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The effectiveness of using the nordic walking wellness exercise in extracurricular time of primary school students

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Abstract

Purpose: to increase the level of comprehensive harmonious development and preparedness of primary school students in their free time from the lesson using the method of Nordic walking.
Methods: Analysis and generalization of scientific and methodological literature; pedagogical test; medical and biological methods; pedagogical experiment; methods of mathematical statistics.
Results: The results obtained as a result of the "Cooper test" showed that before the experiment in CG, the average value was 1115.3±118.2 meters, at the end of the experiment it was 1168.2±122.1 meters, or the rate of endurance growth was statistically unreliable and equal to 52.9 meters ($t=2.6$ and $p<0.05$). In EG, however, if before the experiment this indicator was 1082.7±110.4 meters, then by the end of the experiment it was better at 1210.2±130.1 meters, or the rate of endurance growth was statistically reliable 127.5 meters ($t=6.21$ and $p<0.001$)
Conclusion: With the comprehensive development of children, Nordic walking has a positive effect on their body. There is practically no risk of injury during training. Nordic walking provides muscle performance (up to 90%) compared to conventional walking. The whole body is involved in the movement, the most important muscles of the legs, abdomen, hips, back and arms were noticed, providing active work on an equal footing.

Keywords: Nordic walking, elementary training, healthy lifestyle, physical fitness, functional training.

Introduction

In our country, physical culture and sports have become a priority of state policy, used as the most important strategic direction in promoting the ideas of national independence as a means of improving the gene pool of the nation, educating the younger generation with high indicators of physical and intellectual potential.

Decree of the President of the Republic of Uzbekistan № PD-4947 dated February 7, 2017 "The Strategy of Actions on Five Priority Areas of Development of the Republic of Uzbekistan for 2017-2021", resolution № PD-3907 of August 14, 2018 "On measures to raise the system of spiritual, moral and physically harmonious upbringing of young people, their education and upbringing to a qualitatively new level", decree of the President of the Republic of Uzbekistan № PD-5538 dated September 5, 2018 "On additional measures to improve the management system of public education" testifies to the great attention paid to the development of physical culture and sports, especially among young people.

The study and analysis of the scientific and methodological literature of domestic and foreign scientists shows that there are many scientific studies devoted to the problems of physical education in the field of healthcare, in particular G.V. Zhulin, I.A. Koshbakhtieva, D.D. Sharipova, L.I. Lyubishova, T.S. Usmankhodzhaev and others.

Problems of organization of physical education classes in the field of healthcare MV Zvereva, A.M. Kozin, L.V. Smurygina, I.A. Sennikova, A.G. Uedrin, T.A. Daminova, B.T. Halmatova and others.

Analysis of age characteristics in the physical education of younger schoolchildren based on the works of O.V. Goncharov, V.I. Lyakh, V.A. Ermakov, A.N. Kainov, T.G. Sulimov, A.U. Farrakhov, I.G. Dukalsky, V.P. Guba, A.A. Guyalovsky and others (Kerimov, 2018; Stanskij, et al., 2015).

At the present stage of physical education of younger schoolchildren, the main tasks are to form a healthy lifestyle, strengthen their health, increase and maintain the achieved level of physical development and physical education using existing, modern physical education technologies.

Methods

The state of health, morphofunctional status and level of physical fitness of primary school students were assessed by studying the features of physical education classes.

The methodology of using devices for Nordic walking by primary school students dur-

ing extracurricular hours has been studied and analyzed.

Results and discussion

The pedagogical study was attended by primary school students (4th grade, a total of 72 students aged 10 years, including 36 boys and 36 girls) of secondary schools № 2 and 7 of Turakurgan district of Namangan region. All study participants (n = 144) were divided into two groups: ("EG") experimental and ("CG") control groups. The number of children in both groups was the same (n = 72).

When determining the level of physical fitness of elementary school students, we used the computer program "Scan.Hod", registered by the Intellectual Property Agency under the Ministry of Justice under the number DGU 11872.

