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OPTIMIZATION OF PHYSICAL EDUCATION CURRICULUM FOR STUDENTS WITH DISABILITIES ON THE PART OF HEALTH

The purpose of research - to identify ways to optimize the physical education curriculum for students with poor health, with diseases of the cardio-vascular system. To achieve the goal, we used the following methods: analysis of scientific and methodological literature, regulatory - legal documents, programs of physical training for higher education institutions, summarizing the experience of pedagogical practice, the method of analysis of medical records, physiological, pedagogical methods, methods of mathematical statistics. The studies were conducted at the National Aviation University, first-year students with health status variations (n = 386) were examined. In the process of physical education students with diseases of the cardiovascular system, use of special funds training, depending on the nosology of the disease in order to normalize the process of adaptation of the cardiovascular system, enhance the effects of energy and regenerative mechanisms, restoration of disturbed functions and structure. Physical exercises used in the course of physical education of students with disabilities, increase the body's resistance to various stress factors by creating psychological relaxation and improve emotional state, contribute to the development of physiological functions and motor characteristics, thus improving the level of mental and physical health of students. The use of different types of fitness in the process of physical education students with poor health can only increase the motivation for holding various kinds of physical activity, but also to attach to a healthy lifestyle in order to improve the adaptation of the organism to stress students in learning and future professional activity.

Key words: physical education, students with poor health, cardiovascular system, physical exercises.

Билецкая В.В., Приймаков А.А., Приймакова О.О. Оптимизация учебной программы по физическому воспитанию студентов, имеющих отклонения со стороны здоровья. Цель исследования - определение путей оптимизации учебной программы физического воспитания для студентов с заболеваниями сердечно-сосудистой системы. В работе использовались методы анализа научной и методической литературы, нормативно-правовых документов, программ по физической культуре для высших учебных заведений, анализа медицинских записей, физиологические и педагогические методы исследований. Обследовались студенты первого курса Национального авиационного университета (n = 386). Результаты исследований показали, что использование в процессе физического воспитания различных видов фитнеса, повышает устойчивость организма студентов к различным стрессовым факторам путем создания психологической релаксации и улучшения эмоционального состояния, способствует совершенствованию физиологических функций и моторики студентов, улучшает уровень их психического и физического здоровья, повышает мотивацию студентов к проведению различных видов физической активности, а также к здоровому образу жизни.

Ключевые слова: физическое воспитание, студенты со слабым здоровьем, сердечно-сосудистая система, физические упражнения.

Білецька В.В., Приймаков О.О., Приймакова О.О. Оптимізація навчальної програми з фізичного виховання студентів, які мають відхилення з боку здоров'я. Мета дослідження - визначення шляхів оптимізації навчальної програми фізичного виховання для студентів з захворюваннями серцево-судинної системи. В роботі використовувалися методи аналізу наукової та методичної літератури, нормативно-правових документів, програм з фізичної культури для вищих навчальних закладів, аналізу медичних записів, фізіологічні та педагогічні методи досліджень. Обстежувалися студенти першого курсу Національного авіаційного університету (n = 386). Результати досліджень показали, що використання різних видів фітнесу, підвищує стійкість організму студентів до різних стресових факторів шляхом створення психологічної релаксації і поліпшення емоційного стану, сприяє вдосконаленню фізіологічних функцій і моторики студентів, покращує рівень їх психічного і фізичного здоров'я, підвищує мотивацію студентів до проведення різних видів фізичної активності, а також до здорового способу життя.

Ключові слова: фізичне виховання, студенти із слабким здоров'ям, серцево-судинна система, фізичні вправи.

Introduction. Development of modern educational and prevention-improving technologies that promote and maintain the health of young people, the development of potential possibilities of the body, is a major problem in modern pedagogy.

The systems of higher education give a priority to intellectual development of students at the expense of physical development and health. Therefore, recently the number of students with diseases are increased, more than 50 % of students have poor health, and 80 % - are suffer from physical inactivity [5, 6].

