Comprehensive training for young football players: Technical, physical, and psychological readiness for global competitions

Valerii Kyselov^{1*}, Anna Sakhnenko², Vita Vorona³, Iryna Skrypka⁴, Larysa Yeremenko⁵

ABSTRACT

This study aimed to identify the main factors influencing the effectiveness of training football players in adolescence to achieve high results at the international level. The study used methods of analysing scientific literature, observing training processes and competitions, and experimental approaches to assessing athletes' physical and psychological fitness. It included 136 football players: men (n = 92; 67.65%) and women (n = 44; 32.35%). The age range was 14–22 years old and the average age 19.6. The results showed that adapting training programmes to the individual needs of athletes and considering the sociocultural context plays a key role in ensuring their competitiveness in international competitions. The analysis of technical and tactical indicators of young football players before and after the implementation of practical recommendations showed significant improvements: an increase in the number of short and medium passes forward (from 74 ± 23 to 105 ± 24 , p<0.05) and backward (from 62 ± 19 to 84 ± 25 , p<0.05), which indicates better ball control and pace of the game. The decrease in technical errors confirms the improvement in technical stability, while the number of long passes remained unchanged (p>0.05), probably due to their selective use. The study's results may be helpful

¹ Department of Sport Theory and Methodology, Educational and Scientific Institute of Physical Culture, Sumy State Pedagogical University named after A. S. Makarenko, Sumy, Ukraine.

² Physical Education Department, Faculty of Food Technology, Sumy National Agrarian University, Sumy, Ukraine.

³ Department of Physical Education and Sports, Sumy State University, Sumy, Ukraine.

⁴ Department of Theory and Methods of Sports, Sumy State Pedagogical University named after A. S. Makarenko, Sumy, Ukraine.

⁵ Department of Social Science and Humanites, Educational-Scientific Institute of Higher Education, Dmytro Motornyi Tavria State Agrotechnological University, Zaporizhzhia, Ukraine.

^{*}Correspondence: Valerii Kyselov; vands7kiseliov@gmail.com

for coaches, sports psychologists, and sports institution managers in developing training programmes for young athletes.

KEYWORDS

Sports Performance; Tactical Training; Training Process; Psycho-Emotional State; Football Team

1. INTRODUCTION

Modern Ukrainian sport is undergoing significant changes and challenges. The outflow of talented athletes to foreign clubs and the long-term failures of the national team at international competitions draw attention to the problem of creating an effective system for training young athletes. In today's global sporting environment, where competitiveness and performance determine success, Ukraine must update its approach to developing a sports reserve.

One of the key challenges is the lack of sufficient conditions for developing young athletes in the country, which leads to a "talent drain". The departure of promising players abroad for opportunities weakens the club and national teams. Numerous difficulties accompany the transition of young athletes from youth sports to professional teams. The study of Błach et al. (2021) analyses the characteristics of judokas' technical and tactical training during the World Championships and the Olympic Games. The authors point out that effective training of judokas depends on adapting to changing competition conditions and focusing on specific techniques that can provide an advantage at critical moments of the fight. This is especially true for players aged 16–17, who face new requirements: the need to play at high speeds, make decisions in limited time and space, and withstand constant pressure from opponents (Ciomag & Pop, 2024).

Diker et al. (2021) highlight seasonal changes in the aerobic performance of young football players, highlighting the importance of regular fitness monitoring to support their development. Many talented athletes cannot adapt to these challenges due to a lack of relevant experience, technical training and psychological resilience. Psychological factors play an important role in this process. In particular, research evidence exists on how the relationship between coaches and athletes affects self-esteem and life satisfaction (Gencer, 2021). Insecurity, stressful situations and lack of proper support can negatively affect players' performance. Improving the training system for young athletes should be

based on introducing innovative methods that combine physical, technical, tactical and psychological training (Jin et al., 2021).

Particular attention should be paid to game exercises that model key aspects of the game of highly skilled football players. This will allow young players to develop technical skills and tactical thinking and learn to interact effectively with partners in conditions close to real competitions. Psychological training is an equally important part of the training process. Building psycho-emotional resilience helps athletes cope with stress, increase concentration and maintain self-confidence. It has been established that emotional intelligence significantly prevents athlete burnout and emphasises the importance of psycho-emotional preparation (Popovych et al., 2022a).

Given the complexity of modern international competitions, young athletes need physical fitness and the ability to control their emotions and work under pressure (Popovych et al., 2022b). The rational combination of training loads and their intensity is the main prerequisite for successfully managing the athletes' training process. Success largely depends on the clear organisation of the training process, which should consider the specifics of individual training periods, the individual characteristics of the athlete and his/her ability to adapt to the loads and conditions of competition (Purwanto & Ockta, 2024). Compliance with these requirements creates the necessary prerequisites for the effective participation of athletes in major international tournaments. Registration and analysis of competitive activity are integral elements of the training process. They allow us to assess the interaction of physical, technical, psychological and other components of an athlete's training. In addition, such an analysis can help predict trends in a particular sport's development, identify potential sports results and plan a training strategy more effectively (Popovych et al., 2021).

