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CRANIOMETRIC INDICATORS OF 7-12 YEAR OLD CHILDREN LIVING IN IZBOSKAN DISTRICT OF ANDIJAN REGION

(monograph)

Andijan-2024

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The monograph was approved and recommended for publication by the scientific and technical council established under the Ministry of Health in 2024.

Secretary of the Scientific and Technical Council: N.R. Aliyeva

ANNOTATSIYA

Ushbu monografiyada bolalar va o‘smirlar jismoniy o‘sish va rivojlanishini baholashning ustuvor yo‘nalishi hisoblangan antropometrik o‘lchashlar, xususan kraniometrik tadqiqotlarning profilaktik tibbiyotdagi o‘rni, maqsad va vazifalari, bugungi davr tibbiyotidagi rivojlanish istiqbollari xususida yoritilgan.Monografiyada kraniometriyaning o‘lchash uslublari, o‘lchash sohalari tavsifi, kraniometriya bo‘yicha ilmiy tadqiqot va kuzatishlar olib borgan mahalliy va xorijiy tadqiqotchilarning kraniometriyaga oid ilmiy-amaliy fikr va xuloslari tahlil etilgan.

АННОТАЦИЯ

В данной монографии рассмотрены роль, антропометрических измерений, в частности, краниометрических исследований, которые считаются приоритетными для оценки физического роста и развития детей и подростков, в профилактической медицине, а также перспективы развития в современной медицине освещаются.В монографии проанализированы методы измерения краниометрии, описание измерительных полей, научно-практические мнения и выводы краниометров отечественных и зарубежных исследователей, проводивших научные исследования и наблюдения по краниометрии.

ANNOTATION

In this monograph, therole, goals and tasks of anthropometric measurements, inparticular, craniometric studies, which are considered to be the priority for assessing the physical growth and development of children and adolescents, in preventive medicine, as well as the prospects for development in modern medicine are covered.In the monograph, the methods of measuring craniometry, the description of measuring fields, the scientific and practical opinions and conclusions of craniometry of local and foreign researchers who conducted scientific research and observations on craniometry are analyzed.

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INTRODUCTION

In our country, a number of efforts are being made to strengthen the health of the population, widely promote a healthy lifestyle among the population, and further improve the quality and scope of medical services. In particular, the decree of the President of the Republic of Uzbekistan dated February 28, 2023 on the state program for the implementation of the development strategy of New Uzbekistan for the years 2022-2026 in the "Year of attention to people and quality education" Within the framework of the decree No. PF-27, a number of prospective tasks and goals related to the further development of the health care system of our country and the strengthening of public health were determined. Including bringing primary medical services closer to the population and providing citizens with quality medical services, identifying diseases at an early stage, as well as creating additional facilities for patients, preventing non-communicable diseases among the population, forming a healthy lifestyle and increasing the level of physical activity in children One of these is the large-scale organization of related measures [1, 2].

The announcement of the Decree of the President of our Republic on January 28, 2022 "On the development strategy of New Uzbekistan for 2022-2026" is an important factor in the implementation of a number of reforms in the field of maternal and child health care in our country [3, 4].

The social policy implemented during the last five years made it possible to systematically protect motherhood and childhood, as a result of which the reduction of maternal and infant mortality was achieved.

In particular, in this decree, the implementation of priority tasks such as improving the system of high-tech medical care for reproductive age and pregnant women and children, equipping perinatal centers with the necessary medical equipment and supplies, and providing them with qualified personnel was determined.

In particular, the decree envisages the implementation of the following measures:

At the same time, it is necessary to organize a system of targeting medical care in remote areas, increase the efficiency of medical services provided to mothers and children, further improve ambulatory care, develop urgent and specialized medical care, introduce medical genetics and modern screening programs.

- implementation of disease prevention, early detection and rehabilitation programs among mothers and children at the primary level of the health care system, including:

- strengthening the educational work on the issues of healthy child birth, development and upbringing, promotion of proper nutrition and physical activity, formation of healthy lifestyle skills;

- providing children, pregnant and lactating women with vitamins and minerals free of charge and carrying out effective prevention of diseases through targeted screening measures;

- in 2022-2026, reconstruction, perfect repair and strengthening of the material and technical base of facilities providing medical services for mothers and children;

- Implementation of high-tech and innovative methods of diagnosis and treatment and regular improvement of the scientific potential of the employees of the field.

Assessing the indicators of physical growth and development of the population of our republic, especially children, plays an important role in maintaining and strengthening their health.

Active participation in the implementation of programs in the social sphere of our republic, raising a healthy generation, forming a spiritually rich, morally mature, intellectually developed, physically healthy, well-rounded person with a life perspective based on high universal values, mother and child health protection is the main goal of our state.

Studying physical development based on scientific research is a relatively objective and unique indicator of population health assessment. One of the main

requirements is to take into account their unique anthropometric and age-related individual characteristics when directing children to a certain type of sport.

Until now, the scientific research conducted in our country on ecological, geographical and age-related anthropometry is not enough to fully support the implementation of projects and activities to ensure the upbringing of physically strong children and their proper upbringing. As a result, we still rely on the results of scientific research conducted by foreign scientists when evaluating the physical development of children and their anthropometric characteristics, when developing new standards of physical development.

Conducting fundamental, practical and innovative scientific research in the field of sports medicine, advanced methods of prevention and treatment of sports pathology, permitted physical loads, development of standards for improving the diagnostic and functional condition of athletes taking into account the characteristics of the sport and the role of anthropometric indicators is incomparable in monitoring athletes in the introduction, preparation for competitions.

