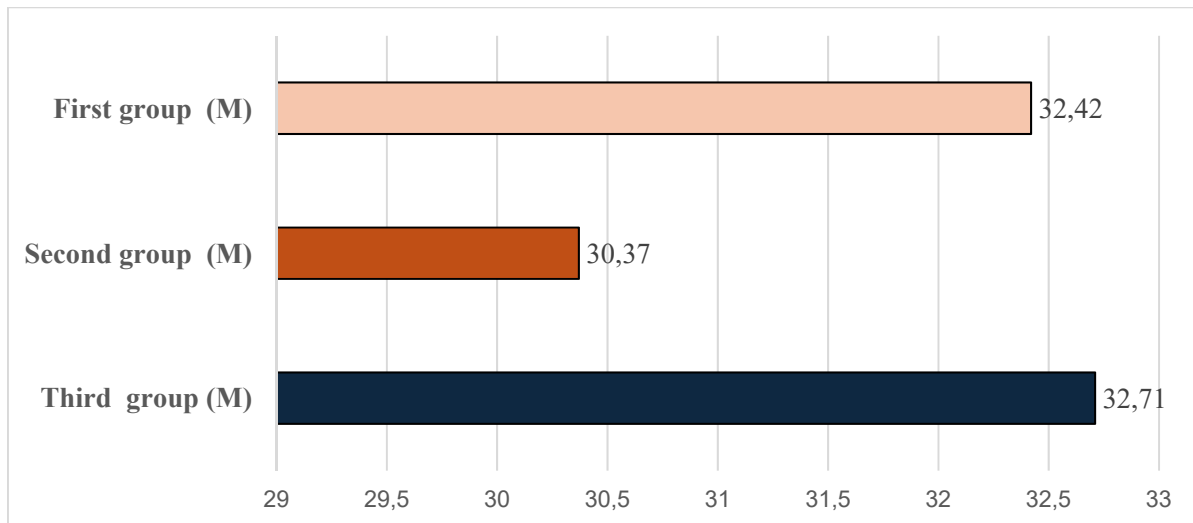


Figure 10. Distribution of mean values (M) for three career groups by career course based on GSE questionnaire results

The results of variation analysis for athletes at different career stages show that general self-efficacy scores are highest for athletes with long careers $M = 33.0$; $SD \pm 4$ (Fig. 11). The two other groups exhibit similar levels of general self-efficacy, although those in the early stages of their careers show slightly lower scores $M = 31.5$; $SD \pm 4.9$. The results indicate that the most experienced athletes with long careers have confidence in their abilities and skills when confronted with challenging life situations during their sports career.

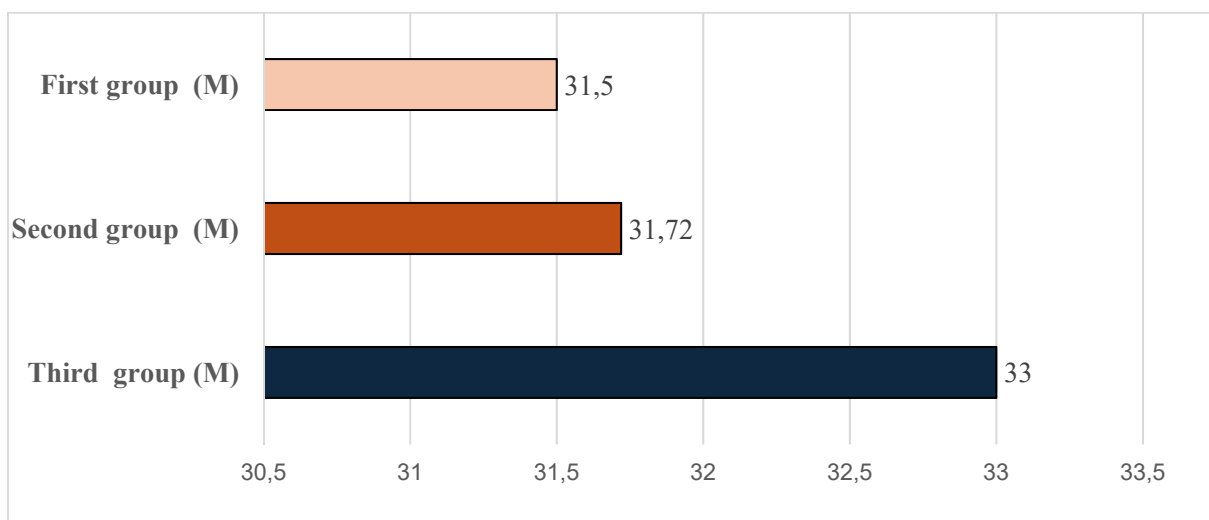


Figure 11. Distribution of mean values for three sports career groups by age based on GSE questionnaire results

III.6. Results of Correlation Analysis

The results of data correlation analysis revealed significant relationships between personality traits and mental skills, mental toughness, psychological efficacy, and general self-efficacy (Fig. 12).

