



DEVELOPMENT OF PHYSICAL QUALITIES OF UNIVERSITY STUDENTS IN PHYSICAL EDUCATION CLASSES BY MEANS OF GYMNASTICS

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✓ *Resume*

In the article are regarded questions of complex development of physical qualities and functional condition of the organism of students of a higher education institution at physical training lessons held with various means of gymnastics.

Key words: motion qualities, functional condition of the organism, tests, various means of gymnastics.

РАЗВИТИЯ ФИЗИЧЕСКИХ КАЧЕСТВ СТУДЕНТОК ВУЗА НА ЗАНЯТИЯХ ФИЗИЧЕСКОЙ КУЛЬТУРЫ СРЕДСТВАМИ ГИМНАСТИКИ.

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✓ *Резюме*

В статье рассматриваются вопросы комплексного развития физических качеств и функционального состояния организма студенток вуза на занятиях физической культуры проводимых с использованием различных средств гимнастики.

Ключевые слова: двигательные качества, функциональное состояние организма, тестовые испытания, различные средства гимнастики.

JISMONIY TARBIYA DARSLARIDA UNIVERSITET TALABALARINING JISMONIY SIFATLARINI GIMNASTIKA VOSITASIDA RIVOJLANTIRISH.

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Buxoro davlat tibbiyot instituti

✓ *Rezume*

Maqolada turli gimnastika vositalaridan foydalangan holda o'tkaziladigan jismoniy tarbiya mashg'ulotlarida universitet talabalarining jismoniy sifatlari va tanasining funktsional holatini kompleks rivojlantirish masalalari ko'rib chiqiladi.

Kalit so'zlar: harakat sifatlari, tananing funktsional holati, testlar, gimnastikaning turli vositalari.

Relevance

The high school system of physical education of young students in the classroom for physical education, a significant place is given to physical development, mental and psychophysical capabilities. However, the priority in this system belongs to the development of physical qualities, the functional readiness of the body in order to improve health and maintain high performance of students for their further educational and professional work. At the same time, a number of authors studying the level of physical fitness and functional state of students enrolled in different courses of individual universities in the country note a steady increase in the number of students assigned to a special medical group. At the same time, 30-40% of them have a decrease in the vital capacity of the lungs, which is undoubtedly associated with a deterioration in the functions of the respiratory system and a decrease in the main indicators of the development of physical qualities: strength, speed, speed endurance, by 40, 10, 19%, respectively. All these factors indicate a decrease in students' motor activity and, as a result, a deterioration in their health. The analysis of research programs of

different authors, devoted to the development and improvement of the motor qualities of students, their functional state in physical culture classes at different stages of education, shows that a systematic approach and common opinion in the study of this important problem in the theory and practice of physical culture at the present time, unfortunately not traceable. In this regard, the introduction of a specially developed curriculum for the integrated use of various means of gymnastics, non-traditional types of gymnastics, as well as special applied gymnastic exercises with elements of circular training in the physical education classes at the university, can be in demand in the process of teaching students as a special universal form of physical education. classes in higher education. The main goal of these classes is to improve the holistic process of optimizing the motor activity of female students in physical education classes, with motivation for a health-improving orientation, increased interest in independent, individual studies, which leads to an intensification of the development of physical qualities and an improvement in the functional state of the.