In order to identify and describe anthropometric data, functional capabilities and health defects in children, it is necessary to use anthropometric standards developed based on the geographical area where these children live. However, there are very few scientific works in the literature where craniometric examinations were carried out in children of small school age living in the conditions of Izboskan district of Andijan region.

Taking into account the above, the study of physical development of children living in Izboskan district, which is a unique geographical zone, has both theoretical and practical significance. In this direction, the study of changes in anthropometric indicators of children of junior school age is one of the most urgent issues.

Physically and mentally healthy 1st-6th grade (7-12 years old) studying in the 7th and 41st general schools of the public education department of Izboskan

district as an object in the implementation of craniometric measurements. A total of 360 boys and girls were taken.

In craniometry, the craniometric indicators of children of small school age living in the conditions of Izboskan district were studied.

The purpose of carrying out craniometric measurements is to study the periods of formation of the heads and parts of the head and the laws of growth and development of children of small school age living in the conditions of the Izboskan district of the Andijan region.

Determining the growth rate of skull craniometric indicators of school-age children living in the conditions of Izboskan district.

Determining the mutual proportions between the parts of the skull of children of junior school age.

Determining the periods of relatively intensive development of morphological signs in the development of the skull of children of small school age living in the conditions of Izboskan district.

Determination of gender differences between the craniometric parameters of boys and girls of junior school age living in the conditions of Izboskan district.

Issues and assumptions of craniometry:

Dynamics of growth of skull craniometric indicators of small school age children living in the conditions of Izboskan district of Andijan region.

Periods of rapid and slow development of the skull of children of small school age living in the conditions of Izboskan district.

Comparative characteristics of craniometric indicators of children of primary school age living in the conditions of Izboskan district with craniometric indicators of children of primary school age living in other geographical zones.

Anthropometric signs objectively show the processes of growth and development of the organism and help to discuss the level, direction and laws of these processes at a specific stage. Therefore, anthropometric signs are of great importance in medical-clinical, socio-hygienic and anthropometric assessment [50].

Age-related anthropology studies the processes of growth and development in the human body located in a certain environment. Anthropological study of growth processes in children living in different geographical zones and under different conditions is important for solving the problems of human ecology and medical geography.

According to some authors, knowledge about the normal indicators of the head is very necessary in pediatric and obstetric clinics. Because a number of diseases in children can be diagnosed depending on the size of the head.

The purpose of craniometry is not only to interpret the absolute dimensions of the head with numbers, but also to determine the ratio between the sizes of the parts of the head, to give a mathematically precise explanation to the general shape of the head or to certain parts of it, and to interpret these analyzes in numerical dimensions.

Several scientific studies have been conducted on the physical development of children of different ages living in different places of Andijan region. Including: “Физическое развитие детей, посещающих детские сады г. Андижана” (N.V.Jdanova-Jukovskiy,1965), Морфологические и функционалные проявления полового созревния и физической дееспособности детей и подростков узбекской национальности” (G.A. Bazunsev,1972), “Антропометрические показатели у детей школьного возраста” (M.B.Ibragimov, O.S.Toshbaev, N.N.Chukanin va K.I. Turgunov,1991), “Физическое развитие детей дошкольного возраста, проживающих в условиях г. Андижана” (I.I. Sattibaev,1998), “Андижон вилояти Андижон тумани шароитида яшайдиган кичик мактаб ёшидаги болаларнинг краниометрик кўрсаткичлари” (A.I.Xatamov, R.R.Raimjonov, 2014), “Андижон вилояти Асака тумани шароитида яшайдиган урта мактаб ёшидаги болаларнинг краниометрик кўрсаткичлари” (A.I.Xatamov, A.A.Ataxonov, 2015).

When carrying out craniometric measurements, the following sequential methods were performed:

1) the object is selected;

2) craniometric parameters of selected children were measured;

3) based on the received data, craniometric indices were calculated using special formulas;

4) all digital indicators obtained during craniometric measurements were processed using variational statistics methods;

5) all the received data were collected and summarized, analyzed.

The use of craniometric indicators obtained from children of small school age in the educational processes conducted in the departments of human anatomy, topographic anatomy, surgical dentistry, orthopedic dentistry, orthodontics, children's dentistry, pediatrics, forensic medicine, as well as in the preparation of practical training and lecture materials possible [91].

The obtained results complement our knowledge about the age-related characteristics of the craniometric indicators of the heads of children of junior school age in postnatal ontogeny.

The obtained craniometric indicators are used in reconstructive plastic surgery of the face and jaw, in the practice of forensic medicine, in the development of new standards of physical development, in the production of prostheses of the face and jaw area and in the prosthetics of the face and jaw area, in the creation of new standards in the production of headgear and can be used to study racial, ethnic, and population differences between people [113].

This research is the first scientific research conducted in the field of age-related craniology on children of small school age living in the conditions of Izboskan district.

The monograph consists of an introduction and three chapters: literature review, materials and methods of craniometric research, results of craniometric research and their analysis, and each chapter consists of its conclusion, as well as separate general conclusions. The monograph includes 30 tables, 38 Figures and a list of references.

CHAPTER I

LITERATURE REVIEW

1.1. Craniometric examinations and their importance

Anthropometric measurements can be performed on the skull itself, as well as on a living person. True, a living person may have a partial deviation due to the presence of facial soft tissues. But the main thing is that this method allows to measure the level of growth of the skull in a certain period of time.

Anthropometry is the basis of anthropological methods, that is, determining the dimensions of the human body. Depending on the object of examination, anthropometry can be divided into 3 parts:

1) somatometry - measurement of a living person;

2) osteometry - measurement of skeletal bones;

3) craniometry - measurement of the skull.

