

EFFECTS OF ACTIVE SPORTS ACTIVITIES ON THE ADAPTIVE CAPABILITIES OF THE BODY OF STUDENTS OF THE MEDICAL UNIVERSITY

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Abstract

The problem of adaptation of the student's body, timely diagnosis, prevention and correction of transitional states is one of the most important issues in biology, physiology, medicine, pedagogy and sports. In connection with this, studies of the functional state of the body, psychophysiological determination of quality and quantity of health are relevant. **Goal of research:** the purpose of the study was to evaluate the adaptive capabilities of the bodies of students engaged and not engaged in active sports. **Methods of research:** the study involved 47 students aged 19-24 years. To assess the functional state of the body, the sports and medical tests were used which allow to directly characterize the state of the cardiovascular and nervous system, as those systems of the human body respond most quickly to emotional and physical stress. Students were divided into two groups: 1 – was not engaged in active sports during the summer; 2 – was engaged in active sports. **Research results:** the results of the study showed a decrease in the adaptive capacity of the body at the end of the school year in the subjects of the 1st and 2nd groups. An increase in the adaptive capacity of the organism with the most pronounced effect is observed among the students of the 2nd group who were engaged in active sports during the summer. **Summary:** the obtained results prove the effectiveness of the influence of active sports classes on the adaptive capabilities of the bodies of students. They have a positive effect on the tolerance of excessive psycho-emotional loads during the school year.

Key words: adaptation, active sports activities, students.

Тетяна Глебова, Наталія Ушко, Марія Вінтоняк, Оксана Машкова, Роман Машков. Вплив занять активними видами спорту на адаптаційні можливості організму студентів медичного університету. Проблема адаптації організму студента, своєчасної діагностики, профілактики та корекції перехідних станів залишається однією з важливих у біології, фізіології, медицині, педагогіці та спорті. У зв'язку з цим дослідження функціонального стану організму, психофізіологічне визначення якості й кількості здоров'я належить до актуальних питань. **Мета дослідження** – оцінити адаптаційні можливості організму студентів, які займаються та, які не займаються активними видами спорту. **Методи дослідження.** У роботі взяли участь 47 студентів віком 19–24 роки. Для оцінки функціонального стану організму використано спортивно-медичні тести, які дають змогу безпосередньо надати характеристику стану серцево-судинної та нервової системи. Сааме ці системи організму людини швидко реагують на емоційне й фізичне навантаження. Студентів поділено на дві групи: 1 – ті, які не займалися активними видами спорту протягом літніх канікул; 2 – особи, котрі займалися активними видами спорту. **Результати дослідження.** Результати дослідження свідчать про зниження адаптаційних можливостей організму студентів у кінці навчального року в обох групах. Більш виражене підвищення адаптаційних можливостей організму простежено в студентів 2-ї групи, які займалися активними видами спорту протягом літніх канікул. **Висновки.** Отримані результати свідчать про позитивний вплив занять активними видами спорту на адаптаційні можливості організму студентів і підвищення стійкості до психоемоційних навантажень протягом навчального року.

Ключові слова: адаптація, активні види спорту, студенти.

Татьяна Глебова, Наталья Ушко, Мария Винтоняк, Оксана Машкова, Роман Машков. Влияние занятий активными видами спорта на адаптационные возможности организма студентов медицинского университета. Проблема адаптации организма студента, своевременной диагностики, профилактики и коррекции переходных состояний остается одной из важных в биологии, физиологии, медицины, педагогике и спорте. В связи с этим исследование функционального состояния организма, психофизиологическое определение качества и количества здоровья – это актуальные вопросы. **Цель исследования** – оценить адаптационные возможности организма студентов, занимающихся и незанимающихся активными видами спорта. **Методы исследования.** В исследовании приняли участие 47 студентов в возрасте 19–24 года. Для оценки функционального состояния организма использованы спортивно-медицинские тесты, которые позволяют непосредственно предоставить характеристику состояния сердечно-сосудистой и нервной систем. Именно эти системы организма человека

