



Assessment of the Level of Physical Performance of the Women Football Players of the Olympic National Team of Uzbekistan

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Abstract: *The following article studies the level of physical performance of highly qualified women football players. The survey revealed an insufficiently high level. Recommendations are given for increasing the volume of high-intensity anaerobic-glycolytic and aerobic exercise.*

Keywords: *control of physical performance, highly qualified women football players, level of special preparedness.*

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Introduction. In conditions of high competition for leadership at the international level, an increase in the volume and intensity of training and emulative loads, it is necessary to consider the problem of developing fitness and shaping athletic form among highly qualified women football players in a new way [7].

Experts note that in recent years, the range of volume and intensity of motor movements performed during the match has significantly increased among women football players, and the requirements for their level of physical and functional fitness, for the ability to maintain a high degree of psychological stability and effectively perform technical and tactical techniques throughout the game have increased.

The level of modern development of football requires athletes to be able to withstand enormous stresses of physical and psycho-emotional stress. According to a number of experts, the success of the preparation and performance of athletes in competitions directly depends on the level of functional reserve capabilities of the body of football players and the level of their physical and functional fitness [2,3,4]. The study of the physical and functional fitness of women football players includes the diagnosis and assessment of their special physical performance [5].

The program of studying the special preparedness of women football players is determined by the following features and specifics of the requirements for their playing activities, which are necessary for them to achieve and maintain a high level of functional readiness during the game:

- ✓ cardiovascular system;
- ✓ respiratory (external respiration and gas exchange);
- ✓ stability of the autonomic regulation of the central nervous system;
- ✓ psychophysiological stability;

- ✓ morph functional parameters of muscle and body fat mass;
- ✓ speed of motor reaction;
- ✓ biochemical indicators of adaptation;
- ✓ testing loads that are adequate for the motor activity of women football players in stationary conditions and in training conditions.

Many experts note [1] that there is a close correlation between the volume of technical-tactical actions (TTA) performed by women football players in games with physical performance (PWC170), oxygen consumption (MOC) and muscle tone indicators, and the efficiency coefficient of TTA is with physiological tremor ($r = 0.560$).

Pedagogical analysis of matches of different levels with the participation of Uzbek women football players indicates that most of them have a level of physical performance that does not meet the requirements of the modern game. This fact is largely explained by the fact that little time is devoted to improving the level of their special physical performance in the training process.

The purpose of the study is to analyze and evaluate the level of physical performance of highly qualified women football players.

Literature review. Pedagogical tests to determine and assess the level of physical performance of highly qualified women football players were conducted at the Republican Scientific and Practical Center for Sports Medicine (RSPCSM) at the National Olympic Committee (NOC) in 2022. The women football players performed a load of stepwise increasing power with work “to the full” on the Pulsar/Saturn treadmill and the CORTEX MetaLyzer 3B-R2 gas analyzer determined oxygen consumption and carbon dioxide release; and every 2 minutes blood was taken for biochemical analysis. Heart rate indicators were measured by Polar heart rate monitors. 32 women football players, candidates for the Olympic national team of Uzbekistan, took part in the survey.

Discussion of the results. Table 1 shows the results of testing the indicators of aerobic and anaerobic support for highly qualified women football players.

Table 1. Indicators of functional examination of highly qualified women football players (n=32)

No.	Functional indicators	X mean	$\pm\sigma$
1	MVL l/min.	116,9	2,8
2	VCL l	4,17	0,63
3	VO ₂ max ml/min/kg	47,7	3,3
4	MHR max rate/min	191,2	8,4
5	TAM rate/min	166,5	7,1
6	V to MOC km/hour	16,2	3,6
7	TAM % from MOC	70,9	2,4
8	Lactate – max millimole/l	13,7	0,44

Note: *MVL* - maximum ventilation of the lungs; *VCL* – vital capacity of the lungs; *MOC* – maximum oxygen consumption; *MHR* heart rate max – maximum heart rate; *TAM* – threshold of anaerobic metabolism; *V MOC* – average rate of maximum oxygen consumption; *TAM % of MOC* - threshold of anaerobic metabolism in % of MOC; *Lactate max* – maximum level of lactic acid acids.

It was determined that the level of physical performance and functional capabilities of energy supply systems among women football players is quite average. For example, the maximum

ventilation of the lungs, on average in the group, is 116.9 ± 2.8 l/ min, and the vent is 4.17 ± 0.63 l, which indicates a low level of efficiency of the function of external respiration and pulmonary gas exchange.

Separately, it is necessary to focus on the VO_2 max results, because the maximum aerobic capacity is determined by the level of maximum oxygen consumption by the athlete. The data obtained showed that the average VO_2 max level was 47.7 ± 3.3 ml/min/kg. The best indicator was noted by M.Sh. – 50.7 ml/min/kg, the worst by M.J. – 41.4 ml/min/kg. Only 6 (19%) women football players have good performance indicators and functional capabilities of energy supply systems (50.7-50.2ml/kg/min). Such variability of VO_2 Max indicates the heterogeneity of the group. The functional state of the cardiovascular system of women football players revealed differences related to game specialization. The highest VO_2 MAX level was noted among women players of the midfield line and fulback defenders, the lowest level was noted among goalkeepers and central defenders.