Material and methods

113 students aged 18–19 years old, studying at the Bukhara State Medical Institute, took part in the ascertaining experiment. From the total number of subjects for a long-term experiment from September 2020 to May 2021, 52 female students were selected, who made up the control group No. 1 and the experimental group No. 2, 26 people each. For health reasons, all subjects were assigned to the main medical group and equalized according to average indicators: age, level of motor fitness and functional state of individual body systems at rest. The students who made up the control group were engaged in physical education lessons according to the basic program of physical education, approved for higher educational institutions in accordance with the educational standard. The students included in the experimental group were engaged in training sessions according to a special program using various gymnastic exercises and non-traditional types of modern gymnastics (aerobics, women's athletic gymnastics, elements of shaping and stretching) with the inclusion of complexes of general developmental exercises with and without objects, exercises on gymnastic equipment and training devices. The content of the program also included outdoor games, relay races of a gymnastic nature with the use of acrobatic elements and obstacle courses; applied exercises in climbing, climbing, balance and special exercises of general physical training, carried out according to the method of circular training. In both groups (No. 1 and 2), at the beginning and at the end of a long experiment, the development of motor qualities and the functional state of the cardiovascular and respiratory systems of the body at rest were assessed in students according to specially selected tests, which are presented in tables 1, 2. numerical results in tables were subjected to mathematical statistics. The arithmetic mean (M), the error of the arithmetic mean (m) were calculated, the significance of differences (P) was assessed by the t-student test.

As a result of the study and analysis of digital data, it was possible to establish the following. The main motor qualities of the female students of both groups developed in the same direction, that is, in the direction of increase, but the female students of the experimental group had slightly higher digital indicators than the female students of the control group.

Strength indicators of the arm muscles in pull-ups in the lying position and push-ups on the gymnastic bench after 2 years of observation during physical education classes increased in both groups with a positive trend. Thus, the maximum number of pull-ups in the control group was 16.23 ± 0.82 times, in the experimental group - 19.7 ± 0.91 times. Number of push-ups in group #1 and group № 2 was 13.49 ± 1.78 times, against 18.62 ± 1.22 , respectively. By groups, a comparative analysis revealed a significant difference ($P < 0.05$) in the value of this indicator with some advantage in female students of the experimental groups. The revealed increase in the strength indicators of the muscles of the abdomen and back was also slightly higher in the female students of the experimental group, in contrast to the control group, and after the 2nd year of training sessions it was 13.41 ± 1.36 times, against 17.21 ± 1.84 times for indicators of back muscles 15.33 ± 1.76 and 19.2 ± 1.68 times ($P < 0.05$), respectively.

The determination of the concentration of explosive force (long jump from a place) after a year differs from the beginning of the experiment in both the control and experimental groups. In the control group, the standing long jump of female students was 156.62 ± 2.68 cm versus 161.86 ± 2.39 cm in the experimental group from 158.98 ± 3.23 cm to 174.47 ± 2.46 cm ($P < 0.05$).

In special tests to determine flexibility in the hip joints, coordination stability, a sense of static balance and coordination of movements of the whole body, female students of the experimental group, in contrast to the control group, also showed more significant upward shifts in the studied indicators,

which had significant differences ($P < 0.05$) in a digital comparative analysis by groups. The exception was the indicator in the 30-meter run, which reflects the speed qualities of those involved (development of speed), which, 2 years after the start of the experiment, made it possible to identify a general trend in improving temporary results. In the control group, it was 5.41 ± 0.07 s (initial result 5.52 ± 0.06 s). In the experimental group (initial result 5.45 ± 0.04 s), the final result was 5.29 ± 0.05 s at ($P \geq 0.05$). According to the presented numerical indicators and a comparative analysis of the results in both groups, one can state their positive upward trend, however, they were significantly ($P < 0.05$) better among female students from the experimental group.

Table 1
Development of physical qualities of university students in physical education classes by means of gymnastics.

Tests determining motor qualities of female students	Groups	Start of the experiment December 2020	End of experiment December 2021
Arm flexor strength (number of pull-ups on a hanging machine in lying position)	1	$12,6 \pm 0,75$	$16,23 \pm 0,82$
	2	$12,8 \pm 0,79$	$19,76 \pm 0,91$
	p	$\geq 0,05$	$< 0,05$
The strength of the extensor muscles of the arms (the number of push-ups lying on the gymnastic bench)	1	$10,56 \pm 1,51$	$13,49 \pm 1,78$
	2	$10,94 \pm 1,8$	$18,62 \pm 1,22$
	p	$\geq 0,05$	$< 0,05$
Strength of the abdominal muscles (the number of straight leg raises in the hang on the gymnastic wall up to an angle of 90°)	1	$11,62 \pm 1,12$	$13,41 \pm 1,36$
	2	$11,86 \pm 1,93$	$17,21 \pm 1,84$
	p	$\geq 0,05$	$< 0,05$

