

## Development the Speed of Movement and Coordination Abilities of Pupils with Use of Exercise Classic's

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**ABSTRACT** To study the effect of the exercise «Classic's» on indicators the speed of movement of schoolchildren and their coordination abilities. The experiment was conducted in an ordinary school with schoolchildren from the second grade. The study involved 50 boys and girls aged 8-9 years. The class in physical education in the school lasted 40 minutes lesson twice a week. After the pedagogical experiment, children from CG were able to improve performance, but the difference was not reliable. At the same time, children from EG significantly improved performance in both tests. In the «Shuttle run» test, the values changed from  $10.5 \pm 0.8$  sec to  $8.5 \pm 0.5$  sec ( $P < 0.05$ ), and in the «Running on the spot» test the values increased by 37.1 percent ( $P < 0.05$ ). If at each lesson on physical culture at school with children of 8-9 years to carry out exercise «Classics», indicators the speed of movement and coordination abilities will considerably improve.

### INTRODUCTION

For urban residents, the number one problem is the lack of enough motor activity. Low motor activity leads to various problems. Among them – numerous violations of energy metabolism in the blood increases cholesterol, atherosclerosis vessels of the heart, brain and other organs. To maintain all the vital systems of your body at the required level, you should move much more, and you need to start with primary school age. The main form of organization of physical education classes at school is a lesson. The authors talk about the need to introduce new technologies, study the physical abilities and conditions of schoolchildren, however, no specific recommendations were found to improve the studied indicators (Shuba 2016; Donnelly et al. 2016).

Some authors emphasize the importance of physical skills of schoolchildren for their intellectual development. However, specific proposals for the development of physical conditions have not been identified (De Giorgio et al. 2018).

At school age, it is customary to allocate periods of the most significant age-related changes in the body, including the development of physical abilities. These periods are called sensitive. Purposeful development of specific abilities in sensitive periods gives the greatest effect, as it provides the highest rates of their

growth. Particular attention should be paid to the development of speed and coordination abilities from the age of seven (Starosta and Hirtz 2002; Larisa 2006). Well-developed coordination abilities are necessary prerequisites for successful training in physical exercises. They affect the pace, type and method of assimilation of sports indicators as well as its further stabilization. Coordination abilities contribute to the effective performance of work operations with ever-increasing demands in the course of work. Despite the high value of coordination abilities at school age, the authors do not offer specific recommendations for the program of physical education in school. (Erceg et al. 2010; Shawkat 2014; Fernandes et al. 2016; Jaakkola et al. 2017; Ellík and Willwéber 2018).

Speed of movement – is the ability of a person to perform motor action in a short period of time with a certain frequency and impulsiveness. The speed of movement is the main and necessary prerequisite for the ability of the athlete as quickly as possible, ahead of the opponent, to assess the situation, to make the most favorable decision in this situation and implement it. It is this skill that is primarily characteristic of all outstanding athletes in team sports, boxers, fencers and other athletes (Holodov and Khuznetsov 2009; Polevoy 2018). The standard program on physical culture at school (Lyakh and Zdanovich 2010) provides complex development

of these and other physical abilities of children.

One of the problems for the implementation of the standard program is the lack of space for physical education classes with schoolchildren. Usually, it is a small gym. Lack of space leads to a decrease in motor activity of schoolchildren. Can solve this problem if you develop and implement a physical exercise that will not distract from the purpose of the lesson, which will not be difficult to perform for younger schoolchildren and will not take up much space.

The hypothesis of the study is that if at each physical education lesson in school with children 8-9 years to perform the exercise «Classic's», the indicators of speed and coordination abilities will significantly improve and increase the motor activity of schoolchildren.

The aim of the research – to study the effect of the exercise «Classic's» on indicators the speed of movement of schoolchildren and their coordination abilities.

### **Objective of the Study**

To study the effect of the exercise «Classic's» on indicators the speed of movement of schoolchildren and their coordination abilities.

### **MATERIAL AND METHODS**

#### **Participants**

The pedagogical experiment was conducted during the academic year from September to May 2018. The study was attended by fifty schoolchildren from 2A and 2B class, boys and girls 8-9 years. Physical education classes were held for 40 minutes, twice a week. All schoolchildren were healthy and admitted to physical education lessons.

#### **Procedure**

The control group (CG) – is schoolchildren from class 2A (25 people), they were engaged in

**Table 1: Exercise “Classic’s”**

8	1	3	1	8	4	9	4	7
4	9	5	6	7	3	5	8	1
6	2	7	9	2	5	2	3	6
Square 1			Square 2			Square 3		

the usual program of physical education in school (Lyakh and Zdanovich 2010). The experimental group (EG) – are schoolchildren from 2B class (25 people), they additionally performed the exercise «Classic's» in each lesson (Table 1).

Exercise «Classic's» is as follows:

In the school gym or on the site drawn three squares (side square 180 cm), each of them includes nine small squares with numbers from one to nine. The task of schoolchildren to jump from square to square, first from 1 to 2 and up to 9, then in reverse order, then you can go to the second square. You can jump in anyway and in any part of the lesson, and in case of an error you need to return to the square with the previous number.

#### **Control Tests**

- 1) Running on the spot (Assessment of the speed of movement). Within 10 sec, the schoolchildren performs do an exercise - running on the spot. The result is the number of steps (movements) on the spot (Hirtz 1985; Lyakh and Zdanovich 2010).
- 2) Shuttle run 3x10m (Assessment of coordination abilities) (Lyakh 2006; Polevoy 2019).

