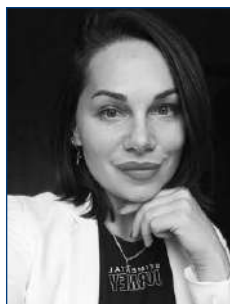




Physical fitness of students of universities of the Siberian region in comparative context with the standards of the all-russian physical skills GTO

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Abstract

Objective of the study The aim of the study is to conduct a theoretical and statistical analysis of the physical fitness of students in the Siberian region, comparing it with the standards of the GTO Physical Fitness Test (Level VII), to identify trends and to develop corrective scientific and methodological measures.

Methods and structure of the study. The study was conducted between 2024 and 2025. First- and second-year students took part in the study from: Siberian Federal University, Krasnoyarsk (SFU); Krasnoyarsk State Medical University named after Prof. V.F. Voyno-Yasenetsky, Ministry of Health of Russia (KSMU); Siberian State University of Science and Technology named after Academician M.F. Reshetnev, Krasnoyarsk (SSUST); and Krasnoyarsk State Agrarian University (KSAU). The total sample size was 1,450 students. Over a two-year period, follow-up testing of physical fitness indicators was conducted among male and female students: 100 m run (male and female students), 3000 m run (male students), 2000 m run (females) sit-ups in one minute (females) and pull-ups on a high bar (males). The results of the fitness tests yielded over 4,500 physical fitness indicators. This statistical data was analysed using mathematical statistics and compiled into tables. Furthermore, an analysis of the physical fitness indicators was carried out against the standards of the GTO Physical Culture and Sports System – Level VII, on the basis of which the main conclusions were formulated.

Results and conclusions. The analytical study revealed a low level of physical fitness among university students in the Krasnoyarsk Krai, whose results do not meet the GTO standards. Female students' physical fitness indicators are higher than those of male students; in the 100-metre sprint, their results correspond to the GTO bronze badge, and in the one-minute sit-up test, to the silver badge. At the same time, for male students, the GTO bronze badge is achieved only in the 100-metre sprint. To address the aforementioned identified issues in the physical education of university students, the following innovative organisational and methodological measures are proposed to improve the content and focus of the current physical education system for students: to restructure the targeted content of the physical education curriculum for students at the university, specifically to prepare them to meet the GTO physical fitness standards; to design a sport-specific approach to physical education that enables students to develop the skills and abilities required for selected sports (Specialist Diploma + competitive athlete); to implement a comprehensive approach to students' physical education aimed at encouraging students to engage actively in physical education and sport and at improving the physical fitness of future specialists.

Keywords: *students, universities, the Siberian region, GTO physical fitness standards, comparative analysis, physical fitness.*

Introduction. The primary aim of physical education for university students is to improve their physical fitness. Upon completing their university studies, students should not only receive a degree as future professionals, but also have attained the necessary level of physical fitness to enable them to work productively and actively in their future careers.

However, as practice shows, upon completion of their university studies, only 7% of male students have a high or good level of physical fitness, 30% have an average level, and 63% have a low level; among female students, 8.5% have a high or good level of physical fitness, 24% have an average level, and 67.5% have a low level. These statistical indicators highlight the



need to improve the curriculum content and, more broadly, the overall focus of physical education for students at the country’s universities.

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carried out against the standards of the GTO Physical Culture and Sports System – Level VII, on the basis of which the main conclusions were formulated.

Results of the study and discussion. Upon completion of the analytical and statistical work, a dataset comprising 4,350 results was compiled from first- and second-year students (young men and women). The following basic physical qualities were tested: general endurance (3,000 m run for young men and 2,000 m run for young women); speed (100 m run for both male and female students); and strength indicators (pull-ups on a high bar for male students and sit-ups per minute in the supine position for female students). The statistical data collected were analysed using methods of mathematical statistics ($\bar{X} \pm \sigma$), and the results obtained regarding the students’ physical fitness were compared with the standards of the GTO (State Physical Culture and Sports Programme) – Level VII. The resulting data were presented in Tables 1 and 2.

The results of the physical fitness tests for female students, presented in Table 1, show that, overall, the level of physical fitness among female students at universities in the Krasnoyarsk Krai is virtually identical. They meet the GTO standards in the 100-metre sprint and the sit-up test.

An analysis of the physical fitness of university male students in the Krasnoyarsk Krai shows that only in the 100-metre sprint do the results come close to the GTO standards (bronze badge).

Table 1. Physical fitness indicators for female university students in the Krasnoyarsk Krai

University	N	Test exercises					
		100-metre sprint, m/s	GTO Badge	2000 m run, min/sec	GTO Badge	Sit-ups in 1 minute	GTO Badge
SFU	200	17,9±0,8	B	14.30±1.12	–	36,9±7,1	S
KSMU	200	18,1±0,6	B	15.35±1.20	–	37,1±3,8	S
SSUST	200	18,1±1,3	B	14.26±1.17	–	36,9±4,9	S
KSAU	200	18,3±1,4	B	15.07±1.10	–	29,1±3,9	–

Table 2. Physical fitness indicators for male students at universities in the Krasnoyarsk Krai

University	N	Test exercises					
		100-metre sprint, m/s	GTO Badge	2000 m run, min/sec	GTO Badge	Sit-ups in 1 minute	GTO Badge
SFU	200	14,9±1,1	B	14.58±1.36	–	6,5±1,7	–
KSMU	50	15,4±1,3	B	15.53±1.7	–	4,3±1,9	–
SSUST	200	15,1±1,2	B	15.48±1.5	–	7,1±1,9	–
KSAU	200	15,3±1,1	B	15.20±2.04	–	7,8±2,9	–



Conclusions. The analysis carried out revealed a low level of physical fitness among university students in the Krasnoyarsk Krai, whose results do not meet the GTO standards. Female students' physical fitness indicators are higher than those of male students; in the 100-metre sprint, their results correspond to the GTO bronze badge, and in the one-minute sit-up test, to the silver badge. At the same time, male students only achieve the GTO bronze badge in the 100-metre sprint. To address the aforementioned issues in students' physical education at the university, the following innovative organisational and methodological measures are proposed to improve the content and focus of the current physical education system for students: to restructure the educational content of the physical education process for students at the university, specifically to prepare them to meet the GTO standards; to design a sport-specific approach to physical education that enables students to develop the skills and abilities required for selected sports (Specialist Diploma + competitive athlete); to implement a comprehensive approach to students' physical education aimed at encouraging students to engage actively in physical education and sport and at improving the physical fitness of future specialists.

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