Analysis of health student youth Ukraine shows that almost 90% of them are variations in health status, 50% - poor physical fitness (the National University of Life and Environmental Sciences of Ukraine, more than 60%). Only in recent years almost 40% increase in the number of students, referred to as special medical care group [1, 7].

Somatic health and level of physical fitness of students of special medical groups is becoming increasingly public, scientific and practical significance.

Essential to assess the viability of the organism are not so much morbidity as a general biological, morbidity description of

his condition, which is not based on the classification of the disease and the very concept of disease. This assessment is given by human biological age [8, 9, 11].

In the student's community there is dissatisfaction with the content of academic courses in physical education, which has a negative impact on the level of physical fitness and health status.

In connection with this search for effective ways to revitalize the students, improve their physical development and readiness, introduce to a healthy way of live is urgent.

One of the most acceptable ways to solve this problem is to optimize the program of physical education for students by introducing new types of physical activity.

Diseases of the cardio-vascular system are the most common, not only among adults but also among the students. One of the reasons for the increase in the number of diseases of the cardio-vascular system among the students is to reduce their level of physical activity [4].

Exercises play a leading role in the prevention of diseases of the cardiovascular system, as compensate lack of physical activity of students.

Activation of motoring through exercise improves the function of various kinds of systems that regulate blood circulation, improves myocardial contractile properties, reduces blood lipids and cholesterol in the blood, reduces hypoxia due to the development of collateral vessels and eliminate all manifestations of most risk factors for diseases of the cardio-vascular system [10, 13].

So is the actual ordering of means employed, particularly their use in physical education classes, depending on the nosology of the disease, and the study of contraindications during exercise for students with diseases of the cardio-vascular system.

The purpose of research - to identify ways to optimize the physical education curriculum for students with poor health, with diseases of the cardio-vascular system.

In accordance with the objectives of the study consistently following tasks:

1. Make a theoretical analysis of scientific and pedagogical sources of problems of physical education students using health keeping technology in general and special literature.

2. To study the general laws that affect the planning objective individual components health keeping technologies in various kinds of health occupations students.

3. Develop health keeping technologies of education student's system of physical education, experimentally test the effectiveness of their use and implement the learning process.

The theoretical prediction is to use to determine the probability of changing phenomena studied, especially health keeping technology, level of physical health and physical fitness of students of special medical groups more or less distant future. We used variants research and normative forecasting.

Normally the value of health is recognized at all levels of higher education, but as recognition health keeping pedagogical objectives as part of educational technology, educational activities as a result of extremely rare [2, 3, 7].

Methods. To achieve the goal, we used the following methods: analysis of scientific and methodological literature, regulatory - legal documents, programs of physical training for higher education institutions, summarizing the experience of pedagogical practice, the method of analysis of medical records, physiological, pedagogical methods, methods of mathematical statistics.

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To determine the effectiveness of the experimental technique differences concerning common, we used the method of Professor G.L. Apanasenko [2, 3].

This technique makes it possible to determine the level of health subjects. We used methodology on indicators of cardiovascular and respiratory systems and data anthropometry (height, weight, hand dynamometry main hand).

The studies were conducted at the National Aviation University the 1st year students that have variations in health status ($n = 386$).

Results. Our results show that more than 10 % (386 people). Students of the 1st year of the National Aviation University have variations in health status. The majority of students (43%) have the diseases of the cardio-vascular system, 24 % - diseases and injuries of the muscular-skeletal system. 8 % - was observed in varying degrees of myopia and astigmatism, 6 % - diseases of the gastrointestinal tract. Students with kidney and urinary tract diseases occur in 5 % of cases, and with diseases of the respiratory system - in 4 % of cases.