It is known from the sources that have reached us that anthropometry was widely used in different periods of history. Anthropometry and anthroposcopy are considered one of the most important areas of research tools in biological and forensic anthropology. These two methods of observation and data collection have been performed on both living human and skeletal human remains [82].

As research tools, they analyzed variation across a person's race, gender, and body dimensions, such as height. These lines of research explain the dimensions and morphological traits that characterize sexual dimorphism, as well as differences between the sexes caused by social and physical environmental factors or simply evolutionary mechanisms, such as selection.

Most research on musculoskeletal growth is based on child anthropometry. For example, it is predicted whether a child has a chromosomal mutation that causes Down syndrome.

The history of anthropometry includes and encompasses craniometry, paleoanthropology, biological anthropology, phrenology, physiognomy, criminology, criminology, phylogeography, human origins, and craniofacial description, as well as various correlates.

The emergence of anthropometry dates back to the 19 th century and is associated with the name of the French anthropologist P.Broca, to its further development R.Martin and anthropologists: V.V.Bunak and A.I.Yarho made a great contribution. The first one was determined using anthropological tools (anthropometer, circle, tape measure...). Measurements are made between certain anthropometric points. There are general (body length, weight, chest circumference, head circumference) and personal (leg and arm length, circumference, length of each finger, facial measurements, etc.) body measurements. In addition, the determination of characteristics describing a person (shapes of body parts, skin pigmentation, hair and eye color, hair shape, etc.) is carried out with the help of measuring instruments, models, schemes formed on the basis of clearly defined criteria. For example, V.V.Bunak considers 12 different color options for the eye color scale, and 40 colors for the Fischer-Zaller hair color scale. In addition, anthropological photography methods are widely used in anthropometry. Modern methods of analysis describing anthropometric indicators (x-ray, ultrasound) have been introduced. In racial studies and ethnic anthropology, head, face, skull, body length are measured, and eye, skin, hair, etc. color scales are used to distinguish racial types.

Body mass, body length (height) and other longitudinal, transverse and circumferential measurements are taken into account in human morphology and especially in determining the level of physical development. Based on them, standard scales were created that allow determining the level of physical development in different groups of people and population.

Data collected during the anthropometric study are subjected to statistical (biometric) processing. Anthropometry is used in clinical practice, forensic medicine (to check age), obstetrics (to determine the size of a woman's pelvis, the level of maturity of newborns), pediatrics (to monitor children's physical development) and hygiene (children, school), professional, etc.).

Anthropometric data are widely used in the assessment of suitability for military service, standardization of clothing and footwear, rational organization of

workplaces, assessment of the impact of various socio-economic and other activities on the physical development and health of the population. Accordingly, the standardization of mass-produced items (clothes, shoes) and the rational placement of workplaces are also based on anthropometric data.

There are many publications in the world on the topic of the skull and the shape of the head. Craniometry and cranioscopy are the main methods of studying the human skull.

Craniometry is the measurement of the skull and its parts. It was Leonardo da Vinci who first began to describe the features of the shape of the skull, and certain indicators are taken for calculation.

Anthropometry is the determination of a child's physical development by measuring his body. The nurse measures height and chest circumference. Even the simplest anthropometric examinations are carried out by medical nurses (in hospitals, polyclinics, sanatoriums, rest houses).

Measuring the child's height:

1. Hands are washed and dried.

2. Prepare: a height meter, 1% solution of chlorine lime, 96% alcohol.

3. The child is invited to take off his shoes.

4. The bar of the height meter moves up on the scale.

5. 4 points of the child (heels, buttocks, shoulder blades, neck) is made to touch with.

6. The plank is gently lowered to the patient's head and a mark is left on the scale.

7. The obtained result is recorded in the medical history.

8. The height meter is processed.

A horizontal height meter is used for minors. The child's head is placed tightly against the head of the rostometer, and the child's head is held in this position by the mother or one of the staff. The nurse gently presses the child's knees, straightens the legs, and at the same time pushes the anti-slip sole on the

leg. The distance between the base of the height meter and the side of the head shows the child's height (determined by the attached centimeter tape).

Body weight measurement:

1. Hands are washed and dried.

2. Prepare: scale, 1% solution of chlorine lime, 96% alcohol.

3. The hook on the scales is opened.

4. The scales are adjusted.

5. The child is invited to stand in the middle of the weighing platform.

6. The scales are adjusted.

7. The obtained result is recorded in the medical history.

8. The weighing platform is processed.

Babies are weighed on special children's scales, preferably in the morning hours before breastfeeding. It is necessary to put a warm blanket under the area where the child is being weighed, to wash the circuit of the scale with soap every day, and to carefully monitor the condition of the scale and the correctness of its readings.

Measurement of chest circumference:

1. Hands are washed and dried.

2. Prepare: centimeter tape, 1% solution of chlorine lime, 96% alcohol.

3. The child is invited to take off his clothes.

4. Taking a centimeter tape, it is turned from behind under the scapular bones, through the teats of the breast.

5. The obtained result is recorded in the medical history.

6. A centimeter tape is processed.

Measurement of head circumference:

1. Hands are washed and dried.

2. Prepare: centimeter tape, 1% solution of chlorine lime, 96% alcohol.

3. The child's headdress is removed.

4. The circumference of the child's head is measured with a centimeter tape: the nape of the neck is covered from the back, and the eyebrows are covered from the front.

5. The obtained result is recorded in the medical history.

6. A centimeter tape is processed.

In order to have a correct opinion about the physical growth of the child, it is necessary to pay attention to the growth of his weight and height. The child's height is very important, because the complex development processes in the body are represented by it.

