PROPERTIES OF PLAYING AND TACTICAL THINKING OF FEMALE HANDBALL PLAYERS WITH DIFFERENT QUALIFICATION

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Annotation. Basic properties of varieties of tactical thought of handballers are considered. The level of their display is shown for the sportswomen of different qualification. 78 sportswomen took part in research. For determination of parameters of tactical and playing thought the method of «Balltest» is utillized in an attack and defense. Priority of exactness and speed of thought is set depending on the level of sporting trade of handballers. Different influence of speed of thought is well-proven on the rightness of decision of playing situations of different orientation in the handballers of mass digits and high level of display of the indicated properties of thought for the sportswomen of high qualification. It is discovered that a level of display of basic properties of tactical thought is in defense substantially below of other varieties of thought. It is marked that with the increase of trade of players there were possibilities to growth of quantitative and speed parameters of tactical thought.
Keywords: playing, tactical, thought, exactness, speed, handball.

Introduction.

Modern sports achievements are determined by many factors, among which are significant new technologies. By creating new production facilities shall optimize training and competitive processes in all sports. [2]

A special place in the modern development belongs to diagnostic technologies of physiological abilities of athletes who according to A. Rodionov, V. Sopova, V. Nepopalova [9], V. Voronov, S. Shutov [6], N. Glazkova [7], M. Bezmylova [4] designed for the study of mental abilities that have a structure of very resistant properties with changeable structure that is under the influence of sport training.

The most efficient use of psychodiagnostic technologies currently recorded in sports games, which allows monitoring of tactical readiness based on psychophysiological abilities of players that underlie their tactical thinking. In the works of A.G. Bazylevskiy [3], V.A. Suprunovych [10] on the basketball players and football players is shown the influence of psychomotor and neural functions in the manifestation of tactical thinking.

Since tactical thinking of athletes of playing sports become apparent in extreme conditions of competitive struggle, it involves rational choice of positional advantage in the rapidly changing game situations. The complexity of the situation of choice, whether it is a standard tactical schemes, or custom actions of players, is limited information because of the time limit on its perception and analysis, which means that tactical thinking essentially depends on the formation of its operating components [8, 11-13]. In turn, tactical thinking, as a mental act, is a part of the decision-making athlete in the game, the accuracy of which, according to A.G. Volosovych [5] and O.G. Abalyan [1], correlates with complex sensomotor reactions. The detection rate, perception of the stimulus and appropriate response on it significantly affects the quality parameters of tactical thinking of athletes.

Analysis of the results of research on technology diagnostic of tactical thinking of basketball and football players showed that there are certain features of the speed solution of athletes set of tasks that, according to A.G. Bazilevskiy [3], V.A. Suprunovych [10], based on an unequal reaction on game situations offensive and defensive focus. But data on the speed of thinking in solving tactical tasks in the work have been identified.

For diagnostic technologies of tactical thinking of handball players in previous studies of tactical thinking it was found its quantitative parameters at different stages of many sports improvement and therefore remain open questions of speed characteristics of thinking.

The work is done according to the plan of SRW of Cherkasy National University named after Bogdan Khmelnitsky.

Aim, tasks, material and methods.

Aim of research: to study the characteristics of displaying properties of game and tactical thinking in handball players of different skills.

Tasks of research:

1. To establish parameters of tactical and playing thinking in attack and defense for its basic properties at handball players of different skills.

2. To find out the peculiarities of the basic properties of thinking in dealing with game situations of different directions on separate levels of sportsmanship.

Methods: theoretical analysis and synthesis of scientific and technical literature, test of tactical thinking and methods of mathematical statistics.

To determine the parameters of tactical and playing thinking in attack and defense is used methods «Balltest» [Patent 43456 Ukraine, MPK (2009) A 61 B 5/16. Method of determining physiological characteristics to assess the level of special preparedness of athletes in team sports games / Glazyrin I.D., Frolova L.S., Frolov O., Bondar V.V., Zhanyayko G.V., Vernihora V.V., Holovaty V.M., Suprunovych V.A.; patentee Glazyrin I.D., Frolova L.S., Frolov O.,

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Bondar V.V., Zhanyayko G.V., Vernihora V.V., Holovaty V.M., Suprunovych V.A. - № u200806398; announce 14.05.2008; publ. 25.08.2009, Bulletin № 16.], namely test tasks for field players, according to which recorded:

- the number of correct answers out of 15 tasks for each kind of thinking;
- total time spent on the provision of correct answers for each kind of thinking.

