HYGIENIC ASSESSMENT OF HEALTH GROUPS ASSIGNED TO STUDENTS OF CHELYABINSK AND AKTOBE UNIVERSITIES WHO PARTICIPATE IN PHYSICAL EDUCATION CLASSES

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The article presents a comparative assessment of the health of students of the Russian Federation and Kazakhstan, obtained by copying and analyzing the distribution by health groups during physical education classes. Statistical data processing was carried out using Statistica 13.0 software. A comparative analysis of the health of students in the Russian Federation and Kazakhstan according to medical records made it possible to establish that at the beginning of education at the university, the number of students with the main group for physical education is 36–42%, during the period of study it decreases to 30–38%. At the same time, there were no significant differences in the analyzed parameters. The obtained data on health assessment are the basis for the development of educational programs in the medical-biological, natural-science areas and for the research work of students. This study was carried out within the framework of the International Scientific and Pedagogical Cooperation.

Keywords: health, students, a group for physical education

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Compliance with ethical standards: all trials were conducted in accordance with the principles of biomedical ethics represented in the Declaration of Helsinki of 1964 and its subsequent updates, and approved by the Local Bioethics Committee of the Ural State University of Physical Culture (Chelyabinsk), Minutes of the meeting of the Ethics Committee as of January 14, 2022 No. 5.

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ГИГИЕНИЧЕСКАЯ ОЦЕНКА ГРУПП ЗДОРОВЬЯ СТУДЕНТОВ Г. ЧЕЛЯБИНСКА И Г. АКТОБЕ ДЛЯ ЗАНЯТИЙ ФИЗИЧЕСКОЙ КУЛЬТУРОЙ

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В статье представлена сравнительная оценка здоровья студентов Российской Федерации и Казахстана, полученная путем выкопировки и проведения анализа распределения по группам здоровья в ходе занятий по физической подготовке. Статистическая обработка данных проведена с использованием программного обеспечения Statistica 13.0. Сравнительный анализ здоровья студентов Российской Федерации и Казахстана по данным медицинских карт позволил установить, что на начало обучения в вузе количество студентов с основной группой для занятий физической культурой составляет 36–42%, за период обучения он уменьшается до 30–38%. При этом достоверных различий по анализируемым параметрам не выявлено. Полученные данные по оценке здоровья являются основанием для разработки образовательных программ медико-биологического, естественно-научного направления и проведения научно-исследовательской работы студентов. Настоящее исследование выполнено в рамках Международного научно-педагогического сотрудничества.

Ключевые слова: здоровье, студенты, группа для занятий физической культурой

Вклад авторов: Макунина О. А. — обзор литературы, анализ результатов исследования, оформление статьи, корреспондирующий автор; Ботагариев Т. А. — организация и проведение исследования в АРУ; Коваленко А. Н. — организация и поредение исследования в УралГУФК, Быков Е. В. — анализ результатов исследования; Кубиева С. С. — анализ результатов исследования, организация и проведение исследования к АРУ.

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Соблюдение этических стандартов: все исследования проведены в соответствии с принципами биомедицинской этики, сформулированными в Хельсинкской декларации 1964 г. и ее последующих обновлениях, и одобрены локальным биоэтическим комитетом ФГБОУ ВО «Уральский государственный университет физической культуры» (г. Челябинск). Протокол заседания этического комитета от 14.01.2022 № 5.

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Assessing health of children, adolescents and young people, including students, is a top priority of national healthcare in the Russian Federation and Kazakhstan [1–6]. However, taking into account certain indicators of health among students both in Russia [7–12], and in Kazakhstan [13–17], scientific research results are illustrative of an unfavorable condition.

Scientific research results confirm a negative trend in morbidity for all nosological entities among students [4, 18].

The purpose of the article is to perform a comparative assessment of health among the students of the Ural State University of Physical Culture and K. Zhubanov Aktobe Regional University considering their distribution by health groups during physical education classes.

MATERIALS AND METHODS

A comparative analysis of health of students from the Ural State University of Physical Culture (n = 2,780) and K. Zhubanov Aktobe Regional University (n = 2,004) was performed based on medical records. Data extraction from medical records was used to collect data from 2018 to 2021 for the first and second years of education. No significant differences were found in relation to age and gender of the students.

Statistical data processing was carried out using Statistica 13.0 (StatSoft Inc., США) and Excel (Microsoft Office, 2010). A Student's t-test was utilized to show the statistical difference with the probability of 95%.

RESEARCH RESULTS

Analysis of student's distribution by health groups during physical education classes is the basis for selecting an optimal physical load considering the state of health.

An analysis of distribution of students from the Ural State University of Physical Culture and K. Zhubanov Aktobe Regional University by health groups during physical education classes was made using data extraction from medical records (tab. 1).

Those from the preparatory group predominated among university students. During transfer to the second year, there was a decrease in the number of students from the main group by 4.1% in the Ural State University of Physical Culture and by 6.6% in K. Zhubanov Aktobe Regional University ($p \leq 0,05$). In the preparatory group, a number of students is increased by 3.8% in the Ural State University of Physical Culture and by 8.2% in K. Zhubanov Aktobe Regional University ($p \leq 0,05$). In the special group, it is increased by 0.3% in the Ural State University of Physical Culture and decreased by 1.6% in K. Zhubanov Aktobe Regional University. The obtained results show there is a negative trend in the health of students within two years of education.