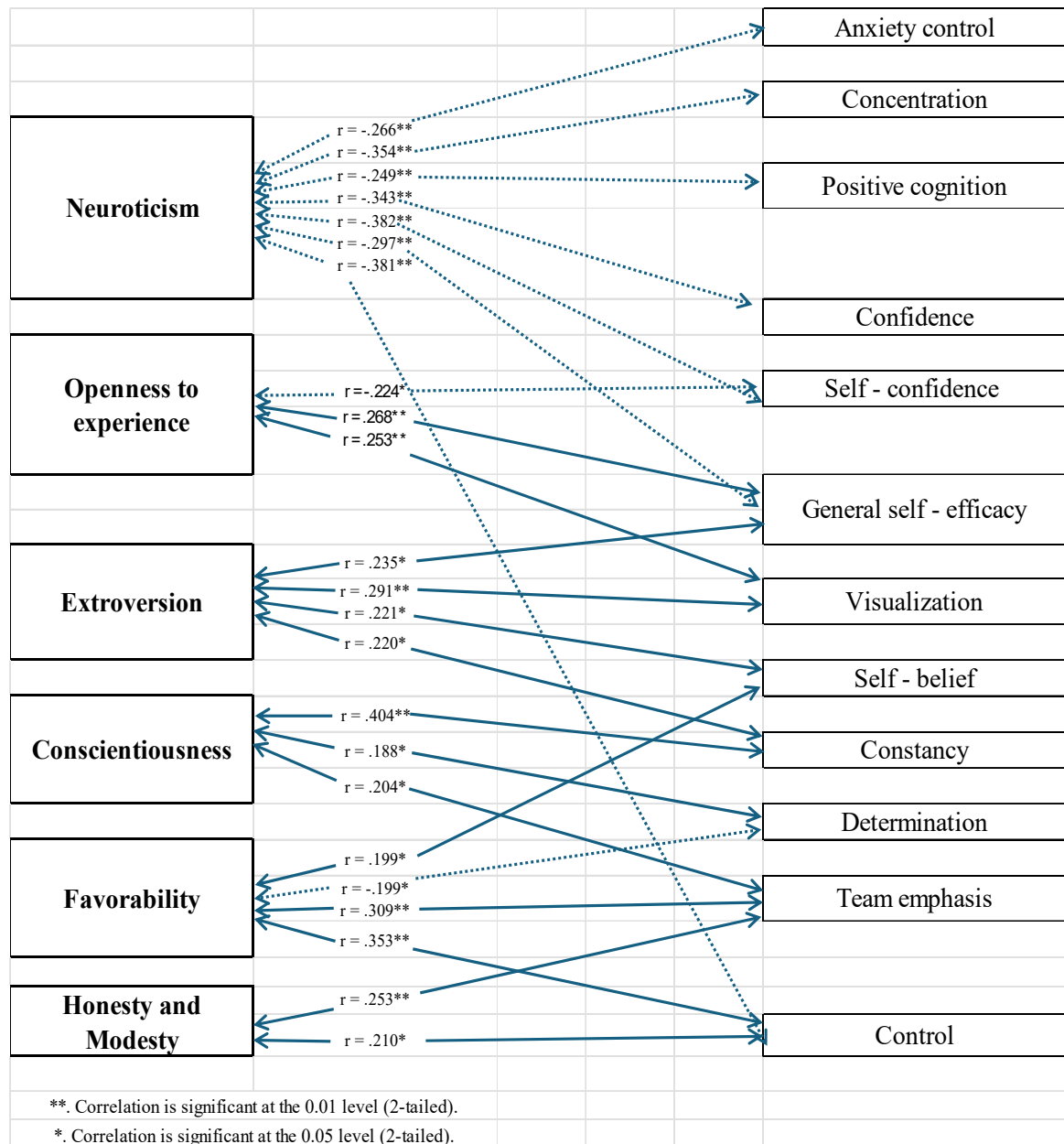


Figure 12. Results of correlation analysis of personality factors (----- negative correlation; ——— positive correlation)

