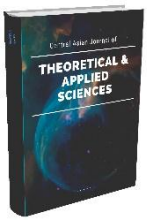

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Modern Problems of Research of Cardiodynamics in Female Athletes and Non-Athletes in the Conditions of the Republic of Karakalpakstan

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Abstract: *In this article, in the conditions of the Republic of Karakalpakstan, the data on the functional state of the cardiovascular system, the duration of the heart cycle, and the frequency of heart contractions of female athletes and non-athletes were analyzed and determined.*

Keywords: *Republic of Karakalpakstan, athlete, non-athletes, heart, cardiovascular, functional status, cardiac cycle, heart rate, bicycle ergometer, functional activity, systolic arterial pressure, diastolic arterial pressure.*

Introduction. Today, increasing the physical and functional capabilities of the body based on physical training, developing a health program for extreme natural climatic conditions, and researching their theoretical and scientific foundations are urgent issues. Also, today, lack of movement, improper, i.e., excessive nutrition leads to imbalance in the functional development and morphometric indicators of the body, and the health of the body decreases. Accordingly, the development of measures to increase the morphofunctional, physical and functional development indicators of the organism in extreme conditions is of great practical importance.

In recent years, scientific research has been conducted in the world on the assessment of the adaptive possibilities of individual development of the organism of a regular sportsman in the rapidly changing natural climatic conditions, the level of functional activity and the morphofunctional indicators of the organism. In this regard, among other things, it is important to determine the functional indicators of the organism depending on different climatic conditions and functional conditions, to scientifically substantiate the positive effects of physical training on the characteristics of adaptation in adverse climatic conditions, and to develop measures to improve the indicators of physical development and adaptation to the effects of adverse environmental factors in extreme regions. attention is paid.

In recent years, in our republic, special attention has been paid to the development of comprehensive measures and the implementation of the achieved positive results in the research of the impact of the level of movement activity on the physical development and vegetative indicators of student athletes. In this regard, in the Aral region of our country, specific results are being achieved in terms of adaptation of the body of student athletes to the adverse environmental factors of the external environment and improvement of physical development indicators.

Material and research methods. The characteristics of the athlete and non-athlete contingent of students observed in the Republic of Karakalpakstan are presented in the table. 143 healthy female students of the Karakalpak State University aged 18-21 years participated in the study.

Distribution of those who passed the examination by age groups.

Age, Years	Student athletes	Not doing sports student girls
18	16	18
19	17	22
20	16	20
21	16	18
жами	**n=65**	**n=78**

Students were examined in 2 groups. The first group consisted of 65 female athletes studying in the "Physical Culture" specialty, and the second group - 78 non-sporting humanitarian female students.

In order to assess the functional state of the cardiovascular system, the heart rhythm was analyzed using a rhythmocardioscope using the method of cardiointervalography. Arterial blood pressure N.S. It was measured by Korotkov's auscultatory method. The duration of the heart cycle - heart rate - was determined using the electrocardiographic research method (ECG). Heart rate was measured at rest, arterial pressure was measured at rest and during exercise. Physical activity was performed for 10 minutes on a LifeFitness C3-5 bicycle ergometer (Hungary) at a speed of 35 km/h and dosed at 3.3 W per 1 kg of body weight. In order to monitor the cardiovascular functional status of students under the influence of physical activity and exclude the influence of stress factors, it was conducted in the physical education classes of the first academic semester at the same hours and days of the week between classes. Registration of hemodynamic indicators was carried out in 3 stages: 10 minutes before exercise (normal), 5 and 15 minutes after it (recovery period).

The analysis of physiological processes in the circulatory system was carried out on a 3-channel electrocardiograph manufactured by "Biolight Guangdong" (2013). All the obtained data were processed by statistical methods with the help of Microsoft Excel, STATGRAF programs from computer technologies.

Results and its discussion. The maximum value of heart rate indicators was observed in 20-year-old student athletes (70, 85 beats/min), and the minimum value was observed in 21-year-olds (70,10 beats/min). Among female students who do not play sports, this indicator was recorded at the maximum age of 20 and 21 years (73, 56 and 73, 75 beats/min), and the minimum level at the age of 18 (73, 08 beats/min).

In our opinion, the decrease in heart rate in athletes in this case compared to students prevents "stretching" of the myocardium and is important for improving health.

Arterial blood pressure (systolic, diastolic) readings were taken in all examined young people at rest and during exercise. The analysis of systolic arterial pressure indicators in student athletes at rest showed that the highest values were recorded at the age of 20-21 years (116.8 mm Hg and 116.0 mm Hg, respectively). Female students who do not play sports also have the highest systolic arterial pressure values in older age groups (respectively 115.7 mm Hg). The minimum values of systolic arterial pressure in age groups (18 and 19 years old) in all examined girls (athletes 111.6 mm Hg and 112.8 mm Hg and non-athletic students 112.8 mm Hg and 113.7 mm Hg above) was recorded. After physical loading, the

maximum SAB indicators in student athletes were recorded at the age of 19 years (143.64 mm Hg). At the age of 20 and 21, they were almost at the same level (141.43 and 141.06 mm Hg).

The lowest indicator after physical activity was observed in 18-year-old student athletes (136.75 mm Hg). The highest level of resting DAB was recorded at 19 years of age (75.35 mm Hg), and in 20-21-year-old female athletes, DAB indicators at rest were 73.31 mm Hg, respectively. and was 72.75 mm of mercury column. The minimum indicator corresponded to 18-year-old student athletes (70.68 mm of mercury). The analysis of DAB indicators in girls who do not do sports showed a gradual increase with age. The minimum indicator corresponds to the 18-year-old group (68.94 mm Hg), and the maximum indicator was observed in 21-year-old female students (71.61 mm Hg).

The results of the study showed that the arterial pressure indicators (at rest) in students who do not play sports were significantly lower than in sports students. General clinical blood tests are one of the most important diagnostic methods in assessing the physiological state of the body and reflect the reaction of hematopoietic organs to the effects of various physiological and pathological factors on the body. Studying the parameters of peripheral blood in 18-21-year-olds, it was found that the quantitative indicators of blood are within the physiological norm, characterized by heterogeneous distribution, and have some age-sexual characteristics.

Conclusions.

1. From the cardiohemodynamic indicators of sportsmen and non-sports students of all studied age groups, it was found that the average SAB is 114.3 and 114.47 mm Hg, respectively, and these indicators are within the norm.
2. Due to the fact that the heart muscles of students who regularly play sports are relatively well developed, it was found that the number of heart contractions in female athletes is 4.2% lower in accordance with their functional activity and physical capabilities.
3. The recovery time after physical exertion of female students who regularly played sports was 6.75 minutes on average, and 22.25 minutes for those who did not play sports, which is due to the relatively short duration of recovery processes in athletes, the cardiohemodynamic characteristics of the body, the functional state of the body and other factors. Indicates rapid development of physiological processes.

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