The pedagogical study showed that there were no differences in the previous status of statistical comparisons made between CG and EG studied at the beginning.

In the control group, the average performance of running from a high start to 30 meters was 6.01±0.54 seconds, and in the experimental group - 6.1±0.58 seconds, reliability (t=1.35; p>0.05). Jumping rope for 1 min result 58.1±6.6 times in the control group and 58.5±6.5 times in the experimental group, reliability (p>0,05). In terms of speed quality, it shows that the groups are the same.

The next indicator was shuttle run at 3x10 m, we observed the following: the control group showed results of 11.1±1.37 seconds, and in the experimental group - 11.2±1.46 seconds, reliability (t=0.6; p>0.05). Forward bending test while sitting on the floor with a Scandinavian stick, CG 7.02±0.69 times, in the experimental group 7.1±0.84 times, reliability (t=1.14; p>0.05).

In the long jump exercise from standing position, the control group showed 112±9.8 cm, and in the experimental group 114±10.8 cm reliability (t=1.87; p>0.05). These figures indicate that the strength qualities of the experimental and control groups are almost equal.

Bending the arms with support on the floor, here we also observed that in the control group this indicator was 15.08±1.68 times, and in the experimental group 15.3±1.61 times the reliability (t=0.94; p>0.05). A control exercise with pulling up on a horizontal bar helped us to determine the following. In particular, in the control group, this value was 4.16±0.52 times, and in the experimental group - 4.25±0.57 times confidence (t =1.40; p>0.05). This also revealed the absence of reliable statistical differences between these indicators (see table 1).

Table 1. Statistical analysis of indicators of physical fitness of primary school EG and CG, studied at the beginning of the pedagogical study.

№	Tests	Control group n=72		Experimental group n=72		Difference	t	p
		x±σ	V %	x±σ	V %			
1	Running from a high start to 30 meters (seconds)	6.01±0.54	8.98	6.1±0.58	9.50	0.09	1.35	p>0.05
2	Jumping rope for 1 min result (times)	58.1±6.6	11.35	58.5±6.5	11.14	0.4	0.51	p>0.05
3	Shuttle run at 3x10 m (seconds)	11.1±1.37	12.34	11.2±1.46	13.03	0.1	0.6	p>0.05
4	Forward bending test while sitting on the floor with a Scandinavian stick (times)	7.02±0.69	9.82	7.1±0.84	11.83	0.08	1.14	p>0.05
5	Long jump from standing position (cm)	112±9.8	8.75	114±10.8	9.47	2	1.87	p>0.05
6	Bending the arms with support on the floor (times)	15.08±1.68	11.14	15.3±1.61	10.52	0.22	0.94	p>0.05
7	Pulling up on a horizontal bar (for girls on a shorter horizontal bar) (times)	4.16±0.52	12.5	4.25±0.57	13.41	0.09	1.40	p>0.05
8	Squatting with a Scandinavian stick (times)	35.1±3.71	10.56	34.3±3.45	10.05	0.8	1.90	p>0.05
9	Nordic walking at 400 m (seconds)	242.5±23.2	9.58	250.3±24.8	9.90	7.8	1.95	p>0.05
10	12-minute Nordic walking (metres)	1115.3±118.2	10.60	1082.7±110.4	10.19	32.6	1.19	p>0.05

Squatting with a Scandinavian stick in CG - 35.1±3.71 times, and in EG - 34.3±3.45 times, reliability (t=1.90; p>0.05). Nordic walking at 400 m is 242.5±23.2 seconds in CG and 250.3±24.8 seconds in EG, (t=1.95; p>0.05). The last test is a 12-minute Nordic walking, CG walked 1115.3±118.2 meters, EG walked 1082.7±110.4 meters, reliability (t=1.19; p>0.05). The results of the last two control rounds were very low, indicating that the students did not understand Nordic walking.

During the experiment, it was noticed that in the past, in the control group, which traditionally spent free time from the lesson, all the indicators changed compared to the initial results, while there were significant differences in all the indicators of the experimenters.