The height of a child born mature is from 46 cm to 56 cm, the average height of a boy is 50.7 cm, and the average height of a girl is 50.2 cm.

If the child's height is less than 45 cm, he is considered premature. The height of a breastfeeding child increases month by month and quarter: in the first 3 months from 3 cm per month or 9 cm in the first quarter year, in the II quarter - from 2.5 cm, 7.5 cm per quarter, in the III quarter - 1.5-2 cm, In the IV quarter, 1 cm grows every month, that is, 3 cm per quarter.

By the end of the first year, its height will grow by 20-25 cm. In the 4th year of life, the height of the child doubles, and in the 12th year, it increases three times.

After one year, the child's growth rate decreases. His height increases by an average of 5-6 cm per year. To determine the child's height after one year, multiply his age by 5-6 cm and add 75 cm to it (when the child is one year old, his height will be 75 cm) 75+5. For example, the height of an 8-year-old child is 75+5X8=115 cm.

According to the literature of medicine and anthropology, the growth and formation periods follow each other as a rule, that is, the first "formation" occurs at the age of 1-4, the first growth occurs at the age of 5-7, the second "formation" 8 - At the age of 10, the second growth occurs at the age of 11-15. This kind of visualization is a very simple concept. In reality, growth in children's height and weight is caused by wave-like changes. At the age of 7 years and in elementary school, the child's height begins to grow faster than his weight.

It is important to know the child's weight in order to have a proper discussion about the child's physical development. A child's normal weight gain is influenced by the surrounding environment, feeding method, and its own characteristics. The weight of a full-term child is 2700-4000 g, the average weight of a girl is 3348 g, and the average weight of a boy is 3494 g. A baby weighing 2500 grams is considered premature or congenital hypotrophy, and a child weighing more than 4 kg is considered overweight.

The weight of the child decreases by 5-8% (150-300 g) compared to the first weight at birth in the first 3-5 days after birth, and then gradually when he is 10-12 days old the weight reaches the weight at the first birth. The normal weight loss of all children is called physiological weight loss. Most of the weight is lost when the child is born from the comfortable conditions in the mother's womb, because it falls into a completely new environment of the outside world, because the child cannot adapt to such conditions at once.

In new conditions, the child excretes water through its skin and lungs. It can be said that the physiological decrease in the weight of the child is due to the regurgitation of the water taken from around the fetus during a single birth.

It should also be taken into account that in the first days after birth, the baby may lack milk because he has just started to suckle his mother. In many cases, the "physiological" weight loss can be somewhat reduced by giving the child enough water and food from the first day of birth. A decrease in the weight of a child below 300 g should be considered abnormal, which indicates that the child is malnourished or has a disease. Later, when the child is 10-12 days old, if he is healthy, he will reach his first birth weight and begin to gain weight quickly. In this case, the child gains weight by 25-30 g per day, especially in the first month of life. Then the child's weight gain gradually decreases.

To evaluate the physical development of each individual child and group of children, a certain average standard is compared with a new copy. But these copies should not be viewed as permanent and unchanging, because normal growth and development are constantly changing. Knowing the average number at

each age is enough to know that children are growing and developing properly. After that, depending on the age of the child, it is necessary to observe how these numbers change.

In order to make a correct opinion about the physical growth of the child, in addition to knowing its weight and height, it is necessary to measure the circumference of the head and chest, the width of the shoulders, the length of the legs and arms. The width of the shoulders is approximately one-fourth of the height at any age.

The head circumference of newborn children is 34-36 cm, which is 2 cm more than the chest circumference of 32-34 cm. During the first year of life: the head circumference of a 6-month-old child is 43 cm, it decreases from 43 cm to 1.5 every month, after 6 months, it increases by 0.5 cm every month.

From 2 to 15 years: the head circumference of a five-year-old child is reduced by 50 cm, and by 0.5 cm for each year of age; After 5 years, 0.6 cm is added at each age.

When a child is one year old, his chest circumference is 48 cm, and his head circumference is 46 cm. After one year, the child's head grows very slowly, and the chest circumference significantly increases compared to the head. For example, a five-year-old child has a head circumference of 50 cm, a chest circumference of 56 cm, a 10-year-old child has a head circumference of 52 cm, and a chest circumference of 63 cm, a 16-year-old head circumference of 54 cm, a chest circumference of 63 cm, an 18-year-old 54 cm, and the chest will be 79 cm.

The length of the legs and arms of a newborn child is equal to the length of the body (18-18 cm). According to Professor M.S.Maslov, when a child is 7 years old, the length of the legs is three times, the length of the legs is 2.5 times, the length of the body is twice, when he reaches the age of 16, it is five times, the length of the legs is four times, and the length of the body is three times.

Anthropometric indices are used to assess the child's harmonic development. Type index is calculated from the ratio between chest circumference and head circumference. The chest circumference of a healthy born child is 1-2 cm less than

the head circumference. In 2-3 months, these indicators double, after 3 months, they become left-right, until one year of age, the breast circumference increases by 1.5-2 cm from the head. The Erisman index is calculated in relation to half of the chest circumference. The chest circumference of a child older than two months is 10-12 cm larger than half of the height.

When a child loses weight, the Erisman index decreases to 9.8-7.6 cm, when it becomes fat, it increases to 14-15-16 cm.

Chulitskaya index is calculated by the formula. Three shoulder circumferences + hip circumference + head circumference + height indicators, in a child older than 2 months, this index is 20, in half a year -25, in one year old again 20, when losing weight, the indicators of the index decrease to 18-15-10, and in obesity it increases to 30-35. Height is measured using a vertical dipstick.

