Criteria relevant for a comparative assessment of the physical condition of students belonging to the basic and special medical groups

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Abstract

Objective of the study is to determine the key parameters for assessing the physical condition of students assigned to the basic and special medical groups by conducting a comparative analysis.

Methods and structure of the study. Pedagogical testing was conducted for students enrolled in 1-3 courses and belonging to the main (258 people) and special (126 people) medical groups. The assessment of the functional state, physical development, level of fitness and motor activity (in the number of steps) was carried out on the basis of generally recognized and metrologically sound tests. In addition, a survey was conducted to determine the interest of students in both groups in obtaining information about their physical health.

Results and conclusions. An analysis of data on the state of the cardiovascular and respiratory systems, indicators of physical development, fitness and motor activity showed that students of the special medical group are generally inferior to students of the main group, with the exception of the indicator "physical activity", where they show better results. The survey revealed the interest of students in both groups in the test results and the desire to improve the lagging indicators. The educational environment can help meet this need through the introduction of mobile applications, both in physical education classes (heart rate monitoring) and in self-training (training plans). Keeping a "Health diary" allows you to quickly and regularly monitor physical health indicators. Such involvement of students of both groups contributes to the formation of a conscious attitude towards their health, as well as the formation of value attitudes and positive motivation for physical education.

Keywords: *assessment of physical condition, students, basic medical group, special medical group, pedagogical testing, functional state, physical development, fitness level, physical activity, physical health, cardiovascular system, respiratory system.*

Introduction. The current geopolitical and socio-economic situation in the world remains the main factor in reducing the health of the population, especially students, who are the "golden fund for the prosperity of the nation." According to the author, currently students with disabilities and enrolled in a special medical group (SMG) for physical education range from 14-17%, and this picture tends to worsen from year to year [2, 4]. Aggravating factors that reduce health are also "relative freedom", sleep-wake disorders, poor nutrition, and stress associated with learning (exam session). Physical education at the university is designed to solve the problems of education, upbringing and health improvement of students, so students of the basic and preparatory health groups study together, while students of the SMG study in a separate program. How justified is this? Are there differences in physical health indicators that determine the ability to study in different programs? How important is it for students to know their indicators and whether they know how to adjust them? The authors of this study asked these and other questions.

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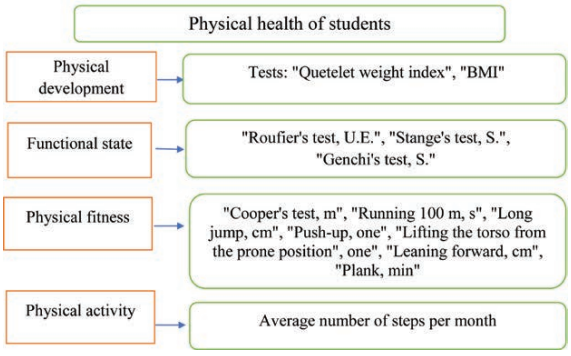
groups by conducting a comparative analysis.

Methods and structure of the study. Pedagogical testing was conducted for students of the basic and special medical groups (258 and 126 students, respectively, of the 1st-3rd year). The methods used are standard and metrologically sound. The study used: to assess physical development, the test "Quetelet weight index", "BMI", for physical fitness: "Cooper test", "100 m run", "Long jump", "Push-up", "Lifting the torso from the prone position", "Forward tilt", "Plank", functional state of the cardiorespiratory system: "Roufier's test", "Stange's Test", "Gencha's Test". Students of the basic and preparatory groups took tests during the semester in three sessions with an interval of one lesson, students of the special medical group took one or two tests per class in accordance with their well-being and psychophysical abilities. In addition, a survey was conducted to identify the interest of students in both groups in obtaining information about their physical health.

Results and conclusions. According to modern ideas about physical education of students, the means and methods of improving health indicators vary significantly. Thus, for students of the main health group, methods based on the theoretical and methodological foundations of physical culture and sports training are used. Recreational physical education and its conceptual provisions determine the process of physical education of students of the special medical group (SMG) [4]. The main ideological message of the first is the improvement of physical potential, the second is the improvement and/or maintenance of an optimal level of physical health indicators. Assessment of physical health indicators for students of the basic and preparatory groups



Relevant criteria for comparative assessment of physical health of students of the basic and special medical groups

traditionally takes place at the beginning and end of each semester, whereas for students of the SMG during the semester. It is important for physical education teachers and students to know the dynamics of physical health indicators in order to carry out their timely correction, if necessary [4, 5].

The indicators of physical health among the students of the studied groups were assessed based on the results of testing of functional status, physical development, fitness and activity (see Figure).

As part of the study, a survey was conducted to identify interest in obtaining information about their physical health. Conducted among 1st-3rd year students of both health groups, it showed that 90% of respondents would like to know about their performance. It was also found during the survey that knowledge about the current state of physical health could have a beneficial effect on the formation of motivation for FC classes. According to students (78% of respondents), a good incentive is the desire to improve results in indicators "below the standards," and some respondents (21%) said they were interested in improving their results by improving physical fitness to the "maximum possible limits." It should be noted that almost all respondents in the survey replied that they use mobile applications in one way or another, including for the purpose of correcting physical fitness (making training plans) and activity (increasing the daily number of steps more often).