The results of the tests in CG and EG were more clearly visible in the form of a table at the end of the experiment. A comparative statistical analysis of the indicators of physical fitness of the studied groups of CG and EG at the end of the pedagogical experiment is presented in Table 2.

For example, running from a high start to a distance of 30 meters in CG changed by 6.01±0.54 seconds at the beginning of the study and by 5.86±0.41 seconds at the end of the study, that is by 0.15 seconds (t=1.84; p> 0.05). There were no significant differences in this indicator (see table 2).

In EG, running 30 meters from a high start was 6.1±0.58 seconds at the beginning of the study, but by the end of the study this indicator had changed to 5.56±0.52 seconds, that is, an improvement of 0.54 seconds (t = 5.88;

Table 2. The results of testing on indicators of physical fitness at the beginning and end of the pedagogical practice of primary school experimental and control groups (n=144).

Tests	Group	Before the experiment		After the experiment		Difference	t	p
		x±σ	V %	x±σ	V %			
Running from a high start to 30 meters (seconds)	CG	6.01±0.54	8.98	5.86±0.41	7.19	-0.15	1.84	>0.05
	EG	6.1±0.58	9.50	5.56±0.52	9.35	-0.54	5.88	<0.001
Jumping rope for 1 min result (times)	CG	58.1±6.6	11.35	61.2±7.5	12.19	+3.1	2.60	<0.05
	EG	58.5±6.5	11.14	64.7±7.2	11.12	+6.2	5.29	<0.001
Shuttle run at 3x10 m (seconds)	CG	11.1±1.37	12.34	10.7±1.19	11.12	-0.4	1.84	>0.05
	EG	11.2±1.46	13.03	10.3±1.30	12.62	-0.9	3.86	<0.001
Forward bending test while sitting on the floor with a Scandinavian stick (times)	CG	7.02±0.69	9.82	7.4±0.80	10.81	+0.38	2.77	<0.01
	EG	7.1±0.84	11.83	8.3±0.91	10.96	+1.2	8.14	<0.001
Long jump from standing position (cm)	CG	112±9.8	8.75	115.3±10.6	9.48	+3.3	1.84	>0.05
	EG	114±10.8	9.47	121.2±11.4	9.40	+7.2	3.78	<0.001
Bending the arms with support on the floor (times)	CG	15.08±1.68	11.14	15.77±1.89	10.48	+0.69	2.26	<0.05
	EG	15.3±1.61	10.52	16.52±1.80	10.89	+1.22	4.25	<0.001
Pulling up on a horizontal bar (times)	CG	4.16±0.52	12.5	4.33±0.61	14.18	+0.17	1.76	>0.05
	EG	4.25±0.57	13.41	4.44±0.63	14.18	+0.28	2.90	<0.001
Squatting with a Scandinavian stick (times)	CG	35.1±3.71	10.56	36.8±3.91	10.61	+1.7	2.60	<0.05
	EG	34.3±3.45	10.05	38.8±4.3	11.08	+4.5	6.81	<0.001
Nordic walking at 400 m (seconds)	CG	242.5±23.2	9.58	230.4±22.5	11.25	-12.1	3.14	<0.01
	EG	250.3±24.8	9.90	219.1±23.9	10.90	-31.2	7.77	<0.001
12-minute Nordic walking (metres)	CG	1115.3±118.2	10.60	1168.2±122.1	10.45	+52.9	2.6	<0.05
	EG	1082.7±110.4	10.19	1210.2±130.1	10.75	+127.5	6.21	<0.001

p>0.05) showed that the differences in EG were statistically high and significant.

Subsequent indicators in the 1-minute jump rope in CG increased 58.1±6.6 times at the beginning of the study and 61.2±7.5 times at the end of the study, that is, 3.1 times (t = 5.88 and statistically unreliable p>0.05) was equal. In CG, this indicator increased by 58.2±6.5 times, respectively, and at the end of the experiment, this indicator increased by 6.2 times to 64.7±7.2 times. (see figure 1).

