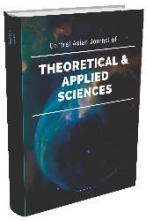

CENTRAL ASIAN JOURNAL OF THEORETICAL AND APPLIED SCIENCES

Volume: 04 Issue: 12 | Dec 2023 ISSN: 2660-5317
https://cajotas.centralasianstudies.org

Dosing of Physical Activity by Heart Rate in Physical Education Classes of Students

Turdymuratov Jengis Auezovich, Mamutov Islam Urgenishbaevich
Karakalpak State University

Received 14th Oct 2023, Accepted 16th Nov 2023, Online 29th Dec 2023

Abstract: *The study of the activity of the cardiovascular system (CVS) occupies the main place in the complex of examinations of students during physical education and sports. This is explained by the fact that by the nature of its adaptive shifts, determined during dynamic observations at rest (long-term adaptation) and in response to physical activity (urgent adaptation), one can judge the functional state of not only the cardiovascular system, but also the body as a whole.*

Keywords: *anthropometric indicators; adaptive capabilities of the body; arterial pressure; physical education; physical development; functional capabilities of the body; physical health; Martinet's test; heart rate.*

Studying the effectiveness of dosing physical exercises and their impact on improving the functional state of the cardiovascular system (CVS) of students during different periods of study is important for assessing their health status, ways to increase the level of their physical fitness and performance throughout the entire period of study at the university.

In the literature available to us, there are no clearly developed recommendations on how to dose physical activity in study groups for physical education of students. The question is not clear which physical exercises best characterize the physical activity of the body and contribute to increasing the level of its performance [1,2,5].

This paper describes a method for determining the dosage of physical activity based on heart rate (HR) at different stages of training, as well as during examination sessions.

Registration and testing of functional indicators of the cardiovascular system were carried out according to generally accepted methods, using standard equipment. At the beginning (in September) of the school year, we recorded the following indicators: heart rate (HR, beats/min), systolic, diastolic, pulse blood pressure (BP, ABP, ADP mm Hg), heart rate recovery time after 20 squats Martinet test (PM, s) endurance coefficient (EF, conventional units) [7; 8].

To determine the effectiveness of dosing physical activity based on heart rate, it is necessary to keep in mind that “familiar” movements repeated a large number of times can give a training effect only if they are performed with a relatively high intensity. This can be explained by the fact that when performing

habitual movements, not the entire muscle group is included in the work, but only the part necessary to perform a certain movement. The body performs all movements economically [6].

Apparently, to obtain the greatest training effect in the educational process, it is necessary to apply physical activity of varying magnitude [4,5]

To achieve this goal, a pedagogical experiment was organized. 153 1st-4th year students took part in the experiment (1st year - 35, 2nd year - 42, 3rd year - 44, 4th year - 32 people). During the period of relative rest, heart rate was recorded at rest, in a supine position, immediately after sleep for 15 s, and during the educational and training process - after the end of the main part of the lesson.

As a result of the experiment, it was found that the average heart rate of 1st year students was 72.8 beats/min, 2nd year - 76.6, 3rd year - 77.7, 4th year - 78.3 beats/min .

The increase in heart rate can obviously be explained by the fact that psychophysiological fatigue increases from course to course [3]. To confirm our assumptions, an additional experiment was conducted, which consisted of determining the endurance coefficient (EF), which characterizes the state of the cardiovascular system:

$$CV = \frac{\text{Heart rate} \cdot 10}{\text{ADmax} * \text{ADmin}}$$

where ADmax, ADmin are the maximum and minimum blood pressure, respectively. The measurement was carried out before and after physical activity. Normally, the endurance coefficient is 16. A decrease in it indicates an increase in the activity of the cardiovascular system, an increase indicates a weakening [3]. Experimental data indicate that at the beginning of the semester the average CV was 15-20, in the middle - 11-15 and during the examination session - 18-30. However, an increase in CV during the examination session is associated with a weakening of the CVS activity and mental fatigue. 128 people participated in the main pedagogical experiment. The students were divided into two groups: I experimental, II control, 64 people in each.

In the experimental group, physical activity in the main part of the training session was selected so that the heart rate gradually increased by the middle of the semester and amounted to 180-190 beats/min. By the end of the semester, physical activity in classes was gradually reduced to a heart rate of 125-135 beats/min. In the control group, classes were conducted according to the usual method, where the heart rate after the main part of the class was 150-170 beats/min. When resting heart rate was re-registered at the end of the semester, it decreased by 8-12 beats/min in group I students, and by 2-3 beats/min in group II students.

When measuring CV, this indicator in group I was 11-17, in group II 15-22, during the examination session - 14-20 and 20-25, respectively.

As a result of the pedagogical experiment, the psychophysiological state and level of physical fitness and performance of students in the experimental groups increased significantly compared to the control groups. This was confirmed when students passed the test standards.

Analysis of the data obtained showed that girls have a slightly worse functional state of the cardiovascular system than boys. The guys have slightly better functional indicators of the cardiovascular system and indicators characterizing the body's endurance and fitness. Their indicators correspond to a satisfactory level.

The study and analysis of the data obtained showed that girls have a low functional state of the cardiovascular system. When organizing the process of physical education with female students, it is necessary to avoid targeted strength and speed-strength loads; the main work should be in an aerobic

mode. Girls can tolerate physical activity well, but they are poorly trained and their performance indicators are reduced. Optimization of students' physical education should be aimed at increasing the functional capabilities and fitness of the body. Therefore, the process of physical education for both those and others should be aimed, first of all, at developing endurance indicators, adapting the body to gradually increasing physical activity and increasing the level of fitness and performance of the body's functional capabilities. Only after this can you increase the intensity of the physical exercises used and introduce strength, speed-strength and speed exercises into the educational process. So, on average, the heart rate of senior year students increases due to the deterioration of the psychophysiological state of the body. Dosing physical activity in classes with a gradual increase in heart rate after the main part of the lesson to 180-190 beats/min or more, followed by a decrease towards the end of the semester, helps to increase physical fitness and improve the psychophysiological state of the students' body.

Physical exercises by the end of the semester and during the examination period should be more varied, playful in nature and have a relatively low intensity.

LITERATURE

1. Половников П.В. Организация занятий студентов по дисциплине «Физическая культура»: учебное пособие / П.В. Половников. - СПб.: СПбГТУ, 1996.
2. Михайлов В.В., Минченко В.Г. Распределение тренировочной нагрузки в годичных циклах подготовки спортсменов // Теория и практика физ. культуры. 2008. № 3. С. 23-26.
3. Нилолец М.Н., Панюшкин В.П. Средства физической культуры в регуляции психического состояния человека // Теория я практика физической культуры. 1983. № 8. с. 34.
4. Матвеев Л.П., Михайлов В.В. Спортсменам о спортивной форме. М., 1982.
5. Д.М. Аронов. Сердце под защитой. Москва. Журнал "Физкультура и Спорт". 1985
6. Боген, М.М. Обучение двигательным действиям / М.М. Боген. - М.: ФиС, 1996.
7. Киеня, А. И. Здоровый человек: основные показатели / А.И. Киеня, Ю.И. Бандажевский. - Минск: ИП «Экоперспектива», 1997. - 108 с.
8. Медведев, В. А. О критериях оценки функционального состояния учащейся и студенческой молодежи / В. А. Медведев, В. А. Коледа // Физическая культура: воспитание, образование, тренировка. - Минск, 2000. - С. 78-86.