In the modern scientific literature, scientists propose the concept of a metamodel – a theoretical interaction between training loads and sports results. The effectiveness of the metamodel has been confirmed in various sports, especially in disciplines where success depends on precise adaptation to physical and psycho-emotional stress (Ciomag & Pop, 2024). The article by Ciomag & Pop (2024) highlights modern approaches to supporting the mental health of highly skilled athletes. Scientists emphasise the importance of considering individual characteristics, social environment and cultural context when providing psychological support during the preparation for competitions. The authors investigated the peculiarities of sports training of archery students in specialised groups (Skripka et al., 2019). The article by Stamenković (2023) analyses Serbian athletes' historical context and achievements at the Olympic Games from 1924 to 2024. It has also been found that youth participation contributes to the sustainable development of youth sports, allowing organisations to achieve long-

term goals and develop the leadership skills of the younger generation (Strittmatter et al., 2021). Wakwak et al. (2023) investigated the relationship between chronological age and performance of judo athletes at the Tokyo 2020 Olympic Games. Thomas et al. (2021) analyse the methods of preparing athletes for competitions, emphasising the importance of an individual approach, creating a safe learning environment and using adaptive teaching methods to achieve success.

The article by Tsyupak et al. (2018) investigates the impact of outdoor games on young football players' physical and technical training. Varghese et al. (2021) reviewed existing development models of young athletes. They emphasise the importance of a comprehensive approach that includes physical training, psychological development and social integration to develop sports talent effectively. Walton et al. (2024) explored the mental health of elite young athletes, emphasising the need to support them in a competitive environment. During a sporting career, especially in preparation for competition, training loads become more intense, and the drive to improve becomes even stronger. Zhang and Wang (2023) show that proper strength training programmes have a positive effect on young athletes' muscle strength, improving their sports performance. This is especially true for 14-15-year-old football players (Jin et al., 2021). In this age group, loads should be carefully balanced to avoid overwork and maintain motivation to train (Kostyuk, 2021).

This study aims to analyse the technical, physical, and psychological aspects of preparing young players to successfully participate in worldwide competitions.

2. METHODS

2.1. Study design and participants

The study used methods of analysing scientific literature, observing training processes and competitions, and experimental approaches to assessing athletes' physical and psychological fitness.

The study involved young football players from the teams of the Children's and Youth Sports School "Energetic" (Zhydachiv, Ukraine) and the Children's and Youth Sports School "Energia" (Lviv, Ukraine). The sample included champions of Ukraine, Europe, and the world, as well as participants in the 31st Olympic Games in Rio de Janeiro (Brazil) and the 32nd Olympic Games in Tokyo (Japan). The study covered 136 football players: men (n = 92; 67.65%) and women (n = 44; 32.35%). The age range was 14–22 years old and the average age 19.6. All respondents had experience participating in and winning competitions at various levels.

2.2. Procedures and instruments

The main stages of the study are as follows:

Preparatory stage of the study. The key parameters of technical and physical training were determined. Test tasks to assess each of the parameters were described. The sample of respondents agreed on the terms of the study with the coaches.

Testing technical aspects. The analysis of technical skills was carried out by observing and video recording the performance of basic exercises and competitive elements. Specialised tools for assessing the accuracy, speed, and stability of motor actions were provided. The testing process included an important aspect of training young athletes, such as the assessment of the accuracy, speed, and stability of motor actions.

Specialised tools: Video analysis-Slow motion systems: Used to analyse technical actions in detail, allowing for assessing trajectory, angular velocity and accuracy. Motion markers: Combined with software such as Dartfish or Kinovea, they help analyse movement in real-time or on record. Mobile apps for movement analysis, such as Coach's Eye or Hudl Technique. Sensor platforms and trackers: Stability platforms measure stability and balance, which is important for assessing the stability of movements in sports that require high precision. Inertial sensors (IMUs): These are used for tracking movements in space and measuring angles, velocity, and acceleration. Biomechanics analysis systems: 3D motion analysis: This system uses multiple cameras and software to create a three-dimensional model of an athlete's movements. Electromyography (EMG): You can assess muscle activity while performing technical elements. Speed sensors are systems such as Chronojump and Timing Gates, used to measure the time of movement, for example, the starting jerk or reaction time.

Analysis methods. Kinematic analysis measures the speed, acceleration, angular, and linear characteristics of movements. Technical testing includes standardised exercises performed under controlled conditions to compare the results with normative indicators. Analysis of movement stability is determined using special exercises that assess the athlete's ability to maintain a given amplitude, trajectory, or rhythm of movements.

Physical fitness testing. Standard physical tests for athletes were conducted. Tools were used to monitor heart rate, oxygen saturation and recovery time after exercise. Anthropometric data was also analysed to determine whether the athletes' physical characteristics met the competition requirements.

