

Changes of indicators of high-speed and high-speed and power preparedness at volleyball players of 12–13 years old

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Purpose: to define changes of indicators of high-speed and high-speed and power preparedness of volleyball players of 12–13 years old.

Material & Methods: the test exercises, which are recommended by the training program of CYSS on volleyball, were used for the definition of the level of development of high-speed and high-speed and power abilities of volleyball players. 25 young volleyball players from the group of the previous basic preparation took part in the experiment. Sports experience of sportsmen is 3–4 years. The analysis of scientifically-methodical literature, pedagogical testing, pedagogical experiment, methods of mathematical statistics were carried out.

Results: the analyzed level of high-speed and high-speed and power abilities of volleyball players. **Conclusions:** the results had reliable changes ($t=2,2-2,4$ at $p<0,05$) of the level of high-speed and high-speed and power abilities of volleyball players of 12–13 years old in the experimental group at the end of the experiment, except run on 30 m that demonstrates a positive influence of application of special exercises in the educational-training process.

Keywords: volleyball, high-speed and power abilities, exercise.

Introduction

A successful performance of game tasks in many respects depend on ability of a volleyball player during the whole game to jump high and quickly, to do bursts promptly, to carry out active technical and tactical actions constantly [5; 8].

The analysis of scientifically methodical literature shows that the development of high-speed and high-speed and power qualities in representatives of different types of sport is observed at the youthful age [1; 2; 4].

The correctly picked up technique of high-speed and high-speed and power preparation allows to consider the aged features of sportsmen that keeps their health, doesn't need additional expenses of time and at the same time provides the increase of level of physical preparedness and, as a result, the growth of sports skill [3; 4].

A lot of experts of volleyball researched the level of physical preparedness of young volleyball players at different stages of preparation [1; 5; 7; 9], but the problem of the search of new means and methods of the development of high-speed and high-speed and power preparedness of young sportsmen always was actual.

The purpose of the research

The definition of changes of indicators of high-speed and high-speed and power preparedness of volleyball players of 12–13 years old.

There were following tasks in the research:

1. To analyze scientifically-methodical literature concerning features of the development of high-speed and high-speed

and power preparedness of young volleyball players.

2. To establish the level of indicators of high-speed and high-speed and power preparedness of volleyball players of 12–13 years old.

3. To define the effective technique of the development of high-speed and high-speed and power qualities of young volleyball players of 12–13 years old.

Material and Methods of the research

The following methods were applied in the research: theoretical analysis and generalization of scientifically-methodical literature, pedagogical testing, pedagogical experiment, methods of mathematical statistics.

25 young volleyball players from the group of the previous basic preparation took part in the research that lasted 4 months. The sports experience of sportsmen is 3–4 years. All children, who took part in the research, were almost healthy and were under the supervision of sports doctors. The test exercises, which are recommended by the training program of CYSS of volleyball, were used for the definition of the level of development of high-speed and high-speed and power abilities of volleyball players [4]. Special exercises for the development of high-speed and high-speed and power qualities, which are taken root in the general training process of young volleyball players, were used for training of young volleyball players of the experimental group together with a study of techniques and tactical actions.

Results of the research and their discussion

As practice of the competitive activity testifies, first of all, the high level of the development of physical qualities is neces-

sary for technical and tactical skill for the achievement of the effective level by volleyball players. The motive activity of volleyball players takes place with variable intensity, with continuous and quick response to circumstances which change instantly.

The number of scientists [5; 6; 10 and others] considers that the main attention needs to be paid to the development of dexterity, speed, spring ability of young volleyball players. As pedagogical supervisions over competitive activity of volleyball players show that to execute a blow of a ball, to pass, to accept a ball, to take out hands over the net when blocking, well gathered speed of separate movements is necessary to execute a jump for the attacking blow in the shortest period. The level of high-speed and power abilities for volleyball players has the leading value at reusable performance with the minimum pauses of competitive actions of a high-speed and power character (serving, blocking, passes or blow of a ball) [6].

The primary testing of high-speed and high-speed and power qualities in the experimental and control groups in volleyball players of 12–13 years old didn't find between them reliable differences at the beginning of experiment ($P>0,05$) (tab. 1).

The analysis of results of testing of high-speed and high-speed and power abilities at the beginning of experiment showed that young volleyball players of 12–13 years old had approximately identical results which were determined by the program of CYSS of volleyball as low and below an average level of preparation [4]. It should be noted that there were no reliable differences between indicators of high-speed and

high-speed and power preparedness in the experimental and control groups ($P>0,05$).

Special exercises and outdoor games which are aimed at the development of high-speed and high-speed and power qualities were included in addition in the educational and training process of young volleyball players of 12–13 years old by the program material which lasted within 4 months. Exercises by the structure answered the competitive activity of volleyball players and were carried out right after warm-up. Training with load passed 12 hours per a week.

Exercises by a visual signal or by an order of a coach - acceleration for 5, 10, 15 m from different starting positions, run with change of speed, direction, and stops, movement by added cross steps back forward, with application of different options of their watch, shuttle movements of 6 and 8 m were applied when training speed of movement. Rotations of ways of movements are carried out by the coach's signal.

Exercises were carried out at high speed; pauses of rest were regulated by means of measurement of CYSS.

