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COMPARATIVE CHARACTERISTICS OF ANTHROPOMETRIC INDICATORS IN ADOLESCENTS WITH DOWN SYNDROME (LITERATURE REVIEW)

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ABSTRACT

When it is called the development and formation of a child's organism, its comprehensiveness: includes complex stages and periods of mental and physical maturation, the peculiarities of individual variability and its relationship with factors of the internal and external environment that determine the physical development of children and adolescents [1].

Physical development is a dynamic process of growth and maturation of a child at different age periods of childhood, which is considered one of the main indicators of the state of Health [3, 8].

Key words: anthropometry, study, Down syndrome, changes.

INTRODUCTION

Children are constantly under the influence of various endogenous and exogenous factors during their physical development. Factors that contribute significantly to the growth and development process include genetic predisposition, structural features, congenital or acquired diseases, environmental conditions, climatic, social and sanitary conditions of living, as well as movement activity [2, 13].

Endogenous and exogenous factors have a significant impact on the developmental parameters of children. Today, the share of healthy children, in which no diseases are recorded, is not more than 10-12%, and the study of the

health of the growing younger generation is of great importance in predicting the ability of the population of the country to work in the coming years.

Today, physical development is seen as an indicator - a direct indispensable indicator that reflects the body's relationship with the environment. It is necessary to look at physical development as a reliable factor that reduces the negative impact of harmful environmental factors on the child's body [3, 7].

Violation of age-related development deadlines and incoordination of morphological indicators lead to a negative deviation of health indicators [5, 16, 17, 20].

The physical development indicator also reflects the level of development of social and sanitary conditions of different groups of the population [6, 18].

Physical development and relationships with the environment are indicators of the adaptive processes that take place in the child's body. The result of human biological adaptation is the meyorization of morphofunctional parameters of human populations. Individual variability-depends on structural, hereditary factors, as well as nutrition, housing conditions and other factors

Environmental, climatic-geographical, social and hygienic factors, which are considered the main factors of genetics and Environment, and the quality and quantity of nutrition and the intensity of movement activity directly affect the physical functioning of children [6].

It is known that although genetic data is mostly constant, exogenous data serve as factors that modify the phenotypic variability of an organism [5,17].

Climatic conditions of living affect the morphofunctional indicators of children [9].

Conclusion. Climatic and geographical conditions occupy the main place in the formation of morphometric status in children. Health disorders in children are caused by deviations at one level or another from the normal level of physical development. And these pathological shifts, which negatively affect health, can occur under the influence of climatic and geographical conditions. For this reason, it is necessary to constantly monitor the physical development of children in order to detect and prevent deviations in time.

"Bone age" and its peculiarities in the first and second period of childhood

Assessing bone age and skeletal maturity and comparing it to chronological age is an important task in the medical environment in diagnosing Pediatric Endocrinology, orthodontics, and orthopedic diseases. The task is also considered important in determining the age of a person who does not have a document in the legal environment. Since this is a time-consuming process that can cause

discrepancies among professionals, it is important to use methods that can automate it [9].

Bone development is a process that leads to changes in bone size, shape, and mineralisations. This is done in the primary and secondary centers of ossification, directly in the diaphysis and epiphysis, where, respectively, the toga gradually turns into bone tissue. This process continues until the tuber remains in the growth plate (or epiphysis plate). At the end of the bone development process, the epiphysis plate is ossified, which indicates the Union of the diaphysis and the epiphysis [8, 19].

Other important concepts related to this topic include skeletal maturity, bone age, and chronological age. Skeletal maturity refers to the stage of development in which the bone is currently located. Bone age is a concept closely related to skeletal maturity and refers to age assessment based on skeletal maturity, while chronological age is calculated based solely on a person's date of birth [10].

Currently, the level of biological development perinatal and postnatal has been of great importance in all periods and relies on bone age as a reliable criterion [11].

Bone age is an indicator of human skeleton and biological maturation [15, 20].

Bone age is an interpretation of skeletal maturity, usually based on X-rays of the left hand, wrist or knee, which provide necessary and useful information in various clinical settings for more than 75 years. The baby's bone age may or may not correspond to his chronological age (actual age in years according to the baby's birth date). The formation of the skeleton is influenced by almost all aspects, covering nutrition, genetics, hormones and cases of getting sick. But almost all doctors, as a rule, recommend studying bone age when assessing growth, an analysis that has the ability to provide the necessary information to summarize most clinical tasks [9].

