

Influence of the professional and motor skills integral development method application on physical fitness indicators of Arts Faculty students: a randomized control trial

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Abstract

Purpose: to substantiate the effectiveness of the application of a special method of integral professional and motor development to increase the level of physical fitness of Arts Faculty students. **Material and methods.** 50 first-year students of the Faculty of Arts of H.S. Skovoroda Kharkiv National Pedagogical University took part in the study. Of them, 25 students made up the control group, 25 students entered the intervention (experimental) group. The experiment was conducted in November – December 2022 online. Students of the intervention group (experimental group) instead of the tasks from the subject "physical education" performed the tasks of the methodology specially developed for them. The students of the control group performed tasks on the subject "physical education". In terms of workload, the tasks for the students of the control group and the intervention group were the same: students of both groups had to walk 6-8 km every day and do special exercises 3 times a week for the development of physical qualities. But the nature of these tasks was different for students in the control group and the intervention group. Students in the control group just had to do exercises and walk. Students of the intervention group performed special complexes in poems about nature as exercises for the development of physical qualities. When performing the exercises, they imagined those pictures of nature that were discussed in the poetic lines (plants, birds, animals, etc.). They were also given the task of illustrating lines of poems that they liked the most. During the walks, experimental group students had to photograph objects and landscapes they liked from an artistic point of view. **Results.** The results of the study convincingly showed the effectiveness of the application of a special method of integral development of professional abilities and physical fitness of students of the Faculty of Arts. The biggest differences were found in indicators of the work of the cardiovascular system and in indicators of vegetative regulation of vascular tone ($p < 0.001$). According to the results of the testing of students of the control and experimental groups, significant differences were also found in the indicators of strength endurance (tests "Push-ups, maximum number of times ($p < 0.05$)" and "Squats in 20 s, number of times" ($p < 0.001$)). In students of the experimental group, these indicators are significantly higher than those of the control group. **Conclusions.** In the students of the experimental group, a significant increase in almost all test indicators was observed as a result of the experiment ($p < 0.05$; $p < 0.001$), while in the control group, significant changes in the direction of improving results were observed only in the indicator of the maximum number of trunk lifts from the lying position to the sitting position ($p < 0.05$). According to all other indicators of physical fitness, the changes in test results of students of the control group are not reliable ($p > 0.05$).

Key words: students, art faculty, physical education, aerobically loads, creative thinking

Introduction

Everyone needs physical exercise (Ababneh, et. all, 2023; Carter, et. all, 2022; Kavouras, et. all, 2022). Movement is the basis of life. But in the modern world, a person needs to find ways to maintain his motor activity, since living conditions less and less provide for the need for movements to support life and work (Prontenko, et. all, 2019; Chernozub, et. all, 2023). And therefore it is necessary to artificially create a movement environment (Kozin, et. all, 2021; Kravchuk, et. all, 2021; Kiro, et. all, 2023). This especially applies to student youth: because it is at a young age that the foundations of health and habits for a healthy lifestyle are laid (Abdull Mutalib, et. all, 2022; Anticevic, et. all, 2022; Carvalho, et. all, 2022). But physical education in higher education institutions often does not meet the aspirations of today's youth (Abid, et. all, 2023; Abou Hashish, et. all, 2022; Cham, et. all, 2022; Chamorro-Atalaya, et. all, 2022). And therefore the possibility of maintaining a

proper functional state is lost. This problem was especially exacerbated during the COVID-19 pandemic, when all student classes, in particular, physical education, went online (Chamorro-Atalaya, et. all, 2022). In Ukraine, the problem of insufficient physical activity of students in connection with online education deepens in connection with the war. In addition, in the conditions of war, both teachers and students are under constant stress. Under stress, a reaction occurs in the body that requires motor activity, and the lack of motor activity leads to negative consequences from the cardiovascular system, nervous and hormonal systems (Khattak, et. all, 2022; Kozin, S., et. all, 2023 ; Kozin, S., et. all, 2021; Muszkieta, et. all, 2019).