Thus, the largest among students with disabilities in the state of health is a group of "A" (47%), which includes students with diseases of the cardio-vascular and respiratory systems. Group "B" (29%) forms the students with diseases of other organs (gastrointestinal tract, genitourinary system) with impaired metabolic processes, with myopia.

Students with diseases and injuries of the muscular-skeletal system, osteochondrosis, scoliosis, flat feet make up the group "B" (24 %).

Discussion. The specificity of the educational process of this contingent of students is determined by the number of features. The most important of them - the stiffness and self-absorbed, a large discrepancy between the amount of technical information, the level of physiological state, low motivation to physical training. Sure, the physical capabilities of these students are severely limited, however, most of them are recommended physical exercise and therapeutic physical culture.

According to the results of our studies, students with diseases of the cardio-vascular system account for 43 % of all students involved in special medical group. The most common diseases are hypertension, hypotension neurocirculatory acquired

heart defects.

Characteristics of exercise facilities at the major diseases of the cardio-vascular system of the students are shown in table 1.

Table 1.

Systematization of physical education classes for diseases of the cardio-vascular system in students

Characterization	Disease		
	hypertension	neurocirculatory hypotension	acquired heart valvular disease
Objectives training	Improve peripheral circulation and blood flow in the coronary system, strengthening of redox processes in the myocardium		
Fixed assets training	breathing exercises, exercises for coordination, balance, dosed walking, even running at a slow pace, walking skiing, swimming, hiking, boating	breathing exercises, relaxation exercises, with items from wall bars, at the gym, walking, walking skiing, cycling, outdoor games, the elements of sports, swimming, boating	Coordination exercises, the reaction rate
Contraindications	Exercises that require maximum stress, exercise, requiring intense concentration and continuous changes to respond to changing circumstances, shake the body, sudden movements, "deep" tendencies	Exercises with breath during the execution of power loads	exercises that place high demands on the circulatory organs and the body as a whole, increase the weight and load of the power of character with straining, neuro-emotional stress

The use of exercise in cardio-vascular diseases can involve the following mechanisms of therapeutic action: a tonic effect, trophic action of compensatory mechanisms of action and normalization functions.

Aerobic exercise improves blood flow to the nature of the heart due to the disclosure of reserve capillaries, the development of collateral circulation, activation of metabolic processes.

Exercises for small muscle groups, improve the circulation of the blood veins, acting as a muscle pump, cause dilation of arterioles, reduce peripheral arterial resistance to blood flow. Breathing exercises help the flow of venous blood to the heart by rhythmic changes in intrathoracic and intra-abdominal pressure.

In order to increase motivation for physical activities necessary to integrate different kinds of means and methods of physical fitness in the process of educating students with poor health. It is recommended to use during physical education classes with students with poor health: recreational walking and jogging, aerobics, medium and low intensity fitness program using the eastern improving gymnastics and martial arts, fitness programs, power orientation, breathing exercises, stretching, relaxation exercises (table 2).

Table2

Recommended innovative types of physical activity for students with diseases of the cardio-vascular system

№	Orientation training	Innovative types of physical activity
1	Aerobics	Low, Latina, Funk, Jazz
2	Aerobic exercise	Improving walking, recreation swimming, cycling
3	Aqua aerobics	AquaGym, AquaSwim
4	Strength training	Fit-ball, Wellness Training (Light Training), Stretching-press
5	Mind and Body	Pilates, Yoga, Fitnes - Yoga
6	Special classes	Stretching, Body Balance, Power Flex, Relax (with the use of breathing exercises, relaxation exercises)

Conclusions.

- The use of different types of fitness in the process of physical education students with poor health can only increase the motivation for holding various kinds of physical activity, but also to attach to a healthy lifestyle in order to improve the adaptation of the organism to stress students in learning and future professional activity.

- The use of exercises for cardiovascular diseases includes the following mechanisms of therapeutic action: tonic effect, trophic action of compensatory mechanisms of action and normalization functions.