The analysis of competitive activity. It involved studying the results of athletes' participation in competitions of various levels. The data obtained were compared with technical and physical indicators. The research results identified strengths and weaknesses in athletes' training.

The methodology for studying the mental states of young athletes' readiness for international competitions is based on conceptual statements about the athlete's behavioural self-regulation and the mechanism of readiness as a mental formation characterised by consciously regulated activity (Popovych et al., 2022a). The central provision of the methodology is a self-regulatory complex of components that represents an organic unity of mental phenomena, such as self-esteem, aspirations and expectations of an individual, which are interconnected.

The methodology considered the individual-typological complex of athletes' dominant characteristics, allowing us to form a set of technical, physical and psychodiagnostic parameters. These parameters reflect the current research topic and meet the modern requirements of athletes' training (Popovych et al., 2021).

At the ascertaining stage of the study, we considered experience in using standard testing methods, results of testing approaches to adaptation and self-regulation of athletes, individual and typological characteristics of respondents, and educational and health-saving technologies in sport.

Particular attention was paid to the study of athletes' psycho-emotional state and physical potential and to research on young athletes' tactical training. The analysis of the scientific literature contributed to the creation of an empirical picture of the study and the identification of key aspects of the psycho-emotional potential of young athletes (Popovych et al., 2022b).

2.3. Statistical analyses

Mathematical statistics were used to analyse the data in the study. In particular, the mean value $\overline{(x)}$ and standard deviation (SD) were calculated and used to describe the data distribution. Pearson's two and Student's t-tests assessed differences between variables. In cases where categorical variables were compared, appropriate statistical methods were used to assess differences and determine the statistical significance of the results (Sabadash & Omelianova, 2021). The following levels of statistical significance were used in the study: p < 0.05 - significant level of significance; p < 0.01 - high level of significance; p < 0.001 - reliable level of significance.

Residual analysis was used to determine cause and effect relationships. All calculations were performed using MS Excel and STATISTICA computer programs, ensuring the accuracy and efficiency of data processing. The main statistical parameters were analysed to assess the relationships

between the structure, content and volume of the training process. This analysis aims to identify key aspects of training that will optimise athletes' training.

The research was performed with personal data confidentiality after investigating ethical principles (voluntariness, informed data subjects' rights about data). School administrations and personal trainers agreed to athletes' participation, which ensured respondents' high responsibility and minimised random data.

3. RESULTS

A systematic approach to athletes' training based on the analysis of technical and tactical actions (TTAs) allows for effective management of both the training process and the team's competitive activities. Prompt receipt and analysis of data allow coaches to respond quickly to changes in the game situation and adjust tactical settings.

Coaches make objective decisions by comparing the planned and actual indicators recorded during the game. This allows them to assess the level of performance of the planned actions by the athletes, the compliance of their training with the established standards and promptly make changes to individual tasks or tactics. In addition, the data collected helps to adjust the training process to the current TTAs indicators. Implementing the training model depends on the level of technical, tactical and psychological preparedness of the athletes.

- Technical and tactical training includes the precise execution of technical techniques, tactical decision-making and teamwork.
- Psychological training ensures that athletes can maintain concentration, stress resistance and motivation under conditions of high psychological stress, which is typical for decisive games.

The level of functional fitness (endurance, speed, strength) and morphological characteristics (height, weight, body proportions) form the basis of athletes' development. These indicators ensure the ability to withstand high physical exertion, which is critical in the game.

The model characteristics were developed based on the analysis of data from leading athletes, which allows us to identify average indicators and the range of permissible fluctuations. The generalised characteristics will help guide athletes to achieve high results and improve the efficiency of the training process and competitive activity. Model characteristics of athletes are benchmarks based on the achievements of leading athletes and reflect the ideal level of development of technical, physical and tactical qualities. They are based on analysing the best results of competitions and serve as a guide

for further development. The hierarchical structure of the model's characteristics allows for a comprehensive assessment of the following aspects of training: physical endurance, technical skill and tactical thinking. At the first level of this structure are the characteristics of competitive activity, which consider the specifics of particular competitions and determine the necessary parameters to achieve optimal results. This allows for effective training planning, progress assessment and goal adjustment depending on the team's objectives. Table 1 shows the indicators of physical and technical fitness of athletes before and after preparation for international competitions, such as the youth football team.