There was a significant negative correlation between the **neuroticism** factor and several psychological skills: anxiety control ($r = -.266; p < .005$), concentration ($r = -.354; p < .001$), and self-confidence ($r = -.382; p < .001$). Additionally, significant negative correlations were found with the scale of positive cognition ($r = -.249; p < .01$) and the scales confidence ($r = -.343; p < .001$), control ($r = -.381; p < .001$), and general self-efficacy (GSE) ($r = -.297; p < .002$).

The **openness to experience** factor demonstrated a statistically significant negative correlation with self-confidence ($r = -.224; p < .019$) and a significant positive correlation with visualization ($r = .253; p < .008$) and general self-efficacy ($r = .268; p < .005$). The **conscientiousness** showed a statistically significant positive correlation with team emphasis ($r = .204; p < .033$) and determination ($r = .188; p < .050$) and constancy ($r = .404; p < .001$). The **favorability** significantly correlated with team emphasis ($r = .309; p < .001$), as well as with control scale ($r = .353; p < .001$) and self-belief scale ($r = .199; p < .038$). Additionally, it exhibited a weak negative correlation with determination scale ($r = -.199; p < .038$). The **honesty and modesty** factor correlated positively with team emphasis ($r = .253; p < .008$) and the control scale ($r = .210; p < .028$). The **extroversion** factor showed a significant positive correlation with self-belief ($r = .221; p < .021$), visualization ($r = .291; p < .002$), constancy ($r = .220; p < .022$), and general self-efficacy ($r = .235; p < .014$).

III.7. Results of regression analysis

Stepwise regression analysis was employed to determine the direction of effect. The derived personality factors served as independent variables, while the dependent variables included psychological skills, psychological efficiency parameters, mental toughness, and self-efficacy of the studied athletes (Fig. 13).

The results of the regression analysis show that the personality factor **neuroticism** has a negative effect on the mental skill of self-confidence $\beta = -.244$, control, as a parameter of mental toughness ($\beta = -.213$), and self-efficacy $\beta = -.181$. The athletes with high Neuroticism values are likely to get more distracted and careless, as a result of which they more often make mistakes, and this further increases the level of neuroticism. This can lead to a decrease in both training and competition performance, which in turn can lead to a drop in self-confidence.

The personality factor of **extraversion** significantly influences visualization $\beta = .272$, as a component of psychological effectiveness, as well as the psychological skill team emphasis $\beta = .230$. Extraversion positively influences visualization, which is associated with athletes' ability to recognize and use effective role models and examples of leaders within their specific sport. Likewise, extraversion positively impacts athletes' engagement in collaborative efforts with coaches and teammates.

The personality factor **openness to experience** positively influences self-efficacy $\beta = .356$ and negatively affects self-confidence $\beta = -.338$. We can anticipate that as athletes become more

interested in learning new methods and adopting best practices, their expectations of personal effectiveness will increase. A broader knowledge base and a wider array of interests facilitate more effective functioning, conversely, their absence may diminish self-esteem and hinder effective self-actualization.