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ZWIĄZKI WZAJEMNE WSKAŹNIKÓW FIZJOLOGICZNYCH I WYDOLNOŚCI FIZYCZNEJ PRZY WYKONANIU TESTU NA ERGOGRAFIE WIOŚLARSKIM SPORTOWCAMI I OSOBAMI NIETRENUJĄCYMI

Eider Paweł, Mazurok Natalija *Związki wzajemne wskaźników fizjologicznych i wydolności fizycznej przy wykonaniu testu na ergografii wiosłarskiej sportowcami i osobami nietreningowymi. Praca przedstawia zmiany fizjologiczne, takie jak tętno i kwas mlekowy, zachodzące podczas długotrwałego wysiłku wytrzymałościowego jakim był test na cykloergometrze wiosłarskim. Wykonane badania na cykloergometrze wiosłarskim na grupie 20 osób reprezentujących 4 grupy (wytrzymałościową, szybkościową, siłową, nietreningową). Wykresy korelacji i regresji pokazują, że na osiągnięte wyniki nie miał wpływ wiek oraz płeć. Największe zależności zachodziły pomiędzy kwasem mlekowym, a wynikiem sportowym, między tętnem, a wynikiem oraz pomiędzy kwasem mlekowym, a tętnem. Poziom mleczanu wpływał na motorykę mięśni powodując dyskomfort w pracy, a w niektórych przypadkach również ból, co przekładało się na gorszy wynik sportowy. Większy poziom tętna spowodowany był podwyższonym poziomem kwasu mlekowego. Wyższa szybkość skurczów serca spowodowana była również koniecznością dostarczenia większej ilości tlenu do zakwaszonych mięśni oraz wyrzucenia z organizmu dwutlenku węgla.*

Hasła kluczowe: sprawność fizyczna, wysiłek fizyczny, wydolność, wytrzymałość fizyczna, kwas mlekowy, tętno.

Eider Paweł, Mazurok Natalija. *Interrelations between physiological and physical performance indicators during the rowing ergography test for athletes and untrainers. In this article shows physiological changes such as heart rate and lactic acid, occurring during prolonged endurance exercise which was test on rowing ergometer. After analyzing the literature to define the concepts of physical fitness, endurance and physical strength, lactic acid and delayed muscle pain syndrome, have done research on the ergometer rowing on a group of 20 people representing four groups (endurance, speed, strength, non-training). Knowledge of fatigue, relaxing effect on the body and physiological changes that occur during prolonged exercise, has allowed me to better analyze the results in both sports (running distance, rowing time at distances of 1 km) and drivers of change in the body (lactic acid, heart rate). Correlation and regression graphs show that in the case of this particular research group on the profit he had age and sex (the whole group are men). Depending greatest overlap between the lactic acid and the result between the heart rate and the result of lactic acid and between and heart rate. For the first correlation lactate levels affect the motility of the muscles causing discomfort at work, and in some cases pain, which translated into a worse outcome Sports (slowing of muscle). Higher heart rate was caused by elevated levels of lactic acid because the body is trying to pump out as soon as a toxic chemical from the muscles to break it down. Higher speed of the heart rate was also due to the need to provide more oxygen to the muscles and acidified ejection from the body of carbon dioxide.*

These results show clearly to the fact that:

- higher levels of lactic acid affects the profit earned Sports
- a higher heart rate affects the profit earned Sports
- higher levels of lactic acid affects the higher heart rate

Keys: fitness, exercise, endurance, physical strength, lactic acid, heart rate, delayed onset muscle soreness, strength, speed.

Ейдер Павель, Мазурок Наталія. *Взаємозв'язки фізіологічних показників і фізичної працездатності при виконанні тесту на гребному ергографі спортсменами і особами не тренуваними. Робота відображає специфіку фізіологічних змін в процесі тривалого фізичного навантаження на гребному ергометрі. Проведено дослідження на 20*