Table 1. Indicators of unique physical and technical fitness of the youth football team before and after the experiment

| № | Test | | | | | | | | | | |
|----------|--------------|-------|---------------------------|-------|--------------------|-------|---------------------------------------|-------|-------------|-------|--|
| | Lead 30 m, s | | Lead, stroke, punch, s | | Impact at range, m | | A shot at precision (number of times) | | Throwing, h | | |
| | Before | After | Before | After | Before | After | Before | After | Before | After | |
| 1 | 4,30 | 4,34 | 6,69 | 6,34 | 81 | 86 | 5 | 6 | 21 | 22 | |
| 2 | 4,49 | 4,37 | 6,76 | 6,41 | 67 | 72 | 3 | 7 | 20 | 20 | |
| 3 | 4,32 | 4,32 | 7,09 | 6,45 | 84 | 89 | 3 | 6 | 21 | 22 | |
| 4 | 4,46 | 4,40 | 6,86 | 6,41 | 62 | 74 | 6 | 5 | 21 | 20 | |
| 5 | 4,57 | 4,43 | 7,18 | 6,65 | 66 | 71 | 6 | 6 | 17 | 18 | |
| 6 | 4,67 | 4,45 | 6,76 | 6,42 | 80 | 82 | 8 | 5 | 20 | 19 | |
| 7 | 4,61 | 4,42 | 7,22 | 6,56 | 64 | 70 | 4 | 6 | 16 | 19 | |
| 8 | 4,42 | 4,39 | 6,98 | 6,63 | 67 | 72 | 7 | 8 | 18 | 19 | |
| 9 | 4,62 | 4,54 | 7,70 | 6,97 | 62 | 64 | 5 | 4 | 17 | 17 | |
| 10 | 4,50 | 4,38 | 7,04 | 6,64 | 69 | 75 | 5 | 5 | 17 | 18 | |
| X | 4,51 | 4,39 | 6,96 | 6,54 | 73 | 79 | 4,4 | 5,8 | 18,5 | 19,3 | |
| SD | 0.10 | 0.06 | 0.38 | 0.18 | 5.2 | 6.0 | 1,4 | 1,1 | 2,2 | 2,2 | |
| χ^2 | 0,90 | 0,96 | 0,98 | 0,98 | 0,82 | 0.80 | 0,84 | 0,91 | 0,82 | 0,83 | |
| | 0,80 | 0,86 | 0,88 | 0,88 | 0,88 | 0.87 | 0,94 | 0,81 | 0,82 | 0,82 | |
| P | <0,001 | | <0,001 | | <0,001 | | <0,001 | | >0,005 | | |

Table 2 shows the results of the analysis of technical and tactical indicators of competitive activity of football players aged 16–17 before and after the implementation of practical recommendations, which showed significant improvements in the main aspects of the game.

Table 2. The indicators of technical and tactical actions of young sports people at the stages of the competitive period before and after the experiment (number)

| Technical and tactical actions | Model* | Before | After | P | |
|---------------------------------------|---------|------------|------------|---------|--|
| | | experiment | experiment | | |
| Short and medium forward gears | 100-120 | 74±23 | 105±24 | < 0.005 | |
| | 15-18 | 34±4 | 33±6 | >0.005 | |
| Short and medium reverse gears | 130-160 | 62±19 | 84±25 | < 0.05 | |
| | 6-8 | 19±6 | 16±5 | >0.05 | |
| Long transmissions | 80-100 | 91 ±32 | 80±30 | >0.05 | |
| | 30-35 | 48±9 | 42±7 | >0.050 | |
| Maintenance | 70-90 | 37±13 | 39±16 | >0.05 | |
| | 5-7 | 8±4 | 6±3 | >0.05 | |
| Stroke | 30-40 | 38±22 | 30±14 | >0.005 | |
| | 20-25 | 24±8 | 20±10 | >0.005 | |
| Selections | 45-60 | 68±22 | 54±23 | < 0.005 | |
| | 45-55 | 64±8 | 46±9 | < 0.0 5 | |
| Interception | 60-65 | 15±25 | 71±21 | >0.005 | |
| | 30-35 | 40±6 | 31±10 | < 0.005 | |
| Playing with head | 50-60 | 65±12 | 64±20 | >0.005 | |
| | 35-40 | 47±3 | 43±4 | >0.005 | |
| Shots on goal | 12-18 | 11±3 | 14±3 | < 0.005 | |
| | 50 | 58±24 | 45±7 | < 0.005 | |
| Amount per game | 600-750 | 521±184 | 541±182 | < 0.005 | |
| Technical faults per game (%) | 20-25 | 39±3 | 33±3 | < 0.005 | |

Note: * – the interval within which the indicators for each type of TTAs in the game should be located

In particular, there was a significant increase in the number of short and medium forward passes from 74 ± 23 to 105 ± 24 (p<0.05). In addition, there was an improvement in the performance of back passes, the number of which increased from 62 ± 19 to 84 ± 25 (p<0.05). This indicates more confident ball possession and the players' ability to control the game's pace. A significant reduction in technical deficiencies in passing (although in some aspects, it is statistically insignificant) indicates an improvement in the players' technical stability. At the same time, the number of long passes did not undergo statistically significant changes (p>0.05), probably due to their more selective and strategic use depending on the game situation. Positive changes were also found in the performance of rolls, where the number of technical deficiencies during these actions decreased from 64 ± 8 to 46 ± 9 (p<0.05). The progress in the test results confirms the correctness of the approach to the periodisation of training loads, taking into account the individual needs of each athlete. The data obtained indicate that a systematic approach, which includes specialised technical and tactical exercises and a gradual increase in loads, helps to optimise the training process and improve the team's performance in competitions.