Bone age determination has generally been used to assess an infant's maturation and its possible future growth, especially when the patient suffers from a height that is not tall or does not grow well. But almost all processes lead to a delay in bone age, constitucional delay (late flowering) is one of the most common causes of bone age delay and low-speed growth. A generally accepted definition of interstitial delay is bone age, less than 2 years of chronological age, which is accompanied by growth at a correspondingly low rate (low height), delay in sexual maturity, or later attainment of final maturity than their peers. On the contrary, parents of Family Children of low height are also short due to their short stature; they are of normal bone age, and because their parents are short, it is

predetermined that they are also short. Among almost all domestic children tested for low-speed growth in a special center, there was a low-speed increase in combination with constitucional delay. But there are many ways to predict the growth of the person being made, and such predictions about bone age should be carried out with caution. Children whose bone age has been pushed back to 4 years have last seen an increase of 8 cm more than children with idiopathic non-high levels as well as children of normal bone age, and these predictions have not been appropriately evaluated. In general, the conclusions about growth were somewhat more accurate in girls than in boys. When the growth of the child is disturbed, it is recommended to successively determine the age of the bone, to carry out accurate measurements of the neck, as time passes to assess the irreversible development [14,19].

The importance of assessing skeletal maturity or human bone age and its comparison with chronological age arise from 2 leading points of view: from a pre-medical point of view, in which bone age assessment can be useful for diagnosing and treating orthopedic disorders, which are implied in pediatric endocrinology, orthodontics and pediatrics or in assessing the last growth of a person [8,18].

It is distinguished from the chronological age, which is calculated based on the date of birth of the person. Pediatricians and endocrinologists often ask for the purpose of comparing bone age with chronological age when diagnosing diseases that cause children to grow high or low [4,21,27].

Secondly, from a legal point of view, bone age assessment is important in determining whether a person is considered a minor without documentation [14].

Pediatricians should be aware that the assessment of skeletal maturity can now be used more widely when choosing expensive sports looks and from forensics to international immigration programs. For example, almost all people seeking shelter need to undergo bone age testing, which gives them the opportunity to be placed and use resources.

When bone age, given its importance, is used to draw serious conclusions, such as immigration or legal issues, its limitations should be recognized when predicting the exact age for all possible folk groups and sick cases [6,17,18].

Bone age studies are also used to determine chronological age when it is impossible to obtain accurate birth records. The lack of availability of Birth Records is a major problem in some parts of the world. In South Asia 65% of all births are not registered until they are 5 years old. Thus, in the criteria for which it is necessary to be clear about the age of a person, for example, there is a need to accurately assess the age at the time of immigration, in lawsuits and in sports

competitions. In these cases, bone age is used to more accurately assess chronological age [10,11,16,19].

Bone age is an older analysis, but its transfer is demonstrated in comparison with standardized methods, and it has significance for some folk groups, such as ethnic groups [9].

The generally recognized method of its detection includes age periods of the appearance of ossification nuclei of the forearm bones, short tubular bones of the paw, as well as the distal epiphyses of the heads of the wrist bones, which are detected when performing an X-ray on a direct projection of the palm [8].

Assessment of skeletal maturity is based on predicted configurations of ossification centers over time. The tubular bones are penetrated by the elbow, wrist and Phalanx and grow until the metaphyses on the growth plates are connected to the bone tips (epiphyses). Such a combination of growth plates does not occur at the same time. An X-ray of the claw specifically identifies many ossification centers that often occur over time, and it is a template for assessing bone age in children over 3 years of age. Children and babies under 3 years of age have knee configurations that are easier to assess and compare with changes in the arm, as a result, X-ray images of the knee or also half-skeleton are often used for young children [5,23,27].

The type of ossification in the bones of the forearm and forearm can be predicted in advance and will be until the end of adolescence when the bone stretch ends depending on age. Thus, bone age templates were obtained by comparing the maturation values of the bones of the hands and wrists with the usual age level.

Usually, the degree of growth and formation of the bones of the Claw is described using uncomplicated radiographs of the wrist, in general, new methods such as ultrasound of the bones of the Claw are being carried out, but they have not yet been confirmed [12,16,19].

There have been major advances in radiological methods over the past few years, but currently bone age assessment is a desirable way to study traditional X-rays of the forearm. The simple back and front appearance of the claw and wrist is perfect for seeing the individuality of the claw bones.

It is known that any X-ray can be taken during the verification processes the amount of radiation is about 0.0001-0.1 mkv. For this reason, x-rays of the hands performed during examinations are absolutely not dangerous for the development of the child's organism. To obtain radiation in the amount of dose provided above, a person will have to be on a natural radiative background of at least 20 minutes or make a two-minute transatlantic flight [12,25].

Conclusion. The early I-II periods of childhood are considered extremely important for the development of many physical abilities and flexibility. At the same time, in terms of imbalance in various systems of the body, the most vulnerable period is also.

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