In the absolute majority of football players, it is necessary to note high heart rate values when performing a stepwise increasing load. Thus, the average heart rate was 191.2 ± 8.4 beats per minute, which indicates a more intense level of functioning and adaptation of the cardiovascular system.

The data obtained during the study indicate a low level of oxygen transport function of the circulatory system. This fact can be considered as one of the main factors limiting physical performance and creating difficulties in achieving high athletic results of football players.

It should also be pointed out that there is a wide range of indicators in the group and inter-individual differences of women football players, which indicates a different level of preparedness of their functional systems.

Moreover, such an indicator as the anaerobic threshold (AT), which determines the level of aerobic efficiency. The average TAM in football players is 166.5 ± 7.1 beats/min and in modern athletes the anaerobic threshold is between 76.6% and 90.3% of the heart rate. In our study, the TAM started at the level of 70.9% of the MOC. These data suggest that in conditions of intense competitive activity in women football players, the onset of fatigue begins with a lower level of load, which indicates an insufficiently high level of aerobic efficiency. The insufficiently high level of TAM also indicates that the training loads do not meet the requirements of the modern game. And the main discrepancy lies in the low intensity of the training loads used in the training of football players.

The concept of intensity is multifactorial, and experts suggest distinguishing between external and internal intensity of the load. Considering, that football is an acyclic and situational sport, then all the actions that are performed by a woman-football player per unit of time can be taken as the concept of external intensity of the load. It is possible to calculate the number of individual technical and tactical actions (ITTA) of women football players per unit of time during a training session, but this requires special equipment (at least 4 video cameras) located around the perimeter of the football field, allowing from different angles to record all the playing techniques of athletes and a special program that reads the volume and effectiveness of the playing techniques performed. There is no such equipment in our country yet. Therefore, to assess the intensity of the training load, we used parameters characterizing the internal intensity, i.e., the response of various functional systems of the body of women football players.

One of the most frequently studied parameters, when assessing the load of an exercise or the entire training session, is the value of the heart rate (HR), which allows you to assess in which zone of physiological intensity the training task was performed. Having heart rate data in 5 intensity zones, it is possible to calculate the orientation of the training exercise and the entire class as a whole.

Biochemical blood test showed that the lactate level after exercise averaged 13.2 ± 0.39 mmol/l. It should be noted that when performing movements at high speed, which exceeded the power of the aerobic system, there was a progressive increase in the level of lactate in the blood, which led to fatigue, as a result of which the athlete reduced the ability to fully perform the load.

It is known that with intense physical activity, corresponding to the accumulation of lactate in the blood at a concentration of 4 mmol/l, a football player works at the level of the anaerobic threshold [6].

It is noteworthy to emphasize that in highly qualified women football players, the lactate concentration may increase to a greater extent in comparison with low-level athletes, which is associated with a higher speed of movement, greater power of the work performed, high adaptation of buffer systems to the "acidification" of the body's means and the fitness of the aerobic system, whose activity is able to quickly remove glycolysis products [6].

The conducted testing showed that at this stage of the study, the $VO_2\text{Max}$ level of the absolute majority of women football players does not meet modern requirements, therefore, increasing the aerobic capabilities of football players is a reserve for improving physical condition and the level of their functional fitness.

It is known that women football players during the game 60-80% of the time work in the mode of 80-100% of the $VO_2\text{Max}$ value and this parameter is an integral indicator of aerobic metabolism at a given time.

It is observed that significant differences between women football players of different playing roles in physical performance, in its energy supply (at the standard load stage) and in the assessment of the metabolic cost of work on the content of lactic acid in the blood after exercise were found to be significant differences related to playing specialization. The greatest physical performance is typical for mid-line players and football players who perform the functions of fullback defenders, the least for goalkeepers and central defenders. Such differences are caused by game functions. The midfield players and fullbacks are more involved in the organization of the attacking and defensive actions of the team than the central defenders and goalkeepers.

However, given the trends of modern football, one of which is based on the principle of universalization, all players of a football team should be able to perform both defensive and attacking actions effectively enough, regardless of the playing role, and for this it is necessary to have a high level of physical performance and functional capabilities of the body. In women's football, the highest level of physical performance was noted among athletes who, before starting football, had been engaged in other sports for several years (handball, field hockey, volleyball, basketball, athletics). These athletes had a good level of development of functional body systems.

The average level of physical performance of the absolute majority of women football players is largely due not only to genetic characteristics and previous experience in sports, but also to low intensity training loads used in their training.

Conclusions. The data obtained allowed us to draw the following conclusions:

- the test results showed that the level of physical performance of highly qualified football players is average;
- the best level of physical performance was noted in the middle-line football players and players who perform the functions of fullback defenders;
- the players playing in the positions of central defenders and goalkeepers did not have a good enough level of physical performance;

- the most prepared women football players showed slightly better performance at high energy costs, but with less stress on the cardiovascular system.

Practical recommendations:

- to increase the level of physical performance of women football players, it is necessary to increase the volume of high-intensity anaerobic-glycolytic and aerobic loads in the training process;
- in the program for diagnosing the condition of women football players, it is advisable to use a load of stepwise increasing power with work “to the full” on a treadmill (treadmiltest) to assess physical performance.

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