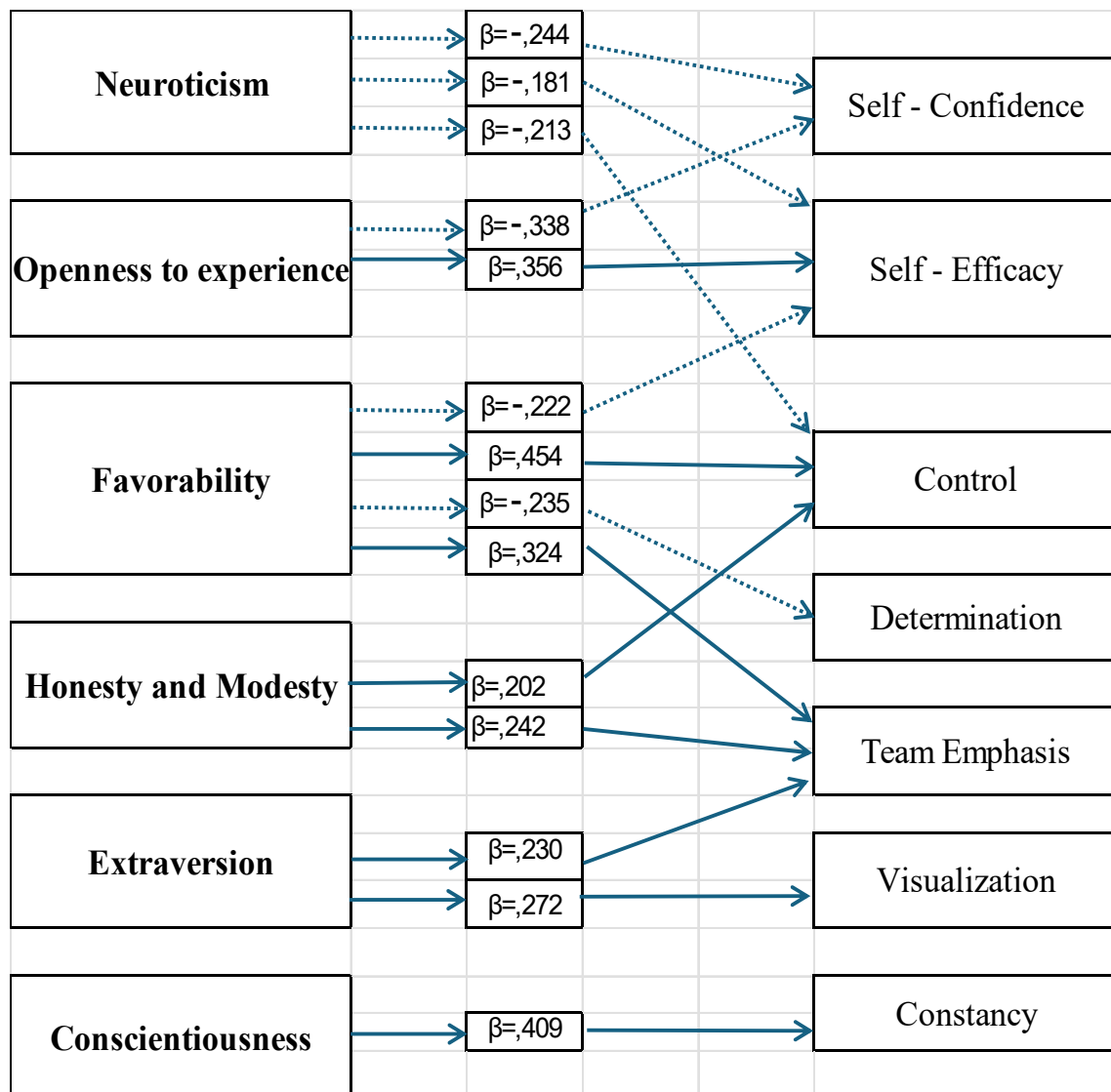


Figure 13. Results of regression analysis of personality factors (----- negative regression; ————— positive regression)

The personality factor **favorability** exerts the most significant influence on the studied parameters. Favorability shows positive influence on control $\beta = .454$ and team emphasis $\beta = .324$, but negatively affects determination $\beta = -.235$ and self-efficacy $\beta = -.222$. We can hypothesize

that a high level of favorability in athletes facilitates emotional control while potentially reducing decisiveness, which includes making concessions and fostering harmonious relationships with others. Although benevolence negatively affects self-efficacy, it concurrently increases the likelihood of improved team cooperation.

The personality factor **Conscientiousness** has a positive effect on constancy $\beta = .409$ as a component of mental toughness. Long-term increases in awareness are associated with heightened diligence, precision, and a responsible attitude towards one's training and competition activities.

The results of the regression analysis show that the personality factor **honesty and modesty** has a positive relationship with the psychological skill team emphasis $\beta = .242$ and control $\beta = .202$ (Fig. 13). It can be assumed that the athlete's honesty and modesty is related to a relatively higher ability to control emotions in situations of increased tension, facilitates participation in joint team activities and fosters a more persistent sense of belonging to the team.

III.8. By synthesizing the findings from the study, distinct personality profiles are established for athletes with different courses of career.