Changes in the structure of technical and tactical actions (TTAs) also indicate an increase in the efficiency of competitive activity (Table 3). For example, an increase in the share of passes in TTAs indicates an improvement in the collective interaction of players, which is typical for high-level teams. The team's high level of coordination ensured the increased number of passes. The increase in the percentage of passes was an indicator of the player's technical skill. Several passes reflect the ability to think strategically, quickly switch from defence to attack and create dangerous moments near the opponent's goal. It is known that the psychological state of young athletes significantly affects competition performance. Analysis of the psychological parameters made it possible to identify the psychological characteristics of winners and losers. According to the results, an effective training strategy is feasible. Studies have shown that athletes who have suffered defeat more often avoid difficult situations. In contrast, winners demonstrate a higher level of resistance. The results indicate a high motivation of winners to continue fighting for the result. As shown in Figure 1, those who have lost more often demonstrate distancing as a psychological defence mechanism. This position of the defeated athletes can later lead to disruption of the training plan and loss of team interaction.

Winners demonstrate a higher level of general awareness, contributing to a more confident performance of game tasks and adaptation to changing game conditions. Data analysis shows that winners have a higher level of self-control (SC), planning (PSP) and social support (SSS). These factors ensure effective team interaction and increase stress resistance. Results contribute to the implementation of the coach's tactical and technical plans. Defeated athletes are characterised by lower values of social expectations and expected attitudes towards teammates. The study results emphasise the importance of developing the psychological training of young athletes. The statistical evaluation of these parameters is presented in Table 3.

Table 3. Predicted & residual parameters in the football winners and losers

| Variable | Observed | Predicted | Residual | Standard | Standard | Std.Err. | Mahalanobis | Deleted | Cook & |
|---|----------|-----------|----------|----------|----------|----------|-------------|---------|------------------------|
| Activeness/Passiveness (A/P) | 0,470 | 0,377 | 0,093 | -1,141 | 0,055 | 0,528 | 1,302 | 0,103 | apos;s 0,000 |
| Adequacy/Inadequacy (A/I) | 0,590 | 0,496 | 0,094 | -1,136 | 0,056 | 0,527 | 1,292 | 0,104 | 0,000 |
| Avoidance (A) | 47,120 | 46,049 | 1,071 | 0,573 | 0,636 | 0,398 | 0,328 | 1,135 | 0,013 |
| Confrontation (C) | 47,180 | 45,388 | 1,792 | 0,548 | 1,065 | 0,394 | 0,300 | 1,896 | 0,035 |
| Distancing (D) | 50,670 | 48,890 | 1,780 | 0,679 | 1,058 | 0,418 | 0,461 | 1,898 | 0,039 |
| External Negative motivation (ENM) | 4,180 | 3,889 | 0,291 | -1,009 | 0,173 | 0,494 | 1,018 | 0,318 | 0,002 |
| External Positive Motivation (EPM) | 4,200 | 4,047 | 0,153 | -1,003 | 0,091 | 0,492 | 1,006 | 0,167 | 0,000 |
| General Awareness of Life (GAL) | 101,940 | 101,071 | 0,869 | 2,637 | 0,516 | 0,987 | 6,953 | 1,324 | 0,106 |
| Internality /Externality (EE) | 0,470 | 0,377 | 0,093 | -1,141 | 0,055 | 0,528 | 1,302 | 0,103 | 0,000 |
| Internal Motivation (IM) | 3,430 | 3,386 | 0,044 | -1,028 | 0,026 | 0,498 | 1,057 | 0,048 | 0,000 |
| Level of Awareness of the Expected Events (LAEE) | 16,180 | 16,446 | -0,266 | -0,538 | -0,158 | 0,392 | 0,290 | -0,281 | 0,001 |
| Level of Social Expectations of Personality (LSEP) | 61,050 | 66,132 | -5,082 | 1,326 | -3,019 | 0,579 | 1,758 | -5,763 | 0,692 |
| Level of the Expected Attitude Towards the Participants of Interpersonal Interaction (LEATPI1). | 13,030 | 13,635 | -0,605 | -0,644 | -0,359 | 0,411 | 0,414 | -0,643 | 0,004 |
| Level of the Expected Performance (LEP) | 31,840 | 35,839 | -3,999 | 0,190 | -2,376 | 0,350 | 0,036 | -4,180 | 0,133 |
| Life Goals (LG) | 30,460 | 31,026 | -0,565 | 0,009 | -0,336 | 0,344 | 0,000 | -0,590 | 0,003 |
| Locus of Control - Life (LCL) | 19,670 | 20,283 | -0,613 | -0,394 | -0,364 | 0,370 | 0,155 | -0,645 | 0,004 |
| Locus of Control - Self (LCS) | 30,050 | 29,437 | 0,613 | -0,051 | 0,364 | 0,344 | 0,003 | 0,639 | 0,003 |
| Openness-Closeness (O/C) | 0,670 | 0,575 | 0,095 | -1,134 | 0,057 | 0,526 | 1,285 | 0,106 | 0,000 |
| Planning to Solve a Problem (PSP) | 62,230 | 62,029 | 0,201 | 1,172 | 0,120 | 0,536 | 1,374 | 0,224 | 0,001 |
| Positive Overestimation (PO) | 47,560 | 47,785 | -0,225 | 0,638 | -0,134 | 0,410 | 0,407 | -0,239 | 0,001 |
| Process (P) | 28,420 | 28,915 | -0,495 | -0,070 | -0,294 | 0,345 | 0,005 | -0,516 | 0,002 |
| Result (R) | 26,860 | 24,417 | 2,444 | -0,239 | 1,452 | 0,354 | 0,057 | 2,556 | 0,051 |
| Seeking Social Support (SSS) | 39,120 | 38,966 | 0,154 | 0,307 | 0,091 | 0,360 | 0,094 | 0,161 | 0,000 |
| Self-Control (SC) | 71,510 | 69,447 | 2,063 | 1,450 | 1,226 | 0,614 | 2,104 | 2,380 | 0,133 |
| Minimum | 0,470 | 0,377 | -5,082 | -1,141 | -3,019 | 0,344 | 0,000 | -5,763 | 0,000 |

