DOI: https://doi.org/10.37547/mesmj-V7-I5-21 Pages: 171-178

MENTAL ENLIGHTENMENT SCIENTIFIC – METHODOLOGICAL JOURNAL

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http://mentaljournal-jspu.uz/index.php/mesmj/index

FUNCTIONAL TRAINING OF YOUNG FOOTBALL PLAYERS VARIOUS GAME SPECIALIZATION IN THE COMPETITIVE PERIOD

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ABOUT ARTICLE

Key words: functional training, competitive period, young football players, playing position, training process, differentiation.

Received: 01.06.26
Accepted: 02.06.26
Published: 03.06.26

Abstract: The article discusses the functional training of young football players aged 16–18 during the competitive period. Special attention is given to differentiated training according to playing positions. The study proved that specialized training methods improve physical performance, endurance, speed-strength abilities, and the quality of technical-tactical actions of football players throughout the season.

Introduction. At present, the preparatory period in football cannot ensure a high level of motor and functional preparedness throughout the entire competition period, since the delayed training effect of the loads performed during this period is observed only during the first thirty days of the competitive season. The long duration of the competitive period, which may reach up to ten months per year, necessitates not only maintaining a high level of fitness during competitions but also continuing to improve the functional capabilities of football players.

In our republic, large-scale initiatives are being implemented to popularize football as a sport and to reform the system of training young football players. Special attention is paid to the development of both mass and professional football [1, 2]. Despite the considerable number of scientific studies devoted to improving the technical-tactical, physical, and psychological preparedness of football players, as well as the effectiveness of their competitive performance,

there remains a need for further investigation of the key factors of athletes' functional readiness at various stages of long-term training.

It is important to improve testing methods for the objective assessment of significant indicators of football players' physical preparedness. In addition, scientific research aimed at the theoretical substantiation and practical verification of the obtained data is required. This will make it possible to develop more effective approaches to the training process and to enhance the level of sports mastery among football players.

This article partially contributes to the implementation of the objectives outlined in the Decree of the President of the Republic of Uzbekistan No. UP-5887 dated December 4, 2019, "On Measures to Raise the Development of Football in Uzbekistan to a Completely New Level," and Resolution No. PP-115 dated April 7, 2023, "On Additional Measures for the Comprehensive Development of Mass and Professional Football."

Under modern conditions, the solution to this problem is possible through the organization of training effects based on the methodological principles of complexity, versatility, variability, and differentiation in accordance with the playing specialization of training means.

It should be noted that the differentiation of training means according to playing position is of particular importance. This also applies to the differentiation in the development of the main components of functional preparedness and the diagnosis of adaptation processes [7].

Methodology. Recently, studies have emerged attempting to address the selection and organization of playing lines among young football players, as well as the structuring of training according to playing position. However, these studies focus exclusively on players' preparation during the preparatory period, whereas the training process during the competitive period has not been specifically examined [3, 4].

Object of the study. Functional training of young football players aged 16–18 at the stage of sports mastery improvement.

Subject of the study. Means, methods, organization, and forms of functional training of young football players during the competitive period of the annual training cycle.

Purpose of the study. To develop and experimentally substantiate a methodology for the functional training of young football players of different playing specializations at the stage of sports mastery improvement during the competitive period of the annual training cycle.

Research objectives:

1. To develop and substantiate a methodology for the functional training of young football players aged 16–18 based on the principles of complexity, versatility, variability, and differentiation of training means according to playing specialization.

2. To develop model microcycles of training effects during the competitive period for young football players at the stage of sports mastery improvement.

3. To determine the effectiveness of a differentiated training methodology for young football players at the stage of sports mastery improvement according to playing specialization during the competitive period.

The organization of the training process for young football players during the competitive period should be based on a differentiated selection of training effects according to playing position and should meet the requirements of complexity, versatility, and variability of training means and methods. The training process of football players during the competitive period, differentiated according to the direction of training effects and playing specialization, contributes to the preservation and enhancement of physical performance and specific functional capabilities. A differentiated training methodology for football players of different playing positions during the competitive period ensures the maintenance of high motor activity and the quality of technical-tactical actions during matches [4].