Speed thinking of each species computed from the ratio of the total time spent on providing correct answers to their number.

Organization of the study: were investigated 78 handball players of Kiev Children and Youth Sport School № 2, KSLI, commands "Spartak" Kyiv, "Sparta" Krivoy Rog, including 28 people with sports qualification of youth level, 24 people - I-II classes, 12 people – Candidate to Master of Sports, 10 people - Master of Sports.

Results.

According to the results of studies on the handball players of different qualifications it is obtained data on the parameters of the game and tactical thinking in solving problems of various kinds of game.

Thus, data of game thinking in the attack pointed to the fact that the highest number of correct answers, as expected, recorded at a group of handball players masters of sports, that in 1.52 times ($p < 0.05$) and 1.88 times ($p < 0.05$) more than the results of group of athletes accordingly I-II classes and Candidate to Master of Sports.

This quantitative indicators of game thinking in attacking in the group of handball players of junior classes are significantly lower than indicators of I-II-classes handball players and Candidate to Master of Sports – in 3.07 times ($p < 0.05$) and 3.43 times ($p < 0.05$) (Table . 1).

Table 1

Indicators of game thinking in attacking of handball players of different qualification ($\overline{X} \pm S$)

Parameters of thinking	Researched groups of handball players			
	Speed of thinking (c) (12-14 years) (n=28)	I-II class (15-16 years) (n=24)	Candidate to Master of Sports (17-19 years) (n=12)	Master of Sports (20-34 years) (n=10)
Number of right answers (times)	6,14±0,47	9,21±0,62**	9,57±0,58	11,09±0,66*
Speed of thinking (c)	3,42±0,15	3,38±0,12	2,23±0,14#	2,05±0,16

Note: *p<0,05 – credibility of differences between group of Candidate to Master of Sports and Master of Sports; **p<0,05 – credibility of differences between group of I-II classes of youth class; #p<0,05 – credibility of differences between group of Candidate to Master of Sports and I-II classes.

That is, we can point to the fact that at handball players of youth level playing handball thinking in the attack is not enough formed, in contrast to the more skilled handball players, quantitative indicators which confirm the existence of opportunities for improvement in the process of sports training.

At the same time, the thing of differences in quantitative measures of skilled handball players are, as shown previous studies, in game specialization of skilled handball players significantly affect the priority of their thinking. That is, a group of masters of sports, unlike groups and Candidate to Master of Sports and II-class, numbered incorporates of most linear and angular players playing, the level of thinking in the attack is significantly higher than the level of other players' roles.

Comparing indexes of speed of thought, you can specify that they are more stable than quantitative parameters. Athletes of youth and II classes have almost the same speed of game thinking in the attack ($p > 0.05$), as well as athletes of groups of Candidate to Master of Sports and Master of Sports ($p > 0.05$), but the last mentioned group of handball players found higher speed properties of the thinking process, as the difference between groups I and II classes and Candidate to Master of Sports was 1.15 s ($p < 0.05$). We can assume that this difference is associated with more rapid recognition of game situations by skilled handball players, because of their greater competitive experience and higher mental abilities of selection decisions.

Study of game thinking in defense showed that quantitative parameters of studied groups of handball players and I-II classes to Master of Sports were at the same level ($p > 0.05$) while parameters of junior level were significantly lower ($p < 0.05$) (Table 2.).

Table 2

Indicators of game thinking in protecting of handball players of different qualifications ($\overline{X} \pm S$)

Parameters of thinking	Researched groups of handball players			
	Junior classes (12-14 years) (n=28)	I-II class (15-16 years) (n=24)	Candidate to Master of Sports (17-19 years) (n=12)	Master of Sports (20-34 years) (n=10)
Number of right answers (times)	5,44±0,25	6,25±0,54**	6,66±0,45	7,08±0,41
Speed of thinking (c)	4,15±0,15	3,85±0,16	2,58±0,16#	2,24±0,15*

Note: *p<0,05 – credibility of differences between group of Candidate to Master of Sports and Master of Sports; **p<0,05 – credibility of differences between group of I-II classes of junior class; #p<0,05 – credibility of differences between group of Candidate to Master of Sports and I-II classes.