In CG, shuttle run for 3x10 meters was 11.1±1.37 seconds at the beginning of the study compared to 10.7±1.19 seconds at the end of the study (t=1.84 and statistically unreliable p>0.05). In TG, this indicator was 11.2±1.46 seconds at the beginning of the study and 10.3±1.30 seconds at the end of the study (t=3.86 and statistically reliable p>0.001).

Pull-up on the horizontal bar in CG be-

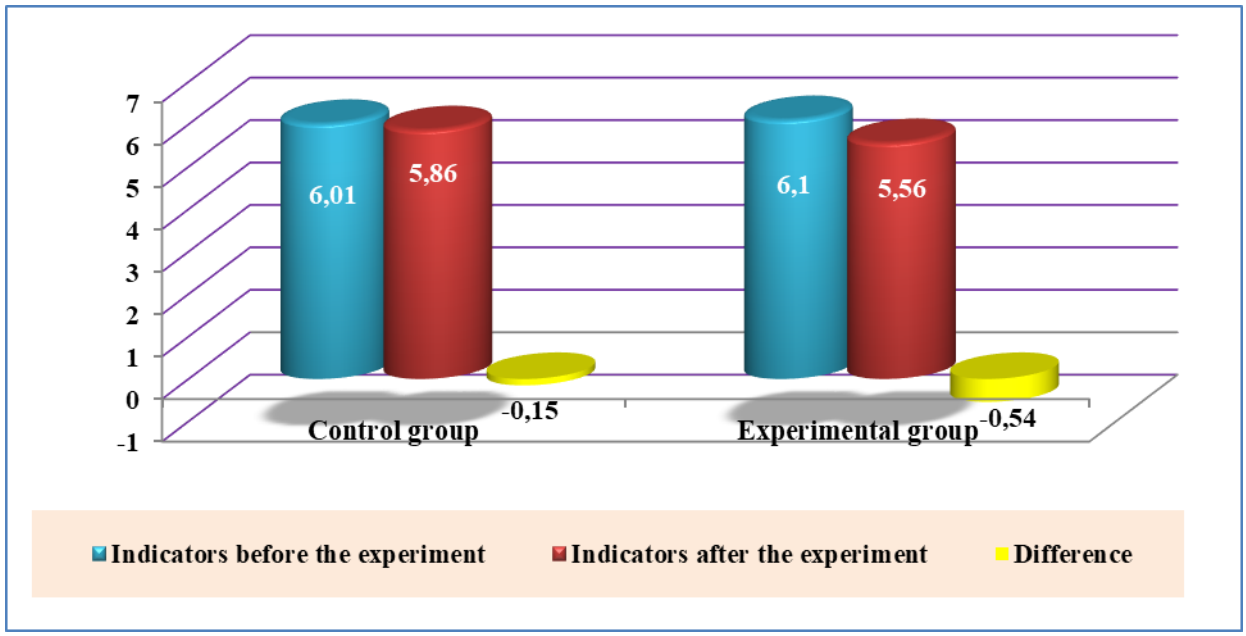


Figure 1. Diagram showing the difference in the performance of running groups at 30 m of primary school experimental and control groups at the beginning and end of teaching practice.