The following special exercises, which included various jumps from a leg on a leg with advance forward, a leg apart and together, on the place and with advance forward with raising of knees, with advance by side and back forward, blows of attack to the suspended balls from the running start, standing jumps with a reach of the suspended balls by two and one hands, imitating exercises in outleap about a net with removal of hands over a net and imitation of blocking with movements along a net, throws of volleyball and stuffed balls by one and

Table 1
Indicators of high-speed and high-speed and power preparedness of volleyball players of 12–13 years old before the experiment

Name of exercise	Units of measure	Experimental group (12 persons)	Control group (13 persons)	t	P
		$\bar{X}\pm m$	$\bar{X}\pm m$		
Run 30 m	s	6,2±0,3	6,4±0,4	0,4	>0,05
Running in place of 10 s	times	38,5±1,5	37,5±1,5	0,47	>0,05
Long jump from the place	sm	185±8,0	182±8,5	0,26	>0,05
Jump up from the place	sm	38,0±3,9	36,8±5,2	0,18	>0,05
Throw of a stuffed ball 1kg, sitting	m	4,1 ±0,8	4,2±1,1	0,1	>0,05

Table 2
Changes of indicators of high-speed and high-speed and power readiness of volleyball players of 12–13 years old (n=25)

Name of exercise	Units of measure		At the beginning of the experiment	At the end of the experiment	t	P
			$\bar{X}\pm m$	$\bar{X}\pm m$		
Run 30 m	c	E	6,2±0,3	5,62±0,25	1,5	>0,05
		C	6,4±0,4	6,0±0,3	0,8	>0,05
Running in place 10 s	times	E	38,5±1,5	43,5±1,5	2,4	<0,05
		C	37,5±1,5	39,5±1,0	1,1	>0,05
Long jump from the place	sm	E	185±8,0	208±6,5	2,2	<0,05
		C	182±6,4	198±7,5	1,6	>0,05
Jump up from the place	sm	E	38,0±3,9	49,5±3,5	2,2	<0,05
		C	36,8±5,2	44,6±4,4	1,1	>0,05
Throw of a stuffed ball of 1 kg, sitting	m	E	4,1 ±0,8	6,3±0,6	2,2	<0,05
		C	4,2±1,1	6,0±1,1	1,2	>0,05

Note. E – the experimental group, C – the control group.

two hands from different sitting positions, standing, after the running start and a jump with imitation of the attacking blow were used for the development of high-speed and power preparedness of young volleyball players.

Exercises were carried out on average speed, the number of repetitions in a series – 15–20 times; a rest interval between series – 2–4 min; quantity of series – 2–4 approaches depending on problems of the training process and condition of sportsmen. Outdoor games were also applied in the training process which was aimed at the development of high-speed, high-speed and power, coordination qualities: «Day and night», «Call», «A call of numbers», «Try take out», different options of the game «Kvach», relays with run, jumps, with a ball [4; 5; 9]. The repeated testing of level of high-speed and high-speed and power readiness of young volleyball players was held in 4 months of the training process (tab. 2).

Indicators of high-speed and high-speed and power abilities in experimental group of young volleyball players had a reliable improvement ($P < 0,05$), except results in run on 30 m.

So, indicators in run for 10 s improved on average on 5 times at a reliable difference ($P < 0,05$), in a long jump from the place – average on 23 sm ($P < 0,05$), in a jump up from the place – on average on 11,5 sm ($P < 0,05$), in a throw of a stuffed ball of 1 kg from situation, sitting – on average on 2,2 m ($P < 0,05$). Average results in run increased by 30 m on 0,58 s, but had no reliable difference ($P > 0,05$).

Indicators of the control group didn't experience essential changes at the repeated testing ($P > 0,05$).

The analysis of the obtained data demonstrates that the special exercises, which are aimed at the development of high-speed and high-speed and power abilities, increase physical preparedness of young volleyball players that positively influences ability of a sportsman as fast as possible to assess a game situation and to perform technical and tactical operations successfully in time, minimum for certain conditions.

Therefore, it is possible to consider that the offered exercises by us affected positively on high-speed and high-speed and power abilities of volleyball players of 12–13 years old.

Conclusions

1. The analysis of scientifically-methodical literature demonstrates that the development of high-speed and high-speed and power abilities of volleyball players is the necessary and integral part in physical training of sportsmen. The improvement of level of these qualities promotes the increase of efficiency in the competitive activity of volleyball players.

2. The primary research of indicators of high-speed and high-speed and power preparedness allowed establishing that the insufficient level of the development of these qualities was observed at young volleyball players of 12–13 years old. Average values in run of 30 m – $6,2 \pm 0,3$ s, in running in place – 10 s $38,5 \pm 1,5$ times, in a long jump from the place – $186 \pm 6,8$ sm, in a jump up from the place – $38,6 \pm 3,5$ sm, in a throw of a stuffed ball of 1 kg, sitting – $4,1 \pm 0,4$ m that are estimated as low and below an average by the standards of CYSS.

3. The application in the educational training process of specially directed exercises influenced authentically ($t = 2,2 - 2,4$ at $P < 0,05$) on the growth of the level of high-speed and high-speed and power abilities at volleyball players of 12–13 years old in experimental group, except run on 30 m. Results in run on 30 m improved, but had no reliable difference that can be defined as an insufficient orientation for work on high-speed qualities and the end of the favorable period of the development of speed in volleyball players of 12–13 years old. Results in the control group of volleyball players increased, but had no reliable difference ($P > 0,05$).

Prospects of the subsequent researches. Our subsequent researches will be directed to the search for ways in the improvement of physical preparedness of volleyball players.

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