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Changes in the physical readiness of female handball players 9–10 years due to participation in an increased number of competitions during the year

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Purpose: *determine the impact of competitive activity on the indicators of physical readiness of female handball players 9–10 years.*

Material & Methods: *in the study, 20 female athletes from the primary training group of the Youth Sports School took part in the age of 9–10 years. In the course of the study, the following methods and techniques were used: analysis of scientific and methodological literature; pedagogical testing, which included 8 physical tests; methods of statistical information processing.*

Results: *found that at the beginning of the training year, most of the young female handball players who participated in the study successfully passed physical tests according to the normative requirements of the Youth Sports School. Training sessions, built according to the curriculum of the Youth Sports School for handball for initial training groups of 1 year of training and supplemented by a large amount of participation in competitions, lead to the improvement of most of the indicators of physical fitness of young female athletes.*

Conclusion: *uneven changes in the results of testing the physical readiness of female handball players 9–10 years during the training year. Confirmed the presence of correlation links between individual indicators of physical fitness of young female athletes. The received results testify to a more significant increase in the results in physical tests of young female athletes, who took part in competitions more often.*

Keywords: *young female handball players, physical preparedness, changes in preparedness, correlation interdependence, initial training groups, physical fitness control.*

Introduction

Controlling the state of physical preparedness is a necessary part of the planning process of sports training. It is on the basis of the control results that it is possible to make timely adjustments to the training process, increasing or decreasing the burden for athletes, changing the content of exercises used in training sessions, applying new methods and methods of training [8; 10]. Therefore, monitoring the state of preparedness of athletes at different stages of a multi-year training is an urgent issue requiring updating and corresponding correction of existing information.

The nature of the game activity of handball players requires athletes to perform complex technical and tactical actions, the effective use of which is possible only at a certain level of physical preparedness [1; 2]. The interrelation of the physical preparedness of the technical was considered by the authors quite often, according to the results of the research it can be assumed that it is the physical readiness that is the basis for the formation and improvement of the technical and tactical actions of the athletes [2; 7; 9; 11].

Formation of high qualification of athletes begins with childhood, therefore, in our opinion, it is necessary to pay more attention to the study of aspects of physical fitness in children as a future basis for improving technical and tactical skills.

Competitive activity requires a high level of physical qualities of athletes, which are manifested during gaming activities. However, participation in competitions at the initial training stage should be considered not as a result of the training process, but as a means of training influence and monitoring the state of preparedness of young players. Therefore, the study of the influence of competitive activity on the level of development of physical qualities is of practical and scientific interest.

Relationship of research with scientific programs, plans, themes. The research was carried out in accordance with the theme of the research plan of the Kharkov State Academy of Physical Culture "Psycho-sensory regulation of the motor activity of sportsmen of situational sports" (2016–2018).

The purpose of the research: determine the impact of competitive activity on the indicators of physical readiness of female handball players 9–10 years.

Objectives of the study:

1. Analyze scientific and methodological sources on the specifics of sports training handball players at the stage of initial training.

2. Determine the indicators of physical fitness athletes 9-10 years at the beginning and at the end of the training year.

3. To establish the relationship between the results of control

exercises, which assess the physical preparedness of young female handball players.

4. Determine the effect of competitive pressures on the state of physical preparedness of female handball players 9-10 years.

Material and Methods of the research

The study involved 20 female athletes from the initial training group aged 9–10 years.

In the course of the study we used the following methods and techniques: analysis of scientific and methodological literature; pedagogical testing – standing long jump (cm), jumping over the rope during 1 minute (number of times), run on 30 m (s), throwing a tennis ball at a distance (m), dribbling 30 m (s), push-ups for 1 minute (number of times), shuttle run 4x9 m (s) and lifting the trunk into the saddle from the supine position for 30 s (number of times); methods of statistical processing of information – the search for averages, the calculation of the reliability of changes in the indicators that were studied by the Student's t-test, the correlation analysis of data.

Testing of physical preparedness of young female athletes was held twice – at the beginning and at the end of the training year. Based on the results of the initial testing, the group of female handball players was divided into control (n=10) and experimental (n=10) taking into account the lack of reliability of differences in the physical fitness of the athletes. Both groups of young athletes were trained in the same training program, which met the requirements of the Youth Sports School. However, the young athletes of the experimental group often took part in competitions of various levels. According to the normative requirements of the Youth Sports School in handball, in the first year of training 16 hours of participation in competitions are planned, in which the athletes of the control group took part. Female athletes of the same experimental group for the academic year 23 hours participated in various competitions. At the end of the training year, physical tests and a certain character of changes in physical fitness indicators of young handball players.

Results of the research and their discussion

The results of our pedagogical tests show that the majority of girls who participated in the study successfully passed the normative requirements of the Youth Sports School for admission to the initial training groups at the beginning of the training year [4]. Thus, the average result of the group in standing long jump was 148,7±4,48 cm, in run on 30 m – 5,91±0,10 s, in shuttle run 4x9 m – 24,35±0,50 s. In the given time, young female athletes performed on average 76,75±3,54 jumping over the rope and 18,8±1,86 full cycles push-ups. The average distance in throwing a tennis ball at a range was 17,05±1,12 m, the lead time of dribbling 30 m – 6,93±0,13 s.

The training process of the control and experimental groups was based on three training sessions per week, lasting 90 minutes. For 9 months, young female athletes of both groups trained in the curriculum of the Youth Sports School [4]. The duration of participation in the contest female handball team of the control group during the training year was 16 hours, according to the curriculum of the Youth Sports School, while the female athletes experienced – 26 hours. At the end of the training year (in May) we again conducted control tests of female handball players, in which the results of the test exercises of the control and experimental groups had some difference (Table 1).