быстро реагируют на эмоциональные и физические нагрузки. Студентов разделили на две группы: 1 – те, которые не занимались активными видами спорта в течение летних каникул; 2 – лица, занимающиеся активными видами спорта. **Результаты исследования.** Результаты исследования свидетельствуют о снижении адаптационных возможностей организма студентов в конце учебного года в обеих группах. Более выраженное повышение адаптационных возможностей организма наблюдается у студентов 2-й группы, занимавшихся активными видами спорта в течение летних каникул. **Выводы.** Полученные результаты свидетельствуют о положительном влиянии занятий активными видами спорта на адаптационные возможности организма студентов и повышения устойчивости к психоэмоциональным нагрузкам в течение учебного года.

Ключевые слова: адаптация, активные виды спорта, студенты.

Introduction. The modern idea of the adaptation of a human body, engaged in various types of motor activity, is constantly developing and improving. Change in the functional state of the body when adapting to various physical loads allows you to effectively and purposefully manage the training process, and improve adaptation models [1]. In modern conditions, the importance of the effectiveness of sports training for students increases. One of the ways of solving this problem is focused on taking records of the functional capabilities of the bodies of students, which, accordingly, can not affect the training process, which are an important element of the sports training system in the conditions of higher educational institutions.

The problem of adaptation of the student's body, timely diagnosis, prevention and correction of transitional states is one of the most important issues in biology, physiology, medicine, pedagogy and sports today [2, 3]. Students of the university are influenced to significant psycho-emotional and physical stress. The need for studying the adaptation of students to the increasing educational load is actualized due to the worsening of their adaptive potential, determined by health indicators [2; 4].

Currently, there are a number of organizational and regulatory problems in raising the physical education of students associated with the independent choice of students of physical culture and sports activities, as well as the growing popularity of extreme sports and tourism among students. In connection with this, studies of the functional state of the body, psychophysiological determination of quality and quantity of health are relevant [5].

The organism of a person engaged in extreme sports and tourism experiences serious overloads and a marked tension of adaptive capabilities. The evolution of human has always been accompanied by adaptation to the change of seasons, natural disasters, and the lack of sufficient food in lean years, epidemics. Modern people suffer most from excessive environmental and information loads, professional and social stresses [4; 5; 6].

During extreme sports and tourism, a person experiences a high level of emotional stress, which affects all the important functional systems of the body. This should be taken into account when organizing outdoor activities using extreme means, especially for people who have health problems [6]. A weak point in the organization is the planning of the route paying attention to psychological factors and conditions of the environment, of which students, as a rule, have minimal knowledge [3; 5].

Adaptation processes occur continuously; however, the prolonged influence of unfavorable factors reduces the adaptive capabilities of the human body. There is an opinion that chronic stress is a constant companion of a student life [1; 3]. The student life is full of emergency situations. Students experience a special neuropsychic tension during the examination session. In this regard, tourism is one of the harmonizing sports.

Practical solution of the tasks related to the process of student adaptation is an important social task that involves the development of diagnostic methods for their adaptive capabilities and abilities, the level of adaptation, the regime and organization of the educational process, and the development of the ways of optimization the process of adaptation to educational activities. Therefore, the study of the process of adaptation and physical health of students to the educational process in the university is very relevant.

The study of the adaptive capabilities of the bodies among students, of their motivational sphere is necessary:

1. In connection with the growing popularity of extreme sports and tourism in the system of the higher education;
2. In connection with the fashion for different types of tourism and its commercialization with a sufficiently large financial turnover;
3. Due to the fact that extreme sports are direct communication with the natural environment and technical means, which are an indispensable condition for tourism;
4. Scientific study of this phenomenon will allow to solve a number of social problems related to the improvement of students' adaptation in the society, including those with disabilities.