#### **Statistical Analysis**

Statistical processing of results and mathematical analysis were carried out using Excel-2016 and Biostatistica-2009. The study used the parametric criterion T-Student, the result was considered significant at  $P<0.05$  (Oldham 1993; Khusainova et al. 2016).

### **RESULTS**

The schoolchildren from the EG and the CG passed the control tests, the average speed of movement and coordination skills are presented in Table 2.

Table 2 shows that before the beginning of the pedagogical experiment, the indicators in both tests were approximately the same and the difference was not reliable. However, after the end of the study, the situation has changed significantly. Children who were engaged in the standard program (from CG) were able to improve performance in the test «Running on the spot» from  $25.9 \pm 3.9$  to  $30.5 \pm 3.0$  ( $P < 0.05$ ), and in the test «Shuttle run» performance improved by 3.9 per cent ( $P < 0.05$ ). Children who were engaged in EG significantly improved performance in both tests. In the «Shuttle run» test, the values changed from  $10.5 \pm 0.8$  sec to  $8.5 \pm 0.5$  sec ( $P < 0.05$ ), and in the «Running on the spot» test the values increased by 37.1% ( $P < 0.05$ ).

The results of the pedagogical experiment in CG show the effectiveness of the standard program in physical education lessons at school, as well as reflect the natural increase in the studied indicators in this age period. Indicators in the EG show the effectiveness of the exercise «Classic's» in physical education lessons in school with children of primary school age.

## DISCUSSION

Every year the number of completely healthy children ready for physical education lessons decreases. Children of the main medical groups are less common, say teachers and health workers. Not to mention the full sports training. In this regard, the issue of increasing motor activity from primary school age in the classroom for physical education in school is relevant. But, despite the relevance of the issue, specific solutions and proposals to improve the performance of physical abilities were not offered. (Castelli et al. 2007; François and Roy 2008; Gary et al. 2012; Donnelly et al. 2016; Shuba 2016; De Giorgio et al. 2018). The authors of the research propose to introduce new technologies that are not available in ordinary schools or require significant

investments. Some of them only talk about the importance of physical abilities and the need for their development at this age. However, concrete proposals to improve school programs on physical culture are not found.

Some authors propose to replace the standard program of physical culture in school, some authors see the output in additional circles and sections on sports (Chiodera et al. 2008; Gregor and Janko 2012; Maureen et al. 2013; Dallolio et al. 2016) But, to replace the standard program for physical education with modern methodology, it is wrong. Modern physical education programs at the school cover the full range of skills and abilities of schoolchildren necessary for them throughout their lives. At school, the program children learn new exercises, learn discipline, and develop physical abilities. The right approach would be to supplement the physical education program with new ideas. The effectiveness of the implementation of the standard program is proved by the results of this study, as children who were engaged in the program improved performance in both tests.

Primary school age is a favorable period for the development of such abilities as speed and coordination abilities (Starosta and Hirtz 2002; Larisa 2006; Charles et al. 2011). The results of the study confirm this fact, because all children in both groups have improved their performance, at the age of 8-9 years, the pace of development of these abilities is accelerating.

This study showed the effectiveness of the exercise «Classic's» in the classroom for physical education in school, as children from EG, who performed the exercise «Classic's» significantly improved performance in both control tests. The simplicity of the exercise «Classic's» makes it unique. It does not require a lot of space for its implementation, or special physical training, or complex equipment. It can be done during the lesson on physical culture, without detracting from the lesson objectives.

**Table 2: Indicators of speed and coordination abilities of schoolchildren 8-9 years**

Test	CG				EG			
	Before	After	%	P	Before	After	%	P
Running on the spot (steps)	$25.9 \pm 3.9$	$30.5 \pm 3.0$	17.8	$P < 0.05$	$24.0 \pm 3.4$	$32.9 \pm 2.8$	37.1	<b><math>P &lt; 0.05</math></b>
Shuttle run 3x10 m (sec)	$10.1 \pm 0.9$	$9.7 \pm 0.5$	3.9	$P < 0.05$	$10.5 \pm 0.8$	$8.5 \pm 0.5$	19.1	<b><math>P &lt; 0.05</math></b>

In working with children in school or sports section of great importance is a differentiated approach that allows you to realize the potential of each child, to increase its activity and motor density classes (Whipp et al. 2014; Kozina et al. 2015; Miliæ et al. 2017; Ion et al. 2018). During the pedagogical experiment children independently selected for themselves physical activity (height and duration of jumps from a square in a square, time and speed of performance of exercise in one or several squares), proceeding from own state of health and desire.

Children with great interest perform the exercise «Classic's» in physical education lessons. In some classes, they compete with each other in the speed of the square. Competitive and playful method in working with younger schoolchildren is very important (Wood and Hall 2015). Emotional attitude of schoolchildren before each exercise proves the effectiveness of the introduction of new exercises in the process of physical education in school.

## CONCLUSION

To increase the physical activity of schoolchildren should use a new exercise «Classic's». It increases the emotional background of the class, significantly develops the speed of movement of schoolchildren and their coordination abilities, and increases the motor density of the lesson in physical culture at school.

## RECOMMENDATIONS

The results of the experiment are useful for teachers and coaches who are engaged in the development of physical abilities of children.

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