



Designing fitness aerobics classes in physical education of university students

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Abstract

Objective of the study was to theoretically substantiate, develop a methodology and sets of exercises for female students doing fitness aerobics in physical education at a university and test their effectiveness in a pedagogical experiment.

Methods and structure of the study. The study involved 50 first-year students of the Siberian Federal University. Using a random sampling method, the students were divided into experimental and control groups of 25 people. The experimental group did fitness aerobics during physical education, and the control group followed a traditional program based on general physical training. To determine the effectiveness of physical education classes based on the design of fitness aerobics in comparison with the traditional form of physical education, physical fitness indicators were taken: 2000 m run; 100m run; flexion and extension of the arms while lying down; standing long jump; lifting the body from a lying position in one minute.

Results and conclusions. Based on the results of a year-long pedagogical experiment, the physical fitness indicators of the experimental and control groups were analyzed. The growth of the following indicators was analyzed: general endurance, speed endurance, strength indicators of the shoulder girdle, speed-strength indicators of the legs and strength indicators of the abdominal muscles. In all indicators of physical fitness, students from the experimental group engaged in physical education based on fitness aerobics outperformed students from the control group by an average of 17.6% ($P < 0.05$). These results allow us to state the need to periodically include sets of exercises from fitness aerobics into the process of physical education to increase physical fitness indicators among female students in a yearly cycle.

Keywords: *physical education, female university students, fitness aerobics, physical training, physical qualities.*

Introduction. One of the important tasks of physical education of students in universities is physical training as a basic component of effective academic work of students, active social activities, physical health and military-patriotic and labor readiness to act in the interests of the state. As the analysis shows, the current physical education curriculum does not effectively solve the problem of physical training of students, especially girls, in higher educational institutions of the country. More than 50% of female students at universities in the country have low levels of physical fitness; 60% of girls do not show interest in physical education at the university, they have a low level of motivation, etc. The inclusion of modern physical education,

sports and recreational creative technologies, including fitness aerobics, in the physical education program content of university students will help increase motivation, activity and mass participation in physical culture and sports among young people, especially girls. Fitness aerobics classes form a creative and necessary psychofunctional portrait and image of a modern girl, which is what young people need to target and motivate in physical education at a university.

Objective of the study was to theoretically substantiate, develop a methodology and sets of exercises for female students doing fitness aerobics in physical education at a university and test their effectiveness in a pedagogical experiment.



Table 1. Increase in physical fitness indicators of first-year female students in the experimental and control groups over the academic year, in %

Physical fitness indicators	Groups	September	May	Growth, %	P
		$\bar{X} \pm \alpha$	$\bar{X} \pm \alpha$		
2000 m run, min/s	EG	10.53±0,35	10.24±0,33	2,8	(P<0,05)
	CG	10.51±0,34	10.42±0,35	0,9	(P>0,05)
100 m run, s	EG	17,2±0,4	16,3±0,3	5,3	(P<0,05)
	CG	17,1±0,3	16,8±0,2	1,8	(P>0,05)
Standing long jump, cm	EG	168,9±4,4	187,1±4,3	10,8	(P<0,05)
	CG	169,7±4,7	178,8±5,7	5,4	(P>0,05)
Raising the torso from a lying position, in one minute	EG	38,7±2,8	52,4±2,5	35,4	(P<0,05)
	CG	39,4±2,9	47,1±3,5	9,3	(P>0,05)
Bending and extending the arms while lying down, number of times	EG	12,8±1,5	17,1±1,3	33,6	(P<0,05)
	CG	12,7±1,4	14,8±1,7	16,5	(P>0,05)

Methods and structure of the study. The study involved 50 first-year students of the Siberian Federal University. Using a random sampling method, the students were divided into experimental and control groups of 25 people. The experimental group did

fitness aerobics during physical education, and the control group followed a traditional program based on general physical training. To determine the effectiveness of physical education classes based on the design of fitness aerobics in comparison with the

Table 2. Methodology of fitness aerobics training for female students in physical education at the university

Academic year period	General content of educational and practical classes	Means	Methods	Main goal
September - October	At this stage, the student development of general endurance through the use of fitness aerobics. Classes are held both indoors and outdoors (depending on weather conditions), recommended heart rate = 120-160 beats/min	Walking, running, hopping, jumping, jumping, lunges, climbs, descents, general developmental exercises, climbing, etc.	Uniform, alternating, circular	Development of general endurance, preparation of female students for the control exercise: 2000 m run
November -December	Development of speed and strength qualities through fitness aerobics. Classes are held in the gym, recommended heart rate = 120-160 beats/min	Walking, running, jumping, lunging, jumping jacks, weight training, etc.	Uniform, circular, interval, control	Development of speed and strength qualities of the legs and abdominals for effective performance of control exercises: standing long jump, lifting the body in a minute
February - March	Development of strength and speed qualities through fitness aerobics. Classes are held in the gym. Recommended heart rate=120-180 beats/min	Walking, running, weight training, general developmental exercises, etc.	Uniform, circular, interval, control-competitive	Development of speed and strength qualities to meet control standards in the 100 m run and flexion and extension of the arms in a prone position
April - May	Maintaining and improving physical qualities through fitness aerobics: endurance, strength, speed and integral qualities. Recommended heart rate=120-180 beats/min	Walking, running, jumping, exercises with obstacles, general developmental exercises with weights, etc.	Uniform, circular, interval, control, competitive, separate, continuous, alternating	Comprehensive maintenance of basic physical qualities, preparation for passing control exercises on general physical fitness



traditional form of physical education, physical fitness indicators were taken: 2000 m run; 100m run; flexion and extension of the arms while lying down; standing long jump; lifting the body from a lying position in one minute.

Results of the study and discussion. To activate female students in physical education classes, increase motivation, harmonious development of basic physical qualities, formation of the proper level of physical fitness and academic work, sets of physical exercises based on fitness aerobics were developed, which were differentially included in the content of physical education of girls in the annual cycle of the academic year.

The differentiation of sets of exercises from fitness aerobics in the annual training cycle was as follows: September-October - a set of exercises to develop general endurance; November-December – fitness aerobics for the development of speed and strength qualities in girls; February-March – development of strength and speed qualities; April-May – combined sets of exercises to maintain and improve all basic physical qualities in girls, preparation and passing control tests on physical fitness. In general, the average increase in physical fitness indicators in the experimental group was 17.6% ($P < 0.05$), in the control group – 6.8% ($P > 0.05$).

In more detail and in dynamics, the increase in physical fitness indicators of female students of the experimental and control groups in the annual cycle is presented in Table 1.

Analysis of the results of the experiment on the design of fitness aerobics in the physical education of female university students showed the significant effectiveness of this implementation, where in all indicators of physical fitness the experimental group outperformed the control group by an average of 17.6% ($P < 0.05$).

Conclusions. Designing sets of exercises from fitness aerobics into the program content of physical education for female students contributes to a significant increase in all indicators of girls' physical fitness, increasing physical performance, activity and motivation. The introduction of fitness aerobics into the physical education of female students contributed to an increase in physical fitness in the experimental group by an average of 17.6% ($P < 0.05$) compared to the control group.

The results of the experiment allow us to recommend the design of sets of exercises from fitness aerobics into the practice of physical education of female students as an effective means of increasing the physical fitness of female university students.

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