Influence of Exercise Classics on the Ability to Switch the Attention of Schoolchildren Aged 9-10 Years

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Abstract

Background: The problem of switching the attention of schoolchildren can be solved by exercises in physical education classes at school.

Aim: To determine the influence of exercise Classics on the ability of schoolchildren to switch their attention at the age of 9-10 years.

Method: The study was conducted over a period of 9 months, in which 40 9-10-year-olds took part. Physical education classes were held 2 times a week for 40 minutes each lesson. The level of development of coordination abilities was assessed on the «Shuttle run» test, and the indicators of attention switching on the «Method of Numbers» test. The programs bio-stat 2009, Microsoft excel 2016 and t-student were used for mathematical and statistical processing of results.

Results: Before the beginning of the pedagogical experiment, the indicators of school children between the groups did not have significant differences ($P>0.05$). After the end of the study, the indicators in both groups improved. In CG, in the «Shuttle run» test, the indicators improved from 10.2±0.6 to 9.9±0.5 ($P>0.05$), and in the test for the level of attention switching, the indicators improved by 5.4% ($P>0.05$). In EG, in the «Shuttle run 3x10 m» test, the indicators improved from 9.9±0.5 to 8.5±0.4 ($P<0.05$), and in the «Method of Numbers» test, the indicators improved by 26.6%. These results indicate the effectiveness of using exercise Classics in physical education lessons in working with younger schoolchildren.

Conclusion: If schoolchildren will perform exercise Classics in physical education classes at school, they will improve not only coordination abilities, but also attention switching indicators.

Keywords: *Attention switching, coordination abilities, school children, physical education, Classics.*

Introduction

At the present stage of development of society, one of the most important tasks is the optimal level of motor activity, motor mode during the day. Unfortunately, every year more and more children with disabilities enter the first classes in a state of health, while the main problem is a lack of motor activity. It was found that the lack of motor activity significantly worsens the health of the growing human body, weakens its defenses, and does not provide full physical development. Diseases of the heart, blood vessels, lung system, and some others are progressing and becoming younger. It is impossible to fully develop schoolchildren without physical education. Physical education is an integral part of the modern Russian education system. The main form of physical exercises in school is a physical culture lesson. During the lesson, the teacher forms schoolchildren interest in physical exercises, encourages them to be

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active. The main task is to ensure that children, starting from their earliest childhood, grow up healthy, strong, and harmoniously developed. Physical culture plays an important role in improving a person's health[1-2].

Schoolchildren receive the necessary minimum of knowledge, skills and abilities provided for in the school curriculum, and increase their level of physical development[3]. One of the problems of implementing modern programs is the lack of a comfortable gym for a lesson in physical culture. Some authors suggest replacing the standard program with modern method[4-5]. In our opinion, the more correct option is only to add the standard program. The effectiveness of implementing exercise Classics in physical education classes at school has been proved[6].

An individual-differentiated approach to exercise Classics is very important. Thanks to this, schoolchildren can realize the reserve potential of their body, meet the needs for physical and motor activity[7-8].

Exercise Classics allows you to develop coordination abilities – this is the ability of a person to quickly master new movements and solve motor problems that arise in unexpected and changing situations. A high level of development of coordination abilities allows you to save movement, strength, and time. The efficiency and rationality of human motor actions increases simultaneously with an increase in the indicators of coordination abilities[9-11]. It should be noted that the sensitive period for the development of most conditioning and coordination abilities is primary school age. The effect of developing such abilities will be higher if you purposefully influence them in early school age[12-13].

Motor activity has a positive effect on the mental processes of schoolchildren, it improves their thinking processes[14-15]. Some studies confirm the effectiveness of physical education for obtaining positive grades in other subjects[16].

Thus, the aim of the study is to determine the influence of exercise Classics on the ability of schoolchildren to switch their attention at the age of 9-10 years.

Material and Method

Participants: 40 children, boys and girls 9-10 years old took part in the pedagogical experiment. At the time of the study, the schoolchildren were in the third grade at normal school No. 60 (Russia). Children who had good health indicators and were able to engage in physical education at school were admitted to the study.

All procedures met the ethical standards of the 1964 Declaration of Helsinki. Informed consent was obtained from all parents of the children included in the study.

Procedure: The pedagogical experiment lasted from September to may (9 months). Classes for schoolchildren were held twice a week for 40 minutes. There were 56 physical education classes in total.

Before starting the study, two groups were formed:

1. Control group (CG) - children of class 3A (20 people). During the school year, schoolchildren were engaged in a standard physical education program at school[3].
2. Experimental group (EG) - children of class 3B (20 people). During the school year, schoolchildren were engaged in the usual program and additionally performed exercise Classics at each physical education lesson (table 1).

Table 1. Exercise "Classic's"

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

Exercise Classics: In the gym, there are three large squares on the floor. The side of one square is 180 cm. Inside each large square there are nine small squares, the side of the small square is 60 cm. Inside each small square are numbers from 1 to 9.