The height of breastfeeding children is measured using a horizontal barometer, as the examination is carried out in a lying position. To measure the weight of suckling children, scales of any system and sufficiently sensitive, which allow measurement in mature situations, can be used. An adult scale is used to measure the weight of older children.

Human development is the process of realizing the potential of physical, mental and emotional development embodied in genes. This process takes place at different levels in different people and in different periods and explains why people belong to different social, national and territorial groups [17].

The indicator explaining the increase in the size of the developing organism, especially its active parts, is growth, which does not have the characteristic of sharp proportionality and is closely related to the formation process [26].

Even in the present period, the use of traditional measuring methods of anthropology allows to get a sufficient understanding of the morphological status of one or another group of the population.

Measurement of craniometric parameters is important in determining the age and gender of the skull [54].

Most of the anthropometric examinations are performed on the head and face. The main reason for this is that information can be gathered in early childhood. In addition, the growth of the head is completed early compared to other parts of the body [21].

A relatively more complete program for describing physical development includes the measurement of indicators describing individual body segments, fat folds, and morphological signs. [14].

F.Ya.Khoroshilkina (1999) says that there is a proportional relationship between the alveolar cavity and the shape and size of the face. Disturbance of existing proportions helps in diagnosing various disorders related to the development of the organism [24].

A number of authors say that deformation of the jaw bone morphology is one of the clear signs of rickets [20].

Studying the growth process in a person has 2 forms: longitudinal and cross-sectional. Longitudinal method (individual method) is conducted every year or several times a year in the same group of children. The cross-sectional method (distributed method) is designed to examine children of different ages in a short period of time. Cross-sectional testing allows determining the normal growth rate and the normal limit for each age. Longitudinal examination makes it possible to interpret the interdependence of morphological and functional indicators, as well as to understand the role of endogenous and exogenous factors in controlling the growth process [23].

Both methods are widely used in auxology. But information about the real speed of growth can be obtained only by analyzing longitudinal studies [21].

One of the important stages of solving the problems of medical and sports anthropology is the diagnosis of body structure. One of the important areas of personality identification is the study of the morphological features of the human body.

V.A.Distel, V.G.Sunsov, V.D.Wagner (2001) emphasized the clinical significance of anthropometric examinations and emphasized the importance of

anthropometric examination of the head, face, jaws, and dental arches in dental-jaw anomalies [10].

Usually, when conducting medical and biological examinations, the age periodicity table adopted at the VII All-Former All-Union Conference on age-related morphology, physiology and biochemistry (Moscow, 1965) is widely used [26].

1.2. Development of skull bones

There is a strict anthropometric law in the study of the influence of social factors on various biological indicators. This primarily depends on the processes of growth and development, which serve as a kind of "mirror", in other words, an indicator of the processes taking place in society [21].

Human development is characterized by periods of activation and inhibition of growth. The rate of growth is limited or activated under the influence of many exogenous factors in the environment. However, their influence cannot derail the development process due to the limit of normative reactions determined by genetic factors [12].

The skull is changing throughout a person's life. The dimensional features of the skull are not related to the passport age of the individual, but over time, the closure of the sutures of the skull bones, erosion and loss of teeth, atrophy of bones, etc. ensure that the skull is periodically changing [42].

By the present time, the physical performance of children and adolescents is increasing: for example, I.A. According to the data given by Tishevsky (2000), the height of 13-year-old boys living in the conditions of the city of Moscow increased by 16 cm on average over the last 80 years, while the height of girls of the same age increased by 14.8 cm.

Exogenous factors include socio-economic, climatic and environmental factors. Among them, socio-economic and ecological factors take the main place [16].

T.V.Panasyuk (2008) gives a high assessment of the influence of genetic factors in the formation of a person's somatotype (74-85%) [43].

A.Yu.Perunov (2006) believes that the influence of radiation, physical and chemical factors is important for the formation of anthropometric parameters of the head [44].

Compared to the skulls of anthropomorphic creatures, the human skull is characterized by a sharp enlargement of the braincase, a reduction in the facial area, and, accordingly, the placement of the brain part of the skull above the face.

Differences in the dynamics of growth of the longitudinal and transverse diameters of the skull depending on age are observed: the longitudinal diameter shows a greater increase in the process of growth. Therefore, as age increases, the head index decreases slightly. There are also racial differences in the growth rate of the body [16].

S.E. Baybakov (2008) divides the growth dynamics of the skull in the longitudinal dimension into 3 periods:

1st period 1-7 youth;

2nd period 9-13 years old (for women 9-14 years old);

The 3rd period is 15-20 years old (for women, 16-21 years old), in which the relatively stabilized period of growth corresponds to 8-9, 14-15 years old (for women, 8-9, 15-16 years old).

The growth dynamics of the skull in the transverse dimension is divided into 2 periods:

1st period 1-13 youth;

The 2nd period is 15-20 years old, in which the stabilized period of relative growth corresponds to 13-15 years old.

The dynamics of vertical growth of the skull is also divided into 2 periods:

1st period 1-6 years old;

The 2nd period is 15-20 years old (for women, 15-21 years old), in which the relatively stabilized period of growth corresponds to 7-14 years old.

The linear and angular parameters of the skull change with age, and a state of sexual dimorphism is observed [28].

The younger the organism, the faster the growth and development processes in it. The growth and development processes of the organism do not go smoothly [17].

Head size continues to increase in adults, but the process is very slow. The growth of the face is primarily related to the eruption of teeth. Accordingly, the facial part of the head is formed later than the brain part. The development of indicators representing the width of the face is completed earlier than the indicators of the height of the face.

