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Research Article

DESCRIPTION OF PHYSICAL DEVELOPMENT INDICATORS OF PRIMARY CLASS BOYS OF ANDIJAN REGION

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ABSTRACT

The processes of growth and development of the organ system at different ages of the organism are of particular importance. The level of growth is significant, and obvious differences in the morphological and physiological indicators of the organism are noticeable at the junior school age. It is of great importance to study some indicators of morphological physical development and health indicators of elementary school boys. In this article, the indicators of physical development of primary school children of the 5th general school in Kurgantepa district of Andijan region were taken and statistically analyzed. Based on the obtained results, relevant suggestions and conclusions are given.

KEYWORDS

Laws of growth, physical development, indicators, adaptation, growth dynamics, individual development, statistical analysis, level of inevitability.

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INTRODUCTION

One of the bio-socially important stages of the ontogenesis of the human organism is childhood, during which a large number of serious changes take place in the morpho-functional systems of the organism. It is also noted that in this age period, in connection with the beginning of the educational process of a systematic description at school, the effect of a new type of stress factor occurs. In particular, in most cases, it is noted that innovative technologies introduced into the educational system in secondary schools at the stage of modern development, the complex structure of lesson programs do not correspond to the functional capabilities of the children's organism.

The response reaction of the morpho-physiological systems of the human body to the influence of various endogenous/exogenous factors is directly determined by the somatotypological characteristics of the organism depending on the physiological age. In particular, indicators of the physical development of the child's body are important as a reliable marker of the successful implementation of adaptive capabilities under the influence of various factors [Chub, 2013; p. 3].

In scientific studies conducted in many countries of the world, the optimal development of the level of physical activity of students requires taking into account the individual characteristics of schoolchildren depending on their physiological age when organizing physical education classes. In the conducted studies, it is possible to determine the decrease in the activity of the musculoskeletal system, the main functional systems of the body of children and adolescents under the influence of the decrease in the level of physical activity and, in turn, the increase in the level of susceptibility to various diseases. Determining age and gender-related specific characteristics of elementary school students at the level of physical development, evaluating their physiological changes based on the indicators of the morpho-functional system, are considered as promising directions of current research. Therefore, in determining the health of elementary school students, analysis based on indicators of physical development and preparation, development of a complex of medical-pedagogical correction, preventive measures acquires important scientific and practical importance.

Monitoring of physical development is also relevant from the point of view of determining the level of development of the children's body of different ages, as well as allowing timely recording of deviations from the standard level and implementation of appropriate corrections. [Antonova A.A., 2012; pp. 26–29; Kirilova I.A., 2017; p. 5].

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Research materials and methods:In studies, measuring the height of students (cm) using a stationary height measuring device (GOST 16371–93, 19917–93) is a standard method [Erenkov V.A., 1984; pp. 10–336; Safronov A.A., Arislanov I.T, 2013; pp. 455–458; Pilkevich N.B, 2013; 30 p.], i.e., the test subject was placed in a standing position on a special platform with the soles of the feet paired and the body upright, the shoulders in a straight position, the hump and the shoulder blades touching the middle of the device. In this case, attention was paid to the fact that the body's heel, buttock, chest area and the back of the head touch the measuring column, and the eye area and the lower part of the upper ear are located in one plane. The head is held in an upright position facing forward, The sliding special board of the measuring device is lowered until it touches the top of the head and the value (cm) is recorded [Muratova I.V., 2009; pp. 59–61].

Body weight measurement (kg). In researches, the body weight of elementary school students was measured using a medical scale (TU 9441–004–00226425–2005) using a standard method [Rakhimov M. I., 2011; pp. 10–336; Korobko R.P. 2002; pp. 455–458; Karakeeva G.J., 2012.; p. 30; Nechaev M.P., 2001; 3–24 p.], that is, the body weight of the student under test was determined by weighing on a medical scale in the state of taking off his clothes except his underwear (the accuracy of the measurement is ±50–100 g).

