

Indicators of Physical Development

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ABSTRACT

Indicators of physical development A newborn baby is distinguished by relatively short limbs, body and head size. The length of his head is 1/4 of the length of the body, and in a two-year-old child - 1/5, in a six-year-old - 1/6, in a twelve-year-old - 1/7, and in an adult - 1/8. As the age increases, the growth of the head slows down, and the growth of the limbs increases[1-3].

There is no difference in body proportions until the onset of puberty, and they appear during puberty. Three stages of variation in body height-to-width proportions can be distinguished: from 4 to 6 years, from 6 to 15 years, and from 15 to adulthood. If during pre-puberty the total height increases due to the growth of legs, then during puberty it increases due to the growth of the body (thickening of bones and growth of muscle tissue). The uneven growth of the body is manifested as follows. The height of a newborn child is 48-52 cm. In the first year of a child's life, his height grows by 25 cm and reaches 75 cm. In the second year, the growth of the body slows down and it grows by only 10 cm. In the following years (up to 6-7 years), the growth rate slows down even more. At the beginning of the junior school age, height grows by 6-10 cm, and by 8-10 years - by 3-5 cm. During puberty, the growth rate increases again, the annual growth is 5-10 cm. The greatest increase in body growth is observed in girls by the age of 12, and in boys by the age of 15[4-5]. Height growth is mostly completed by 19 years for girls and 20 years for boys.

From birth to adulthood, a person's height increases 3 times, body - 3.5 times, arms - 4 times, legs - 5 times. The growth of the body in the first year of life is associated with the increase in its mass, and its slowing down in the next period - with the activation of the processes of differentiation of cells, tissues, and organs of functional systems. Body weight changes with age

as follows. The average weight of newborn girls is 3.5 kg, and that of boys is 3.4 kg. The weight of the child increases by 600 g in the first month after birth, and by 800 g in the second month.

The weight of a one-year-old child increases three times its birth weight and reaches 9-10 kg. At the age of 2, 2.5-3.5 is added to the child's weight. At the age of 4, 5, 6, the child's weight increases by 1.5-2 kg every year. From the age of 7, his weight increases rapidly. Up to 10 years of age, boys and girls have the same weight change. With the onset of puberty, the weight of girls increases from 4.5-5 kg to 5-8 kg annually at the age of 14-15 years. Boys gain 7-8 kg from the age of 13-14, and from the age of 15 their weight exceeds that of girls. However, periods of active growth may not coincide with periods of rapid differentiation. For example, the growth of the mass of the brain and spinal cord can be almost complete by the age of 18, equal to the weight of the adult human brain, while the functional improvement of the nervous system takes a longer time[8].

Continuity of development. The processes of growth and development are determined to occur continuously and it is manifested in the changes of the organism, that is, in its renewal, in the emergence of new cells, in the complexity and improvement of functions and types of activities. The beginning of walking and the further development of motor skills, the later development of the first words and the function of speech, the transformation of a child into a teenager during puberty, the continuous development of the central nervous system and primarily the cerebral cortex, and the complexity of reflex activity - these stages of development are multifaceted and diverse continuous changes in the body. constitutes only a part.

In this case, the development of all organs and tissues occurs simultaneously with their functional improvement.

Continuous development is also observed in old age and has an involutory character. The changes that occur in the body during aging are very complex and, despite the fact that this problem has attracted great scholars since ancient times, it has not been sufficiently studied. The individuality of development can be seen in the example of a child's mental development. In some cases, this is caused by the fact that the child lags behind mentally, and in other cases, the person overtakes it relatively quickly.

In the first case, the predominance of this feature is characteristic of children of junior school age, and in the second case, it also depends on the teacher's teaching skills. In the second case, when the student surpasses his classmates, he becomes independent and self-directed and disobeys the teacher. Therefore, it is necessary to take a relative approach to the children's overachievement.

Educational work cannot be carried out without taking into account the individual growth and development of children. Children's intellectual maturity compared to their youth depends on their personal abilities and environmental conditions. Their mental and psychological development depends on the environment and educational activities of children. It should be remembered that children living in the same conditions for several years affects their personal growth.

At the same time, among children of junior school age, there are also gifted ones. These are called "wunderkinds" (magical children in German). We know that many famous people had great abilities from a young age. For example, among our great scholars, we can cite Abu Rayhan Beruni, Alisher Nawai and Abu Ali ibn Sina. Abu Ali ibn Sina was known as a famous healer from the age of 16-17. The Italian writer Torquato Tasso was declared the world's first child prodigy.

He was a student at Balon University at the age of 13. And Victor Hugo received the incentive of the French Academy at the age of 12. We can take another example of the great composer Mozart. He wrote music at the age of 4. Nowadays, such children are given great attention in our

country. Special lyceums and gymnasiums were established for them.

