

Choice of playing roles of the central defenders on the basis of the analysis of the structure of the special preparedness of qualified female water polo players

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Purpose: to develop and experimentally substantiate the method of choosing the game role of the central defenders on the basis of the analysis of the indicators of the structure of the special preparedness of qualified female water polo players.

Material & Methods: analysis and generalization of literary sources, pedagogical observation, anthropometric and physiological measurements, testing, analysis of the game activities of water polo players using test game protocols, methods of mathematical statistics. The contingent of the surveyed were members of the team of the Kharkiv region on the female water floor.

Results: the authors determined the features of the structure of special preparedness of qualified female water polo players who perform functions as central defenders, investigated the relationship between physical development indicators, technical and special swimming training of representatives of this role, developed model characteristics of the most significant parameters of the structure of special preparedness of qualified female water polo players to determine the playing role of the central defenders.

Conclusion: the definition of playing roles in women's water polo should be based on a comprehensive analysis of indicators that reflect all aspects of preparedness of qualified female athletes.

Keywords: women's water polo, central defenders, structure of special preparedness, interconnection, model characteristics.

Introduction

Water polo refers to situational sports that differ in terms of playing activity due to the aquatic environment (V. Yu. Davydov, 2007; Yu. V. Kolosov, 2003; V. N. Platonov, 2004; V. M. Chernov, 2006). Therefore, the requirements for representatives of this specialization are quite multifaceted.

Choosing a game role is one of the most important moments in a water polo player's sports career. The achievement of the heights of sportsmanship largely depends on the right choice of a narrow specialization of an athlete (I. F. Zemtsov, 2008; A. A. Pilipko, A. V. Poproshayev, 2007; A. V. Poproshayev, A. V. Chumakov, 2014, A. A. Shinkaruk, 2011).

An analysis of modern literature led to the conclusion that today the issues relating to the determination of factors affecting the effectiveness and efficiency of competitive activity in water polo have been thoroughly studied (N. Yevpak, 2015; I. F. Zemtsov, 1988; D. Karangozashvily, 1990; N. Rebitska, 2002).

At the same time, the conducted studies are mainly related to the problems of training male athletes. However, women's water polo still remains deprived of the attention of specialists.

Purpose: to develop and experimentally substantiate the method of choosing the game role of the central defenders on the basis of the analysis of the indicators of the structure of the special preparedness of qualified female water polo players.

Objectives of the study:

1. Identify the features of the structure of special preparedness of qualified female water polo players who serve as central defenders.
2. Investigate the relationship between indicators of physical development, technical and special swimming readiness in qualified female water polo players selected roles.
3. To develop model characteristics of indicators of the structure of special preparedness of qualified female water polo players to determine the playing role of the central defenders.

Material and Methods of the research

To solve the tasks, the following methods were used in the work: analysis and generalization of literary sources, pedagogical observation, anthropometric and physiological measurements, testing, and analysis of the game activities of water polo players using special protocols of control games, methods of mathematical statistics.

The experimental study was conducted on the basis of the NSC NTU "KPI" in the period from October 2017 to November 2018.

The surveyed group consisted of water polo players who had the level of sports qualification of master of sport and were members of the team of the Kharkiv region.

Results of the research

The main components of the structure of the special preparedness of qualified female water polo players are physical, technical and special swimming preparedness.

Features of physical development of athletes performing the functions of central defenders were determined by 11 most informative morpho-functional indicators, namely: length and body mass, length of arm, leg, hand and foot, chest excursion, wrist strength (right and left hand), shoulder and thigh girth.

On the basis of the obtained digital material, we constructed an average morpho-functional profile of the representatives of this gaming role (Figure 1).