Measurement of the length of the chest circumference (cm) - standard method [Rakhimov M. I., 2011; pp. 10–336; Korobko R.P., 2002; pp. 455–458; Karakeeva G.J., 2012; p. 30], in which the value of this indicator was measured in a student under test using a centimeter measuring tape (GOST R 50444–92) in the state of rest, maximum inhalation, maximum exhalation. In this case, the chest circumference (cm) of students was measured in a standing position, with arms lowered along the side of the body, at the level of the sternum line (measurement accuracy is ±0.5 cm) [Pustozerov A.I., Gostev A.G., 2008; pp. 7–14;].

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Figure 1. How to measure chest circumference (cm) using a centimeter measuring tape.

Measurement of hand strength(kg). In order to determine the level of physical development in elementary school students, the value of hand strength (kg) was determined using the dynamometry method].

Figure 2.Measuring hand strength (kg) in elementary school students using a dynamometer (DPR-30).

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In the experiments, hand strength was measured using a dynamometer device (DPR-30, "Kodex", Russia) while the subject was standing, the hand being measured was bent at an angle of 90° to the body, and the other hand was lowered. In this case, the measurement was repeated 3 times in each hand, and the largest value was recorded

The obtained results and their analysis:The obtained results are the following L.V. Denisova et al. (2008) mathematical-statistical processing using methods [Albitsky V.Y.; pp. 125–459; Bakanov I.M., 2008; pp. 5–312; Anisimova E.A., 2014; pp. 7–127; Korobko R.P., 2002; pp. 455–458].

The results are presented in the form of M ± t of the results of the experiments carried out in p repetitions, where M is the arithmetic mean value and t is the standard error value.

Also, the statistical reliability level of the values between the experimental results was calculated based on the Student t-criterion and was evaluated as statistically reliable at values of r<0.05, r<0.01. The confidence level of the difference between the values of two age groups was calculated according to the Student test, using the following formula:

At the initial stage of the observations, in the general education schools where the experiments were conducted, the analysis of the physical development level indicators was carried out based on the values of the basic anthropometric indicators of the primary school students (7-10 years old) - body weight (kg), height (cm) and chest circumference (cm). In our monitoring work, the indicators of physical development of elementary school boys (7-10 years old) of general education school No. 18 in Ulug'nor district of Andijan region were studied. A total of 66 healthy and voluntary boys were included in the observation.

Analysis of the obtained results. In our observations, among the indicators of physical development, body weight, height, chest circumference (at rest, in front of the mammary glands when taking a deep breath and exhaling deeply), indicators of the maximum contraction force of the finger muscles were studied and statistically analyzed, and the results were as follows.

Table 1

Values of some anthropometric indicators (M±m) of elementary school students (ages 7-10) of elementary school No. 17 in Ulug'nor district of Andijan region

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Anthropometric indicators	Boys (n=73)			
	7 years old (n=19)	8 years old (n=21)	9 years old (n=16)	10 years old (n=17)
Body weight (kg)	20.4±0.2	22.7±0.2	24±0.3*	25.7±0.5**
Height (cm)	116.4±4.6	121.5±6.2*	129.6±3.9**	132.3±5.4**
Chest circumference (cm): at rest;	56.3±0.5	57.5±0.3	61.7±0.6*	68.6±0.6
in the maximally inhaled position;	60.5±0.4	62.6±0.5	65.4±0.5*	72.4±0.7**
in maximally exhaled position	54.6±0.5	55.8±0.4	60.3±0.4*	65.4±0.5*
Hand strength (kg): right hand;	6.2±0.0.1	8.8±0.0.3	10.4±0.0.1	11.3±0.0.4*
left hand	6.1±0.0.1	7.5±0.0.2	9.4±0.0.3	10.8±0.0.3*

Explanation: represents the level of statistical reliability of the difference between the values in the age range of 7-10 years (* – r<0.05; ** – r<0.01).