In the physical, mental and sexual development of children, as mentioned above, in addition to genetic factors, living conditions, work at school and high school, physical exercises, and diseases are important. In addition, weather conditions, climatic conditions, solar radiation have a great impact on their growth and development. Children grow especially fast in summer (July-August).

If a child regularly engages in physical exercises and sports from an early age, he will grow up healthy, his organs will develop harmoniously. (For example, the improvement of the child's respiratory organs has a positive effect on the development of the cardiovascular system.) Acceleration. Acceleration is the rapid development of the young generation mentally and physically. At the end of the 19th century and the beginning of the 20th century, in many countries it was found that the growth of children was accelerated, and the information about this was published in the press in 1876.

By 1935, the German scientist O. Koch called this acceleration in development acceleration. Acceleration is a Latin word and *asceles* means acceleration. Acceleration is the rapid development of the young generation, mentally and physically, compared to their previous peers. Acceleration was clearly visible in 100 years, i.e. in a century, so it was called "secular trend" in a broad sense, i.e. century trend. In the next 100-150 years, acceleration processes are observed on earth, including in Uzbekistan. The problem of acceleration in development has attracted the attention of biologists, doctors and sociologists all over the world.

Social and biological types of acceleration differ. Biological acceleration should be understood as all changes related to human biological development. It includes a number of indicators describing the morphological and functional development of a person. These changes occur in a certain social environment and are largely determined by social causes.

By social acceleration, it should be understood that the volume of children's knowledge has increased compared to that of their peers who lived 50-100 years ago. From the 20s of the 20th century, information began to appear that children aged 6-14 in Sweden, England, Germany, the United States, Japan and other countries are far ahead of their peers in their development compared to their peers who lived a hundred years ago. It was found that the height of young and middle-aged children increased by 10-15 cm, and their weight increased by 8-10 kg. This phenomenon is called the century-long increase in height and weight. In the following years, it was observed that the acceleration was more clearly manifested.

50 years ago, the maximum length of people's height corresponded to 25-26 years, while in our time, boys reach full physical maturity at 18-19 years, and girls at 16-17 years. The length of the body of newborn babies is on average 1 cm more than in the 1930s and 1940s. Acceleration also extends to later ages. When children born in 1970 turn one year old.

He is 2 cm taller than his peers born in 1900-1910. Three-year-old boys are 15.5 cm taller than in 1901-1905. From 1924 to 1961, the height of Warsaw children of this age increased by 4 cm. Seven-year-old boys were 9 cm taller in 1959 than in 1901-1905. There are many such examples. However, we must point out that in 1941, the height growth of girls stopped at the age of 20, now it stops at the age of 18, and that of boys at the age of 25, now it stops at the age of 20. The average size of the body length (in Russia, 180-182 cm in Europe) is still approaching the high index of the limits observed over the centuries, when the development efficiency has been preserved[4-8].

The increase in the mass of the *gavda* is also attracting attention. An increase in growth in height will inevitably lead to an increase in mass. At the same time, the increase in mass is greater than the increase in height. It can be said that the weight gain of a newborn baby is a consequence of the lack of rationality in pregnant women. One-year-old children are 1.5-2 kg heavier than their

peers 50 years ago. According to data from a number of cities in Europe, in the last 80 years, the mass of 13-year-old children has increased by 12 kg. The mass of adult 33 Muscovites increased by 9 kg in the last 40 years.

It is more correct to conclude that such a sharp increase in mass is not a result of acceleration, but a result of overeating. Acceleration also affects the development of many functional systems of the body: basic movement, endocrine, etc. For example, the hardening of the fingers and palm bones is happening 1-2 years earlier than in 1936.

The transition of milk teeth to permanent teeth is also brought forward to these periods. Puberty is occurring 2 years earlier than at the beginning of the century. In 1914, Czech girls started menarche at an average age of 14, but by 1963 it had started at 12 years and 8 months. In 1850, Norwegian girls started menstruating at the age of 17, and in 1967, it started at the age of 13.5. The well-researched view that the timing of puberty is determined by geographic, climatic, and racial characteristics is being reconsidered.

For example, in Nigeria, puberty occurs at the age of 14.3 years, in the Eskimos - at the age of 14.7 years, in the Baltic countries it begins earlier than in the Mediterranean countries, and in England it begins a year earlier than in Nigeria and India. The timing of puberty is more influenced by lifestyle. Urban girls reach puberty 2-3 years earlier than rural girls.

Along with the rapid onset of puberty, the onset of climax is prolonged. Currently, the climax is observed at the age of 48-50, but at the beginning of the 20th century, it began at the age of 43-44. Thus, the childbearing period of women has increased by 7-8 years. The changes that are the basis for confirming the acceleration of human development consist of the above. In recent decades, a number of theories have been proposed to explain the rapid development of children.