| Maximum | 101,940 | 101,071 | 2,444 | 2,637 | 1,452 | 0,987 | 6,953 | 2,556 | 0,692 |
|---------|---------|---------|-------|--------|-------|-------|-------|-------|-------|
| Mean | 30,788 | 30,788 | 0,000 | 0,000 | 0,000 | 0,467 | 0,958 | 0,013 | 0,051 |
| Median | 29,235 | 29,176 | 0,095 | -0,060 | 0,056 | 0,415 | 0,438 | 0,105 | 0,002 |

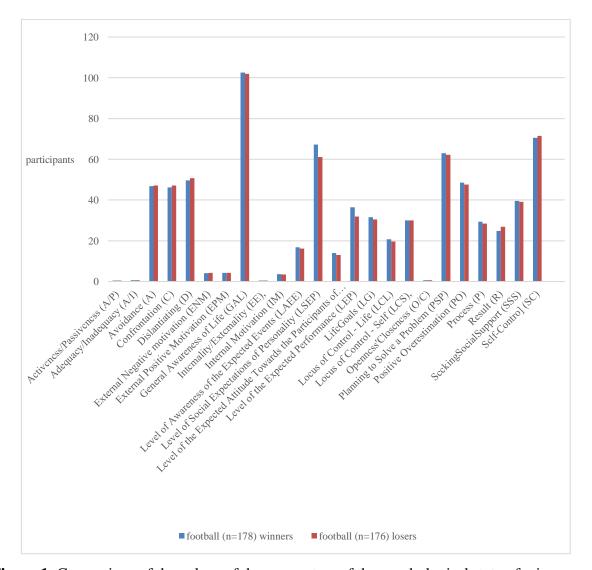


Figure 1. Comparison of the values of the parameters of the psychological state of winners and losers (on the example of youth football teams)

The study shows that the observed psychological parameters of the winners and losers of youth football competitions differ slightly but are mainly close to the predicted values. The statistical analysis showed that the residuals of statistical and residual deviations are primarily small, indicating the model's accuracy. The parameters Activeness/Passiveness (A/P), Adequacy/Inadequacy (A/I) and

Avoidance (A) in the identified deviations (residuals) indicate that athletes who have suffered a defeat may be more passive and avoidant under challenging situations. The residuals of indicators Confrontation (C) and Distancing (D) show that losers tend to avoid confrontation or maintain psychological distance. The residuals of Extrinsic Motivation (both positive and negative) show that the losers are somewhat more dependent on extrinsic motivation factors than expected. The most significant deviations between the Level of Social Expectations of Personality (LSEP) and the Level of Expected Performance (LEP) were found in the level of social expectations and performance expectations. These indicators are significantly lower than predicted for athletes who have suffered a defeat. However, LSEP and LEP affect their results.

Self-control (SC) and Planning to Solve a Problem (PSP) parameters in the group of losers have a positive residual level of self-control. Table 3 indicates their ability to control emotions under stress better. The group of losing athletes was more focused on the result. However, the difference in the process was insignificant, reflected in the relatively small deviations of the Process and Outcome parameters (P, R).

The residual parameters for Life Goals (LG) and Locus of Control (LCL, LCS) indicate that the winners are more aware of their goals and control the events of their lives.

The results support the hypothesis that winners are more intrinsically motivated, better understand their life goals, and are process-oriented. On the contrary, losers tend to rely more on external factors, focus on results, and distance or avoid in response to stressful situations. Results point to the need to support a psychological training programme for both groups – the development of motivation and social competences for the losers, which is particularly emphasised.