Changes in the size of jawbones during youth are due to the development of teeth and jaws as a whole.

During the period of postnatal ontogenesis, the proportion of the child's face is inextricably linked with the laws of the absolute and relative growth of the face at the expense of the jaw apparatus. After the age of 5-6 years, the formation of the child's face and changes in its dimensions are controlled on the basis of individual genetic mechanism.

The growth of the face is a general process. This can be more clearly observed in the lower jaw: depending on age, the jaw becomes longer and protrudes forward [21].

During youth, boys are characterized by neutral and horizontal jaw growth, while girls are characterized by neutral and vertical growth. During the school period of a child's life, sexual differences are formed in the proportions of all parts of the body [16].

It should be noted that there is no single indicator that describes the skull of different groups of the population. The structure and dimensions of the skull depend on internal and external factors [16].

V.G.Kolodko (2009) measured the physical development of children aged 7-15 years living in the remote northern region (Norilsk city) and found that physical

development is formed in a single dynamic age-dependent process and is explained by the inequality of growth processes and sexual dimorphism concludes that [38].

The growth of the jaws during tooth replacement is in sagittal, vertical and transversal directions [6].

Changes in the dimensions of the hard palate depend on the linear dimensions of the face and head, the shape of the skull, brain and facial parts, and the dimensions of the lower jaw [3].

The bone development process is completed at the age of 25-30. After this age, the degree of accuracy of determining the age based on the bones decreases relatively. Age-related X-ray changes in skull bones can be conditionally divided into 3 periods:

0-20 age;

21-40 age;

41 and above.

The first period is characterized by the rapid growth of the bones of the skull cap and the formation of middle plates, i.e. diploene. In the second period, the skull cap has a normal structure. In the third period, osteoporosis occurs and its spread to all layers of the bone, after which this process gradually increases until the age of 60-70.

1.3. General morphological characteristics of the skull

The skull, its size and shape, as well as its individual parts are studied by a special department of anthropology - craniology.

Studying the directions of development of the human skull and creating the optimal classification of the skull is considered to be a pressing problem of medical craniology today [28].

With the help of craniological examinations, it is possible to obtain relatively complete information about the racial type of Uzbeks. It is also possible to describe the racial characteristics of the population in the regions. The Uzbek

population of Tashkent, Samarkand, Khorezm regions and the Fergana valley have characteristics typical of the Central Asian sub-race. In the villages of the Samarkand region, in the northern part of the Fergana valley, among the Uzbek population, the Mongolian appearance of the South-Siberian type and the Central Asian sub-race can be observed. Uzbeks in the Khorezm region, in addition to the Central Asian sub-race, also have signs of the Eastern-Mediterranean sub-race.

Like the skull, the head area is divided into 2 parts: the brain and the face. Two different diameters are used to describe the size and shape of the brain: longitudinal and transverse diameters [23].

The human skull is characterized primarily by the enlargement of the braincase and the reduction of the facial part. Dividing the skull into certain types is based on the mutual ratio of the shape of its brain and facial parts [28].

I.A. Polkovova (2009) divides the skull into 6 forms according to the configuration of the wing-palate cleft [47].

The skull is divided into 2 parts: brain and facial parts. The part of the brain includes the forehead, crown, temple, nape, pons, and calcaneus. The facial part includes the upper jaw, cheek, palate, nose, teardrop, lower nasal concha, cheekbones, and lower jaw (in anatomy, the hyoid bone is also included).

The characteristic of the skull to a certain type is explained by the interaction of the shapes of its brain and facial parts [28].

A vertical line through the external auditory meatus divides the skull into anterior and posterior parts. If the auricle is located in front of this line and close to the forehead, this condition is characteristic of a frontopetal type head, and if it is located behind the line and close to the nape of the neck, it is called an occipitopetal type head. Flattening of the nape of the neck is observed in the peoples of Central Asia and the Caucasus. This is usually associated with long-term placement of the child in the crib, which causes brachycephalization of the skull.

The facial part of the head can be divided into 4 equal parts:

a) from the top to the edge of the part covered with hair;

b) forehead area;

c) nose height

d) the lower part of the face.

The facial area is important in communication between people, artists (painters, sculptors, artists), anatomists, psychologists, medical personnel, including plastic surgeons, maxillofacial surgeons, dentists and dermatologists. serves as an object of verification for [32].

It is considered that the average distance between the ears should be equal to the distance between the eyebrows and the lower edge of the forehead. People of the Mongoloid race often have a narrow, imperceptibly raised nose [18].

When describing the nasal part of the face, the height and width of the nose are measured [13].

The size and shape of the external nose serves as an important diagnostic factor in racial, age-sex, and individual anthropological studies. In addition to the absolute dimensions of the nose, their percentage ratio - the nose index - is also very important in racial diagnosis [23].

When determining the dimensions of the eye area, the outer width of the eye socketand the width of the gap provide relatively more information [13].

Among the craniometric indicators of the eye socket, the length of the eye socket is considered to be the indicator that grows relatively intensively [58].

The change in the morphology of the eye socket depends on the craniometric indicators of the skull and its craniotype [53].

The Mongoloid population of Central, Eastern and Northern Asia is characterized by a very large nose-brow distance (up to 10-12 mm), in the European population this indicator usually does not exceed 4-5 mm.

1.4. Sexual and individual differences of skull bones

One of the main directions of craniological research is to determine the sexual characteristics of the skull. Sex and age determination based on bones are

two independent directions, but at the same time, considering that they are closely related to the general features of the human skeleton, these two directions cannot be mutually separated. At the same time, determining gender and age should be based not on a single indicator, but on the sum of several indicators.

