

SOME FUNCTIONAL INDICATORS OF PHYSICAL DEVELOPMENT OF SPORTS COLLEGE STUDENTS

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Аннотация: Бола организми мураккаб ўзини бошқарувчи тизим ҳисобланади. Унинг ривожланиши ирсий дастур ва ташқи муҳит омилларининг таъсири остида амалга ошади. Ёшлик даврида организм оптимал функционал ҳолатининг тўғри шаклланиши етуклик ва қариллик даврида мустақкам соғлиқнинг асоси бўлиб хизмат қилади.

Калит сўзлар: организм, спорт, юрак-қон томир, жисмоний, чиникиш, ўпканинг тириклик сифими.

Абстрактный: Организм ребенка – сложная саморегулирующаяся система. Его развитие происходит под влиянием генетической программы и внешних факторов среды. Правильное формирование оптимального функционального состояния организма в молодости служит основой крепкого здоровья в зрелом и пожилом возрасте.

Ключевые слова: организм, спорт, сердечно-сосудистая, физическая, тренировка, емкость легких.

Abstract: The child's body is a complex self-regulating system. Its development takes place under the influence of genetic program and external environmental factors. The correct formation of the optimal functional state of the body during youth serves as the basis of strong health during maturity and old age.

Key words: organism, sport, cardiovascular, physical, training, lung capacity.

Currently, our state is paying special attention to the physical training of the population, especially the youth. Therefore, studying the adaptation of the cardiovascular system to the effects of physical loads is one of the urgent problems of sports physiology. The circulatory system is of particular importance in the delivery of atmospheric oxygen to working muscles and organs. Under the influence of regular physical training, adaptive functional changes develop in the work of the cardiovascular system, and morphological changes occur in the blood circulation apparatus and some internal organs. Such changes increase the physical capacity of the athlete's organism and allow to perform fast and continuous physical loads [4, 3, 5, 6]. When evaluating the level of fitness of athletes, the rate of functional and biological development of the body is taken into account along with somotometric indicators [1]. It is important to monitor the number of heart beats, arterial blood pressure, vital capacity of the lungs, hand dynamometry from the functional indicators.

The objects of observation were 13, 14, 15, 16, 17, 18-year-old students engaged in boxing at the Andijan sports college and control groups, and students of general education school and academic high school were involved. In the observation groups, the vital capacity of the lungs,

the number of heart beats, and the blood pressure of 25 boys were measured. The obtained results were analyzed mathematically.

In the conditions of sports activities, a large load is placed on the external respiratory system of the body. Indicators of the external respiratory system ensure the efficiency of the cardiorespiratory system. Pulmonary ventilation is the main indicator of the functional state of the external respiratory system. It is determined by the amount of air passing through the lungs in one minute. The pulmonary ventilation index is determined by the number and depth of breathing movements. In order to determine the maximum depth of breathing movements, the indicator of the vital capacity of the lungs is used. The vital capacity of the lungs consists of breathing air, additional and reserve air. After determining the size of the living capacity of the lungs, it is possible to know approximately the maximum volume of breath air and determine the efficiency of lung ventilation.

The vital capacity of the lungs is the main indicator that determines the functional state of the external respiratory system [2]. Its size depends on the size of the lungs and the strength of the respiratory muscles. During maximum aerobic work, breath air reaches the level of 50-55% of lung capacity. It is known that the greater the amount of breathing air, the more efficient the consumption of oxygen by the body, on the contrary, if the amount of breathing air is small, the number of breathing movements increases, and a certain part of the oxygen consumed by the body is used for respiratory muscle activity.

The analysis of the results obtained during the follow-up showed that the vital capacity of the lungs increased with age in both groups of students. Yearly increase differences are statistically significant ($R < 0.05$). However, the lowest annual growth was observed in the age group of 15-16 years, both among sportsmen and schoolchildren.

It was found that the average scores of sports students were higher than those of non-sports students in all age groups, and these differences were statistically significant ($R < 0.05$).

Later, the "life index" of the students was calculated based on the living capacity of the lungs and body weight, and its dynamics during the youth period were observed. From the analysis of "life index" indicators of students, it was found that the indicators of 13, 14, and 15-year-old athletes and schoolchildren are higher than the indicators of 16, 17, and 18-year-old students. This phenomenon can be explained by the violation of mutual compatibility in the development of the motor system and the respiratory system. A decrease in the amount of air in the living capacity of the lungs in relation to one kilogram of body weight indicates that the living capacity of the lungs does not increase in accordance with the increase in muscle mass in students.

The number of heartbeats is the most unstable indicator of the cardiovascular system. Under the influence of regular sports training, the number of heartbeats at rest decreases [1]. When evaluating the number of heartbeats at rest, it is necessary to take into account its dependence on age and physical activity.

From the obtained results, it was found that the average heart rate of athletes was 1.8 to 2.3 beats per minute less than that of schoolchildren in all age groups. These differences are

statistically significant ($P < 0.05$). The highest number of heartbeats was observed in 13-year-old schoolchildren (80.4 ± 0.4), and the lowest in students of the 3rd stage of the sports college (71.2 ± 0.69).

Regular exercise increases the effect of the stray nerve on the heart, leading to a decrease in the number of heartbeats [7]. In this case, the body's demand for blood is satisfied due to the increase in the systolic volume of the heart. At the same time, the high number of heartbeats in students who do not do sports indicates a high demand for oxygen of the myocardium at rest.

In our opinion, the lower number of heartbeats in athletes compared to students who do not play sports protects the heart myocardium from "deterioration" and has an important health-improving value.

Arterial blood pressure of pupils is considered an important integral indicator of the cardiovascular system and has a relatively constant value. The study of arterial blood pressure is important in assessing the fitness index of athletes, in determining the condition of the body before and after the disease.

The magnitude of arterial blood pressure depends on many factors, among which the systolic volume of the heart and the importance of peripheral resistance to blood flow are important.

According to literature, arterial blood pressure increases with age [1,7]. Arterial blood pressure indicators (systolic, diastolic) at rest increase with age in all age groups, in athletes and non-athletes. The greatest annual increase (3.8 mm.s.u) in sportsmen was observed between 18 and 19 years old, and the largest increase (3.3 mm.s.u.) in schoolchildren was observed between 14 and 15 years old.

Overall, systolic blood pressure increased by 11.8 mmHg in both the observation group and the control group during the follow-up period.

Diastolic pressure also increased with age. The annual increase was the highest (3.5 mm.s.u.) among student athletes between 17 and 18 years of age. Among schoolchildren, the greatest increase in minimum pressure (3.2 mm Hg) was observed between 15 and 16 years of age. A sharp increase in blood pressure indicates that the body of a teenager has turned into an adult body. In general, it was found that systolic and diastolic pressure indicators were higher in athletes than in control students at all ages. The observed differences were statistically significant ($R < 0.05$).

Thus, the positive changes in the activity of the oxygen transport system joints in sportsmen compared to students who did not play sports are at the level of a statistically inevitable difference.

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