

## Development of a sense of rhythm in children 8-9 years old with the help of exercise 'Classic's'

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### Abstract

**Introduction:** Lack of physical activity of children is a problem in modern society. The solution to the problem is the addition of programmes on physical education in school using new tools.

**Objective:** To study the effect of exercise 'Classic's' on indicators of general coordination abilities and sense of rhythm in primary school children.

**Method:** The study was conducted in a secondary school in Russia for 9 months. Fifty schoolchildren from the second grade took part in the pedagogical experiment. Physical education classes were held twice a week, each lesson lasting 40 minutes. The level of development of general coordination abilities was assessed with 'Shuttle run 3x10 metres'. The level of development of the ability to have a sense of rhythm was assessed with 'Sprint in a given rhythm'. Mathematical processing of the results was carried out using Microsoft Excel, Biostat and Student-t.

**Results:** After the end of the study, in the control group, indicators of general coordination abilities and ability to have sense of rhythm improved but not significantly. In the experimental group, in which children additionally performed the exercise 'Classic's', indicators improved significantly. In the test 'Sprint in a given rhythm' indicators improved from  $7.3 \pm 0.6$  seconds to  $5.5 \pm 0.5$  seconds ( $p < 0.05$ ). In the 'Shuttle run' test, performance improved by 19.1% ( $p < 0.05$ ).

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**Conclusions:** The results of the study proved the effectiveness of the use of exercise 'Classic's' in physical education lessons with children of primary school age, as an addition to the standard programme in school.

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### Introduction

Physical health of children is an actual problem today. Every year the level of physical training of schoolchildren decreases. Immunity becomes weak and children are susceptible to many diseases. Scientists, theorists and practitioners argue that it is necessary to increase the level of motor activity of children. School is the most centralized way, as the lesson is the subject for compulsory attendance by schoolchildren. Usually, it lasts 40 minutes and there are two classes a week<sup>1-3</sup>.

Modern standard programmes of physical culture in the school are full of topics, a variety of types of motor activity, which should be mastered by schoolchildren within 11 years of training at school<sup>4</sup>. Despite this, some authors offer methods that can replace the standard physical education programme at school<sup>5,6</sup>. In our opinion, this is wrong since the standard programme disassembled and solved important tasks of discipline, training, education, development and some others. The main objective of the programme on physical culture at school is a comprehensive, harmonious development of schoolchildren. Increasing the physical activity of schoolchildren is possible with the use of additional new ideas. For example, a new physical exercise that does not require special equipment, material and physical abilities. One such exercise is 'Classic's'. To perform the exercise does not require a lot of space, which is important, as many secondary schools do not have enough space in the gymnasium, especially if you add new equipment. Exercise 'Classic's' in the form of squares was developed and tested for the first time in children of the appropriate age and for all its variability, is aimed at the development of coordination abilities.

It should be noted that the development of coordination abilities is relevant for younger

schoolchildren. The high level of development of coordination abilities is a foundation of high technical preparation in sports, and an opportunity to solve difficult motive tasks which arise unexpectedly<sup>7-9</sup>. Among the variety of specific coordination abilities should be noted a sense of rhythm in children. A sense of rhythm is a specific coordination ability that allows children to accurately reproduce a given rhythm of motor action or correctly vary it in connection with changed conditions<sup>10-12</sup>. A favourable period for the development of coordination abilities is the age of 7-10 years, as at this age there is a natural increase in coordination indicators of children<sup>13,14</sup>. The hypothesis of the study is that if at each lesson on physical culture, schoolchildren will perform the exercise ‘Classic’s’, the indicators of sense of rhythm and general coordination abilities will increase significantly.

**Objectives**

To study the effect of the exercise ‘Classic’s’ on indicators of general coordination abilities and sense of rhythm in primary school children.

**Method**

The pedagogical experiment lasted nine months from September to May. The study involved 50 schoolchildren from the second grade. All children from school №60, Kirov, Russia, were physically healthy and admitted to physical education lessons by a doctor. Twice a week, boys and girls engaged in physical education, each lesson lasting 40 minutes.

The sample size was based on the number of schoolchildren in class in a regular school. The study involved ordinary schoolchildren who were healthy and admitted to physical education classes at school. Total number of pupils in 2A class was 31 and in class 2B was 30.

Two groups were formed prior to the study: The control group (CG) comprised 25 boys and girls from class 2A. Schoolchildren were engaged in the standard programme of physical culture at school<sup>4</sup>. The experimental group (EG) comprised 25 children from class 2B. They engaged according to the standard programme, but in addition performed exercise ‘Classic’s’ at each lesson on physical culture (Table 1).

**Table 1: Exercise ‘Classic’s’**

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

Exercise ‘Classic’s’ consists of the following points:

- 1) On the floor there are three large squares and the side of the square is 180 cm.
- 2) In the large square there are 9 small squares of equal size. Inside each small square there are numbers from 1 to 9. Numbering of small squares changed from lesson to lesson, so that schoolchildren do not remember the location of the numbers (this is one of the leading methods in the development of coordination abilities - a variable method). Numbers were changed in all three large squares placing them in random order.
- 3) From a square with number one, the schoolchildren must jump to be in the square with the number two (the jump may be with one or two legs).
- 4) You need to jump from number one to number nine in sequence and in reverse

sequence to number one.

- 5) If the schoolchildren make a mistake, they return to the previous square.
- 6) During each lesson, the schoolchildren must perform the exercise in all squares.
- 7) Exercise ‘Classic’s’ can be performed in any pause of the lesson, while running, performing other exercises, and waiting for your turn.