Methodological approaches to organizing the training process of young football players aged 16–18 during the competitive period have been developed based on the principles of complexity, versatility, variability, and differentiation of training effects depending on playing specialization, ensuring a high level of functional preparedness throughout the entire competition period. The high effectiveness of the training process during the competitive period based on a differentiated method of developing the components of functional preparedness among football players of various playing positions has been demonstrated. A positive effect of differentiated functional training during the competitive period on players' game activity and the quality of technical-tactical actions has been established.

A total of 1,200 measurements were conducted involving 30 participants.

Results and Discussion. The results of functional and physical fitness tests, as well as technical-tactical skill assessments of football players in the experimental and control groups before and after the second stage of the pedagogical experiment, are presented in Tables 1 and 2.

Three weeks of experimental training significantly improved the functional preparedness and physical performance of the football players in the experimental group. This was reflected in a statistically significant increase in most of the studied indicators.

The main objective of the training program was achieved: the level of general physical performance (PWC170) increased by 19.9% ($P<0.05$). This indicator is considered an important measure of athletes' overall physical preparedness.

An increase in physical performance was also observed in the control group, although it was less pronounced, amounting to 4.6% ($P<0.05$) [5, 6, 7].

In the experimental group, aerobic capacity (VO_2max) significantly increased by 14.0% ($P<0.05$). In the control group, the increase in VO_2max amounted to 6.2% ($P<0.05$). This improvement in endurance was likely associated with increased resistance to hypoxia among football players in the experimental group, which rose by 18.4% ($P<0.05$). Previous studies confirm that resistance to hypoxia is closely related to endurance development [5, 6, 7].

In the experimental group, starting and sprint speed indicators improved considerably. Athletes demonstrated a 2% improvement in sprinting from a standing start ($P<0.01$), while sprint speed over distance improved by 3.6% ($P<0.05$). General endurance also improved significantly, as demonstrated by the 12-minute run test, where performance increased by 6.9% ($P<0.01$). In addition, indicators of special endurance increased by 5.8% ($P<0.01$), while speed-strength abilities improved by 1.3% ($P<0.01$).

The improvements observed in the control group were less pronounced. General endurance increased by 4.2% ($P<0.05$), while speed indicators improved to a lesser extent compared to the experimental group (see Table 1).

An analysis of the physical preparedness of football players of different playing positions demonstrated that the changes in their indicators were not uniform. For example, the increase in PWC170 was greatest among players whose initial level of this indicator had been below average. Following the experimental training program, PWC170 among forwards increased by 32.2%, while among midfielders it increased by 18.5%.

General indicators of physical performance and aerobic capacity improved in all players, although to varying degrees. However, changes in special physical preparedness were more position-specific.

Table 1

Changes in Functional and Physical Fitness Indicators of Football Players in the Experimental and Control Groups During the Second Stage of the Competitive Period (Inter-Round Period) (X ± m)

Indicators	**Experimental group (n=14)**		**Control group (n=16)**	
	Beginning of the first stage	End of the first stage	Beginning of the first stage	End of the first stage

PWC170, kgm/min	1667±82	1999±68*	1569±25	1641±36*
VO_2max, L/min	4,07±0,14	4,64±0,11*	3,91±0,04	4,15±0,06*
15 m from standing start, sec	2,31±0,01	2,00±0,01*	2,38±0,02	2,21±0,02*
15 m running start, sec	1,95±0,02	1,88±0,02*	2,03±0,01	1,99±0,01
Shuttle run 7×50 m, sec	67,1±0,6	61,3±0,5*	68,1±0,5	65,0±0,4
12-minute run, m	3300±17	3450±34*	3078±33	3207±37*
Five-jump test, m	12,66±0,14	13,23±0,13*	12,16±0,13	12,41±0,13
Vertical jump (Abalakov test), cm	48,2±1,5	53,8±1,0*	49,2±1,2	51,1±1,9
Resting heart rate, beats/min	60,2±1,6	59,3±1,5	61,5±1,5	60,8±1,4
Vital lung capacity, ml	4150±105	4450±65*	4150±95	4250±80
Breath-holding time during inhalation, sec	49,0±4,3	58,0±3,1*	48,3±4,4	52,6±5,8

Note: Significance of differences at P < 0.05 (sign test, Z).