4. DISCUSSION

Research on young athletes' physical, technical and psychological preparation is underdeveloped (Schinke et al., 2024). This is especially true for the mental states of the athletes before competitions. An athlete's mental state before a competition is a complex psychophysiological phenomenon that stabilises over time and transforms into a personality trait. These states play a key role in forming the athlete's regulatory functions, which become the basis of his/her competitive activity (Skripka et al., 2019).

Of particular note is the impact of pre-competitive mental states on performance. In particular, research results confirm that dominant pre-competitive mental states significantly impact the individual game and the entire sports career of a football player (Stamenković, 2023). Pre-competitive mental

states reflect the level of athletes' regulatory capabilities and form a model of the expected future result (Popovych et al., 2021; Pucsok et al., 2021). In particular, the ability to tune in to the game determines the athlete's readiness for competition and tactical and technical training effectiveness. Researchers are inclined to believe that in the first minutes of the game, this mechanism can serve as a psychological defence against opponent pressure (Strittmatter et al., 2021). However, at the same time, it negatively affects compliance with the game plan. The lack of proper attitude to the game and the use of defence strategies such as distancing destroy the coherence of actions in the team and can lead to defeat (Wakwak et al., 2023).

Based on the results obtained, systematic work with pre-competitive mental states is an essential component of the training of young athletes (Thomas et al., 2021). Consideration of the structure, variables and interdependencies of the factors of expected states will help coaches formulate convincing scenarios for developing events in matches. They can respond to changing situations and adjust the game's course (Tsyupak et al., 2018). Adequate psychological approaches reduce the likelihood of using destructive psychological defence mechanisms (Varghese et al., 2021). The results confirmed that the psychological training of athletes should be integrated with technical and physical training (Walton et al., 2024). Recent studies show that it is advisable to expand the study of the influence of psychological factors on performance in other sports (Zhang & Wang, 2023). Our study confirms the effectiveness of an integrated approach to training young athletes. The results allow us to develop comprehensive psychological training programmes to optimise the pre-competition expectations of young athletes.

5. CONCLUSIONS

The study confirmed the importance of a comprehensive approach to preparing young football players for international competitions. The training strategy included improving technical skills, physical fitness and psychological stability. The practical recommendations of world-known scientists were implemented. A significant increase in the number of short and medium passes forward and backward was noted. An improvement in ball control and pace of the game was indicated. The analysis revealed a decrease in the number of technical errors. An increase in the players' technical stability was demonstrated. The results confirm the importance of adapting training programmes to the individual needs of athletes. The sociocultural context to improve athletes's competitiveness was considered. The research also shows that winners have stronger intrinsic motivation and process orientation. Research reflects that losers rely more on external factors and need enhanced psychological support to develop motivation and social competences. Future research should focus on the

development of innovative training methods. These methods include using modern technologies, studying the long-term effects of training approaches, and analysing the impact of intercultural differences on sports performance. The findings can be used to improve training programmes, develop training strategies and make decisions for coaches and sports organisations.