The average body weight of elementary school students is 20.4±0.2 kg at the age of 7, 22.7±0.2 kg at the age of 8, 24±0.3* kg at the age of 9, 25.7± at the age of 10 It was found to be 0.5** kg.

The rate of growth of the body weight indicator in schoolchildren at the age of 7-10 was a total of 5.3 kg. It was found that 2.3 kg and 8-9 years of age increased by 2.3 kg and 9-10 years of age by 1.7 kg.

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The average height of primary school children is 116.4±4.6 cm at the age of 7, 121.5±6.2 cm at the age of 8, 129.6±3.9 cm at the age of 9, 132.3 at the age of 10. It was found to be ±5.4 cm.

It was found that the growth rate of height indicators at school was 15.9 cm in the age range of 7-10 years, 5.1 cm in 7-8 years, 8.1 cm in 8-9 years, 2.7 kg in 9-10 years.

The length of the circumference of the chest (opposite the mammary glands at rest) was determined in the next part of our observations. In this case, the average indicators of the length of the chest circumference at rest in schoolchildren at the age of 7-10 years are 56.3±0.5 cm at the age of 7, 57.5±0.3 cm at the age of 8, 61.7±0.6 cm at the age of 9, 10 It was found that it was 68.6 ± 0.6 cm at age.

It was found that the rate of growth of the value of the chest circumference in schoolchildren increased by 12.3 cm at the age of 7-10, by 1.2 cm at the age of 7-8, by 4.2 cm at the age of 8-9, and by 6.9 cm at the age of 9-10.

During the observations, the average values of chest circumference during deep breathing were 60.5±0.4 cm in the 7th year, 62.6±0.5 cm in the 8th year, 65.4±0.5cm in the 9th year, and 65.4±0.5cm in the 10th year. and it was found to be 72.4±0.7cm.

Chest circumference in schoolchildren at the age of 7-10 during deep breathing. The rate of increase in the value of the chest circumference during maximum inhalation is 12.2 cm in the age range of 7-10 years, 2.1 cm in the age range of 7-8 years, 2.8 in the age range of 8-9 years. cm, and at the age of 9-10 it increased by 7 cm.

During the observations, students between 7 and 10 years of age had an average of 54.6 ± 0.5 cm at the age of 7, 55.8 ± 0.4 cm at the age of 8, 60.3 ± 0.4 cm at the age of 9, 60.3 ± 0.4 cm at the age of 10. It was 4±0.5 cm.

It was found that the rate of growth of chest circumference in schoolchildren was 10.8 cm at the age of 7-10, 1.2 cm at the age of 7-8, 4.5 cm at the age of 8-9, and 5.1 cm at the age of 9-10.

Based on the results of the research, it can be seen that the values of the anthropometric parameters (body weight, height, chest circumference) of primary school boys of school No. 17, located in Ulughnor district of Andijan region, increase linearly between the ages of 7 and 10.

CONCLUSION

The study of physical development indicators of children aged 7-10 is of great importance in determining the level of health of the growing young generation. Based on the results of our research, we can make the following conclusions.

1. Body weight indicators increase dynamically depending on age. The difference between 8-9 years old is statistically inevitable ($r<0.05$).

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2. Total height indicators are also based on the laws of growth and development and increase with age.

Differences between 9-10 years old are significant and statistically unavoidable (r<0.01).

3. It was observed that the indicators of the length of the chest circumference increased with age in all three conditions (at rest, in deep inhalation and in deep exhalation). Differences between 9-10 years of age were significant (r<0.05) in rest and deep exhalation. can be clearly seen in cases of inhalation.

4. As a result of the above analysis, it can be seen that the dynamics of growth between 9-10 years of age is clearly noticeable in all indicators. So, compared to 7-8 years old, growth and development accelerates between 9-10 years old.

Suggestion. As we continue the analysis of the obtained results and our observation work, we would suggest to continue regular research and observation work in order to find out the level of preventive health of children of junior school age.

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