In order for a person to start using physical exercises regularly, they should be such that they do not cause additional stress during their performance (Kozin, O., 2023; Kozin, O, et. all, 2022; Zhi, 2022). In order to achieve this, it is necessary to choose exercises in accordance with the psychophysiological characteristics of a person, so that the exercises correspond to the individual inclinations of a person and he likes them. In our previous studies (Bejtka, et. all, 2022; Kozin, O., et. all, 2022; Kozin, O., et. all, 2023), we found certain properties of the nervous system that are characteristic of future art teachers, and also for students of other specialties. It has been proven that future art specialists are distinguished by higher endurance of the nervous system in combination with low mobility of nervous processes. That is why long-term aerobic cyclical exercises of moderate intensity (walking, swimming, running, etc.) were recommended to these students, since these exercises are the most suitable for the nervous system of students of the Faculty of Arts. We explained this peculiarity of the students of this faculty by the fact that, on the one hand, they may have hereditary traits related to endurance, and, on the other hand, the activity of an artist involves long-term concentrated work without losing concentration on the subject of his work. This forms such features of the nervous system as endurance and low mobility of nervous processes (Bejtka, et. all, 2022; Kozin, O., et. all, 2022; Kozin, O., et. all, 2023).

Also, the work of an artist also requires a high level of regulation of vascular tone, since a person often has to be in a standing position for a long time when engaged in artistic or musical creativity. At the same time, the cardiovascular system has a rather large load on the regulation of vascular tone. In addition, creative activities of an artistic or musical orientation also require a high level of balance and strength endurance of the muscles of the arms, legs, and trunk, which ensure the maintenance of the body's position in space for a long time. That is why future art specialists need exercises to strengthen the muscles of the trunk, upper and lower limbs (Bejtka, et. all, 2022; Kozin, O., et. all, 2022; Kozin, O., et. all, 2023) .

But the question arises: how to choose exercises for students of the faculty of arts in such a way that they not only correspond to the properties of their nervous system, but also harmoniously fit into the creative activity of students? In this regard, it can be assumed that if aerobic exercises with a targeted focus on creativity are used, they will be more suitable for students of the Faculty of Arts, and they will perform them more willingly than ordinary aerobic exercises. The same applies to the use of exercises to strengthen the muscles of the trunk, upper and lower limbs. The technique of gymnastics in poems about nature meets these requirements. In it, wave-like movements are performed by the whole body along the main planes of human movements (Kozina, et. all, 2023a; Kozina, et. all, 2023b). That is why we concluded the following hypothesis. The use of a special methodology, which involves the combination of the development of creative visual thinking, professional skills and motor readiness, will contribute to the increase of the functional capabilities of students of the Faculty of Arts to a greater extent than the use of traditional classes in physical education at the expense of increasing motivation and integral influence on consciousness.

The purpose of the study: to substantiate the effectiveness of the application of a special method of integral professional and motor development to increase the level of physical fitness of Arts Faculty students.

Material and methods

Participants

50 first-year students of the Faculty of Arts of H.S. Skovoroda Kharkiv National Pedagogical University took part in the study. Of them, 25 students made up the control group, 25 students entered the intervention group.

Procedure

The experiment was conducted in November - December 2022 online. At the beginning of November, students were sent tasks for independent work. Students passed physical fitness tests from November 2 to 10, 2022. The number of students was 50. Then randomization of students was carried out to include them in control or experimental groups. Randomization was carried out using an online random number generator (<https://calculator888.ru/random-generator>). As a result of randomization, two groups of 25 students each were created. Then the groups of students, which were formed as a result of randomization, were checked for compliance with the normal distribution (tables 1-2) and compared among themselves according to the test results (table 3). Since both groups corresponded to the normal distribution according to the test results, the comparison of the two groups was carried out according to the Student's method (Table 3). There were no significant differences between the control group and the intervention group ($p > 0.05$) (Table 3).

