



Influence of urbanization on the level of physical fitness and general morbidity of first-year female students

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Abstract

Objective of the study was a comparative assessment of physical fitness and the level of general morbidity of female students who lived before entering the university in territories of varying degrees of urbanization.

Methods and structure of the study. 401 first-year students of VyatSU, Kirov, took part in the scientific work. The subjects were divided into three groups, according to their places of residence before entering the university. The first group consisted of girls from the city of Kirov ("a large city", the population is more than 250,000–500,000), the second group included students from providing "small towns" of the Kirov region (12,000–20,000) and the third group united first-year students from rural locality (<3,000 people).

Results and conclusions. The level of urbanization affects the degree of general morbidity and physical fitness of 17-18-year-old female students living in a large city before entering a university. The group of first-year girls in Kirov has a low level of the number of the main medical group in physical culture and a high degree of morbidity of the respiratory organs. Reliably significant differences were also revealed in relation to girls from rural settlements of dependence in tests on strength fitness and endurance.

Keywords: *physical fitness, urbanization environment, freshmen, general morbidity.*

Introduction. Preserving the health of the younger generation is a priority for the government of the Russian Federation and society as a whole. Nevertheless, in general, the impact of a high degree of urbanization on the health of the younger generation in the 21st century is assessed by many researchers as negative. Intensive urbanization, technogenic factors and other negative processes characteristic of urban conditions create an enormous burden on today's youth. The adaptive responses of the younger generation do not keep pace with the pace of scientific and technological progress, which leads to an increase in the total number of diseases and a decrease in the level of physical development [4, 6].

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To determine the general state of the body, individual medical records of female students were analyzed. According to the international statistical classification, the study of morbidity was carried out according to uniform principles, which made it possible to obtain informative data [3].

To measure the level of physical fitness, six control tests were conducted on the basis of the current program of the Ministry of Education of the Russian Fed-

**Table 1.** Physical readiness of first-year girls depending only on the degree of urbanization, $M \pm m$

Physical fitness		Total, n=401	Kirov, n=188 1st group	Small towns, n=87 2nd group	Rural settlements, n=126 3rd group
1. General endurance - 2000 m run (min, s)		11,9±0,09	12,0±0,18	11,7±0,25	11,3±0,29*
2. Speed-strength - 100 m run (s)		17,4±0,06	17,1±0,18	16,6±0,36	16,9±0,26
Strength training	3. Raising the torso from a prone position (number of times)	46,5±0,58	45,3±0,90	45,7±1,46	46,5±1,16
	4. Pull-ups on the low bar (number of times)	11,2±0,28	10,8±0,45	11,4±0,66	10,8±0,51
	5. Squats on the right leg (number of times)	9,1±0,11	8,7±0,17	8,8±0,26	9,5±0,25*
	6. Squats on the left leg (number of times)	8,9±0,12	8,7±0,17	8,8±0,25	9,6±0,23*

Note * - differences between groups are significant according to the first Student's t-test, $p < 0.05$.

eration "Physical Culture" [2]. Strength abilities were assessed by four tests: "Lifting the torso only from the prone position", "Pulling up on a low crossbar", "Squats with support on the wall on the right leg" and "Squats with support on the right wall on the left leg". The level of development of general endurance was determined by running at 2000 m. Speed-strength abilities for running speed at 100 m. Mathematical and static processing of the results was carried out according to the Student's t-criterion at a 5% level.

Results of the study and their discussion. As the analysis of individual medical records showed, for health reasons, 58.9±2.8% of female students were included in the main group in physical education classes, 36.9±3.5% in the preparatory group and 4.2±4.3% in the special group. %. The largest number in the preparatory group were girls from the city of Kirov. Comparative results of the study showed significant differences between being urban 51.9±4.7% and rural freshmen 64.7±4.1*%.

In terms of general morbidity in the preparatory group, diseases of the respiratory organs predominated - 76.5%, a small percentage were diseases of the skin - 1.9% and digestive organs - 1.6%.

