



# Outdoor games – an effective means of developing physical qualities of junior schoolchildren

UDC 796.011.3



PhD, Associate Professor **G.G. Polevoy**<sup>1, 2</sup>

PhD, Associate Professor **E.V. Egorycheva**<sup>1</sup>

**A.V. Fedorov**<sup>1</sup>

Professor in Sports **L.P. Ardigo**<sup>2</sup>

<sup>1</sup>Moscow Polytechnic University, Moscow

<sup>2</sup>NLA University College, Department of Teacher Education, Oslo, Norway

Corresponding author: g.g.polevoy@gmail.com

Received by the editorial office on 04.10.2023

## Abstract

**Objective of the study** was to evaluate the impact of outdoor games at school on the physical fitness indicators of 8-9 year old children.

**Methods and structure of the study.** The pedagogical experiment was carried out from September 12, 2022 to May 17, 2023 on the basis of school No. 12 in Kirov, 56 schoolchildren from the 2nd grade took part in it, who were differentiated into two groups: control (CG) and experimental (EG) 28 students each. In the EG, in contrast to the CG, along with traditional classes, outdoor games were used for 8-9 minutes in each physical education lesson.

**Results and conclusions.** As a result of the use of outdoor games in the EG, a significant increase in indicators was revealed for all tests: "Running 30 meters" - an improvement of 18.2% ( $p < 0.05$ ); "Pulling up from a lying position" - improvement by 40.2% ( $p < 0.05$ ); "Shuttle run 3x10 m" - improvement by 10.3% ( $p < 0.05$ ); "Forward bend" - improvement by 43.2% ( $p < 0.05$ ). The results of the pedagogical experiment showed that outdoor games are an effective means of increasing the physical activity of students in a general education organization.

**Keywords:** *physical activity, physical inactivity, sensitive period, physical culture.*

**Introduction.** The problem of physical activity deficit has become more acute in recent years. Schoolchildren spend most of their time on gadgets, TVs, phones, and devote less and less time to physical education. One of the ways to solve the issue of physical inactivity is physical education and sports [2, 3]. At school, among the variety of means and methods of physical education, outdoor games are often used at primary school age, and sports games at the senior level. In the process of outdoor play, children comprehensively develop physical qualities. Games also contribute to the development of courage, determination, and the ability to work in a team [4, 5].

It should be noted that school age is favorable for the development of all physical qualities without exception; it is especially important to pay attention to the development of physical qualities from the first physical education classes at school when working with the junior level [6, 7].

Thus, there was a need to supplement the physical education lesson with outdoor games that would attract the attention of schoolchildren and have a positive impact on the development of physical qualities of schoolchildren.

**Objective of the study** was to evaluate the impact of outdoor games at school on the physical fitness indicators of 8-9 year old children.

**Methods and structure of the study.** The pedagogical experiment was carried out from September 12, 2022 to May 17, 2023 at school No. 12 in Kirov, 56 schoolchildren from the 2nd grade took part in it, who were differentiated into two groups. The control group (CG – children from class 2A, numbering 28 students) studied according to the usual physical education program at school [1]. In the experimental group (EG – children from grade 2B, 28 students), along with traditional sets of exercises, outdoor games were used for 8-9 minutes in each physical education lesson.



All physical education classes were held three times a week according to the school schedule, and each lesson lasted for 40 minutes. All children who participated in the study were healthy and were cleared by a doctor to attend physical education lessons at school. The control group more often used the repeated method, and the experimental group used the game method.

From a large arsenal of outdoor games, those that contributed to the fulfillment of the objectives of a particular physical education lesson were selected [2, 8, 9]. So, for example, the following games are better suited for developing speed: "Sentries and Scouts", "Empty Space", "Relay Race with Turns". For the primary development of dexterity: "The second one is the odd one out," "Exact turn," "If your legs became arms." You can influence flexibility and coordination with the help of games: "Crucian carp and pike", "Forbidden movement", "Tunnel of hoops". And to develop speed and strength abilities, you can use the game "Geese-Swans" or "Fox and Chickens".