For speed of thinking, the figures of handball players of junior and I-II classes were almost identical (p<0,05). Compared with athletes of mass classes at highly qualified handball players speed of thinking significantly higher (p<0,05), along with this there is a significant difference of indicators of Candidate to Master of Sports and Master of Sports, which was 0,34 c (p<0,05).

Comparing the manifestation of tactical thinking in the attack can say that handball players of I-II classes almost twice gave accurate answers from junior classes, and the difference in performance was 1.93 times (p<0,05).

In turn, compared with I-II classes, handball players of sports qualification Candidate to Master of Sports gave more correct answers in 5.64 times (p <0.05). Accuracy of tactical thinking in attacking of handball players of sports qualification Candidate to Master of Sports and Master of Sports was at the same level (p>0,05).

Regarding speed of tactical thinking in the attack, the significant difference between the figures recorded only between groups of handball players of mass classes (junior and I-II class) and highly qualified players (Table 3).

Table 3

Indicators of tactical thinking in attacking of handball players of different qualification ($\overline{X} \pm S$)

Parameters of thinking	Researched groups of handball players			
	Junior classes (12-14 years) (n=28)	I-II class (15-16 years) (n=24)	Candidate to Master of Sports (17-19 years) (n=12)	Master of Sports (20-34 years) (n=10)
Number of right answers (times)	2,65±0,61	4,58±0,63**	10,22±0,69#	10,81±0,71
Speed of thinking (c)	3,54±0,19	3,31±0,18	2,14±0,19#	1,87±0,18

Note: **p<0,05 – credibility of differences between group of I-II classes of junior class; #p<0,05 – credibility of differences between group of Candidate to Master of Sports and I-II classes.

Considering the performance of tactical thinking in protecting we can specify that the quantitative parameters of handball players of each subsequent group with higher qualifications were significantly higher. In this row of parameters the lowest level of accuracy of thinking demonstrated by athletes of junior class (p<0.05), and the highest – masters of sports (p <0.05) (Table 4).

Table 4

Indicators of tactical thinking in protection of handball players of different qualification ($\overline{X} \pm S$)

Parameters of thinking	Researched groups of handball players			
	Junior classes (12-14 years) (n=28)	I-II class (15-16 years) (n=24)	Candidate to Master of Sports (17-19 years) (n=12)	Master of Sports (20-34 years) (n=10)
Number of right answers (times)	2,73±0,43	3,92±0,27**	5,14±0,52#	6,96±0,68*
Speed of thinking (c)	4,59±0,17	4,36±0,17	3,75±0,17#	2,18±0,19*

Note: *p<0,05 – credibility of differences between group of Candidate to Master of Sports and Master of Sports; **p<0,05 – credibility of differences between group of I-II classes of junior class; #p<0,05 – credibility of differences between group of Candidate to Master of Sports and I-II classes.

Speed of tactical thinking in protecting of handball players of junior and I-II classes was almost identical (p> 0.05), while the difference of indicators of handball players of Candidate to Master of Sports and Master of Sports was

reliable ($p<0.05$). Thus much faster demonstrated highly qualified handball players, compared with athletes of mass classes ($p<0,05$).

Studies of variety of thoughts of handball players of junior classes indicated that quantitative indexes of game thinking substantially higher than tactical thinking ($p<0.05$), while the speed of playing and tactical thinking almost the same ($p>0,05$) (fig. 1).

It was also found that the accuracy of the game thinking in attack and defense is almost identical ($p>0.05$), as well as precision of tactical thinking in attack and defense ($p>0.05$). Another situation was observed in the parameters of quick thinking, where performance of gaming and tactical thinking protection is much lower the indicators of game and tactical thinking in the attack ($p<0.05$)

In addition, the lowest rate shown handball players in solving tactical problems in protection ($p>0.05$), and the highest – In solving the game and tactical thinking in the attack ($p<0.05$).

