

EXPERIMENTAL JUSTIFICATION OF A MODEL FOR IMPROVING TECHNICAL SKILLS DURING THE COMPREHENSIVE TRAINING PHASE OF 12–13-YEAR-OLD FOOTBALL PLAYERS

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Annotation: This study is dedicated to the scientific justification of a model for developing the technical training of 12–13-year-old football players. Modern football requires comprehensive preparation that includes complex physical, technical, tactical, and psychological components. The research proposes a step-by-step model for developing young footballers' technical skills, which consists of preparatory, basic, advanced, and specialized phases. This model aims to enhance players' movement coordination, dribbling, passing accuracy, shooting power, and decision-making speed. As part of the study, an experiment was conducted involving 12–13-year-old football players in the Bukhara region, where the technical capabilities of players in control and experimental groups were analyzed. Using specific tests, key indicators such as dribbling speed, endurance, and shooting power were measured and their dynamics statistically analyzed.

Keywords: football player, technical movement, exercise, ball, game, dribbling speed, endurance, shot power.

ЭКСПЕРИМЕНТАЛЬНОЕ ОБОСНОВАНИЕ МОДЕЛИ СОВЕРШЕНСТВОВАНИЯ ТЕХНИЧЕСКИХ НАВЫКОВ НА ЭТАПЕ КОМПЛЕКСНОЙ ПОДГОТОВКИ ФУТБОЛИСТОВ 12-13 ЛЕТ

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Аннотация: Данное исследование посвящено научному обоснованию модели развития технической подготовленности футболистов 12-13 лет. Современный футбол требует комплексной подготовки, включающей в себя комплекс физических, технических, тактических и психологических составляющих. В исследовании предлагается пошаговая модель развития технических навыков юных футболистов, которая состоит из подготовительного, базового, продвинутого и специализированного этапов. Цель этой модели - улучшить координацию движений игроков, дриблинг, точность передачи, силу удара и скорость принятия решений. В рамках исследования был проведен эксперимент с участием 12-13-летних футболистов Бухарской области, где были проанализированы технические возможности игроков контрольной и экспериментальной групп. С помощью специальных тестов были измерены ключевые показатели, такие как скорость дриблинга, выносливость и сила удара, и статистически проанализирована их динамика.

Ключевые слова: футболист, техническое движение, упражнение, мяч,

игра, скорость дриблинга, выносливость, сила удара.

Relevance of the Problem: In modern football, comprehensive training refers to a player's ability to optimally utilize their physical, technical, tactical, and psychological capacities in every situation and to make well-considered decisions during the dynamic course of a match.

The analysis of scientific research shows that numerous studies have been conducted in this area. Many authors acknowledge that the technical preparedness of young football players is partly determined by hereditary factors (genetic predispositions). However, they also emphasize that these abilities, like other physical qualities, can be developed through targeted training.

According to the aforementioned researchers, the rate at which technical skills develop is closely linked to genetic factors, anatomical and physiological characteristics, and the peculiarities of the body's development at various stages of growth.

To enhance general and specific technical preparation, specialists propose an integrated system of exercises, including cyclic, acyclic, analytical, synthetic, and circuit training methods, as well as gymnastic routines, acrobatics, and exercises based on sports games.

Research Objective: To experimentally justify a model for developing technical movements in 12–13-year-old football players.

Research Methods: Literature analysis, pedagogical observation, mathematical-statistical analysis, and pedagogical research.

We propose the following model for developing the technical training of young football players. This model is aimed at ensuring the rapid and effective preparation of young athletes, helping them to acquire technical skills and apply them successfully during gameplay.

Model for Technical Training of Young Football Players

Preparatory Phase (Beginner Level)

Objective: To teach the basic elements of movement and to develop coordination and motor skills.

- **Technical exercises:** Basic ball movements, passing, dribbling, and shooting.
- **Coordination exercises:** Quick and accurate ball control, working with both right and left feet, turning, and moving the ball from one point to another.
- **Physical exercises:** Drills aimed at developing speed, endurance, and strength (e.g., sprints, running through agility courses).
- **Method:** Integration with other sports (e.g., basketball or volleyball) to improve coordination and speed.

Main Phase (Intermediate Level)

Objective: To develop technical skills, enhance ball control, and clarify actions in various tactical situations against opponents.

- **Technical exercises:** Fast ball transfers forward, backward, left, and right during game situations, as well as shooting and passing.