Task: the schoolchild must use jumps from square to square to get from number 1 to number 2, then to number 3, and so on, to number 9. After that, it should jump on the same squares in reverse order (from number 9 to number 1). You can move around the squares in any way (from one leg to the other, jump on one leg or on two). If the schoolchild makes a mistake, he returns to the previous square. During the lesson, each schoolchild must overcome three large squares. The numbers in the squares must be changed by the teacher before each lesson. You can perform the exercise in any part of the lesson.

Before and after the pedagogical experiment all schoolchildren took control tests:

1. "Shuttle run 3x10 m" (indicator of coordination abilities)[17].
2. "Method of Numbers"[18].

The A4 sheet shows 2 large squares. Each square has 16 small squares with numbers from 1 to 16 written in them (table 2).

Table 2. Example of a blank in the "Method of Numbers" test

4	9	14	11
16	1	2	6
13	8	15	3
5	12	7	10

15	14	2	7
3	5	8	10
12	9	13	16
1	11	6	4

Schoolchildren should switch their attention from square to square so that they can cross out the numbers in turn, first in the left square (number 1), then in the right square (number 1). The exercise ends when the schoolchildren has crossed out number 16 in both squares. Result: the time that children spent on completing the task (0.1 seconds).

Statistical Analysis: The results of the pedagogical experiment were processed using Microsoft excel 2016, which allows you to determine the average value of the indicators of both groups. The bio-stat 2009 program allows us to compare groups and determine the reliability of the results ($P<0.05$) using the t-student parametric criterion[19].

Results

Before the beginning of the pedagogical research, all 40 schoolchildren took control tests. It should be noted that before the study, the differences in indicators between schoolchildren were not significant ($P>0.05$). After the study, the indicators changed in both classes (table 3).

Table 3 shows that the performance of schoolchildren from CG and EG improved in both tests. However, the improvement in both tests was different. In children in grade 3A who were engaged in the standard physical education program at school, the performance in the «Shuttle run» test improved from 10.2±0.6 to 9.9±0.5 ($P>0.05$). Schoolchildren who were engaged in the standard program and performed the exercise Classics in each lesson improved their coordination abilities from 9.9±0.5 to 8.5±0.4 ($P<0.05$). In the same way, the pedagogical experiment affected the indicators of switching the attention of schoolchildren. Children from CG in the «Method of Numbers» test had 5.4% higher scores ($P>0.05$), and children from EG had 26.6% better scores ($P<0.05$). Thus, we can talk about the insignificant effectiveness of the standard physical education program in secondary schools for the development of coordination abilities, and the introduction of exercise Classics in the educational process in physical education has a significant and positive effect on both coordination abilities and the ability of schoolchildren to switch attention.

Table 3. Indicators of coordination abilities and abilities of children 9-10 years old to switch attention

Test	CG				EG			
	Before	After	%	P	Before	After	%	P
Shuttle run 3x10 m (s)	10.2±0.6	9.9±0.5	2.9	P>0.05	9.9±0.5	8.5±0.4	14.1	P<0.05
Method of Numbers (s)	44.1±3.4	41.7±4.1	5.4	P>0.05	42,9±3.9	31.5±3.3	26.6	P<0.05

Discussion

Physical culture is very important for a person. The main goal of physical education is comprehensive personal development, preparation for work and life in society. Physical education classes at school are mandatory and make a significant contribution to the development of schoolchildren[1-2].

Today, the physical education program at school is a set of method, sets of exercises and rules. Some authors believe that the modern physical education program is outdated and should be replaced with modern methodics and sets of exercises. However, in our opinion, this is a very strict measure. It is enough to add only a little to the program, for example, exercise Classics which has proved to be positive in previous studies[6].

This study is new, as it is the first to study the influence of exercise Classics on the ability of schoolchildren to switch their attention. The relationship was positive. Children who performed the exercise Classics in every physical education lesson at school improved their ability to switch their attention.

Such studies confirm the data that physical culture, exercise and sport have a positive impact on the human body not only in terms of physical fitness, but also intellectual development[14-15,20-21], such children have an advantage in solving tasks that require increased mental readiness, respectively, receive more positive ratings for their abilities[16,22].

It should be noted that the authors' opinion about a favorable period for the development of coordination abilities of primary school children is fully confirmed by this study, since children in the control group who did not take additional classes were able to improve their indicators of coordination abilities[12-13].

An individual approach to working with children is used more often in high school, and in primary school age, the method of differentiated approach is more common, which also proved itself in a new study[7-8].

Conclusion

Thus, if you perform exercise Classics at each physical education lesson at school, the indicators of physical and mental development of children will improve. Specifically, indicators of coordination abilities and ability to switch attention. The new research is relevant and promising for further directions in the study of mental processes and physical abilities of schoolchildren.

Conflicts of Interest: There is no conflict of interest

Source of Funding: Self-funding

Ethical Clearance: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study.

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