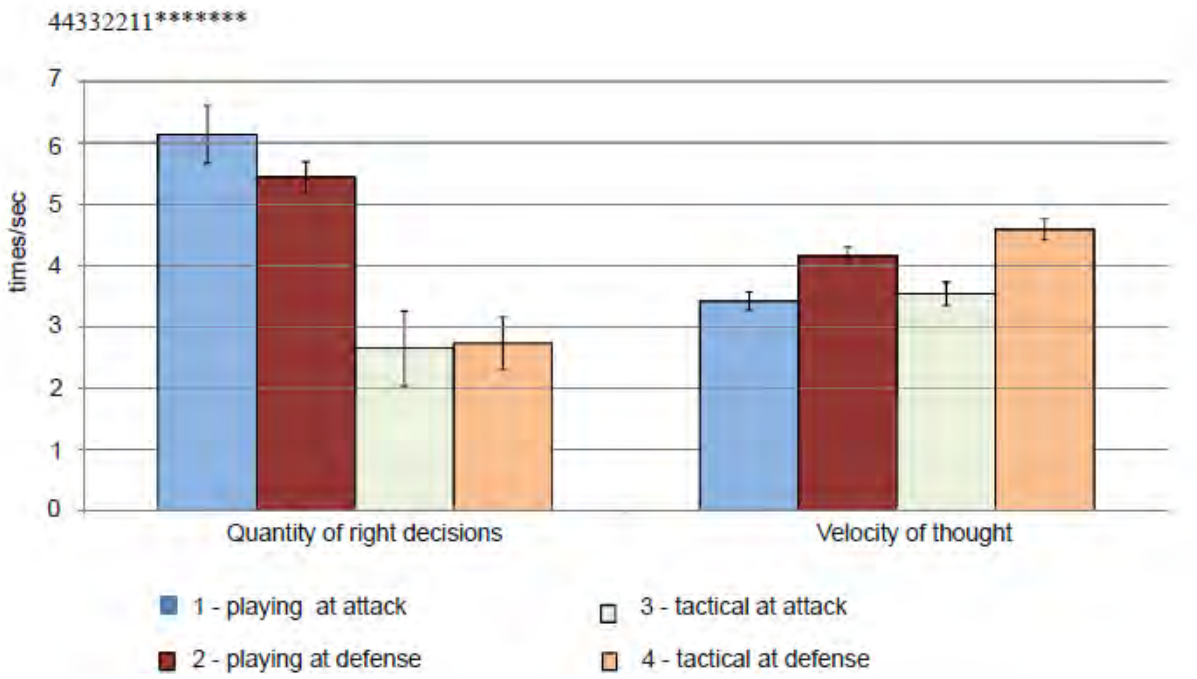

Fig. 1. Comparison of quantitative and speed indexes of varieties of thinking of handball players of junior class:
**p<0,05 – credibility of differences of indexes of game and tactical thinking;*
***p<0,005 – credibility of differences of indexes of attack and defense.*

At group of handball players of I-II classes is observed similar to junior classes' situation of displaying varieties of thinking. Thus, the accuracy of the game thinking significantly higher than the precision tactical thinking ($p<0.05$), but unlike the junior classes, the number of correct decisions of gaming tasks in the attack is significantly higher than the number of correct decisions of game thinking in protection ($p<0.05$) (Fig. 2).

Speed of game thinking of this group of handball players differed little from the speed of tactical thinking ($p>0.05$), the highest rates recorded from the game and tactical thinking in the attack ($p<0.05$) and the lowest rate – when solving tactical problems in protection ($p<0.05$).

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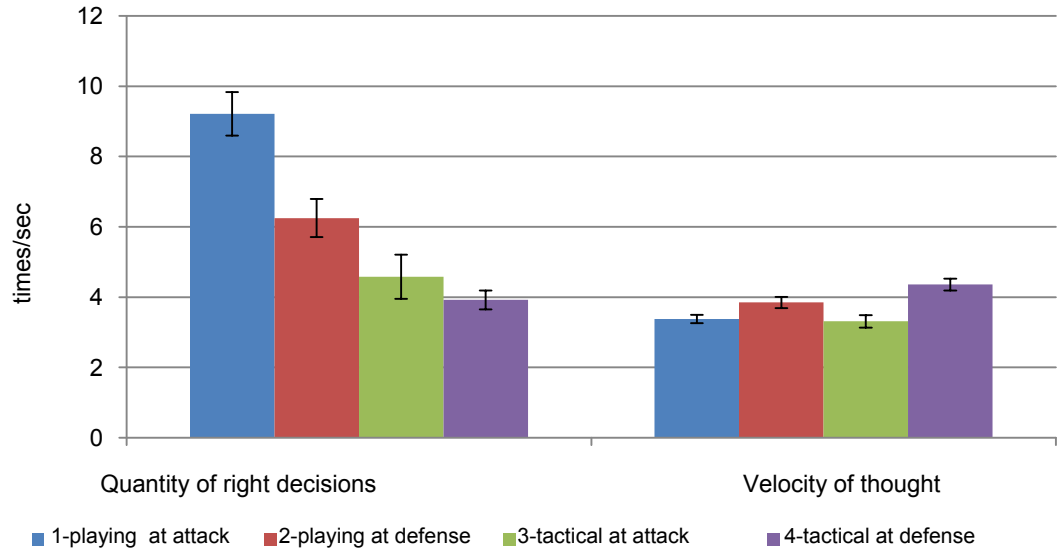