The analysis of the dynamics of speed endurance indicators revealed that the greatest increase in this parameter was observed among forwards (6.7%) and midfielders (5.0%). Speed characteristics demonstrated considerable variability depending on the playing specialization of football players. In particular, starting speed increased by 2.1% among forwards and by 2.0% among midfielders. Sprint speed over distance showed the greatest improvement among midfielders and defenders (4.9% and 4.8%, respectively), whereas among forwards this indicator increased by 2.8%.

The level of improvement in speed-strength abilities was also differentiated. The greatest increase was recorded among goalkeepers (2.3%) and midfielders (2.2%). Similar improvements were observed in the control group; however, their magnitude did not reach the level recorded in the experimental group.

A significant improvement in functional and physical preparedness contributed to a high level of motor activity among football players by the end of the second stage of the experimental training program, thereby confirming the effectiveness of the applied methodology (see Table 2).

Table 2

Changes in Technical-Tactical Action (TTA) Indicators of Football Players in the Experimental and Control Groups During the Second Stage of the Competitive Period (Inter-Round Period) (X ± m)

Indicators	**Experimental group (n=12)**		**Control group (n=15)**	
	Beginning of the first stage	End of the first stage	Beginning of the first stage	End of the first stage
ST	34,8±6,7	47,3±5,5*	31,5±2,9	33,1±2,4
SH	15,5±1,9	11,5±1,5	17,1±2,2	19,5±1,9
KH	71,4±3,7	81,7±1,7*	60,5±3,1	62,9±2,2
PIV	6,3±1,0	6,9±0,7	4,4±0,7	5,1±0,5

The direct relationship noted in the literature between the level of players' physical preparedness and the quantitative and qualitative indicators of their motor activity was confirmed. A number of studies indicate that the effectiveness of game performance in football is largely determined by the level of athletes' physical preparedness, which serves as the foundation for the acquisition and demonstration of high technical mastery.

In the experimental group, the overall volume of technical-tactical actions increased significantly. The number of accurate actions increased by 35.9% ($P<0.05$), while the number of inaccurate actions decreased by 25.8% ($P<0.05$). The reliability of performing actions increased on average by 14.4% ($P<0.05$).

The three-week experimental training program with an emphasis on speed-strength exercises significantly improved the functional preparedness of football players. This was reflected in increased physical performance and preparedness, enhanced motor activity, and improved quality of technical-tactical actions.

Conclusion. The tendency toward an increase in the volume of competitive activity among football teams leads to a reduction in the volume of functional training and, consequently, the inability to maintain a high level of performance throughout the entire competition period. This necessitates the development of effective and rational methods for organizing training loads during the competitive period that are capable not only of maintaining a high level of fitness during competitions but also of enhancing the functional capabilities of

football players during this period. A training methodology during the competitive period that includes diverse means and methods of complex influence differentiated according to players' specialization allows for the purposeful enhancement of functional capabilities and provides more effective maintenance of a high level of special performance and the quality of technical-tactical actions in the game compared to traditional training organization.

Practical recommendations. To improve the functional preparedness of football players during the competitive period, it is recommended to differentiate training loads according to playing position. This approach makes training sessions more comprehensive, diverse, and flexible.

To maintain a high level of physical fitness and prevent a decline in special endurance, it is advisable to use microcycles focused on speed-strength exercises during the second half of the season. In this case, the training volume should be slightly reduced, while the intensity should be increased.

For optimal functional training of football players during the competitive period, it is important to apply differentiated training programs. This will contribute to improving general endurance, aerobic capacity, key components of special physical preparedness, motor activity, accuracy of actions, and the reliability of technical-tactical decisions during matches.

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