However, the influence of tourism on the adaptive capabilities of the bodies of students experiencing a constant impact of stressors during their studies at a higher educational institution is not sufficiently

investigated in the scientific literature. The same is true about adaptive effect of stressful influences, caused by psycho-emotional stress in the learning process that requires a certain clarification. In this regard, tourism is one of the most effective means among active sports. Tourism in the university is considered as a part of the recreational physical culture, presented in the active recreation mode, which narrows the range of sports and health tourism in the physical education of students.

The study of adaptive changes in the bodies of people combining training with sports is necessary for the development of health-saving technologies, both in educational and training processes. All of the above was the basis for formulating the purpose and objectives of the study.

Goal of Research. The purpose of the study was to evaluate the adaptive capabilities of the bodies of students engaged and not engaged in active sports.

Methods of Research. The study involved 47 students aged 19–24 years old. To achieve the goal of the study, a number of sports and medical tests were used, which, on the one hand, are available in execution, and, on the other hand, the most objective and informative. To assess the functional state of the body, the following sports and medical tests were used which allow to directly characterize the state of the cardiovascular and nervous system, as those systems of the human body respond most quickly to emotional and physical stress: 1) testing using a test package reactive and personal anxiety; 2) determination of the index of vegetative reactivity in the clinic static test; 3) determination of the functional state of the autonomic nervous system (Kerdo index); 4) a survey for complaints about the feelings of fatigue, drowsiness, reduced efficiency.

Students were tested at the end of the school year, and then after the holidays at the beginning of the next school year. Also, according to the results of the survey, students were divided into two groups: 1 – was not engaged in active sports during the summer; 2 – engaged in active sports.

Research results. The results of the study showed a decrease in the adaptive capacity of the body at the end of the school year. The subjects of the 1st and 2nd groups have an average level of reactive anxiety $33,06 \pm 1,86$ points and personal anxiety $42,44 \pm 1,26$ points; indices of vegetative reactivity in the clinic static test – $13,27 \pm 1,15$ beats / min; complaints about the feelings of fatigue, drowsiness, decreased efficiency were found in 84,5 % of students. According to the analysis of the Kerdo index 53,5 % of the students of the 1st and 2nd groups had atony, 42,9 % of these groups showed a tendency to sympathicotonic reaction, the vagotonic reaction prevailed in 3,6 % of the students. The data obtained indicate a decrease in the level of vegetative regulation of cardiovascular functions in these students.

An increase in the adaptive capacity of the organism with the most prominent effect is observed among the students of the 2nd group who were engaged in active sports during the summer. A statistically significant decrease in the level of reactive anxiety to $20,22 \pm 1,12$ points (low) and personal anxiety with up to $30,12 \pm 1,46$ points (moderate), $p < 0,05$; normalization of indices of vegetative reactivity with a clinic static test to $6,64 \pm 1,12$ beats per minute, $p < 0,05$. Reduction of complaints about the feelings of fatigue, drowsiness, decreased efficiency was noted both in the 1st and 2nd groups, respectively, to 45,4 % and 23,3 %.

Conclusions and Prospects for Future Research. It is established that when active sports are involved, functional changes in the bodies of students are manifested in increasing the adaptive capacity to mobilize functional reserves in stressful situations of both sports and educational processes, which indicates the improvement of the central regulatory mechanisms.

The obtained results prove the effectiveness of the influence of active sports classes on the adaptive capabilities of the bodies of students. They have a positive effect on the tolerance of excessive psycho-emotional loads during the academic year.

Recommendations. 1. It is recommended to determine the motivation of students and the corresponding adjustment of the orientation of the training process.

2. Use the methods of functional diagnostics to monitor the functional state of the bodies of students to prevent disruption of adaptation.

3. To conduct also testing of the functional state of the organism during hikes, this will expand the understanding and control of adaptive reserves.

4. It is recommended to develop a scale for assessing the level of health for predicting changes in the adaptive capacity of the bodies of students in the higher education system.

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