On November 11, an experiment was launched to identify the impact of the developed method of integral development of professional and motor skills of students of the Faculty of Arts. The experiment lasted until December 27, 2022. Students of the intervention group (experimental group) instead of the tasks from the subject "physical education" performed the tasks of the methodology specially developed for them. The students of the control group performed tasks on the subject "physical education". In terms of workload, the tasks for the students of the control group and the intervention group were the same: students of both groups had to walk 6-8 km every day and do special exercises 3 times a week for the development of physical qualities. But the nature of these tasks was different for students in the control group and the intervention group. Students in the control group just had to do exercises and walk. Students of the intervention group performed special complexes in poems about nature as exercises for the development of physical qualities. When performing the exercises, they imagined those pictures of nature that were discussed in the poetic lines (plants, birds, animals, etc.). They were also given the task of illustrating lines of poems that they liked the most. During the walks, experimental group students had to photograph objects and landscapes they liked from an artistic point of view.

Testing methods

Based on the analysis of literary sources and own experience in the development and application of methods of strengthening and preserving health (Muszkieta, et.all, 2019), tests were selected to determine the functional state of students, and the technology of strengthening and preserving the health of future teachers of creative specialties was proposed.

The main criteria for the selection of tests were as follows: 1 – informativeness, 2 – availability and the ability to conduct them independently by a student at home in online learning conditions.

Description of tests for determining the functional status of students and explaining to students how to pass them:

1. Orthostatic test. Heart rate in the supine position, beats/min. Measure heart rate while lying down. It is not measured after drinking coffee or black tea. Lie on your back, calm down, lie down for 3-5 minutes. Find your pulse. Count in 10 seconds, multiply by 6. Record the result of three attempts. Calculate the average value.

Heart rate in a standing position, beats/min. Get into a standing position. Stand straight, lean on nothing. Measure your pulse again in 10 seconds, multiply by 6. Make 3 measurements. Record the results. Calculate the average value.

Calculate the difference between the average values of heart rate in the standing position and in the lying position, record the result.

2. Retention of breath during inhalation. Measure the breath hold time on inhalation to the maximum in seconds.

3. Retention of breath on exhalation. Measure the breath hold time on exhalation to the maximum in seconds.

4. Push-ups. The maximum number of push-ups.

5. Abdominal muscle strength test. The maximum number of trunk lifts from a lying position to a sitting position.

6. Squats. The number of squats in 20 seconds is measured. Measure the pulse before and one minute after squats.

7. Flamingo balance test. The test is designed to assess static balance. Balancing is performed on one leg on a stand of the following size: length 50 cm, height 4 cm, width 3 cm.

The person being tested stands on the stand with any foot and tries to balance on it as long as he can. The other leg is bent at the knee and pulled up to the buttock by the hand of the same name. Before the start of the test, the subject can lean on the teacher with his hand to take a stable position. The test begins after the subject can stand on his own without support. It's time scrolling is 1 min. In case of loss of balance, it is necessary to start the test from the beginning. The test is repeated as many times as necessary so that the total duration of balancing is one minute.

Score — the number of attempts that the subject spends on maintaining stable balancing on the support for 1 minute is taken into account. If in the first 30 seconds the subject loses balance 15 times, the test is stopped. Its result is estimated at "0" points.

8. Balance test "Yarotsky test"

Stand up straight. Turn on the stopwatch. Start turning your head to one side. When you lose your balance, turn off the stopwatch. Record the result in seconds. Make 3 attempts.

Intervention method (experimental method)

Technology of strengthening and preserving the health of students – future teachers of creative specialties The experimental technique of the combined development of creative abilities and physical fitness consisted of two aspects: 1 – the use of aerobic exercises for 2 hours a day (it was adapted for students of creative specialties); 2 - application of the author's technique of gymnastics in poems with drawing or selection of music for the images that are discussed in the poems.