Thus, at the end of the school year, the female athletes of the experimental group had a standing long jump of 2,77% more than in the female handball player of the control ($p>0,05$), the number of jumps through the rope in one minute is more by 15,02% ($p<0,05$) is 5,50% better than the result in the run on 30 m ($p<0,05$) by 19,64% more than the average distance in throwing a tennis ball at a range ($p>0,05$). Dribbling the ball in the female athletes of the experimental group is 22,17% faster than in the female handball team of the control group ($p<0,05$), the amount push-ups on 17,33% higher in the female athletes of the experimental group ($p>0,05$) the number of lifting the trunk in the saddle from the supine position by 11,79% is better in the girls of the experimental group ($p>0,05$) by 7,43%. The time of the shuttle run of 4x9 m of the handball team of the control group is worse than in the female athletes of the experimental ($p<0,05$). Thus, the positive uneven influence of competitive loads on the level of physical readiness of female handball players was established.

The unevenness of the changes in the indices of the physical readiness of handball players, established in our studies, is indicated also by L. V. Popova with the co-author [8], V. A. Zaitsev, and A. A. Shevchenko [5]. In their work, they emphasize that changes in physical preparedness indicators for young

Table 1

Indicators of physical readiness of female handball players of 9–10 years depending on participation in competitions

Indicators of readiness	Indicators, $\bar{X}$±m		t	p
	Control group (n=10)	Experimental group (n=10)		
Standing long jump, cm	149,7±3,48	153,85±1,04	1,14	>0,05
Jumping over the rope during 1 minute, number of times	78,55±3,54	90,35±3,71	2,30	<0,05
Run on 30 m, s	5,73±0,10	5,43±0,10	2,12	< 0,05
Throwing a ball at a distance, m	17,05±1,12	20,4±1,16	2,08	>0,05
Dribbling 30 m, s	9,2±0,45	7,53±0,63	2,16	<0,05
Push-ups for 1 minute, number of times	19,9±1,66	23,35±1,02	1,77	>0,05
Shuttle run 4x9 m, s	22,35±0,45	20,69±0,61	2,19	<0,05
Lifting the trunk into the saddle from the supine position for 30 s, number of times	19,5±0,86	21,8±0,61	2,18	<0,05

Table 2

Relationship between the indices of physical readiness of female handball players of 9–10 years (n=20)

Physical preparedness tests	Standing long jump, cm	Jumping over the rope during 1 minute, times	Run on 30 m, s	Throwing a ball at a distance, m	Dribbling 30 m, c	Push-ups for 1 minute, times	Shuttle run 4x9 m , s	Lifting the trunk into the saddle from the supine position for 30 s, times
Standing long jump, cm	1							
Jumping over the rope during 1 minute, times	**0,75**	1						
Run on 30 m, s	–0,57	–0,23	1					
Throwing a ball at a distance, m	0,60	0,28	–0,51	1				
Dribbling 30 m, s	**–0,71**	–0,47	**0,70**	**–0,75**	1			
Push-ups for 1 minute, times	**0,77**	0,64	–0,42	0,35	–0,52	1		
Shuttle run 4x9 m, s	–0,59	–0,27	**0,70**	–0,55	0,68	–0,46	1	
Lifting the trunk into the saddle from the supine position for 30 s	0,24	0,48	0,09	0,17	–0,09	0,42	0,12	1

female athletes depend on the content of training sessions and load characteristics in training.

Solving one of the research problems, a correlation was established between the indicators of the manifestation of various physical qualities of young handball players at the end of the training year (Table 2).

Thus, a close positive relationship is observed between: standing long jump and number of times jumping over the rope (r=0,75), number of times push-ups (r=0,77); between run on 30 m and run on 30 m with dribbling a ball (r=0,70) and shuttle run 4x9 m (r=0,70). A close negative relationship was recorded between dribbling a ball for 30 m and throwing a tennis ball at a distance (r=–0,75) and standing long jump (r=–0,71).

Average positive relationship was established between standing long jump and throwing a tennis ball at a distance (r=0,60); between jumping over the rope and push-ups (r=0,64) and lifting the trunk into the saddle from the supine position for 30 s (r=0,48); between dribbling a ball on 30 m and shuttle run 4x9 m (r=0,68).

Average negative relationship was established between standing long jump and run on 30 m (r=–0,57) and shuttle run 4x9 m (r=–0,59); run on 30 m and throwing a tennis ball at a distance (r=–0,51) and push-ups (r=–0,42); throwing a tennis ball at a distance and shuttle run 4x9 m (r=–0,55); dribbling a ball on 30 m and push-ups (r=–0,52).

In the work of S. I. Lebedev [6], A. V. Khanyukova [9], T. I. Partola [7], in their work, the formation of correlation relations between the indicators of general and special physical preparedness under the influence of sports training, as evidenced by the results of our research, is indicated.

Conclusions

The results of this study allow us to draw the following conclusions:

1. Issue of monitoring the physical preparedness of young athletes for the purpose of timely correction of the process of sports training remains relevant at the present time.

2. Uneven changes in the indicators of physical preparedness of young female handball players during the year.

3. Confirmed the existence of varying degrees of manifestation of correlation relationships between the indices of physical preparedness of female athletes aged 9–10 years.

4. It is established that additional competitive loads at the stage of preliminary training lead to more significant changes in the physical preparedness of young female athletes.

Prospects for further research. Further research will be aimed at studying the specifics of the selection of female handball players during the basic training phase.

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