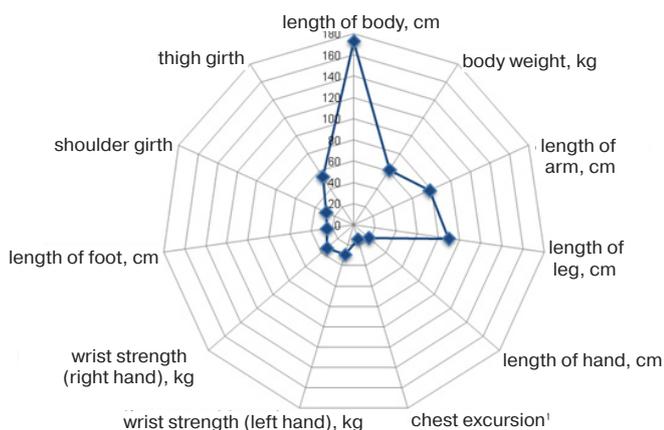


Figure 1. Averaged morpho-functional profile of qualified female water polo players who serve as central defenders

As can be seen from Figure 1, significant values of the linear and girth dimensions of the lower limbs and their segments, chest excursions, average values of height and body weight, length of the upper limbs and their segments, carpal strength are inherent in central defenders.

As the main parameters of technical readiness, we identified the following: "15 m dribble", "throw for distance", "main throw technique from the place" (MTTP), "ball handling time at the main throw from the place" (than. MTP), "main throw technique on the move" (MTTM), "ball handling time at the main throw on the move" (than. MTM), "lob shot w technique from the place" (LTTP), "lob throw technique on the move" (LTTM) and "modernized 7-minute special tests".

Conducting relevant tests and summarizing the data allowed us to form an averaged profile of technical readiness of qualified female water polo players, who have the role of central defenders (Figure 2).

Among the leading criteria for special training in swimming, which were to be measured, were: "5x3 m in the gateway", "15 m front crawl", "10 m front crawl", "2x10 m front crawl", "10 m back crawl", "2x10 m trudgen on the back", "30 m front crawl", "10 jumping", "7-minute special tests".

The obtained values became the basis for constructing the profile of special swimming preparation of central defenders (Figure 3).

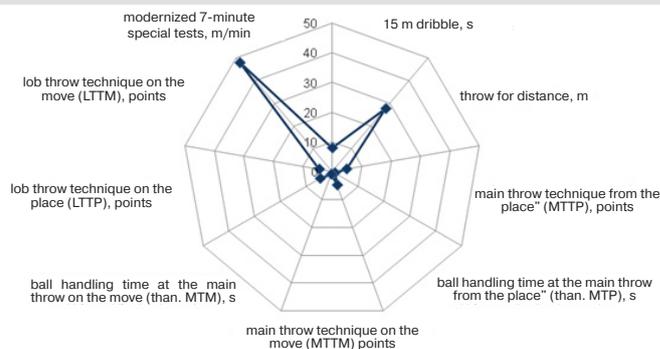


Figure 2. Averaged profile of technical readiness of qualified female water polo players who serve as central defenders

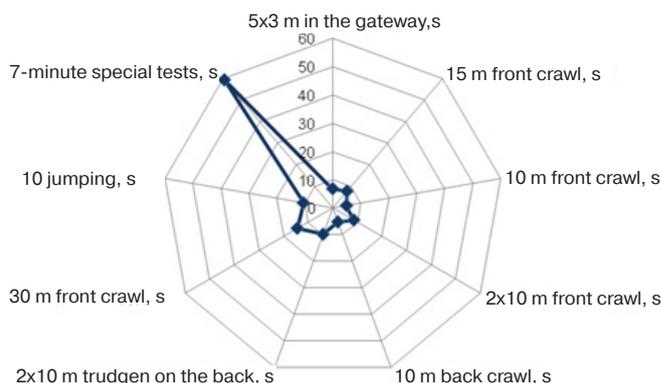


Figure 3. Average profile of the special swimming preparedness of qualified female water polo players who serve as central defenders

It is well known that the effectiveness of actions of female water polo players of various roles is determined by the specifics of the technical methods they perform in the game.

To evaluate the effectiveness of the game actions of the central defenders, the most important are quantitative indicators of seizures from the field, goals scored, shots on goal, net ball picks, failed ball throws and time spent in the game.

