

Formation of Physical Development And Functional Training of Young Students Using Circuit Training Method

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Annotation: The article describes the positive impact of a methodology that allows for the rapid development of movement speed using sensitive periods in primary school age on the physical development and functional readiness of 9-10-year-old children.

Key words: physical development, functional training, circuit training, sensitive periods, primary school age, physical education classes.

Currently, at the modern stage of social construction in the world, the problem of increasing the general level of physical fitness of schoolchildren and developing their motor skills in the physical education system is gaining importance. Despite this, the level of manifestation of the main motor qualities and skills of schoolchildren today does not fully meet the requirements of the present time.

As noted by prominent scientists in the field of physical education around the world, the system introduced in the school physical education process is not perfect, that is, it does not fully meet the requirements for the motor activity of a growing organism. A number of authors, in their recent studies aimed at increasing the effectiveness of the physical education process and resolving the complex contradictions that have arisen, propose the use of selective loads for the development of motor talent signs and physical abilities in sensitive periods.

In our republic, "the most important task of the continuous education system... is to provide a thorough education to the younger generation, to raise them as physically and spiritually mature people"³. Most researchers in our country claim that the effectiveness of the physical education process in the modern world is conditioned by the effective use of means and methods of complex development of physical abilities. Many scientists point out and prove with evidence the need to develop speed abilities in the first place at school age, including junior school age. At the same time, the most favorable period for the development of speed of movements is considered to be junior school age, in particular, 9-10 years. Therefore, the solution of this problem is extremely relevant in improving the educational process.

This dissertation research contributes to the implementation of the tasks set out in the Law of the Republic of Uzbekistan "On Physical Education and Sports" No. O`RQ-394, adopted on September 4, 2015, the Resolution of the President of the Republic of Uzbekistan No. PQ-3031 "On Measures for the Further Development of Physical Education and Mass Sports" dated June 3, 2017, and other regulatory legal acts related to this area.

In our work, we examined and evaluated the level of physical development and functional training in 9-10-year-old children based on a special circuit training methodology that helps to target the level of physical development and functional training of younger students. Analysis of the positive results of the level of physical development and functional training of younger students made it possible to assess the effectiveness of the methodology developed for 9-10-year-old children in the classroom.

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At the beginning of the pedagogical study, we also examined the intergroup results of the children of the experimental groups on physical development and functional training, namely body length (cm); body weight (kg); chest circumference (cm); heart rate (bpm); respiratory rate (cycles/min), vital capacity of the lungs (l).

When comparing the initial indicators, the significant and unreliable difference between the NG and TG groups indicated that children of primary school age with almost the same physical development and functional training were selected to participate in the pedagogical study. At the beginning of the pedagogical study, the initial results of boys and girls on physical development and functional training did not differ significantly from each other in terms of reliability ($p > 0.05$).

Table 1 Comparative analysis of physical development and functional readiness indicators of NG boys and girls before and after the pedagogical experiment [n=30]

№	Indicators	i	gender	at first	V%	in the end	V%	p
				$\bar{x} \pm \sigma$		$\bar{x} \pm \sigma$		
1.	Body length, cm		B	134,9±3,0	2,2	137,0±2,8	2,0	>0,05
			G	132,0±3,6	2,7	134,5±3,8	2,8	>0,05
2.	Body weight, kg		B	31,3±1,7	5,4	33,0±1,6	4,8	>0,05
			G	29,5±2,0	6,8	30,9 ±2,2	7,1	>0,05
3.	Chest circumference, cm		B	63,4±3,4	5,4	66,0±3,3	5,0	>0,05
			G	61,0±2,9	4,7	63,5±3,1	4,9	>0,05
4.	Heart rate, beats/min		B	84,6±2,0	2,4	82,8 ±1,8	2,2	>0,05
			G	88,0±2,3	2,6	85,4 ±2,4	2,8	>0,05
5.	Respiratory rate, cycles/min		B	21,5±0,9	4,2	20,2 ±0,8	4,0	>0,05
			G	22,3±0,7	3,1	21,4 ±0,7	3,3	>0,05
6.	Liquid lung capacity, ml		B	1650±35	2,1	1760±40	2,3	>0,05
			G	1480±45	3,0	1570±45	2,9	>0,05

The results of the pedagogical research show that the level of physical development and functional training of primary school children belonging to the NG group who received traditional physical education classes changed significantly, but did not have significant statistical differences and shifts ($p > 0.05$) (Table 1).

The level of physical development and functional training of primary school children belonging to the TG group who were trained according to the methodology for developing the speed of movements in the form of circular training developed and implemented by us changed significantly and had significant statistical shifts ($p < 0.05$) (Table 2).

Table 2 Comparative analysis of the indicators of physical development and functional training of TG boys and girls before and after the pedagogical experiment [n=30]

№	Indicators	gender	at first	V%	in the end	V%	p
			$\bar{x} \pm \sigma$		$\bar{x} \pm \sigma$		
1.	Body length, cm	B	135,2±3,1	2,3	141,1±2,1	1,5	<0,05
		G	132,4±3,8	2,9	137,5±2,4	1,7	<0,05
2.	Body weight, kg	B	31,1±1,6	5,1	34,5±0,9	2,6	<0,05
		G	29,0±1,9	6,5	32,6±1,0	3,1	<0,05
3.	Chest circumference, cm	B	63,2±3,2	5,1	68,5±1,4	2,0	<0,05
		G	61,2±3,0	4,9	66,0±1,3	2,0	<0,05
4.	Heart rate, beats/min	B	84,1 ±1,9	2,3	79,2 ±0,8	1,0	<0,05
		G	88,5±2,4	2,7	82,7±1,1	1,3	<0,05



5.	Respiratory rate, cycles/min	B	21,9 ±1,0	4,6	19,5 ±0,5	2,6	<0,05
		G	22,1±0,7	3,2	20,0±0,4	2,0	<0,05
6.	Liquid lung capacity, ml	B	1660 ±36	2,2	1840±20	1,1	<0,05
		G	1470±45	3,1	1650±25	1,5	<0,05

The data obtained at the end of the pedagogical study confirmed that the methodology used by us had a positive effect on the physical development and functional readiness of students. The effectiveness of the application of the methodology used in the experiment, clearly and reliably improved in 6 out of 6 indicators characterizing the physical development and functional readiness of students belonging to the TG.

The results of testing the participants of the experimental groups in the pedagogical experiment showed the high efficiency of the proposed methodology in relation to the program applied in school practice and confirmed the effectiveness of its use for the formation of physical development and functional readiness in children of younger school age.

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