Tasks for students

1. Every day for 2 hours, walk outside in the city or in the park (where you like the most) for 1 hour and take pictures of everything you like. Measure the pulse 3 times during the journey, record the results. At home, choose 3-5 of the most successful pictures. Send the results of the heart rate measurement and the pictures taken.

2. 2-3 times a week to do special gymnastics in verses for the development of creative abilities and physical fitness ("Opening of a flower" (<https://youtu.be/JZhev2QOrL0>), "Dream" (<https://drive.google.com/file/d/1snR2K88iF9E5XAS3zLdQKj85tzfkly-/view?usp=sharing>) or "Little Wizards" (<https://youtu.be/o9UUuLsZdpg>) (Kozina et. all, 2023a; Kozina et. all, 2023b). When performing each exercise, imagine as much as possible what is being said in the line of the poem that corresponds to the exercise. Make drawings or create (choose) music for the complex as a whole or for each exercise separately. Send pictures (tunes).

Gymnastics "Opening a flower" is designed for girls, but can be performed by anyone. "Dream" - gymnastics for everyone. "Little wizards" - gymnastics for children, but can also be performed by adults.

Statistical analysis

First, the test results of both students were checked for normality of distribution using the Kolmogorov-Smirnov method (Table 1, 2). Since both samples corresponded to a normal distribution ($p > 0.05$), the Student's method for independent samples was used to compare groups among themselves according to the results of testing before and after the experiment.

To compare the test results of the control group before and after the experiment, the Student's method for paired samples was used. The same method was used to compare the test results of the intervention group before and after the experiment. Descriptive statistics were calculated for each indicator: mean value, standard deviation and error of the mean. Processing of the results was carried out in the SPSS - 23 program.

Before the experiment, the groups did not significantly differ from each other ($p > 0.05$) (Table 3). Therefore, it was decided to conduct an experiment to test the impact of a specially developed physical education method for students of the Faculty of Arts.

Table 1. Correspondence to the normal distribution of test indicators of students of the experimental group before conducting the experiment using the Kolmogorov-Smirnov test using the Monte Carlo method (N=25)

Test indicators	Parameters of the normal distribution a, b		The most extreme differences			Criterion statistics	Monte Carlo significance (two-sided)		
	\bar{x}	S	Absolute	Positive	Negative		Significance	Absolute	
								The lower border	The upper border
Heart rate lying down, beats/min ^a	75.06	5.47	0.22	0.22	-0.22	0.22	0.147d	0.137	0.156
Standing heart rate, bpm ^a	91.6	10.77	0.23	0.23	-0.14	0.23	0.122d	0.113	0.13
(HR standing - HR lying down), bpm ^a	16.53	6.06	0.20	0.20	-0.20	0.20	0.219d	0.208	0.23
Retention of breath on inhalation, s ^a	47.8	12.34	0.24	0.19	-0.24	0.24	0.100d	0.092	0.108
Retention of breath on exhalation, s ^a	24.6	9.12	0.36	0.28	-0.36	0.36	0.082d	0.081	0.083
Push-ups, number of times ^a	10.2	7.14	0.26	0.26	-0.16	0.26	0.064d	0.058	0.071
Raising the trunk from a lying position to a sitting position, number of times ^a	20.6	2.20	0.34	0.28	-0.34	0.34	0.075d	0.073	0.076
Squats for 20 seconds, number of times ^a	15.4	4.01	0.24	0.24	-0.22	0.24	0.105d	0.097	0.113
Heart rate before squats, beats/min ^a	76	5.04	0.30	0.30	-0.16	0.30	0.067d	0.063	0.72
Heart rate 1 min after squats, beats/min ^a	102.8	14.54	0.29	0.23	-0.29	0.29	0.074d	0.052	0.081
"Flamingo" test, number of feet touching the floor in 1 minute ^a	2	1.12	0.30	0.30	-0.19	0.30	0.067d	0.063	0.07
Yarotsky's sample, s ^a	16.2	3.47	0.20	0.20	-0.19	0.20	0.258d	0.247	0.269

