THE LEVEL OF SPEED DEVELOPMENT AT 5-6 YEAR OLD CHILDREN UNDER THE INFLUENCE OF BASKETBALL ELEMENTS

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Abstract. Indicators of the level of speed development at children of late pre-school age and their changes under the influence of physical education classes with the priority use of basketball elements are presented in the article. The comparative analysis of the obtained data in age and gender aspects is made.

As a result of the research, the positive impact of basketball exercises on speed development at children of late pre-school age was found.

Keywords: physical education, children of pre-school age, physical qualities, sports games.

Introduction. Transformational processes in modern society impose new demands on the system of education in general and on physical education of children in particular. Economic and political reforms in Ukraine are being implemented against the background of the sharpening of child morbidity problem, which increased by many indicators: only one third of modern pre-school children are considered relatively healthy. According to NAS of Ukraine, only 5% of children, who enter school, are absolutely healthy. Such a condition needs to find optimal forms and ways to strengthen health and improve the level of physical preparation of children, in particular of pre-school age [1].

Physical education is given priority in addressing this problem. A number of authors were engaged in issues of increasing the level of physical preparation and development of certain physical qualities of pre-school children by introducing various means of physical culture into the educational process of pre-school education institutions [3, 4-6, 7, etc.].

At the same time, the analysis of literary sources showed the absence of scientific works regarding the change in the level of speed development at pre-school children under the influence of the integrated use of basketball facilities, which became the subject of our research.

Connection of the work with scientific programs, plans, themes. The research was conducted in accordance with the Thematic Plan of the research work of Kharkiv state academy of physical culture for 2016-2020 under the theme "Improvement of physical education in various educational institutions" (the state registration number 0115U006754) and for 2020-2026 "Improvement of the physical education process of different segments of the population" (the state registration number 0120U101110).

The purpose of the research is to determine the degree of influence of basketball exercises on speed development at children of late pre-school age.

Research tasks:

1. To estimate the level of speed development at 5-6 year old children.
2. To consider the parameters examined in the age and gender aspects.
3. To detect changes in the investigated indicators after the introduction of basketball elements into the educational process on physical education of children of late pre-school age.

Material and methods of the research. The research was carried out on the basis of the pre-school educational institution № 410 "Sonechko" in Kharkiv. They were attended by 20 pupils of preschool institution of 5-6 years of age from which 2 groups were formed: 1 group – 5 year old children (10 persons: 5 boys and 5 girls); 2 group - 6 year old children (10 persons: 5 boys and 5 girls).

All the children who took part in the research were almost healthy and under the supervision of the medical workers of the pre-school institution.

Physical education classes of late pre-school children age were held according to the author‘s program with the priority use of basketball elements during the year. The noted program included basic technical elements of basketball, special preparatory, preliminary and simulation exercises, which were performed both

without a ball and with a ball. Basketball for kids of size No. 1, circle 42-44 cm, weight – 180-190 g. Elements of basketball were included in the main part of class, number of repeats of each exercise varied from 3 to 5 times.

The dosage and complexity of exercise increased gradually taking into account the individual capabilities of pre-school children.

The following **methods** were used to solve the tasks: theoretical analysis and generalization of scientific methodological literature; pedagogical testing; pedagogical experiment and methods of mathematical statistics. The level of speed development was determined by the indicators of motor tests proposed by E. S. Vilchkovskyi, O. I. Kurok [2] (jumping on the spot), L. P. Sergeiienko [8] (running on 10 m), T. A. Tarasova [9] (running on 20 m).

Results of the research and their discussions. The reliable improvement of the results with age was found for all the studied parameters in both gender groups in the course of the initial research ($p<0,5$; 0,01).

Considering the noted results for the article, it is determined that the indicators of boys are reliably better than the results of girls at pre-school children of both studied groups ($p<0,05$). The exception is the results of running on 10 m by 5 year old pre-school children where there is an opposite trend – indicators of girls are reliably better than indicators of boys ($p<0,05$).

Comparing the obtained results with the estimated criteria [2, 8, 9], it was found that they meet the score of 4 points for all the studied parameters at girls. At boys: results of jumping on the spot correspond to rating 5 points, running on 20 m – rating 4 points, running on 10 m – rating 3 points (at 5 year old boys) and rating 5 points (at 6 year old boys). Thus, children of late pre-school age have the "average" level of speed development (4,1 points).