Fig. 2. Comparison of quantitative and speed indexes of varieties of thinking of handball players of I-II classes:
**p<0,05 – credibility of differences of indexes of game and tactical thinking;*
***p<0,005 – credibility of differences of indexes of attack and defense.*

Research in the group of handball players with sports skills Candidate to Master of Sports showed that the accuracy of solution to gaming and tactical problems almost at the same level (p>0.05). The number of correctly solved game tasks in attack was the same as the number of correctly solved problems in tactical tasks in attack (p>0.05), as was almost the same precision were gaming and tactical thinking in protecting (p> 0.05) (Fig . 3).

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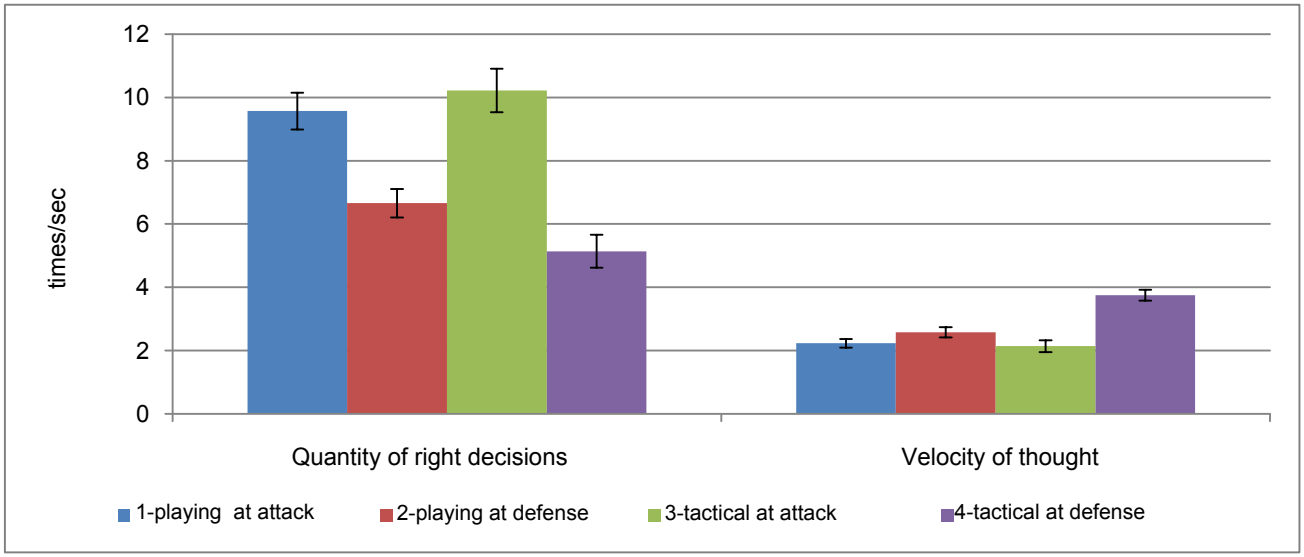

Fig. 3. Comparison of quantitative and speed indexes of varieties of thinking of handball players of Candidate to Master of Sports:
**p<0,05 – credibility of differences of indexes of game and tactical thinking;*
***p<0,005 – credibility of differences of indexes of attack and defense.*

For quick of thinking, it should be noted that the highest rate recorded in solving tactical tasks in the attack (p<0.05), and the lowest - in solving tactical tasks in protection (p>0.05). The following situation is also observed: when speed of solving game tasks in protection as opposed to indexes of handball players of mass classes, approach to the rate of solving game tasks in attack (p>0.05).