According to the level of physical fitness, there were differences in the results of the following tests: running 2000 m, squatting on one leg with support against the wall between girls from Kirov and rural settlements. At the same time, the results of the tests performed by girls from rural settlements are higher than the rest of the participants.

Statistically significant differences were found in the first and third groups of girls.

Conclusions. Assessment of physical fitness and general morbidity of 1st year female students revealed a low level of physical indicators in girls who lived in Kirov before entering. Also in this group, the lowest results in terms of strength and general endurance were

noted, which we assess as a decrease in the aerobic capacity of female students under the influence of technogenic factors.

References

- Burdina, E.A., Krylov P.M. Ekonomicheskaya geografiya. Uchebnoye posobiye [Economic geography]. Moscow, MGIU, 2010. – 189 p.
- Vilensky M.Y., Ilinich V.I., Maslyakov V. A., Shcherbakov V. G. Fizicheskaya kul tura. Primernaya programma dlya vysshikh uchebnykh zavedeniy, instruktsiya po organizatsii i soderzhanuyu rabot kafedr fizicheskogo vospitaniya v vuzakh [Physical culture. Sample program for higher educational institutions, instructions for the organization and content of the work of the departments of physical education in universities]. Moscow, Ministry of Education of the Russian Federation, State Research Institute of ITT "Infomatika» Publ. 1994. 54 p.
- Instruktsiya po ispol zovaniyu Mezhdunarodnoy statisticheskoy klassifikatsii bolezney i problem, svyazannykh so zdorov yem desyatogo peresmotra (dlya pol zuyushchego MKB – 10) (utv. Ministerstvom zdra-vookhraneniya RF 25 maya 1998 g. N 2000/52-98). (in Russ).
- Kolokoltsev M.M., Martynov E.Y. [Physical development and physical fitness of university students of different functional health groups]. Sovremennyye problemy nauki i obrazovaniya [Modern problems of science and education], 2016, no. 6, pp. 385 – 390. (in Russ).
- Maysner T.N. Urbanization and urban ecology: risks and prospects for sustainable development. Humanities of the South of Russia, 2020. vol. 9(43), no 3, pp. 190 – 201. (in Russ).
- Minnibayev T.S., Rapoport I.K., Chubarovsky V.V., Timoshenko K.T., Goncharova G.A., Kotenko S.V. Methodological recommendations for a comprehensive assessment of the state of health of students based on the results of medical examinations. Questions of school and university medicine and health, 2015, no 2, pp. 40. – 57. (in Russ).
- Naskalov V.M. Fizicheskoe vospitanie studentov v usloviyah ekologicheskoi neblagopriyatnoy okruzhayushchej sredy / V.M. Naskalov // Teoriya i praktika fizicheskoy kul'tury. – 2004. – № 7. – S. 59 – 63.
- Nikiforova, V.A. Monitoring of the health of students in the Northern territories in the conditions of environmental problems. Proceedings of the Bratsk State University.



Series: natural and engineering sciences, 2015, vol. 2, no 4, pp. 119. – 123 (in Russ).

9. Postanovlenie Pravitel'stva RF № 916 ot 29.12.2001 g. «Ob obshcherossijskoj sisteme monitoringa sostoyaniya fizicheskogo zdorov'ya naseleniya, fizicheskogo razvitiya detej, podrostkov i molodezhi». – M., 2001.

10. Shitikova V.A., Budaeva T.A., Bazhina I.A. [Analysis of the performance of students of 1-3 courses in physical culture during the academic year]. Vestnik Kaluzhskogo universiteta. [Bulletin of the Kaluga University], 2020, no 3(48), pp. 129 – 131 (in Russ).

11. Corral-Verdugo V. Happiness as Correlate of Sustainable Behavior: A Study of Pro-Ecological, Frugal, Equitable and Altruistic Actions That Promote Subjective Wellbeing / V. Corral-Verdugo, J. Mireles – Acosta, C. Tapia-Fonllem, B. Fraijo-Sing // Human Ecology Review. – 2011. – Vol. 18(2). – P. 95 – 104.