To determine the development of physical qualities in the experiment, physical fitness testing was used using exercises and tests from the school curriculum [1]: 30-meter run, hanging pull-up while lying on a low crossbar, shuttle run 3x10 m, bending forward from a standing position on a gymnastic bench.

To determine the effectiveness of the technique, methods of mathematical statistics were used, and using Student's t-test, the significance of differences was determined at a 5 percent significance level [10].

**Results of the study and discussion.** At the beginning of the experiment, no statistically significant differences were found between the groups ( $p > 0.05$ ). These results indicate the relative homogeneity of the groups. After the pedagogical experiment, the indica-

tors of all children participating in the experiment were also measured (see table).

The table shows that during the academic year, both groups showed improvements in all tests. In the CG, the indicators became higher by 5.3% in the "30-meter run" test and by 5.7% in the "3x10 m shuttle run" test ( $p > 0.05$ ). In the "Pull-up from a lying position" test, the indicators became higher by 13.3%, and in the "Forward Bend" test – by 10.8% ( $p > 0.05$ ). Despite the positive increase in indicators in the CG from the beginning to the end of the study, there was no significant increase.

In the EG, from the beginning to the end of the study, a significant increase in indicators was revealed for all tests:

1. "Running 30 meters" improvement by 18.2% ( $p < 0.05$ );
2. "Pulling up from a lying position" improvement by 40.2% ( $p < 0.05$ );
3. "Shuttle run 3x10 m" improvement by 10.3% ( $p < 0.05$ );
4. "Forward bend" improvement by 43.2% ( $p < 0.05$ ).

The results in the EG may indicate the effectiveness of outdoor games in the process of physical education.

Play is an integral part of a child's life. In an entertaining form, the game uses a complex of physical education means (walking, running, jumping, throwing and others). Gaming activities are more attractive for children of primary school age. Playing in the classroom contributes to the formation of a positive emotional background, which ensures a positive attitude towards physical education classes in general [4, 5]. Outdoor games, as a means of physical education, contribute to solving the pressing issue of physical inactivity among schoolchildren [2, 3].

Indicators of physical qualities of schoolchildren after 8-9 years

Tests	Groups	Before X±m	After X±m	Increase	p
30m run (s)	CG	7,5±0,5	7,1±0,4	5,3%	p>0,05
	EG	7,7±0,4	6,3±0,6	18,2%	p<0,05
Pull-ups (number of times)	CG	7,5±0,9	8,5±1,3	13,3%	p>0,05
	EG	7,2±1,1	10,1±1,2	40,2%	p<0,05
Shuttle run 3x10 m (s)	CG	10,5±1,3	9,9±1,2	5,7%	p>0,05
	EG	10,7±1,1	9,6±0,9	10,3%	p<0,05
Tilt (cm)	CG	4,6±0,4	5,1±0,5	10,8%	p>0,05
	EG	4,4±0,3	6,3±0,5	43,2%	p<0,05



The data obtained can be compared with the standards of the school curriculum [1]: in the “30-meter run” test, a grade of “5” is given to a student if he runs the distance in 6.0 s, a grade of “4” is 7.0 s, and a grade of “3” is 7.5 s. Before the start of the study, the average indicators of children in the CG corresponded to a rating of “3” (7.5 s), and the indicators of the EG were even lower (7.7 s). After the end of the study, children from the CG remained at the level of “3” points (7.1 s), and children from the EG showed an average result (6.3 s) for a score of “4”.

As for the “Pull-up from a prone position” test, here a score of “5” is given for 14 pull-ups, a score of “4” for 10 pull-ups and a “3” for 6 pull-ups. Comparison with the average indicators at the beginning of the experiment in both groups shows that the level of strength abilities of schoolchildren corresponds to the rating of “3” (7.5 and 7.2 pull-ups). After the experiment, the level of strength abilities of schoolchildren from the CG remained at a grade of “3” (8.5 pull-ups), and children from the EG were able to reach a grade of “4” (10.1).