- **Coordination exercises:** Increasing and accelerating movement, making quick decisions based on the situation (e.g., intercepting the ball and organizing an attack).
- **Physical exercises:** Quick reaction, maintaining balance, and executing movements under challenging conditions.
- **Tactical exercises:** Passing and starting attacks in 2v2 or 3v3 games, deceiving defenders, and outsmarting opponents.

Advanced Phase (High Level)

Objective: To perform complex technical and tactical combinations in match situations and to develop specialized skills.

- **Technical exercises:** Long passes, powerful shots, aerial attacks, and high-speed dribbling.
- **Coordination exercises:** Maintaining a high level of accuracy during various scenarios in small-sided games (e.g., 4v4, 5v5).
- **Tactical exercises:** Mastering opposition, applying positional pressure in attack, and demonstrating high-level determination in defense.
- **Physical exercises:** Improving strength, speed, and endurance, including sprinting short distances and adapting to rapidly changing game conditions.

Specialized Phase (Highly Specialized Level)

Objective: To integrate advanced technical and tactical skills into game situations and apply successful strategies against opponents.

- **Technical exercises:** First, enhancing technical skills in conditional game scenarios, then applying them against opponents.
- **Coordination exercises:** Improving reaction time, decision-making under pressure, and executing correct movements.
- **Physical exercises:** Enhancing fitness, managing physical and psychological stress, and maintaining high performance over time.
- **Tactical exercises:** Managing gameplay, forming attacks, transitioning into defense, and maintaining speed during counterattacks.

Tactical and Psychological Development (Stable Progress Phase)

Objective: To develop the psychological state of young football players and their ability to make decisions during matches.

- **Tactical exercises:** Improving the ability to understand the opponent and coordinate in psychologically demanding game situations (e.g., making suitable decisions in every situation).
- **Psychological exercises:** Increasing stress resistance, improving teamwork, and enhancing communication.

The primary goal of this technical training model for young football players is to develop their technical skills at each stage and implement comprehensive exercises aimed at applying physical and tactical abilities. Each phase of the model requires using dynamic and complex technical-tactical situations while preparing athletes both mentally and physically. This process helps players make quick and effective decisions in ever-changing match conditions.

This study was conducted to examine the technical preparation level of 12–13-year-old football players in the Bukhara region and to assess how it changed under

the influence of training. Control (CG) and experimental (EG) groups were formed to analyze the players' technical capabilities. During the research, key technical skills were assessed using specific tests. The results were compared using the coefficient of variation (V%), the Student's t-test (t), and the statistical significance level (p) to determine whether changes were random or meaningful.

Table 1

**Dynamics of Technical Preparedness of 12–13-Year-Old Football Players
in Bukhara Region**

№	Indicators	Test period	CG (n-15) $\bar{X} \pm \sigma$	V%	EG (n-15) $\bar{X} \pm \sigma$	V%	t	p
1.	Dribbling the ball for 30 meters (sek.)	S.E.	5,82±0,65	11,1	5,98±0,69	11,5	0,65	>0,05
		E.E.	5,73±0,67	11,6	5,27±0,43	8,1	2,23	<0,05
2.	Dribbling the ball 5×30 meters (sec.)	S.E.	29,96±3,81	12,7	31,45±3,76	11,9	1,07	>0,05
		E.E.	29,62±3,24	12,9	27,05±2,59	9,5	2,14	<0,05
3.	Long-distance ball kicking (m)	S.E.	65,81±9,68	14,7	62,21±9,82	15,7	1,01	>0,05
		E.E.	68,16±9,95	14,6	75,49±7,63	10,1	2,26	<0,05
4.	Throw-in (from sideline) distance (m)	S.E.	17,89±2,53	14,1	16,91±2,58	15,2	1,05	>0,05
		E.E.	18,16±2,45	13,4	19,84±1,92	9,6	2,09	<0,05
5.	Overhead forward throw of a 2 kg medicine ball with both hands (m)	S.E.	11,06±1,57	14,2	10,43±1,64	15,7	1,07	>0,05
		E.E.	11,30±1,68	14,8	12,39±1,07	8,6	2,11	<0,05

In the 30-meter dribbling test, players' dribbling speed was evaluated. The ability to dribble the ball quickly and accurately is a key factor in a footballer's coordination and technical skill.

- The control group had an initial result of 5.82 ± 0.65 seconds, and by the end of the experiment, this slightly improved to 5.73 ± 0.67 seconds, which was not statistically significant ($p > 0.05$).