Back muscle strength (number of torso lifts from prone position)	1	$13,23 \pm 1,72$	$15,33 \pm 1,76$
	2	$13,58 \pm 1,59$	$19,21 \pm 1,68$
	p	$\geq 0,05$	$< 0,05$
Run 30 meters from the place, from	1	$5,52 \pm 0,06$	$5,41 \pm 0,07$
	2	$5,45 \pm 0,04$	$5,29 \pm 0,05$
	P	$\geq 0,05$	$\geq 0,05$
Explosive power standing long jump, cm	1	$156,62 \pm 2,68$	$161,86 \pm 2,39$
	2	$158,98 \pm 3,23$	$174,47 \pm 2,46$
	P	$\geq 0,05$	$< 0,05$
Equilibrium stand on one leg	1	$7,20 \pm 1,26$	$8,96 \pm 1,5$
	2	$7,80 \pm 1,52$	$12,16 \pm 1,68$
	P	$\geq 0,05$	$< 0,05$
Ability to coordinate movements crouching emphasis - lying emphasis	1	$8,4 \pm 0,35$	$9,2 \pm 0,42$
	2	$8,75 \pm 0,45$	$12,90 \pm 0,6$
	p	$\geq 0,05$	$< 0,05$
Flexibility in the hip joints torso forward, cm	1	$10,17 \pm 0,77$	$12,56 \pm 0,82$
	2	$9,62 \pm 0,86$	$14,94 \pm 0,76$
	P	$\geq 0,05$	$< 0,05$

Symbols: No. 1 - control group, No. 2 - experimental group; P is the significance of differences between the mean values of the groups at the beginning and at the end of the experiment.

Table 2
The functional state of the body of female students under the influence of gymnastics during the year of the pedagogical experiment

Indicators of the functional state of the respiratory and cardiovascular systems	Groups	Before experiment December 2020	After the experiment December 2021
VC - vital capacity (ml)	1	3200 ± 210	3430 ± 220
	2	3160 ± 215	3680 ± 230
	P	≥0,05	<0,05
HR - heart rate (beats / min)	1	72,7 ± 0,8	70,2 ± 0,5
	2	72,2 ± 0,9	67,4 ± 3,2
	P	≥0,05	—
BP - blood pressure (mm Hg)	1	126 / 70	122 / 76
	2	125 / 72	116 / 65
	P	≥0,05	—

Symbols: No. 1 - control group; No. 2 - experimental group.

Assessment of the development of the functional state of individual body systems of female students at rest is presented in Table 2 at the beginning and at the end of a long experiment. VC - before the start of the experiment, there were no significant differences in both groups. After the end of the experiment, its positive tendency to increase was established. So, at the beginning in the control group it was 3200±210 ml, after the experiment - 3430±220 ml. In the experimental group, it increased from 3160±215 ml to 3680±230 ml ($P<0.05$). In assessing the work of the cardiovascular system, it should be noted that the heart rate at rest in female students of the experimental group was lower than in the control group. The BP indicator at the end of the experiment also had a clear downward trend. The results of testing for female students of both groups before and after a long-term experiment clearly illustrate that students in physical education classes according to the experimental program, on average, have higher digital indicators than female students of the control group.

Conclusion

Based on the above, we can conclude that in the process of training sessions at physical education lessons, the use of various means of gymnastics, its non-traditional types with the use of original applied and special gymnastic exercises of general physical training for university students, is an effective tool in the development of their motor qualities and improving the functional readiness of the body for physical and mental stress.

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