Analyzing the speed development indicators obtained after the experiment (Table 1), it was found that they significantly improved in all the studied groups and these differences were statistically significant ($p<0,05$-$0,001$). The exception is the results of running on 20 m at 5 year old girls and running on 10 m at 6 year old boys, where improvement of data is unreliable ($p>0,05$).

Table 1

Indicators of speed development of late pre-school age children before and after the experiment

Motive tasks	Before the experiment	After the experiment	tst.	p	Before the experiment	After the experiment	tst.	p
	5 year old girls				***6 year old girls***			
Jumping on the spot (number of times)	12,2±1,8	17,4±0,9	4,7	p<0,001	14,6±1,4	19,4±1,4	4,6	p<0,001
Running on 20 m (s)	6,1±0,2	5,7±0,4	2,2	p>0,05	5,5±0,2	4,7±0,3	2,4	p<0,05
Running on 10 m (s)	3,4±0,1	2,8±0,1	2,4	p<0,05	3,2±0,1	2,5±0,1	2,9	p<0,05
5 year old boys					***6 year old boys***			
Jumping on the spot (number of times)	15,4±0,5	21,4±0,7	6,2	p<0,001	17,6±0,5	21,8±0,8	4,4	p<0,001
Running on 20 m (s)	5,42±0,2	4,7±0,4	2,8	p<0,05	5,0±0,2	4,1±0,3	2,3	p<0,05
Running on 10 m (s)	3,14±0,1	2,8±0,2	3,2	p<0,01	2,8±0,08	2,2±0,2	2,1	p>0,05

Thus, the results of jumping on the spot at 5 year old boys increased by 6 units, which in percentage ratio is 38,0%, at 5 year old girls by 5,2 units (42,0%), at 6 year old boys – by 4,2 units (23,0%), 6 year old girls – by 4,8 units (32,0%). The results of running on 20 m at 5 year old boys improved by 0,7 s (12,0%), at 5 year old girls by 0,4 s (6,0%), at 6 year old pre-school children – by 0,9 seconds (18,3%) and 0,8 seconds (14,4%) respectively.

The results of running on 10 m at 5 year old boys improved by 0,3 s (9,2%), at 5 year old girls by 0,6 s (17,3%), at 6 year old pre-school children – by 0,6 seconds (12,2%) and 0,7 seconds (21,4%) respectively. Thus, the most significant changes took place in the indicators of 6 year old pre-school children, except for jumping on

the spot, where the results of 5 year old children changed most significantly. The most significant increase in results is observed mainly at girls, except for 20 m, where boys' indicators changed most significantly.

In the gender and age aspects the trend of differences didn't change significantly in comparison with the primary research.

Comparing the obtained results with evaluation criteria [2, 8, 9], it was found that for the results of jumping on the place at 5 year old girls, running on 20 meters at 6 year old pre-school children and at 5 year old boys, running on 10 meters at 5 year old girls and at 6 year old pre-school children increased by 1 point and began to equal the rating of 5 points. The results of running on 10 meters increased by 2 points and began to equal assessment of 5 points at 5 year old boys. The significant and reliable improvement of the results was shown on the evaluation scale in the other studied groups.

Determining the general level of speed development, it was found that it increased from "average" to "high" levels after the experiment. The indicators of which on the rating scale increased by 0,9 points and began to meet the rating of 5 points.

Thus, the introduction of basketball elements into the educational process on physical education positively influenced speed development of late pre-school age children.

Conclusions:

1. As a result of the primary research, the "average" level of speed development of late pre-school age children was established, the indicators of which on the rating scale meet the rating of 4,1 points. It meets the score of 4 points at 5 year old pre-school children, at 6 year old children – the score of 4,3 points. That is, the level of speed development at 6 year old pre-school children is higher than at 5 years old. In the gender aspect, it was found, mainly, the dominance of boys results over the indicators of girls, which with age significantly improve ($p<0,5$; 0,01).

2. After the experiment the indicators of speed development in all test groups improved significantly ($p< 0,05$-0,001). The exception is the results of running on 20

m at 5 year old girls and running on 10 m at 6 year old boys, where the improvement of data is unreliable (p>0,05).

3. The introduction of basketball elements into the educational process had a positive impact on the level of speed development at children of late pre-school age, which increased after the experiment from "average" to "high" level.

The further research prospect in this direction can be carried out by determining the influence of basketball elements on the development of other physical qualities at 5-6 year old children.

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