The findings of our study reveal that elite athletes generally score higher on the personality factor conscientiousness. This aligns with the conclusions drawn by Mirzaei et al. (Mirzaei, A. et al., 2013), who identified conscientiousness as the sole predictor of high achievement in athletic career. The results obtained in our study enable us to draw conclusions regarding certain aspects of athletes' personality profiles, depending on the course of their sports career (Fig. 14).

The personalities of athletes with a **"fast career"** are characterized by a high level of favorability, honesty and modesty. Athletes of this group have more developed mental abilities to concentrate, self-confidence, and mental preparation. In terms of psychological efficiency, athletes of this career group are characterized by a higher level of positive cognition, visualization, and general psychological efficiency in sports. Compared to other career groups, they have average levels of general self-efficacy.

The personality of athletes with a **"gradually ascending career"** is characterized by Extroversion, Conscientiousness and Openness to Experience. Athletes in this career group are distinguished by a strong ability to control anxiety. They show higher results in decisiveness, which is a component of psychological efficiency. They have higher scores in all parameters of mental toughness: confidence, constancy and control. The results of our study show that this group has the highest general self-efficacy among all career groups. The personality profile of this group of athletes, characterized by high conscientiousness and low neuroticism, aligns closely with the findings from other studies utilizing different personality assessment tests (Piepiora, Witkowski, 2018; Piepiora, 2019; Allen et al., 2011, 2014, 2013; Costa, McCrae, 2007 etc.).

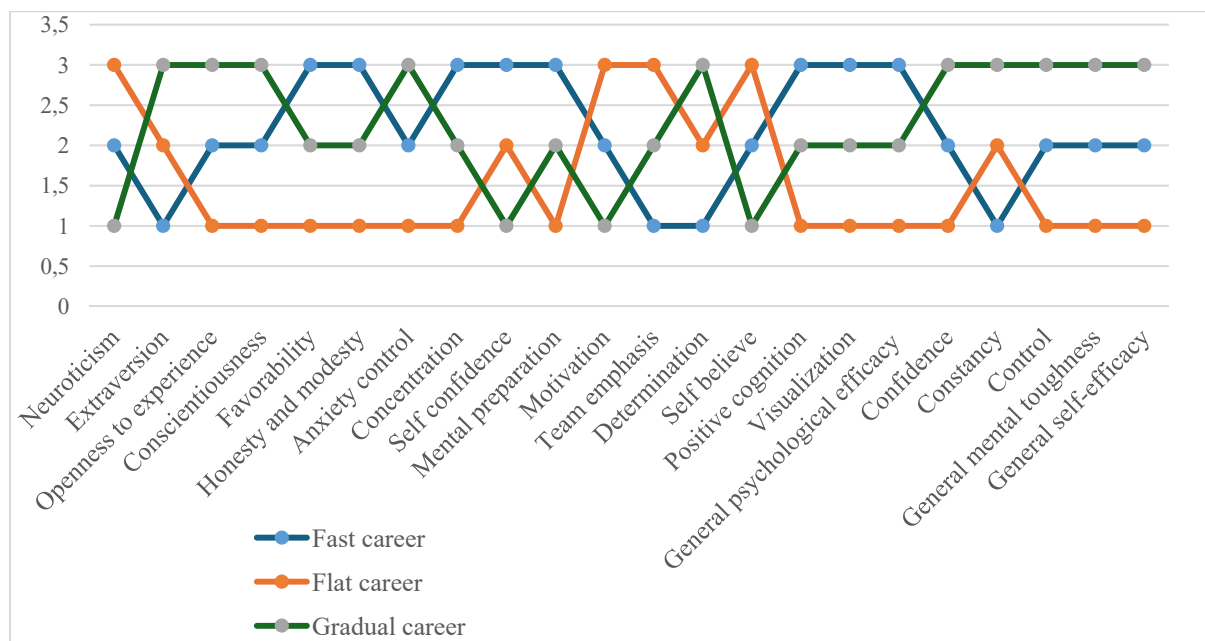


Figure 14. Comparative profile of the psychological characteristics of three groups of athletes depending on the course of their sports career (1- relatively lowest level, 2- average level, 3- relatively highest level)

The personality of athletes with a **"flat career"** is characterized by more pronounced neuroticism. The leading mental skills in this group of athletes are motivation and team emphasis. In terms of psychological effectiveness in sports, athletes in this group have a higher level of self-belief than athletes of other career groups. Athletes of this career group showed the lowest scores regarding mental toughness in sports and general self-efficacy (Fig. 14).