Having considered how the main components of the effectiveness of game actions are interconnected with the indicators

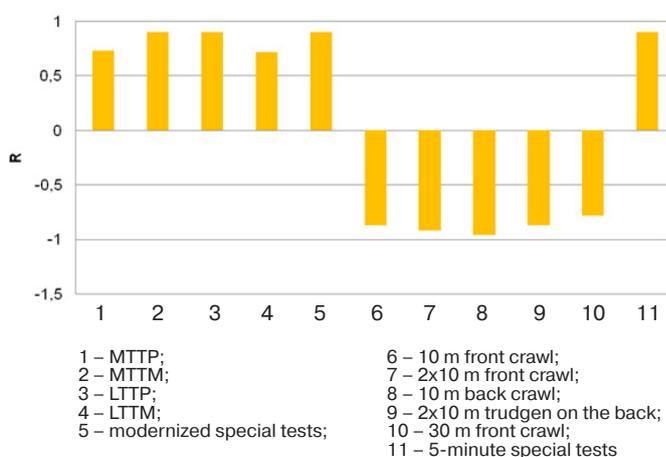


Figure 4. Degree of correlation of the most influential indicators of the structure of the special preparedness of the central defenders with the number of goals scored from under the defender

of the structure of the special preparedness of female water polo players of this role, it became possible to determine the most significant parameters in terms of their impact (Figure 4–7).

As can be seen from Figure 4, the number of goals scored from under the defender is under the considerable influence of indicators reflecting the technique of possession of the ball, and also indicate the level of sprinting capabilities and preparedness of the athletes.

The indicator of the number of throws on the gate is largely determined by the accuracy of the performance of the lob throw technique on the move LTTM, as well as the effectiveness of performing tasks reflecting the level of development of velocity qualities of water polo players of this game role (Fig. 5).

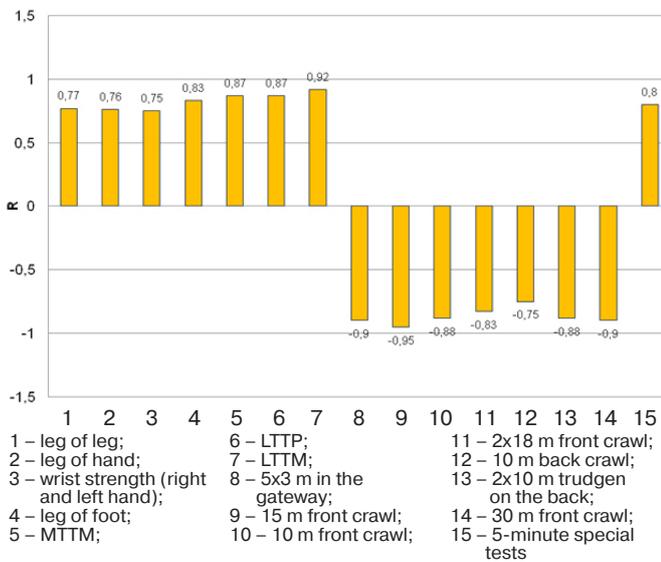


Figure 5. Degree of correlation of the most influential indicators of the structure of the special preparedness of the central defenders with the number of shots on goal

This parameter of the effectiveness of game actions, such as the number of goals scored, is mainly determined by the level of swimming performance in conjunction with the technique of ball possession (Fig. 6).

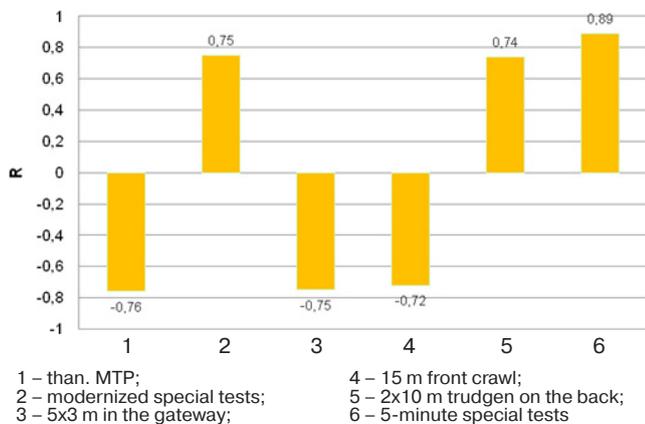


Figure 6. Degree of correlation of the most influential indicators of the structure of the special preparedness of the central defenders with the number of goals scored

The high level of swimming preparedness, as well as the accuracy of performing the main throw on the move and the accuracy of the performance of the lob throw from the place allow the athletes to be effective when performing the selection of the ball from rivals (Figure 7).