The main "engine" of the formation of stable motivation for FC classes, as it turned out, is the teacher's informing about the revealed results of physical health, this circumstance has a positive effect on the formation of motivational and value orientations, the formation of which leads to the development of the cultural potential of FC. Scientific views in the field of physical culture of V.K. Balsevich and L.I. Lubysheva, V.I. Stolyarova confirms the need for appropriation, interiorization of intellectual values – knowledge about methods, means and methods of organizing physical activity [1, 3]. Intentional – skills for maintaining and correcting physical health. Mobilization–practical skills of self-improvement in the field of physical education. Motor – knowledge, skills and practical skills for the formation of a healthy lifestyle based on the improvement of physical health indicators by means of sports (for basic) and wellness (for students of SMG) training. This once again underlines the importance of conducting a study of

The reliability of differences in physical health indicators among students of the three health groups (according to the Student's t-test)

Tests	D (main)	D (SMG)	Yu (main)	Yu (SMG)
Physical development				
Quetelet weight and weight index, g/cm	369,1±41,2	315,3±36,3	380±48,9	347,3±37,2
Body mass index, kg/m	18,2±1,2	17,8±0,9	23,1±3,2	20,1±2,8
Functional state of the cardiorespiratory system				
Roufier index, units	4,9±2,1	9,8±1,2*	3,9±2,3	10,1±3,7*
Barbell test, with	50±5,2	38,4±5,4*	54±6,8	49,3±4,6*
The Gencha sample, with	44,2±9,2	30,4±6,9*	48±7,8	40±5,7*
Physical fitness				
Cooper's test, m	2650±220,6	1293±340,8*	2780±330,6	1775±410,2*
Running 100 m, s	17,1±1,2	22,4±2,3*	14,9±2,1	19,4±2,2*
Long jump, cm	171,6±6,2	165,6±9,3*	219±13,1	170±8,3*
Push-up, once	25,5±6,3	10±5,4*	38,1±7,3	20±7,6*
Press, times	42,2±3,2	22,7±4,8*	49,7±4,5	30±3,2*
Flexibility, cm	12,3±3,4	9,8±4,2	10,7±2,3	9±2,8
Bar, min	3,3±1,2	1,49±0,9*	4,20±1,8	2,08±1,5*
Physical activity				
Average number of steps per month	8033,2±809,2	9630,3±400,7*	8050,6±670,9	9367,9±330,5*

*Note: * – $p<0.05$.*

physical health indicators in order to obtain not only a theoretical, but also an experimental justification for the orientation of physical education of the studied health groups.

During the assessment of physical health indicators (FZ), significant differences in the results were revealed among students of the three health groups (Table). To a greater extent, the results of physical health are reduced among SMG students in comparison with students of the main and groups on tests characterizing the state of the cardiorespiratory system and physical fitness tests, with the exception of flexibility.

The physical fitness of the students of the main group is at a high level, corresponding to the fulfillment of the standards of the All-Russian Federation GTO for "bronze", "silver" and even for the "100 m" test for a gold badge. We also note that the revealed results are commensurate with 5 points (the maximum value) according to the standards from the discipline program and make it possible to get a credit. However, with regard to SMG students, it can be said that the data obtained are consistent with what is known that the physical health of SMG students is a matter of concern for the scientific community [4].

As can be seen from the table, SMG students have significantly low results in almost all indicators. Special attention is drawn to the unsatisfactory condition of the cardiorespiratory system, which provides vitality, efficiency and aerobic endurance of a person. The performance of the Cooper, M. test by SMG students is 30-40% lower than in the main group. Hypoxic tests are also 15-25% lower than those of students in the main groups, which negatively affects the performance of physical fitness tests. So, the tests for speed were identified as the most lagging behind, followed by the results for speed and strength qualities and strength endurance. The flexibility test, which determines joint mobility, partially does not require psychophysical efforts and is therefore performed at approximately the same level as the students of the main group.

At the same time, physical activity varies significantly, the results of SMG students are 18-20% higher than the results of the students of the main group. It turned out that SMG students are interested in improving their physical health and use the most affordable methods for this, in particular, walking evenly and over rough terrain, long walks on weekends, which affects the number of steps per day. The motivation for positive changes in the lagging indicators of SMG students is determined on the one hand by the desire to move to the main group (with an obvious and available opportunity), and on the other hand by the psychological characteristics of age: "youthful maximalism" and the desire to compete, win, and including oneself.

Conclusion. A survey of students from three groups revealed that physical health issues are relevant and of interest. It turned out that the purpose of testing the indicators of the Federal Law for students of all groups is to inform about the current state and the possibility of making adjustments to the process of physical education at the university and independent physical activity, if necessary. Based on the results obtained, it can be concluded that in almost all indicators, students of the main health group coped with the tests at a high level, while students of the SMG lag behind based on the results obtained, with the exception of indicators of "physical development" and "physical activity". During the survey, it became known that students actively use mobile applications related to the Federal Law in one way or another, almost all (90%) track physical activity in steps. An interesting fact was the understanding that knowledge of the indicators of the Federal Law, in the opinion of students, contributes to motivation for FC classes, forming value orientations: intellectual, intentional, mobilization and motor.

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