When analyzing the data according to the stage of athletes' career categorized by age, the findings provide a foundation for inferring the following characteristics in their personality profiles (Fig. 15).

Athletes **"at the beginning of their career"** demonstrate more pronounced neuroticism compared to those in more advanced stages. In this group of athletes, the lowest indicators of psychological efficiency were found. Athletes in this group tend to have relatively lower overall levels of mental toughness in sport, with the lowest scores on confidence, constancy, and general self-efficacy.

The findings show that the personality of athletes in the stage of **"career development and mastery"** is characterized by honesty and modesty, favorability, and relatively lower neuroticism. When it comes to psychological skills, athletes in this career group have a relatively stronger ability to concentrate. Athletes at this stage of their careers show higher scores on self-belief and visualization, which is a general indicator of psychological effectiveness in sports. They demonstrate higher results in terms of control and overall mental toughness in sports.

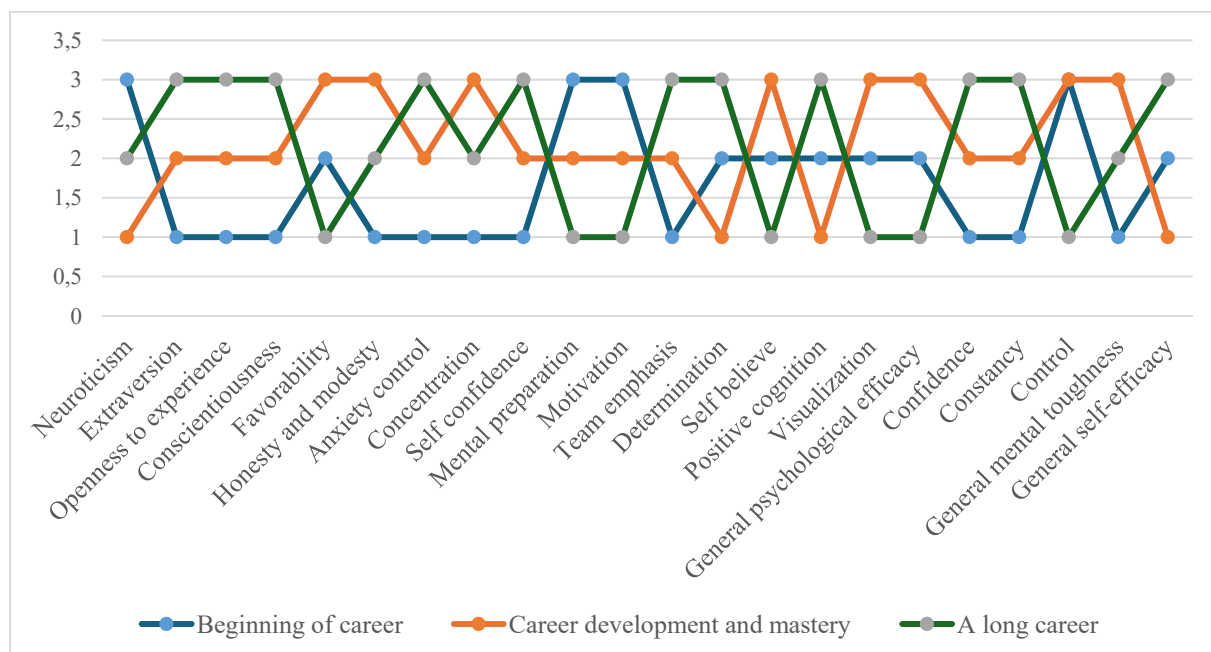


Figure 15. Comparative profile of the psychological characteristics of athletes of three career groups depending on the age of the athletes (1- relatively lowest level, 2- average level, 3- relatively highest level)

Athletes who had a **"long career"** were found to have higher values of the personality traits extraversion, openness to experience, and conscientiousness. The leading psychological skills in this group of athletes are a strong ability to control anxiety and team emphasis. At this stage of their career, athletes show higher levels of determination and positive cognition. The mental toughness of these athletes in sports is characterized by a relatively higher level of confidence and constancy. This group of athletes stands out with high general self-efficacy (Fig. 15).