Control tests that were used to assess the abilities of schoolchildren.

- 1) Assessment of the level of development of general coordination abilities ‘Shuttle run 3x10 m’<sup>15</sup>.
- 2) Assessment of the level of development of the ability to sense of rhythm ‘Sprint in a given rhythm’. At a distance of 30 metres folded 11 gymnastic hoops. The schoolchild must run the distance without hitting the hoops. He must pick up a

certain rhythm of running or change it to run the distance as quickly as possible<sup>16</sup>.

The results of the pedagogical experiment were processed by mathematical and statistical analysis. Microsoft Excel and Bio-stat programmes were used. Indicators were calculated using the parametric criterion Student-t, and the result was considered reliable at  $p < 0.05$ <sup>17,18</sup>.

## Results

Prior to the study, all schoolchildren passed control tests (These are standards that show the level of development of physical abilities). Not authentic was the difference between 2A and 2B class on both indicators. That is, the coordination training in both classes was about the same. After the pedagogical experiment, the indices of both groups in both tests changed (Table 2).

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

Test	CG				EG			
	Before	After	%	p	Before	After	%	p
Shuttle run 3x10 metres (Measurement in seconds)	10.1±0.9	9.7±0.5	3.9	p<0.05	10.5±0.8	8.5±0.5	19.1	p<0.05
Sprint in a given rhythm (Measurement in seconds)	7.1±0.3	6.9±0.3	2.8	p<0.05	7.3±0.6	5.5±0.5	24.7	p<0.05

From Table 2 it is seen that the general coordination abilities and sense of rhythm of schoolchildren from the CG and the EG improved. Schoolchildren from CG, who were engaged in the usual programme of physical culture at school, were able to improve their performance to sense of rhythm by 2.8% ( $p < 0.05$ ), indicators in the test 'Shuttle run' improved from 10.1±0.9 sec to 9.7±0.5 sec ( $p < 0.05$ ).

These results indicate the effectiveness of the standard programme of physical education in school for children of primary school age. In addition, there is a natural increase in indicators of general and specific coordination abilities at the age of 7-10 years. Children from EG, who were engaged in the standard programme at the same time, in addition at each physical education lesson performed exercise 'Classic's' performance improved significantly. In the test 'Sprint in a given rhythm' indicators improved from 7.3±0.6 seconds to 5.5±0.5 seconds ( $p < 0.05$ ). In the 'Shuttle run' test, performance improved by 19.1% ( $p < 0.05$ ). These results indicate the effectiveness of the exercise 'Classic's' in physical education lessons with children of primary school age.

## Discussion

The problem of increasing physical activity and the formation of new programmes for physical culture in the school have been paid much attention to by some specialists who have developed and proposed modern techniques that can replace the standard programme of physical education in school<sup>5,6,19</sup>. However, this study confirms the effectiveness of the use of standard physical education programmes in school. Schoolchildren from grade 2A, who were in the control group and did not perform any additional exercises, were able to improve the performance of general coordination abilities and indicators of sense of rhythm.

In recent decades, much attention has been paid to the development of coordination abilities from primary school years<sup>20,21</sup>. It has been confirmed that the favourable period for the development of general and specific coordination abilities is the age group 7-11 years<sup>13,14</sup>. At the end of the pedagogical experiment, both groups of schoolchildren were able to improve their performance in both control tests.

The effectiveness of the use of exercise 'Classic's' in the educational process of physical culture is confirmed by the results of this study. Children in grade 2B who enrolled in the standard physical education programme for primary schools significantly improved their overall coordination ability and sense of rhythm. Thus, to change the standard programme of physical culture at school is inexpedient. The solution to the problem of motor activity of schoolchildren is a supplement to the programme, for example, the introduction of a new physical exercise 'Classic's'. The uniqueness of the exercise lies in its simplicity. It does not require significant investments, complex equipment or high physical fitness. Exercise 'Classic's' can be performed in any part of the lesson and can fill any pause during the lesson.

Pedagogical observation of the educational process of schoolchildren in 2A and 2B classes shows that schoolchildren from 2B class, who performed the exercise 'Classic's', increased motor density of the lesson, the children became more active and the emotional background of the lesson was much higher than in working with children from 2A class. The use of playing and competitive methods in working with younger schoolchildren is very important<sup>22</sup>. In some classes, class 2B children tried to perform the exercise 'Classic's' at a speed, one faster than the other did, thus including a competitive component in the lesson of physical

culture.

It is very important to use a differentiated approach when working with children<sup>23,24</sup>. When performing the exercise 'Classic's', each schoolchild for himself dosed load (that is, the schoolchild could determine the height and length of jump, speed and the duration of the exercise), he could perform the exercise quickly or slowly, could perform one large square, then the second or leave it for the final part of the lesson on physical culture. If you perform the exercise 'Classic's' at each lesson of physical culture in school, the indicators of coordination abilities and ability to sense of rhythm in children 8-9 years will improve significantly. In addition, the exercise increases the emotional background of the lesson and increases the motor activity of schoolchildren and the motor density of the lesson. The results of the study are relevant for teachers and coaches. The study is promising and serves as a supplement to the standard physical education programme at school.

### Conclusions

The results of the study proved the effectiveness of the use of exercises 'Classic's' in physical education lessons with children of primary school age, as an addition to the standard programme in school.

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