Notes. a Tested distribution is normal, b Calculated from data, c Lilliefors significance correction, d Based on a sample of 10,000 tables with a seed value of 2,000,000

Table 2. Correspondence to the normal distribution of test indicators of students of the control group before conducting the experiment using the Kolmogorov-Smirnov Monte Carlo test (N=25)

Test indicators	Parameters of the normal distribution a,b		The most extreme differences			Criterion statistics	Monte Carlo significance (two-sided)		
	\bar{x}	S	Absolute	Positive	Negative		Absolute	Significance	
								The lower border	The upper border
Heart rate lying down, beats/min ^a	72.27	10.10	0.26	0.26	-0.23	0.26	0.057d	0.052	0.063
Standing heart rate, bpm ^a	92.00	10.08	0.25	0.25	-0.14	0.25	0.063d	0.057	0.069
(HR standing - HR lying down), bpm ^a	19.47	4.70	0.23	0.17	-0.23	0.23	0.107d	0.099	0.115
Retention of breath on inhalation, s ^a	41.40	17.19	0.26	0.26	-0.19	0.26	.057d	0.051	0.063
Retention of breath on exhalation, s ^a	26.20	8.62	0.27	0.26	-0.27	0.27	0.059d	0.054	0.064
Push-ups, number of times ^a	13.40	3.20	0.17	0.17	-0.17	0.17	0.386d	0.374	0.399
Raising the trunk from a lying position to a sitting position, number of times ^a	20.20	2.84	0.27	0.17	-0.27	0.27	0.057d	0.052	0.062
Squats for 20 seconds, number of times ^a	16.40	1.89	0.20	0.18	-0.20	0.20	0.231d	0.22	0.242
Heart rate before squats, beats/min ^a	73.00	9.08	0.23	0.18	-0.23	0.23	0.118d	0.109	0.126
Heart rate 1 min after squats, beats/min ^a	109.20	4.20	0.19	0.16	-0.19	0.19	0.303d	0.291	0.315
"Flamingo" test, number of feet touching the floor in 1 minute ^a	1.60	0.50	0.39	0.29	-0.39	0.39	0.061d	0.06	0.062
Yarotsky's sample, s ^a	14.53	2.63	0.23	0.13	-0.23	0.23	0.130d	0.121	0.138

Notes. a Tested distribution is normal, b Calculated from data, c Lilliefors significance correction, d Based on a sample of 10,000 tables with a seed value of 2,000,000

Table 3. Testing indicators of students of the experimental (N=25) and control (N=25) groups before the experiment (comparison of averages was carried out using the Student method)

Test indicators	Group	\bar{x}	S	m	t	p
Lying heart rate, beats/min	EG	75.07	5.47	1.09	1.219	0.229
	CG	72.27	10.10	2.02		
Standing heart rate, beats/min	EG	91.60	10.77	2.15	-0.136	0.893
	CG	92.00	10.08	2.02		
(Standing heart rate - Lying heart rate), beats/min	EG	16.53	6.06	1.21	-1.912	0.062
	CG	19.47	4.70	0.94		
Retention of breath on inhalation, s	EG	47.80	12.34	2.47	1.512	0.137
	CG	41.40	17.19	3.44		
Retention of breath on exhalation, s	EG	24.60	9.12	1.82	-0.637	0.527
	CG	26.20	8.62	1.72		
Push-ups, number of times	EG	10.44	6.96	1.39	-1.931	0.059
	CG	13.40	3.20	0.64		
Lifting the trunk from a lying position to a sitting position, number of times	EG	20.60	2.20	0.44	-2.039	0.047
	CG	24.20	8.55	1.71		
Squats for 20 seconds, number of times	EG	15.40	4.01	0.80	-1.127	0.265
	CG	16.40	1.89	0.38		
Heart rate before squats, beats/min	EG	76.00	5.04	1.01	1.444	0.155
	CG	73.00	9.08	1.82		
Heart rate 1 min after squats, beats/min	EG	103.16	14.14	2.83	-2.048	0.046
	CG	109.20	4.20	0.84		
"Flamingo" test, number of feet touching the floor in 1 minute	EG	2.00	1.12	0.22	1.633	0.109
	CG	1.60	0.50	0.10		
Proba Yarotskyi, s	EG	16.20	3.47	0.69	1.912	0.062
	CG	14.53	2.63	0.53		

