

The physical fitness profile of female students serves as a criterion for selecting participants in fitness aerobics

UDC 796.011.3



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Received by the editorial office on 11.11.2024

Abstract

Objective of the study was to validate and enhance the model parameters of physical fitness for female students who are candidates for sports classes in fitness aerobics at a technical university.

Methods and structure of the study. The research was conducted at the Siberian Federal State University of Education from 2021 to 2024. The study involved 270 female students who participated in the university's fitness aerobics sports program. Over the course of three years, the study was conducted in stages, focusing on the following aspects: physical development, physical fitness, and mobility of the musculoskeletal system.

Results and conclusions. The analysis of the expert assessment revealed the key indicators of physical fitness for female students, including the long jump from a standing position, torso lifting in a minute, arm flexion and extension in a prone position in a minute, running distances of 100 meters and 2000 meters. Additionally, the assessment encompassed physical development parameters such as height, weight, chest circumference, hand dynamometry, and Vital capacity. The study also examined the mobility of the musculoskeletal system through exercises like bending forward from a seated position, performing the «bridge» exercise from a prone position, and demonstrating the transverse and longitudinal splits. The findings of this research underscore the significance of developing methodological frameworks for physical education that incorporate sport-based approaches, with a focus on identifying the structure of physical fitness and establishing model characteristics for its various components.

Keywords: *students, technical university, selection, model characteristics, fitness aerobics, sports training.*

Introduction. The sports-specific approach is a sports-pedagogical direction of modern physical education of students at a university based on classes in choosing a sport using modern technologies for training athletes adapted to the educational process of students and contributing to the implementation of individual motor potential and needs, the formation of a sports culture, improving the physical and applied preparedness of student youth during the period of receiving professional education and further cultivation of the chosen sport in future social and labor activity (S.A. Doroshenko, V.V. Ponomarev, 2010). At the same time, for active and productive classes of students in various sports at a university, scientific and methodological developments are needed that would contribute to the correct selection, control and organization of sports training of student youth, taking into account the specifics of the educational process in higher education. At present, a modern and productive direction for im-

proving physical fitness and motor activity of student youth based on the sports-specific approach, especially girls, is the conversion of popular fitness technologies into the educational process of physical education of students.

Objective of the study was to validate and enhance the model parameters of physical fitness for female students who are candidates for sports classes in fitness aerobics at a technical university.

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To compile model characteristics based on data on the



physical fitness of female students, the method of expert assessments was used. The experts were 25 fitness aerobics trainers and teachers from Krasnoyarsk Krai. Standards for indicators by types of fitness were calculated based on average values for a specific sample.

Results of the study and discussion. A large number of types of motor actions in fitness aerobics require consideration of such aspects as the time to master a new movement or combination, their coordination complexity, accuracy of execution, maintaining stability when imbalanced, stability of execution.

In fitness aerobics, the boundaries between the means of general and special physical training are conditional, since the motor combinations include elements of a general developmental nature, such as running movements, push-ups, hops and jumps. It should also be noted that each level of proficiency in any technical technique must always correspond to a certain level of development of the necessary motor qualities (Shtoda M.A. L., Mironov D.L., 2013).

Thus, as a result of the expert assessment, the following model indicators of physical development of female students for selection for sports fitness aerobics classes were obtained: height, weight, chest circumference, hand dynamometry and VC (Table 1).

Table 1. Model indicators of physical development of female students for selection for fitness aerobics classes at a technical university

Physical development indicators	$\bar{X} \pm \sigma$
Height, cm	165±2,1
Weight, kg	54,1±1,3
Chest circumference, cm	87,2±1,1
Dynamometry of hands, kg: - right hand	30,2±1,1
- left hand	29,1±0,4
Vital capacity, cm ³	3100±66,7

Table 2 presents model indicators of physical fitness of female students: standing long jump, body raise, push-ups, 100 m and 2000 m runs.

Table 2. Model indicators of physical fitness of female students for selection for fitness aerobics classes at a technical university

Physical fitness indicators	$\bar{X} \pm \sigma$
Long jump from a standing position, cm	178,8±2,5
Lifting the body from a lying position in a minute, number/times	38,1±2,8
Bending and unbending arms in a lying position, number/times	23,3±1,1
Running 100 m, s	16,8±0,4
Running 2000 m, min/s	11,02±0,23

Table 3 presents the mobility indicators of the musculoskeletal system (MSS) of female students for selection for fitness aerobics classes.

Table 3. Model indicators of mobility of the musculoskeletal system of female students for selection for fitness aerobics sports classes

Mobility indicators of the musculoskeletal system	$\bar{X} \pm \sigma$
Forward bend from a sitting position on the floor with your feet together, cm	3,92±0,8
Performing the bridge exercise from a lying position, cm	4±0,7
Transverse split, cm	3,88±0,7
Longitudinal right split, cm	4,32±0,6
Shoulder girdle twists, cm	3,84±0,8

Conclusions. This study actualizes the need for designing a sports-specific approach in the modern practice of physical education of student youth in non-physical education universities, aimed at the formation of a sports culture and increasing the level of motor activity of students. Based on the above, one of the important tasks in creating methodological support for physical education using sports-based forms of classes is to identify the structure of physical fitness of students and create model characteristics of its various aspects.

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