6. REFERENCES

- 1. Błach, W., Rydzik, Ł., Błach, Ł., Cynarski, W. J., Kostrzewa, M., & Ambroży, T. (2021). Characteristics of technical and tactical preparation of elite judokas during the World Championships and Olympic Games. *International Journal of Environmental Research and Public Health*, *18*(11), 1-10. https://doi.org/10.3390/ijerph18115841
- 2. Ciomag, R. V., & Pop, C. L. (2024). Cultural and sporting characteristics of countries participating in sports competitions. *Marathon*, *16*(1), 1-12. https://doi.org/10.24818/mrt.24.16.01.02
- 3. Diker, G., Zileli, R., Özkamçı, H., & Ön, S. (2021). Seasonal change of aerobic performance of young soccer players. *Revista de Ciencias del Ejercicio y la Salud*, 19(1), 1–16. https://doi.org/10.15517/pensarmov.v19i1.44517
- 4. Gencer, E. (2021). The relationship between self-esteem, satisfaction with life, and coach-athlete relationship. *Journal of Educational Issues*, 6(2), 493-505. https://doi.org/10.5296/jei.v6i2.18028
- 5. Jin, S., Rabinowitz, A. R., Weiss, J., Deshpande, S., Gupta, N., Buford May, R. A., & Small, D. S. (2021). Retrospective survey of youth sports participation: Development and assessment of reliability using school records. *PLOS ONE*, *16*(9), 1-8. https://doi.org/10.1371/journal.pone.0257487
- 6. Popovych, I., Halian, I., Pavliuk, M., Kononenko, A., Hrys, A., & Tkachuk, T. (2022). Emotional quotient in the structure of mental burnout of athletes. *Journal of Physical Education and Sport*, 22(2), 337–345. https://doi.org/10.7752/jpes.2022.02043
- 7. Popovych, I., Pavliuk, M., Hrys, A., Sydorenko, O., Fedorenko, A., & Khanetska, T. (2021). Pregame expected mental states in men's mini-football teams: A comparative analysis. *Journal of Physical Education and Sport*, 21(2), 772–782. https://doi.org/10.7752/jpes.2021.02096
- 8. Popovych, I., Semenov, O., Hrys, A., Aleksieieva, M., Pavliuk, M., & Semenova, N. (2022). Research on mental states of weightlifters' self-regulation readiness for competitions. *Journal of Physical Education and Sport*, 22(5), 1134–1144. https://doi.org/10.7752/jpes.2022.05143
- 9. Pucsok, J. M., Ráthonyi, G., Varga, K., Perényi, G., Lenténé Puskás, A., Bács, Z., & Balogh, L. (2021). Identification of specific selection criteria in young ball sport players. *Stadium Hungarian Journal of Sport Sciences*, *3*(2), 1–11. https://doi.org/10.36439/shjs/2020/2/8595
- 10. Purwanto, S., & Ockta, Y. (2024). Sports nutrition and gross motor skill development in youth athletes: A literature review. *Jurnal Penelitian Pendidikan IPA*, 10(8), 572–579. https://doi.org/10.29303/jppipa.v10i8.8991
- 11. Sabadash, V., & Omelianova, S. (2021). Mathematical prediction of the scale of migration of heavy metals in the soil profile. In *Proceedings of the 15th International Conference on Monitoring of Geological Processes and Ecological Condition of the Environment* (pp. 1–5). European Association of Geoscientists & Engineers. https://doi.org/10.3997/2214-4609.20215K2048
- 12. Schinke, R. J., Henriksen, K., Moore, Z. E., Stambulova, N., Bartley, J., Cosh, S., Wagstaff, C. R. D., Quartirolli, A., Wylleman, P., Maher, C. A., Zhang, L., Si, G., Kenttä, G., Zhang, C.-Q., Li, Y., Kuettel, A., Brandão, R., & Wong, R. (2024). International Society of Sport Psychology position stand: Elite athlete mental health revisited. *International Journal of Sport and Exercise Psychology*, 22(4), 1–27. https://doi.org/10.1080/1612197X.2024.2359872

- 13. Skripka, I. M., Lapitskiy, V. O., Honcharenko, V. I., & Solonenko, Y. V. (2019). Features of sports training of archers-students in classes in groups for raising the athletic skill. *Science and Education a New Dimension*, 7(79), 67–69. https://doi.org/10.31174/send-pp2019-197vii79-14
- 14. Stamenković, M. (2023). A time of success and pride: From Paris (1924) to Paris (2024): Representatives of Serbia at the Olympic Games. *Fizicko Vaspitanje i Sport Kroz Vekove*, 10(2), 113–125. https://doi.org/10.5937/spes2302113s
- 15. Strittmatter, A.-M., Hanstad, D. V., & Skirstad, B. (2021). Facilitating sustainable outcomes for the organisation of youth sports through youth engagement. *Sustainability*, *13*(4), 1-14. https://doi.org/10.3390/su13042101
- 16. Thomas, G. L., Bailey, J., & Engeness, I. (2021). Scaffolding athlete learning in preparation for competition: What matters. *Sports Coaching Review*, 12(3), 1–21. https://doi.org/10.1080/21640629.2021.1991713
- 17. Tsyupak, Y., Tsyupak, T., Shvay, A., Gnitetsky, L., Kovalchuk, A., & Tsyupak, Y. (2018). The influence of outdoor games on the indicators of physical and technical-tactical fitness of young football players in the preparatory period. *Physical Education, Sports and Health Culture in Modern Society*, 2(42), 149–154. https://doi.org/10.29038/2220-7481-2018-02-149-154
- 18. Varghese, M., Ruparell, S., & LaBella, C. (2021). Youth athlete development models: A narrative review. *Sports Health: A Multidisciplinary Approach*, 14(1), 20–29. https://doi.org/10.1177/19417381211055396
- 19. Wakwak, O., Ghazy, A., & Baioumy, M. (2023). Chronological age and its relation to results of Tokyo Olympic Games 2020 as a basis for preparing female judokas for Olympic participation. *Assiut Journal of Sport Science and Arts*, 2023(1), 31–43. http://doi.org/10.21608/ajssa.2023.326848
- 20. Walton, C. C., Purcell, R., Henderson, J. L., Kim, J., Kerr, G., Frost, J., Gwyther, K., Pilkington, V., Rice, S., & Tamminen, K. A. (2024). Mental Health Among Elite Youth Athletes: A Narrative Overview to Advance Research and Practice. *Sports Health*, *16*(2), 166–176. https://doi.org/10.1177/19417381231219230
- 21. Zhang, K., & Wang, M. (2023). Muscular strength training impacts in young athletes. *Revista Brasileira De Medicina Do Esporte*, 29, 1-5. https://doi.org/10.1590/1517-8692202329012022_0171

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

FUNDING

This research received no external funding.

COPYRIGHT

© Copyright 2025: Publication Service of the University of Murcia, Murcia, Spain.