Notes. EG - experimental group; CG - control group

Results

The results of the study convincingly showed the effectiveness of the application of a special method of integral development of professional abilities and physical fitness of students of the Faculty of Arts. So, if before

the experiment, the control and experimental groups did not reliably differ from each other in terms of physical fitness testing indicators, then after the experiment, in most of the physical fitness testing indicators, reliable differences were found between the students of the control and experimental groups (Table 4). The biggest differences were found in indicators of the work of the cardiovascular system and in indicators of vegetative regulation of vascular tone. Thus, significant differences ($p < 0.05$) were found in heart rate indicators in the supine position (Table 4). It should be noted that the heart rate in the supine position reflects the economical operation of the cardiovascular system: lower heart rate indicators (up to 40 bpm) reflect the economical operation of the cardiovascular system and are an indicator of a higher functional state of the body. In the students of the experimental group, the heart rate indicators in the supine position are significantly lower in comparison with this indicator of the students in the control group (Table 4).

Also, the students of the experimental group have significantly lower heart rate values in the standing position ($p < 0.001$) and, accordingly, the difference between the heart rate values in the standing position and in the lying position ($p < 0.001$) (Table 4). These results indicate an increase in the effectiveness of the regulation of vascular tone when the body position is changed from vertical to horizontal. A greater increase in the functional state of the body of students in the experimental group compared to the control group is also reliably ($p < 0.001$) evidenced by higher values of breath retention during inhalation (Table 4). The higher functional state of the students of the experimental group after the experiment is also evidenced by the higher rate of heart rate recovery after the standard load (number of squats in 20 seconds) in the students of the experimental group ($p < 0.001$) (Table 4). Significant differences according to the results of testing students of the control and experimental groups were also found in the indicators of strength endurance (tests "Push-ups, maximum number of times" ($p < 0.05$) and "Squats in 20 s, number of times" ($p < 0.001$) (Table 4). In the students of the experimental group, these indicators are significantly higher than in the students of the control group. This indicates the positive impact of the developed methodology of integral development of professional skills and motor readiness of students of the Faculty of Arts. Also, the developed technique had a positive effect on the balance of the students of the experimental group according to the indicators of the Yarotsky test compared to the students of the control group ($p < 0.001$), ($p < 0.001$) (Table 4). In our opinion, the developed method differs from the generally accepted one in that it is aimed at developing students' creative abilities. This motivates students to engage in physical exercises that activate visual perception.

Table 4. Test indicators of students of the experimental (N=25) and control (N=25) groups after the experiment (comparison of averages was carried out using the Student method)