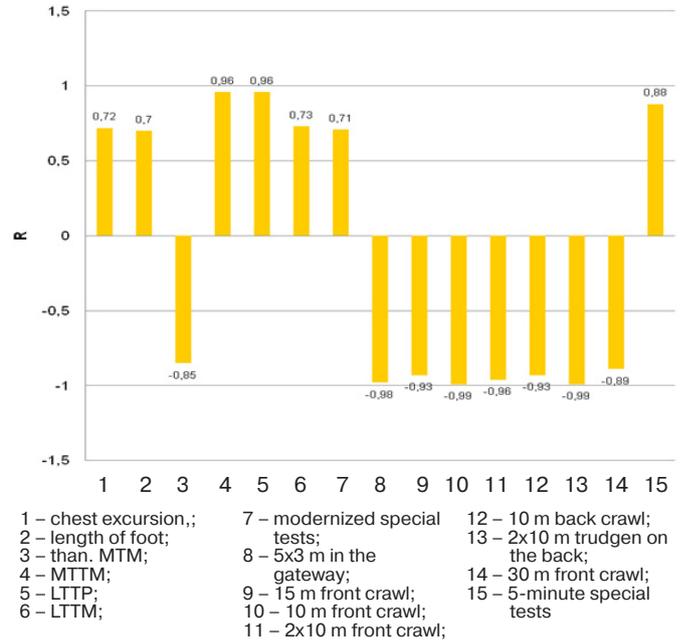


Figure 7. Degree of correlation of the most influential indicators of the structure of the special preparedness of the central defenders with the ball selection

Based on the original digital material, the model characteristics of the structure of special training were developed, in which I should take part in competitions, including in the country (Table 1).

As can be seen from Table 1, among the most significant parameters that can be used as reference points when choosing the playing role of the central defender are: MTTM, LTTP, LTTM, performance of modernized special tests, swimming intervals of "10 m front crawl", "15 m front crawl", "30 m front crawl", "2x10 m front crawl", "10 m back crawl" "2x10 m trudge-

Table 1 Model indicators of the most significant parameters of the structure of the special preparedness of the central defenders

Indicators	Model indicators	Standard deviation
Main throw technique on the move (MTTM) points	4,88	0,08
Lob throw technique on the place (LTTP), points	4,68	0,10
Lob throw technique on the move (LTTM), points	4,43	0,13
Modernized 7-minute special tests, m·min ⁻¹	47,98	1,56
5x3 m in the gateway, s	6,85	0,25
15 m front crawl, s	7,78	0,26
10 m front crawl, s	4,95	0,26
2x10 m front crawl, s	8,60	0,56
10 m back crawl, s	5,28	0,33
2x10 m trudgen on the back, s	9,95	0,26
30 m front crawl, s	14,40	0,29

gen on the back" and "5x3 m in the gateway".

To test the developed methodology for determining the game role, we took the most important parameters of the structure of the special preparedness of the leader of the group being examined – S-ko, which serves as a central defender, and compared them with the model value (Fig. 8–10).

As can be seen from the figures, the female athlete almost completely corresponds to the profile of the players of this role. This is confirmed by the high performance of the water gun during the games.

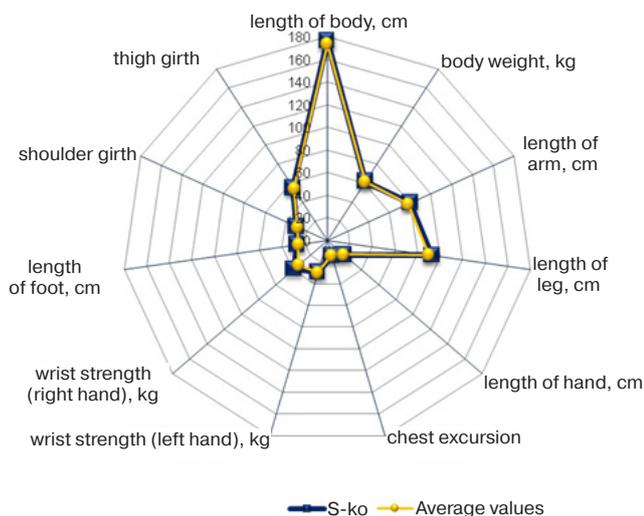


Figure 8. Comparison of individual indicators of physical development of the S-ko athlete with the model parameters of qualified female water polo players, which serve as central defenders

