

Characteristics of Physical Development of High School Students Under Reform Conditions

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ABSTRACT

In this article, we look at physical fitness, which is an important aspect of student health and development. It helps them improve their physical fitness, and develop coordination and endurance. This study examined the effectiveness of a system of classes using experimental and traditional methods of physical training for 9th-grade students. To conduct a study of students' physical fitness, gender characteristics were considered. This allowed scientists to get a more accurate picture of the state of physical fitness of students of different genders.

KEYWORDS: *physical development, physical activity, high school.*

Introduction. The modern educational system faces many challenges related to reform. One of the important aspects is the physical development of high school students. And now we will analyze the main characteristics of the physical development of these students in the context of changes occurring in the educational system.

The first thing to consider is the level of physical activity of high school students. The opportunity to participate in physical education activities and sports competitions plays an important role in not only the development of physical activity but also in the formation of a healthy lifestyle and the strengthening of psychological well-being. Therefore, one of the key points of reform should be the introduction and development of programs that promote the active participation of students in physical education and sports.

The next important aspect of the physical development of high school students is proper nutrition. During adolescence, the body is in the process of intensive growth and development, so it is necessary to provide it with all the necessary micro- and macro elements. Unfortunately, in the context of education reform, there is often a deterioration in nutrition in school canteens, which can negatively affect the physical development of high school students. Therefore, it is important to develop and implement programs aimed at improving the quality of nutrition in school institutions.

Problem

One of the main problems associated with the physical development of high school students is the lack of physical activity. A sedentary lifestyle and excessive time spent in front of electronic devices can lead to decreased physical activity and various health conditions. Therefore, it is very important to study the current situation and find ways to solve it.

One of the pressing issues is the restoration and development of the sports base of educational institutions. The lack of modern sports facilities and equipment can become an obstacle to the physical development of students. Therefore, an important step in reforming education is the allocation of funds for the creation and modernization of sports facilities, the creation of conditions for sports, and physical activity, and the development of methodological recommendations.

The study of the physical development of high school students under reform conditions is of great importance for the practical activities of teachers, healthcare, and society as a whole. The results of

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such studies can be used to determine optimal programs for physical education, health correction, and the formation of a healthy lifestyle for high school students.

Research on this topic

There are many studies on the physical development of high school students. For example, a study was conducted among students from schools No. 100 and No. 24. This study examined physical activity levels, health status, and anthropometry (height, weight, chest circumference, dynamometry, etc.). Students from school No. 100 studied using an experimental method, while students from school No. 26 studied using a traditional method. The total number of subjects was 34 people. When conducting complex studies, the following methods were used: anthropometry (measurement of chest circumference, body length, and weight); and hand dynamometry. Also, the results were recorded in running 60m, 1000m, standing long jump, pulling up on the crossbar, and bending and straightening the arms while lying down. To assess the degree of correspondence between the weight of the subjects and their height, the body mass index (BMI) was calculated.

Another study was conducted at two schools in Novopolotsk (Vitebsk region of Belarus) among students in grades 5–11. 498 students took part in the study. Testing was carried out according to the following criteria: speed, endurance, flexibility, strength endurance, speed-strength, and coordination abilities.

Comparison

The average length and weight of students do not have a statistical difference ($x=173.8\pm 4.1$ cm and $x=175.9\pm 4.1$ cm with $P>0.05$), this indicates the homogeneity of the control and experimental groups. The resting heart rate in boys from school No. 100 averaged ($x=73.5\pm 2.6$ beats/min). This indicator is significantly lower than that of students at school No. 26 ($x=77.3\pm 4.3$ beats/min) at $P<0.05$ indicators in the 60 and 1000 m running ($x=9.3\pm 0.5$ s, $x=8.7\pm 0.3$ s and $x=4:15\pm 15.0$ min.s, $x=4:00\pm 16.5$ min .s respectively, at $P<0.05$).

It is also necessary to highlight the statistical significance of the differences in the average chest circumference during inhalation, exhalation, and during pause. This suggests that the young men in the experimental group are actively developing the external respiration apparatus, the vital capacity of the lungs is increasing and, as a consequence, this leads to an increase in the circumference of the chest.

In strength standards (pull-ups on the bar and wrist dynamometry), no statistical differences were found ($x=7\pm 1.5$ times and $x=8\pm 1.4$ times with $P>0.05$ in pull-ups) and ($x=33.2\pm 2.6$ kg and $x=34.6\pm 3.0$ kg at $P>0.05$ in hand dynamometry).

The results of the second study of control standards show that among boys of middle and high school age, training loads have the most noticeable effect on improving the results of certain exercises. For example, in the 7th grade the greatest increase in results is observed in the exercise “bending forward while sitting on the floor”, in the 8th grade - in the “shuttle run at a distance of 4 to 9 meters”, and in the 5th grade - in the “jump” standing length" and "1500 meters run". Also, a significant influence of training loads is observed in the exercise “pull-ups on a high bar” in the 7th grade and in the “30-meter run” in the 7th-8th grades. This is explained by the fact that the most intensive growth in boys occurs at the age of 13-14 years when their body height increases by 7-9 centimeters per year. During this period, there is also an intensive increase in muscle mass. It is noted that during puberty (from 11 to 14 years), lung volume approximately doubles, and minute respiratory volume and vital capacity (VC) increase significantly. For example, in boys at the age of 12 years, vital capacity is about 1970 ml, and by the age of 15, it reaches 2600 ml. Thus, training loads have the greatest impact on the physical development of boys in middle and high school age, especially during the period of intensive growth and development of the body. This confirms the need for systematic physical training and sports to maintain and improve the physical fitness and health of boys.

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By comparing research data, it is possible to identify changes in the physical development of high school students over time. For example, changes in physical activity levels or the impact of new training programs on health outcomes can be analyzed. Such a comparison will help assess the effectiveness of reforming the educational system and offer recommendations for further improvement.

Conclusion. It can be said that the physical development of high school students is one of the key aspects of the educational process. In the context of educational reform, it is necessary to pay due attention to this area, introduce programs for active participation in physical education and sports, provide proper nutrition, and create a sports infrastructure for the development of physical activity among high school students. This approach will not only improve the physical condition of students but also promote a healthy lifestyle and improve their overall academic performance.

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