Test indicators	Group	\bar{x}	S	m	t	p
Lying heart rate, beats/min	EG	68.60	4.81	0.96	-2.388	0.021
	CG	73.87	9.92	1.98		
Standing heart rate, beats/min	EG	78.67	4.79	0.96	-6.434	0.000
	CG	92.80	9.88	1.98		
(Standing heart rate - Lying heart rate), beats/min	EG	10.07	1.83	0.37	-8.45	0.000
	CG	18.93	4.92	0.98		
Retention of breath on inhalation, s	EG	64.20	22.81	4.56	3.893	0.000
	CG	41.80	17.54	3.51		
Retention of breath on exhalation, s	EG	31.00	9.04	1.81	1.498	0.141
	CG	27.00	9.83	1.97		
Push-ups, number of times	EG	17.40	6.51	1.30	2.455	0.018
	CG	13.80	3.38	0.68		
Lifting the trunk from a lying position to a sitting position, number of times	EG	27.40	4.68	0.94	-0.467	0.643
	CG	28.20	7.17	1.43		
Squats for 20 seconds, number of times	EG	19.00	2.96	0.59	4.07	0.000
	CG	16.20	1.76	0.35		
Heart rate before squats, beats/min	EG	80.40	6.63	1.33	3.517	0.081
	CG	82.60	8.89	1.78		
Heart rate 1 min after	EG	102.8	9.63	1.93	-4.061	0.000
	CG	110.8	2.08	0.42		
"Flamingo" test, number of feet touching the floor in 1 minute	EG	2.00	0.65	0.13	1.000	0.322
	CG	1.80	0.76	0.15		
Proba Yarotskyi, s	EG	30.46	11.44	2.29	6.881	0.000
	CG	13.73	4.12	0.82		

Notes: EG - experimental group; CG - control group

It should also be noted that students in the experimental group experienced a significant increase in almost all test indicators as a result of the experiment ($p < 0.05$; $p < 0.001$), while in the control group, significant changes in the direction of improving results were observed only in terms of the maximum number of trunk lifts from a lying position to a sitting position ($p < 0.05$). According to all other indicators of physical fitness, the changes in test results of students of the control group are not reliable ($p > 0.05$).

Discussion

The research we conducted, as far as we know, is the first of the selection of methods of intensification of motor activity of students by selecting for them exercises that best correspond to their psychophysical state. Thus, the students of the Faculty of Arts have developed imaginative thinking, they are inclined to creativity. That is why we have created for them a method of developing motor skills that harmoniously combines visual thinking with movements. Exercises for the development of aerobic endurance involved not only the performance of long-term movements of moderate intensity (walking), but also the observation of the surrounding world with the photographing of various objects and landscapes that were most liked from an artistic point of view. Aerobic exercises of moderate intensity, which are performed for a long time, were also given to students of the Faculty of Arts not by chance, but based on the results of determining the characteristics of their nervous system. We found in our previous studies (Bejtka, et. all, 2022; Kozin, O., et. all, 2022; Kozin, O., et. all, 2023) that students – future art specialists differ in the endurance of neural processes in combination with low mobility of the nervous system. This can be related to both hereditary qualities and long-term occupations when the artist works on his work (Kozin, O., 2023). That is why our methodology involved the use of exercises for aerobic endurance in combination with exercises for the development of power endurance and balance, that is, qualities that are also professionally significant for future artists. The hypothesis put forward in this study was fully confirmed. From the point of view of improving indicators of physical fitness, the method of integral influence on the development of visual thinking and motor readiness of students of the Faculty of Arts was more effective in comparison with the method of development of motor abilities without taking into account the specifics of thinking of students of the Faculty of Arts and their professional orientation. Both control and experimental groups were given the task of breaking up walks for 1.5-2 hours to improve the functional state of the body. But the control group was not given a task related to creativity on walks. While the experimental group was given the task not just to walk, but to observe the surrounding world and take photos of everything they liked from an artistic point of view. It is this approach, in our opinion, that interested future art teachers. They received additional motivation and walked with more pleasure than students in the control group. This resulted in an increase in the distance covered by students in the experimental group compared to the distance covered by students in the control group each day. The students of the control group did not have the same motivation to take walks as the students of the experimental group. The use of a special technique of gymnastics, which is performed to poems about nature and consists of exercises that look like a dance (Kozina, et. all, 2023a; Kozina, et. all, 2023b), also proved to be more effective for the development of strength abilities of students, especially power endurance. This, in our opinion, is also related to the activation of the creative abilities of the students of the experimental group due to the main condition of a healthy lifestyle - getting pleasure from movements. If the movements give pleasure, a person wants to repeat them again and again. This is the main factor in the activation of motor activity, and, accordingly, motor readiness. It should be noted that the more pronounced positive changes for the better in the physical fitness indicators of the students of the experimental group indicate that we managed to find the key points for motivating the students of the Faculty of Arts to motor activity thanks to the application of the author's method of integral influence on creative abilities and motor qualities. Thus, our previous studies were confirmed (Kozina, et. all, 2023a; Kozina, et. all, 2023b) regarding the positive influence of the gymnastics technique in poems about nature on the functional state of people of different age and social groups. Thus, in order to learn a healthy lifestyle, we offer a very simple method - it is to learn to enjoy movements. Such satisfaction is difficult to induce forcibly. It cannot be compared with any chemical stimulation. More often, it can be learned over time from a coach who owns it, but it can also be learned independently. You should try to feel this pleasure in yourself and move exactly as much as it is pleasant, but every day. Over time, a person will want to do more, then even more. It is only necessary to try and find what suits each person individually, and then not to quit these classes. Gymnastics in poems about nature stimulates imaginative thinking (Kozina, et. all, 2023a; Kozina, et. all, 2023b), and this is one of the most important conditions for getting pleasure from movements, especially for students of the Faculty of Arts. In addition, the students of the experimental group of the Faculty of Arts were also given the task of drawing the landscapes of nature, which were discussed in the lines of poems that accompanied each exercise. But it should be noted that the new results obtained in our research are proof of the proposition that exercises that are most suitable for a person based on their psychophysiological properties cause the greatest pleasure when they are performed and have the most positive effect on the development of motor skills. In addition, the integral influence on the development of professionally significant qualities (in our case, it is the development of imaginative thinking) and motor readiness is more effective in comparison with the use of ordinary exercises for the development of motor qualities. In order to be motivated to engage in some type of motor activity for a long time in life, a person needs to choose the appropriate type of motor activity that he likes and brings pleasure the most. The novelty of our research consists in substantiating the effectiveness of the application of the method of integral influence on the professionally significant qualities of students (figurative thinking, artistic skills) in combination with motor actions (walks, special gymnastics in poems). Such motor activity gives pleasure to the students of the Faculty of Arts, as evidenced by their positive feedback on the use of experimental methods, which is the main condition for its positive impact on the level of motor readiness of students of the Faculty of Arts.