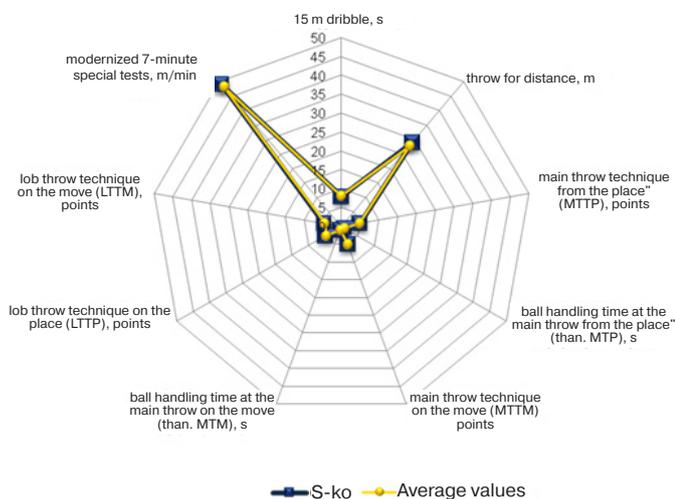


Figure 9. Comparison of individual indicators of technical preparedness of S-ko athlete with model parameters of qualified female water polo players who serve as central defenders

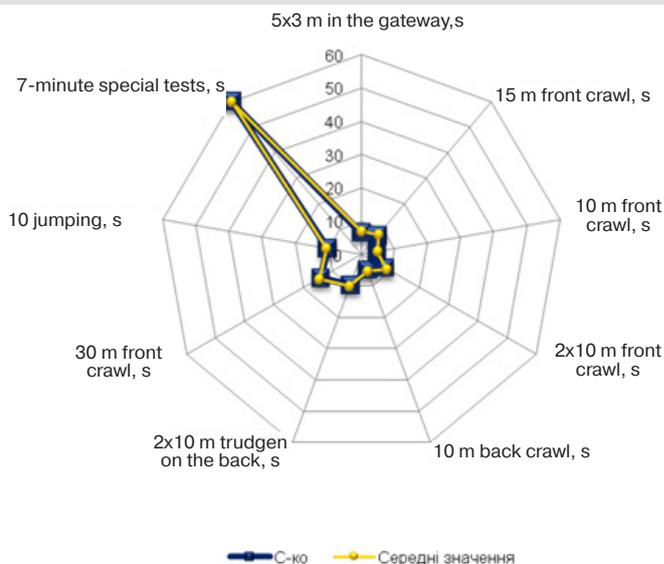


Figure 10. Comparison of individual indicators of the special swimming readiness of the S-ko athlete with the model parameters of qualified female water polo players who serve as central defenders

Thus, the definition of a game role should be based on a comprehensive analysis of indicators reflecting the level of physical development, technical and special swimming preparedness of athletes.

Conclusions / Discussion

The results of this study confirm the usual opinion that the main components of the structure of special training of qualified female water polo players that affect the effectiveness of their game activities is physical, technical and special training. At the same time, we have proved that the effectiveness of the acting actions of the central defenders is mainly due to the indicators of special swimming preparation, the average role is given to the parameters of the level of physical development and the less important is the technical component.

The results obtained allowed us to confirm the assumption that individual indicators of the structure of the special preparedness of water polo players have a different degree of influence on the effectiveness of game actions, depending on the role. We have shown that for the central defenders, the most significant are parameters indicating the level of playing the opportunities and fitness of athletes, and also reflect the technique of possession of the ball (R is in the range of 0,90–0,99). So the definitions of the game's role should be based on a comprehensive analysis of indicators that reflect all aspects of preparedness.

Prospect of further research is to develop the model characteristics of the parameters of the structure of the special preparedness of qualified water polo players to determine the playing role of the central forwards, midfielders and moving forwards.

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