CONCLUSIONS AND RECOMMENDATIONS

The results of our research give us reason to draw the following **CONCLUSIONS**:

1. Our initial hypothesis was confirmed, indicating that there are certain differences in the personality profiles of Latvian athletes depending on the stages and type of sports career, qualification level, age, and gender.
2. Among male athletes, significantly higher values were found in the psychological skills of motivation, self-confidence and concentration. Additionally, they demonstrated greater mental toughness in sports and relatively higher general self-efficacy. In contrast, female athletes exhibit

relatively more pronounced conscientiousness, honesty and modesty, favorability, alongside a higher tendency for neuroticism.

3. Among the elite athletes we studied, higher scores were observed in the personality factors of conscientiousness and honesty and modesty. The lowest scores in this group of athletes were obtained in the neuroticism factor, especially for traits such as shyness and stress intolerance. The personality profile of these athletes, marked by high conscientiousness and low neuroticism, aligned partially with the findings from other studies using different personality tests. However, some notable differences were identified in our study: Latvian athletes did not exhibit a relatively high levels of extroversion, commonly reported in other studies.

4. Athletes with a **"fast career"** were characterized by high levels of conscientiousness, which is driven by high levels of such traits as accuracy, self-discipline and diligence. These athletes tend to exhibit relatively higher overall psychological efficiency in sports.

5. Athletes with a **"flat career"** demonstrate more pronounced neuroticism, motivation, team emphasis, along with higher levels of self-belief. However, this group tends to score the lowest in terms of mental toughness in sports.

6. Athletes with a **"gradually ascending career"** demonstrate higher values of extroversion and openness to experience, along with higher mental toughness and general self-efficacy.

The information collected in this study can serve as a valuable resource for coaches and psychologists in tailoring their strategies for athlete preparation and management, considering both the individual personality profile and the athlete's career stage, professionals can adopt more personalized and effective approaches.

Based on the research findings, along with practical observations and summaries of our practical activities, the following **RECOMMENDATIONS** can be proposed:

1. The results of the research and literature review collected and presented in the doctoral thesis should serve as a valuable resource for psychology students specializing in sports psychology.
2. To develop individualized training programs for the mental preparation of athletes, in collaboration with practicing sports psychologists, taking into account the connection between the personality profile and the stage of the sports career.
3. The results obtained from experimental studies and theoretical analyses will serve as a valuable resource for university teaching staff in the development of teaching materials for students of sports psychology programs. These findings will also benefit sports psychologists and sports specialists in effective management of sports training.

We hope that this PhD thesis will make its modest contribution to the research base of sport psychology in Latvia and strengthen the prestige of sport psychology. Based on the data confirmed in the study, we believe that we can talk about differences in the psychological profile, skills and

mental preparation of the athletes, even if the athletes compete at the highest level. The results obtained outline the need for different models of mental preparation at the different stages of the career, as well as the need for psychological support at the highest level. Similarly, the involvement of professional psychologists in the guidance of athletes at different stages of their careers would make an invaluable contribution to the purposeful, comprehensive and systematic preparation of athletes for competitions at the highest level.

On the one hand, this is valuable information for all those who work with top athletes, and on the other hand, it gives an impetus to psychologists for further and in-depth research in the future.

DISSERTATION RELATED PUBLICATIONS

1. Eikena, D. (2019). Psychological skills of talented athletes in individual sports in Latvia, *Proceeding book, International Scientific Congress “Applied Sports Sciences”*, Sofia, NSA PRES, pp. 235-241
DOI:10.37393/ICASS2019/45
2. Eikena, D. (2022). Analysis of the Relationship Between the Goal Orientation and the Factors Hindering the Performance of Elite Athletes, *International Scientific Congress “Applied Sports Sciences”, Proceeding book Vol.1*, Sofia, NSA PRES, pp. 366-371
DOI:10.37393/ICASS2022/64
3. Eikena, D., Iancheva, T. (2024). Personal qualities and career longevity of elite Latvian athletes, *Journal of Applied Sports Sciences*, Vol. 1, pp. 35 - 56.
DOI: 10.37393/JASS.2024.01.4

SCIENTIFIC CONTRIBUTIONS IN THE DISSERTATION

The first of its kind study of personality traits of elite athletes in Latvia, depending on the stage and type of sports career, has been conducted.

The differences in personality profiles of Latvian athletes, depending on the stages and type of sports career, have been identified.

The differences in the examined mental skills, depending on the level of qualification, age and gender, are highlighted.

The specificity in the personality profile of elite athletes in Latvia is outlined.