Analyzing the data of handball players group of sports qualification of master of sports can be stated that there were almost identical quantitative parameters of the tasks of tactical and playing thinking in the attack (p>0.05), as

well as tactical and playing thinking in protecting ($p>0.05$). But there was a significant difference of indicators of correct decisions in the attack and defense as game as tactical thinking (Fig. 4).

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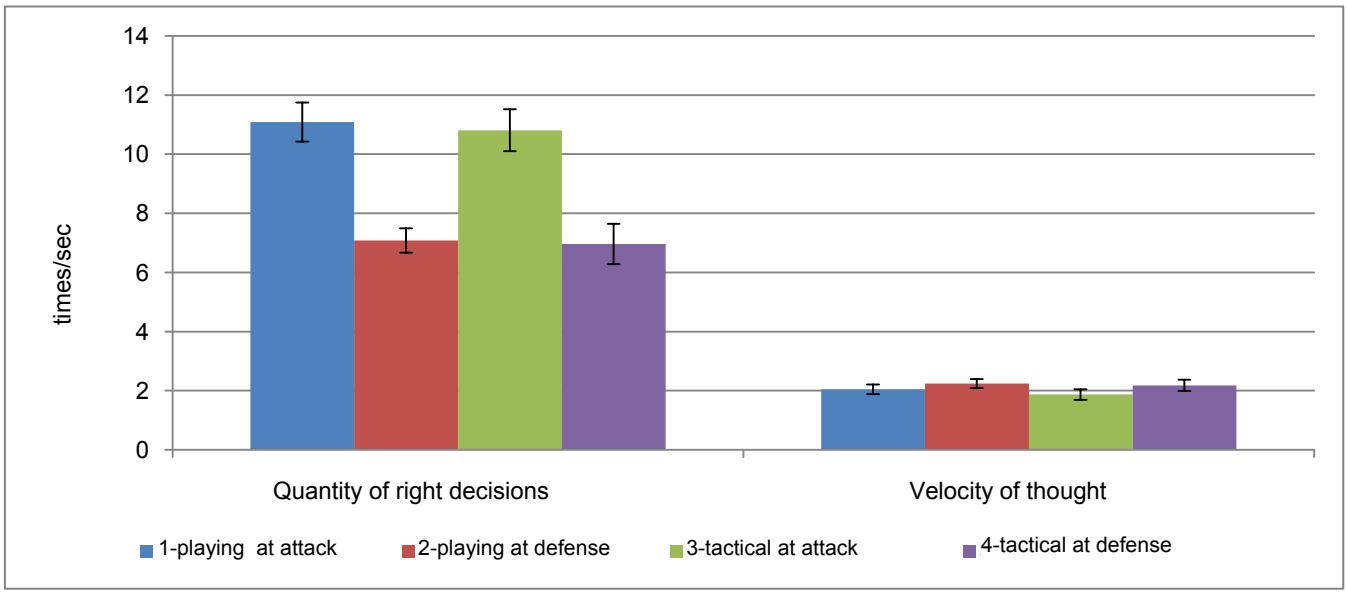

*Fig. 4. Comparison of quantitative and speed indexes of varieties of thinking of handball players of Master of Sports: **p<0,005 – credibility of differences of indexes of attack and defense.*

Unlike quantitative parameters speed of game thinking in attack and defense, and tactical thinking in protecting almost leveled ($p>0.05$). But, like the data of handball players of sports qualification of Candidate to Master of Sports, the highest rate recorded in solving tactical tasks in the attack ($p<0.05$).

Conclusion.

1. In deciding game situations from variety of thinking high accuracy of answers on the tasks do not always match the high speed, but beside the game thinking in the attack, where the level of these properties thinking fairly high compared to other kinds of thinking and independently on sports qualification.

2. High accuracy of solution of game problems with tactical thinking in the attack against the high speed inherent handball players of high qualifications, which is not observed in athletes of mass classes, which is caused by the difference of playing experience as positional tactical scheme is the basis of tactical training teams of craftsmen.

3. Revealed that the level of manifestation of the basic properties of tactical thinking in protecting significantly lower than other types of thinking, regardless of sports qualification of handball players, while with increasing of skills of players observed opportunities to increase its quantity and speed parameters.

Further study is expected to take place in the study of other problems of displaying properties of the game and tactical thinking in handball players of different qualifications.

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