Conclusions

1. The results of the study convincingly showed the effectiveness of the application of a special method of integral development of professional abilities and physical fitness of students of the Faculty of Arts. The biggest differences were found in indicators of the work of the cardiovascular system and in indicators of vegetative regulation of vascular tone. Significant differences ($p < 0.05$) between students of the experimental and control groups after the experiment were found in the indicators of heart rate in the lying position, heart rate in the standing position ($p < 0.001$) and, accordingly, in the indicators of the difference between the values of the heart rate in the standing position and in the position lying down ($p < 0.001$). A greater increase in the functional state of the body of students in the experimental group compared to the control group is also evidenced by significantly higher ($p < 0.001$) values of breath retention during inhalation, as well as a higher rate of heart rate recovery after standard exercise (number of squats in 20 s) in students of the experimental group in compared with the control after the experiment ($p < 0.001$).

2. According to the results of the testing of students of the control and experimental groups, significant differences were also found in the indicators of strength endurance (tests "Push-ups, maximum number of times" ($p < 0.05$) and "Squats in 20 s, number of times" ($p < 0.001$)). In students of the experimental group, these indicators are significantly higher than those of the control group.

3. In the students of the experimental group, a significant increase in almost all test indicators was observed as a result of the experiment ($p < 0.05$; $p < 0.001$), while in the control group, significant changes in the direction of improving results were observed only in the indicator of the maximum number of trunk lifts from the lying position to the sitting position ($p < 0.05$). According to all other indicators of physical fitness, the changes in test results of students of the control group are not reliable ($p > 0.05$).

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