- The experimental group started with 5.98 ± 0.69 seconds, and this significantly decreased to 5.27 ± 0.43 seconds by the end, indicating a statistically significant improvement in dribbling speed ($p < 0.05$).

The 5×30 meter ball-running test evaluates endurance, speed, and ball control. It is used to measure a player's ability to perform fast and consistent dribbling over long distances. The control group initially showed a result of 29.96 ± 3.81 seconds, and 29.62 ± 3.24 seconds at the end of the test. Although there was a slight improvement, it was not statistically significant ($p > 0.05$). The experimental group had a starting value of 31.45 ± 3.76 seconds, which decreased to 27.05 ± 2.59 seconds by the end of the experiment. This indicates a significant improvement in endurance and speed ($p < 0.05$).

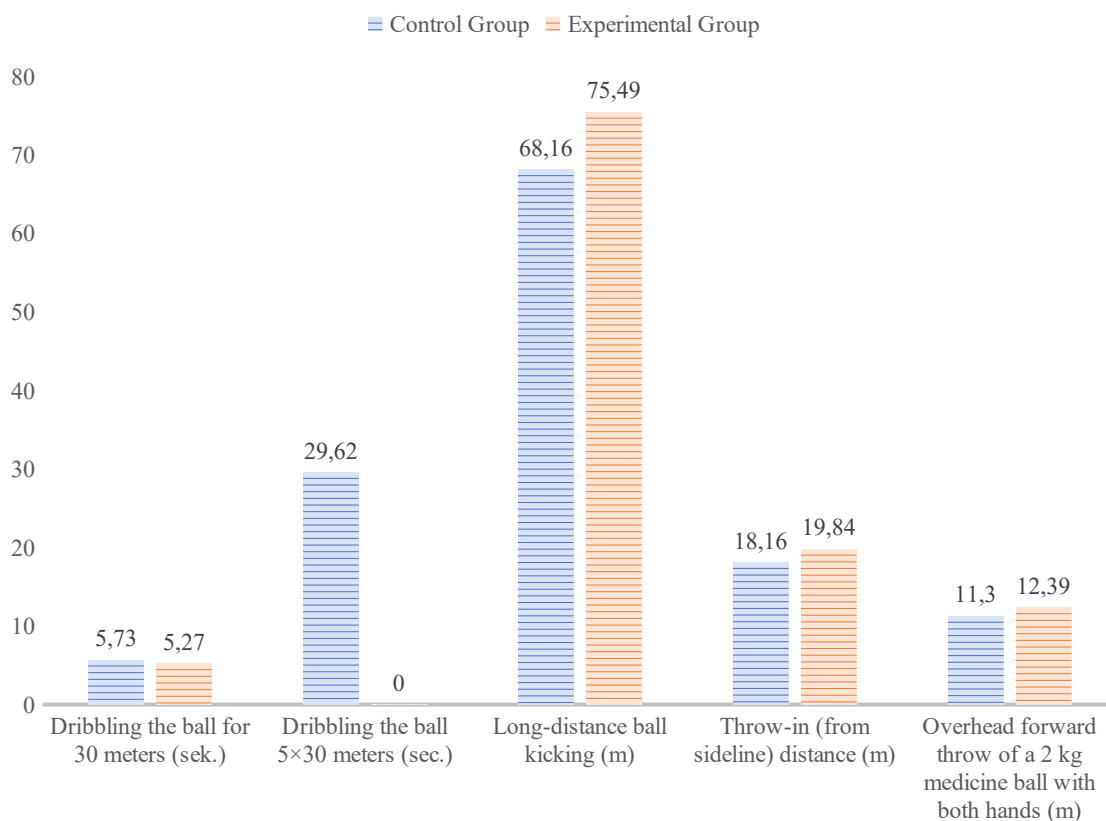


Figure 1 Dynamics of technical preparedness of 12–13-year-old football players in bukhara region

The players in the experimental group demonstrated a marked enhancement in their ability to maintain stable dribbling over long distances, while the control group showed almost no improvement. The long-distance kicking test (meters) is used to assess the power and technique of a football player's shot. Powerful kicks are essential for scoring from long range and delivering effective long passes. The control group achieved 65.81 ± 9.68 meters at the beginning and 68.16 ± 9.95 meters by the end. The improvement was minimal and not statistically significant ($p > 0.05$). The experimental group initially reached 62.21 ± 9.82 meters, increasing to 75.49 ± 7.63 meters at the end of the study. This indicates a statistically significant improvement ($p < 0.05$).