Gender determination is a necessity in forensic examination, in several special morphological examinations, and in the study of general problems of changes in the male and female organism in craniological material.

Head sizes are larger in boys than in girls at all ages [13].

In the determination of sexual differences and morphological differences between the skulls of men and women, it is based on irregularities, humps, edges, lumps in the skull, as well as other anatomical signs, such as the level of their development, the arches of the eyebrows, the base of the nose, the shape of the eye socket. In children, these signs are relative.

G.B. Khasanova (2003) writes that the individual characteristics of a person are divided into two large classes: the class of age-sex characteristics (which includes age and life phase, as well as sex characteristics) and the class of individual-typical characteristics (constitutional and neurodynamic characteristics) [22].

The size and general shape of the face depends on age, gender, racial origin, constitutional and individual characteristics of the organism. Individual characteristics of the organism are formed under the influence of hereditary factors, and also depend on physical (pathological) and social conditions (occupation, diet, speech).

T.N.Galkina (2008) notes that the longitudinal, circumferential and transverse anthropometric indicators of the body of boys aged 16-21 living in the Penzen region are greater than those of girls of the same age [33].

In the period between the ages of 13-14, the indicators of physical development of boys are higher than those of girls of the same age [17].

The maximum peak of the growth rate of the main anthropometric indicators in both sexes corresponds to the age of 8-9 years [45].

In youth, sexual dimorphism is observed in cephalometric indicators, and this condition is especially stronger in the lower 1/3 of the face [34].

T.I. Izmailova (2006) writes that sexual dimorphism is observed in many craniometric indicators in children during the first childhood, second childhood and adolescence [36].

According to E.I.Dubovik (2009), the sex difference in the linear dimensions of the face appears after the morphogenesis of the face is complete. P.G.Pivchenko, A.I. Kholamov (2012) stated that during puberty, there is a significant difference between the skeleton of men and women in the formation of the skull. Studying the remains of human bones can provide sufficient information about the sex of an individual [74].

There are no significant differences in the cephalometric indices of men and women who are citizens of the Chinese People's Republic of China [51].

CONCLUSIONS FROM CHAPTER I

I. The literature analysis shows that among the works carried out by scientists in the field of anthropometry, the weight of researches on age-related anthropometry is quite large.

II. However, there is very little research on craniometry in the existing anthropometric literature. Also, there are often contradictions in them, and the laws of growth of craniometric indicators are not fully explained.

III. The question of the influence of geographical, ecological, ethnic and social factors on the development of craniometric indicators has been left out of the view of many researchers.

IV. Based on the above, it is necessary to determine the following in revealing the laws of development of craniometric indicators of children of junior school age and in their further analysis:

1. Description of the dynamics of growth of craniometric indicators of children of junior school age.

2. To determine the periods of relatively intensive growth of craniometric indicators of children of junior school age.

3. Determining the relationship between the skull and certain parts of children of junior school age.

4. Determination of gender differences between the craniometric indicators of the skull of boys and girls in the period of junior school age.

CHAPTER II

MATERIALS AND METHODS OF CRANIOMETRIC RESEARCH

As the material of the scientific research, 360 physically and mentally healthy people of the 1st-6th grade (7-12 years old) studying in the 7th and 41st general schools of the public education department of Izboskan district. boys and girls were obtained (Table 1).

Table 1

Grouping of children involved in the research process by age and gender

№	Age group	Total number of children	Boys	Girls
1.	7years old	60	32	28
2.	8 years old	60	37	23
3.	9 years old	60	31	29
4.	10years old	60	33	27
5.	11years old	60	26	34
6.	12years old	60	25	35
Total number of children		**360**	**184**	**176**

Some authors say that the morphological and functional indicators of children aged 6-8 depend on their calendar age.

During the tests, children E.G. Based on the recommendation of Martirosov (1982), they were divided into separate groups based on age and gender.

In order to correctly evaluate the results of the craniometric examination, the age of the children was determined by H.G.Butaev, K.S.Ladodo, I.Ya.Kon. It was carried out based on the following rule recommended by Usmanovlar:

a) Children aged 6 years 6 months to 7 years 5 months 29 days were taken as 7-year-old children;

b) Children aged 7 years 6 months to 8 years 5 months 29 days were taken as 8-year-old children;

c) Children aged 8 years 6 months to 9 years 5 months 29 days were taken as 9-year-old children.

d) Children aged 9 years 6 months to 10 years 5 months 29 days were taken as 10-year-old children.

e) Children aged 10 years 6 months to 11 years 5 months 29 days were taken as 11-year-old children.

f) Children aged 11 years 6 months to 12 years 5 months 29 days were taken as 12-year-old children.

All morphometric data about the development of different parts of the body should be written in a special table.

There are two types of human height studies, longitudinal and cross-sectional morphological examinations. In a longitudinal study, the height parameters of a certain child's organism are studied for several years.

Height can be measured every year or several times a year. In a cross-sectional study, the development of children of different ages is measured over a certain period of time.

Anthropometry (anthropo ... and Greek metreo - to measure) is one of the research methods of anthropology. It quantitatively describes the changes in all the characteristics of the organs of the human body (length, width, thickness, shape, color, etc.).

The obtained data are compared to some parts of the body (head, neck, chest, abdomen and groin, arms and legs) and growth or changes are monitored. Length, width and angle marks are measured using anthropometric tools (convex circle, sliding compass, coordinate circle, human height measuring anthropometer, angle measuring goniometry and jaw measuring mandibulometer, etc.).