Table 2 includes data on functional deviations among students of the Ural State University of Physical Culture and K. Zhubanov Aktobe Regional University distributed to the main and preparatory groups during physical education classes.

Deviations in the locomotor system predominate among the students of the Ural State University of Physical Culture with insignificant fluctuations during the first and second years of education (36–34%) and occupy the first position in the rank.

In K. Zhubanov Aktobe Regional University, locomotor diseases are ranked second among the second-year students (12% of students). Diseases of the eye and adnexa are ranked first (35% and 38% among the first- and second-year students, respectively).

In the Ural State University of Physical Culture, the second position in the rank is occupied by gastrointestinal disorders. In the Ural State University of Physical Culture and K. Zhubanov Aktobe Regional University, cardiovascular diseases are ranked third.

Diseases of the genitourinary system, respiratory diseases and ENT disorders are also available on morbidity patterns.

DISCUSSION OF RESULTS

According to the majority of trials, 30 to 50% of applicants have already had health problems [11]. A negative trend in health state of students for the whole period of education at the University is confirmed by the trial results represented in the publications [8, 9, 19]. The trial demonstrates the trend as well.

Comparison of health among students of different universities within the same region is of interest, too. For instance, a comparative analysis of health of students from three universities such as the Ural State University of Physical Culture, Chelyabinsk State University and South Ural State Medical University was performed. Comparison of state of health among students from different regional universities is also of interest as it establishes common and specific tendencies to develop strategic tasks improving health of the students. So, a

Table 1. Distribution of students from the Ural State University of Physical Culture and K. Zhubanov Aktobe Regional University by health groups during physical education classes, %

University	Ural State University of Physical Culture				K. Zhubanov Aktobe Regional University			
year, assignment to groups during physical education classes	1 year abs. (people)	%	2 year abs. (people)	%	1 year abs. (people)	%	2 year abs. (people)	%
I Main	600	41.9	510	37.8	378	36.3	286	29.7*
II Preparatory	730	51	740	54.8	529	50.8	568	59.0*
III Special	101	7.1	99	7.4	134	12.9	109	11,3
Total number of people	1,431	100	1349	100	1,041	100	963	100

Table 2. Functional deviations in the ranks among students of the Ural State University of Physical Culture and K. Zhubanov Aktobe Regional University distributed to the main and preparatory groups during physical education classes,%

University	Ural State University of Physical Culture			K. Zhubanov Aktobe Regional University			
Rank	deviations	1 year	2 year	deviations	1 year	deviations	2 year
1	Locomotor system	36%	34%	eyes	35%	eyes	38%
2	Gastrointestinal tract	32%	31%	metabolism, weight deficit	23%	locomotor system	12%
3	Cardiovascular system	22%	23%	cardiovascular system	23%	cardiovascular system	11%

comparative assessment of health of students from the Russian Federation and Kazakhstan allows to add to the available data on the effect produced by ethno-national and ecological factors on health of students across similar climate and geographical areas. Moreover, according to the list of countries by quality of healthcare, Bloomberg (2021) shows that out of 100 analyzed countries, 56th and 58th positions are occupied by Kazakhstan and Russia, respectively.

The obtained results with regard to the health of students from Russian and Kazakhstani universities confirm data of other researchers on deviations in the health of 50% students [9, 11, 12].

Scientists from Kazakhstan also confirm that health of students is worsened during their education at universities [16–18]. It is also shown in the present trial.

All this is confirmed by literature data on the necessary prevention and promotion of health among university students [3, 20].

In the previous work by Kalmakova ZhA (2014) it has been established that students' diet is unbalanced with low energy content, and that a number of first-year students assigned to the groups of risk is increased. A complex program of health preservation and promotion is developed based on the results obtained by the author. It puts interrelation between the systems of healthcare, education and social structures engaged in organization of leisure among young students at its center [16].

In publications, it has been unanimously confirmed that 'the state of health and associated life quality of students correlate with the way of life, physical activity…' [21, 22].

However, it has been shown in this trial that apart from abundant literature data on the effect produced by diet and motor activity which are associated with locomotor and gastrointestinal disorders and metabolism, special attention should be given to diseases of the eye and adnexa occupying the leading positions in the rank.

Prevention of diseases of the eye and adnexa and development of preventive programs are required, which is shown in a number of publications [23–25].

CONCLUSIONS

The trial data are provided to establish differences and common trends in the changes of health among students from Chelyabinsk and Aktobe universities.

Based on medical records, a comparative analysis of health among students of the Russian Federation and Kazakhstan enabled to establish that at the initial stage of education at universities a number of students with a main health group during physical education classes constitutes 36–42% and gets decreased to 30–38% within the entire educational period; no significant differences have been found based on the analyzed parameters.

The obtained data on health assessment are the basis for the development of educational programs in the medical-biological, natural-science areas and for the research work of students. The obtained results are also used to develop health-saving and physical activity of the universities.

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