The experimental group players significantly strengthened their leg muscles, resulting in improved ability to kick the ball over longer distances.

Long-distance throw-in is crucial for organizing attacks. This test helps evaluate the players' arm strength and throwing technique.

The control group had an initial result of 17.89 ± 2.53 meters, and 18.16 ± 2.45 meters at the end of the test. There was no significant improvement ($p > 0.05$).

The experimental group began with 16.91 ± 2.58 meters and reached 19.84 ± 1.92 meters at the end. The results showed a statistically significant improvement ($p < 0.05$).

Players in the experimental group notably increased their throw-in distance, which can provide a tactical advantage during the game.

The two-handed overhead forward throw of a 2 kg medicine ball is used to assess general physical strength and upper body muscle development in football players. This skill influences a player's effectiveness during throw-ins and physical duels such as pressing.

The control group showed 11.06 ± 1.57 meters at the beginning, and 11.30 ± 1.68 meters at the end. This change was not statistically significant ($p > 0.05$).

The experimental group improved from 10.43 ± 1.64 meters to 12.39 ± 1.07 meters, indicating a statistically significant increase ($p < 0.05$).

The experimental group demonstrated much greater progress in physical strength and upper body muscle development compared to the control group.

Conclusion: The results of this study indicate that systematic and specialized training plays a crucial role in improving the technical preparedness of 12–13-year-old football players. It was revealed that the technical indicators of the experimental group improved significantly compared to those of the control group. In particular, statistically significant positive changes were observed in dribbling speed, endurance, long-distance kicking, throw-in distance, and physical strength in the experimental group ($p < 0.05$).

The findings clearly show that the football players in the experimental group significantly enhanced their technical skills due to the influence of targeted training sessions. Specifically:

- Dribbling speed improved by 11.9% ($p < 0.05$),
- 5×30-meter zigzag running improved by 14% ($p < 0.05$),
- Long-distance kicking improved by 21.3% ($p < 0.05$),
- Throw-in distance improved by 17.3% ($p < 0.05$),
- Two-handed medicine ball throw improved by 18.8% ($p < 0.05$).

In contrast, all the indicators in the control group showed only minimal changes, which were not statistically significant ($p > 0.05$). This confirms the effectiveness of specialized technical and physical training exercises.

Overall, the results of the study confirm the high effectiveness of a comprehensive approach in developing the technical skills of young football players. The proposed model not only helps ensure rapid and effective preparation, but also enhances players' ability to apply their technical and tactical skills during gameplay. Furthermore, by strengthening physical and psychological readiness, the model contributes to improving players' decision-making abilities on the field.

LITERATURE USED:

1. Bompa T. O., Buzzichelli C. Periodization-: theory and methodology of training. – Human kinetics, 2019.
2. Strudwick A. J., Williams A. Science and soccer: developing elite performers //Contemporary issues in the physical preparation of elite players. – London : Routledge, 2012. – C. 335-56.
3. Stølen T. et al. Physiology of soccer: an update //Sports medicine. – 2005. – T. 35. – C. 501-536.
4. Bangsbo J. Fitness training in football: a scientific approach //(No Title). – 1994.

5. Williams A. M., Hodges N. J. Practice, instruction and skill acquisition in soccer: Challenging tradition //Journal of sports sciences. – 2005. – Т. 23. – №. 6. – С. 637-650.
6. Vaeyens R. et al. Talent identification and development programmes in sport: current models and future directions //Sports medicine. – 2008. – Т. 38. – С. 703-714.
7. FLORIN T. D., IONEL M. Development of young football players //Ovidius University Annals, Series Physical Education & Sport/Science, Movement & Health. – 2023. – Т. 23. – №. 2. – С. 413-416.
8. Mujika I., Padilla S. Cardiorespiratory and metabolic characteristics of detraining in humans //Medicine & Science in Sports & Exercise. – 2001. – Т. 33. – №. 3. – С. 413-421.
9. Yu W. et al. International youth football research developments: A CiteSpace-based bibliometric analysis //Heliyon. – 2025. – Т. 11. – №. 1.
10. Sarajärvi J. et al. Skill-related studies from youth to high-performance football: a scoping review //German Journal of Exercise and Sport Research. – 2024. – Т. 54. – №. 3. – С. 341-353.