In the 3x10m shuttle run test, a grade of “5” in school can be obtained for a result of 9.5 s, a grade of “4” for 10.0 s, and a grade of “3” for 10.5 s. The level of development of coordination abilities in the CG was 10.5 s (score “3”), and after the study it became 9.9 s (score “4”). In the EG, the indicators before the pedagogical experiment were below the rating of “3” (10.7 s), and after the study, the average indicator of the children increased to a rating of “4” (9.6 s).

The Forward Bend test is used to assess the flexibility of schoolchildren. For it you can get a score of “5” if flexibility has reached a level of +9 cm, a score of “4” if flexibility is +6 cm, and a score of “3” for +3 cm. Thus, before the start of the study, in both groups the standard of the school physical education curriculum corresponded to a rating of “3” (+4.6 cm and +4.4 cm). After the pedagogical experiment, children from the CG remained at the level of “3” points (+5.1 cm), and children from the EG were able to achieve a score of “4” (+6.3 cm).

It is important to note that despite the fact that the data improved in the CG and became significantly higher in the EG, however, when comparing the results of both groups with the standards of the school curriculum, it was revealed that not a single indicator of the average value reached the rating of “5”. This indicates a low level of physical development of modern schoolchildren.

**Conclusions.** The results of the pedagogical experiment showed that outdoor games are an effective

means of increasing the physical activity of students in a general education organization.

## References

1. Kainov A.N., Kuryerova G.I. Working programs. Physical Culture. Grades 1-11. A comprehensive program of physical education for schoolchildren. Teacher. 2019:169.
2. Di Maglie A., Marsigliante S., My G., Colazzo S., Muscella A. Effects of a physical activity intervention on schoolchildren fitness. *Physiological reports*, 2022; 10(2), e15115. <https://doi.org/10.14814/phy2.15115>
3. Karimovna B.K. The Role of Outdoor Games in Increasing the Motor Activity of Children. *European journal of innovation in nonformal education*, 2022; 2(6):250–252.
4. Dmitrenko S.M., Gerasimishin V.P., Khonzhevsky L.E., Chuiko Yu.A. Purposeful development of motor abilities of junior schoolchildren by means of outdoor games. *Scientific journal of the National Pedagogical University named after M.P. Dragomanov*. 2021; 3, (133):39-42. [https://doi.org/10.31392/NPU-nc.series15.2021.3\(133\).07](https://doi.org/10.31392/NPU-nc.series15.2021.3(133).07)
5. Sivasubramanian N., Mahalakshmi B., Garg S., Aiyubdaud P.S., Soma B., Shaijo K.J., Abraham R., Ramji B.K. Effect of outdoor games among school children in Northern Gujarat, India. *Bioinformation*, 2022; 18(9):791–794. doi: 10.6026/97320630018791
6. Fuentes-Barría H., Aguilera-Eguía R., González-Wong C. Motor skills, physical qualities and sensitive periods in the development schoolchildren. *Andes pediatri*. 2021;92(6):983-984.
7. Drouven M.G., Grossmann I.E. Multi-period planning, design, and strategic models for long-term, quality-sensitive shale gas development. *AIChE J*. 2016;62(7):2296-23. doi:10.1002/aic.15174.
8. Makhkamovich A.Y. Physical Education Of Senior Schools By Means Of Folk Moving Games. *European Scholar Journal*, 2021; 2(11):70-72.
9. Utashev K.N. Theoretical analysis of motor activity in assessing the mass sports movement of schoolchildren. *Eurasian Journal of Sport Science*, 2022; 2(1), 1-4.
10. Mishra P., Singh U., Pandey C.M., Mishra P., Pandey G. Application of student's t-test, analysis of variance, and covariance. *Ann Card Anaesth*. 2019; 22(4):407-411. doi: 10.4103/aca.ACA\_94\_19.