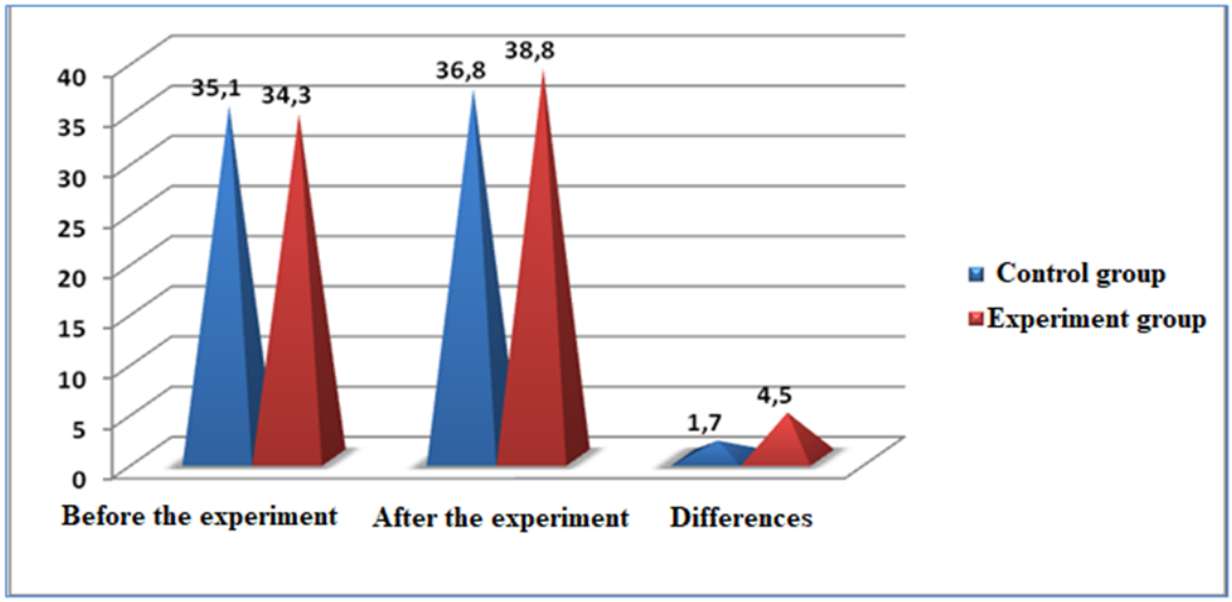


Figure 2. A diagram showing the difference between the change in the performance of squatting with a Scandinavian stick indicators at the beginning and at the end of the pedagogical experiment in the experimental and control groups of elementary school.

fore the experiment was 4.16±0.52 times, and at the end of the experiment - 4.33±0.61 times, increasing by only 0.17 times ($t=1.76$; $p<0.05$). In EG, these indicators were 4.25±0.57 times at the beginning of the experiment and 4.44±0.63 times at the end of the experiment, the difference in growth was statistically significant and increased by 2.90 times ($t=0.28$; $p<0.001$).

In CG, squatting with a Scandinavian sticks was 35.1±3.71 times at the beginning of the experiment, but by the end of the experiment their average value increased by 1.8 times, reaching 36.8±3.91 times ($t=2.60$; $p<0.05$). According to this indicator, EG increased 34.5±3.45 times at the beginning of the experiment, 38.8±4.3 times after the experiment and 4.5 times, the growth rate was significant ($t=6.81$; $p<0.001$).

In the Nordic walking at 400 m, the following was found: CG showed a result of 242.5±23.2 seconds at the beginning of the experiment and 230.4±22.5 seconds at the end of the experiment. The growth rate improved by 12.1 seconds ($t=3.14$; $p<0.01$). In this exercise, EG improved by 250.3±24.8 seconds at the beginning of the experiment and by 219.1±23.9 seconds after the experiment, or the growth rate improved by 31.2 seconds, which is a statistically significant increase ($t=7.77$; $p<0.001$).

Conclusion

The results of the study of the use of Nordic walking in extracurricular activities of primary school students allowed us to draw the following conclusions:

1. According to the results of the study and analysis of scientific and methodological literature, it has been established that today this Nordic walk is used by adults to improve their health. In the course of the study, the lack of a sufficient amount of research literature on strengthening the physical development and physical fitness of children was revealed.

2. Thanks to special sticks, the load on the muscles of the upper shoulder girdle is reduced, which helps to reduce the load on the leg muscles. In addition: it serves to improve the functioning of the cardiovascular system, reduce excess weight, prevent depression, increase physical activity and promote health, improve overall physical development and physical condition.

3. However, there is no work on organizing and conducting physical education lessons with elementary school students using Scandinavian devices for walking.

4. This situation determines the necessity and relevance of developing a methodology of classes using Nordic walking aids, taking into account the climatic and geographical features of our country. These results will serve to strengthen the health of primary school students, increase their overall physical development and level of physical fitness.

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