Heliogenic Acceleration Theory - authored by Dr. Koch (1935), according to his theory, the primary stimulus for accelerating growth is the sun. Good living conditions and lighting, being outdoors for a long time, caloric diet, providing the child's body with vitamin D, are factors that contribute to acceleration. However, this theory cannot explain the differences in the rate of development between urban and rural children, children from well-to-do and low-income families. Lenz's alimentary theory. According to Lentz, the increase in the consumption of meat and fat in the United States and European countries during the last 100 years is the main reason that has led to the acceleration of development. According to Lentz, the acceleration-inducing effect of proteins and fats is carried out with the participation of the pituitary gland and the thyroid gland. However, studies show that the increase in anthropometric indicators is more than the consumption of these products.

During and after World War II, 34 urban and rural children ate the same food, and in some cases rural children ate better, but urban children were larger. So, while nutrition is an important factor, it is not considered the only cause of acceleration. Among the inhabitants of Olovli Er there is a tribe called "Mother", whose height is 175 cm, and another tribe called Yakhgan does not exceed 158 cm in height.

Both these tribes live side by side under the same climatic conditions and differ little in their diet. According to Berger's theory of the era of vitamins, the effect of vitamins V1, V12, and D on the acceleration of growth processes is given great importance. But changes in growth processes have been shown to exist before the advent of the vitamin era. The theory of constitutional choice is widespread and was put forward by Benholt-Thomsen in 1942.

According to him, the acceleration is determined by the increase in the number of people who have a high ability or reactivity of the organism to types of vegetative, endocrine and brain-related (mental) activities. People with such abilities intermarried, as a result of which their characteristics were passed on to their children and future generations. According to this theory, the development of the urban population is accelerated by the influence of technology, sharp

differences, noise, lighting, the speed of our life, etc.

Thus, in this, the selection factor during the migration of people from rural to urban areas and back again is shown first. This theory does not explain the reasons why the acceleration decreased even during the years of crisis, unemployment and war.

The radio wave theory was put forward by Treiberg in 1941. According to him, the increase in the size of the human body coincides with the beginning of the construction of radio stations in the early 20s. But it is also known that even if the radio waves are preserved, the growth is inhibited in adverse environmental conditions (war, famine, epidemic).

An extensive network of X-ray devices installed around the globe and increased human radiation levels may contribute to the acceleration. And in the end, the improvement of social and household conditions, the widely introduced hygiene measures, the improvement of nutrition and many other factors lead to the fact that the hereditary qualities have fully realized themselves.

Such an opportunity cannot exist in poor socio-economic conditions. F.Yarda genetic factor determines the growth acceleration of the next generations. If the living conditions are good (nutrition and climate), this breed will ensure the acceleration of growth as a trait. Heterosis theory can also be shown to this. In the 19th century, especially in the 20th century, there were drastic social changes that led to the breaking of social, religious, racial and ethnic boundaries. As a result, it became common to build an inter-ethnic family.

The consequences of acceleration will not be the same, because during the acceleration of growth, rapid development of all systems of the body occurs: heart contractions, breathing frequency decreases faster, puberty occurs early. And this is not always desirable, because there are cases where a physically less developed child is more resistant to acceleration. Acceleration increases heterochony, that is, the unevenness of growth and development.

When a child is 10-11 years old, strong changes occur in his endocrine system due to increased release of hormones. They stimulate the growth of the body, but the chest lags behind the growth. This disproportion increases in the adolescent who is experiencing acceleration. The discrepancy between body and heart sizes becomes more noticeable. This delay in heart growth has a significant impact on blood supply and the supply of oxygen and nutrients to the body.

Accelerated hypertensives due to delayed development of the blood-vascular system due to the acceleration of body growth are also encountered. Such a phenomenon is not observed in children who grow slowly. As mentioned above, in addition to biological acceleration, there can also be social acceleration. Not only the physiological mechanisms are strengthened, but also the mental processes are much older. In other words, children are not only taller and bigger, but at the same time they are growing up earlier.

It is possible to understand that when thinking theoretically, it accelerates the growth of children. If puberty occurs 2 years earlier, in this case the entire endocrine system and with it the activity of all functional systems, including the nervous system, is changed again. Therefore, it can be concluded that acceleration includes physiological and mental processes and mechanisms. To some extent, it depends on starting education earlier in school with acceleration. Children's wealth of information contributes to successful education, and because of this, it is observed that the analytical capabilities of the brain develop at a high level.

Acceleration process has both positive and negative aspects. Accelerated respiratory diseases in children, chronic tonsillitis, allergic diseases; hypertonia, diabetes, rheumatism, nervous diseases are common. Due to the observed acceleration, the issues of solving problems in the social, spiritual, medical, legal, and educational spheres are emerging. Protection of children's health, development of scientific bases of pedagogical processes, sexual education of children and adolescents and other issues. Due to the acceleration, the need to revise the standards of hygiene

(energy costs, amount of food products, clothes, shoes, school equipment) remains one of the important issues. Since the 90s of our century, as a result of the economic crisis observed in some countries, retardation, that is, a decrease in physical development indicators compared to peers, has also been observed.

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