The immeasurable features of the body, especially the head, face, nose, and lips - color and shape are determined according to specially developed scales and

standards. Anthropometric data is also used in criminology to describe and identify criminals.

The emergence of anthropometry dates back to the 19th century and is associated with the name of the French anthropologist P.Broca. R.Martin and anthropologists: V.V.Bunak and A.I.Yarho made a great contribution to its further development. The first one was determined using anthropological tools (anthropometer, circle, tape measure...).

Measurements are made between certain anthropometric points. There are general (body length, weight, chest circumference, head circumference) and personal (leg and arm length, circumference, length of each finger, facial measurements, etc.) body measurements. In addition, the determination of characteristics describing a person (shapes of body parts, skin pigmentation, hair and eye color, hair shape, etc.) is carried out with the help of measuring instruments, models, schemes formed on the basis of clearly defined criteria. For example, V.V.Bunak considers 12 different color options for the eye color scale, and 40 colors for the Fischer-Zaller hair color scale. In addition, anthropological photography methods are widely used in anthropometry.

Modern methods of analysis describing anthropometric indicators (x-ray, ultrasound) have been introduced. In racial studies and ethnic anthropology, head, face, skull, body length are measured, and eye, skin, hair, etc. color scales are used to distinguish racial types.

Body mass, body length (height) and other longitudinal, transverse and circumferential measurements are taken into account in human morphology and especially in determining the level of physical development. Based on them, standard scales were created that allow determining the level of physical development in different groups of people and population.

Data collected during the anthropometric study are subjected to statistical (biometric) processing.

Anthropometry is used in clinical practice, forensic medicine (to check age), obstetrics (to determine the size of a woman's pelvis, the level of maturity of

newborns), pediatrics (to monitor children's physical development) and hygiene (children, school).

Anthropometric data are widely used in the assessment of suitability for military service, standardization of clothing and footwear, rational organization of workplaces, assessment of the impact of various socio-economic and other activities on the physical development and health of the population. Accordingly, the standardization of mass-produced items (clothes, shoes) and the rational placement of workplaces are also based on anthropometric data.

Anthropometry is carried out using carefully checked and adjusted measuring instruments: scales, stadiometer, centimeter tape, dynamometer, etc.

It is advisable to carry out all measurements in the first half of the day, on an empty stomach or 2-3 hours after a meal, the subject should be in light knitted clothes.

If the measurements are taken in the second half, it is advisable to take a horizontal position for 10-15 minutes.

For the objectivity of the subsequent assessment, the requirements for the measurement rules must be followed. Analysis of anthropometric indicators is an important element of compliance studies with age standards of physical development. Identified deviations can be risk factors or symptoms of certain diseases.

Control of the child's physical development with the method of planned anthropometry should be systematically carried out at fixed time intervals. Such control, as a rule, is carried out by a doctor or children in preschool educational institutions. Anthropometric examination of early childhood and preschool age includes a full program of examination procedures: body weight and height, head circumference (for a child in the first year of life) and chest, posture, body fat measure the level and other indicators.

Conducting an anthropometric study of the physical condition of early and preschool children should follow a uniform measurement methodology based on the following rules:

The World Health Organization (WHO) defines the physical development of a child as a general indicator of the health status of an individual child and the population, and the indicators of physical development of young children as a criterion for evaluating the socio-economic development of society a separate region, country. WHO believes that monitoring the physical development of young children is one of the most effective measures implemented by health workers to reduce mortality and morbidity in young children. Assessment of the physical development of a child under 3 years of age is carried out based on the "Growth Standards" developed and recommended by WHO in 2006. international standard physical development of the child in all countries, regardless of ethnic origin, socio-economic status and type of nutrition. These norms (standards) of physical development of young children should be used:

To medical staff: to advise parents as an effective means of screening the physical development of young children for timely detection of abnormalities and diseases, and if necessary, prescribe the necessary examination and treatment;

To health organizers: breastfeeding as a means of justifying the need to develop state and regional programs aimed at realizing the child's normal physical development, the right to support, providing rational nutrition, increasing the availability and quality of medical care for children and mothers;

To parents: as a tool that allows the family to more effectively control the physical development of the child together with medical professionals, to understand the importance and necessity of following the recommendations on nutrition and nutrition, and to receive timely medical help.

Assessment of physical development is carried out in each mandatory medical institution preventive examination of the child. The nurse takes anthropometric measurements (measurement of weight, length/height and head circumference). The obtained information is applied to the corresponding physical development charts, which are filled out separately for boys and girls. This allows you to see the trend of the child's physical development over a certain period of

time and identify physical development problems. It is also necessary to pay attention to the dynamics of the child's indicators during the observation period.

Assessment of the physical development of older children is also carried out based on the results of anthropometric studies, by comparing individual indicators of a child with the norm. For this, use the method of approximate calculation based on empirical formulas and the method of anthropometric standards. The method of approximate calculations based on empirical formulas is based on knowledge of the main patterns of weight gain and growth, head and chest circumferences. It should be noted that this method gives only an approximate picture of the child's physical development and is rarely used by pediatricians.

The method of anthropometric standards is accurate, because individual anthropometric values are compared with normative values depending on the age and gender of the child. There are two types of regional tables of standards: sigma (parametric) and centile (non-parametric).

Sigma standards method. the essence of this method is to compare the indicators obtained for each attribute with the average (standard) data developed on the basis of mass anthropometric surveys of children of different ages.

The results of the comparison of anthropometric data with standard data allow to evaluate each characteristic separately.

The following parameters are measured to determine the shape of the skull.

The longitudinal diameter is determined in a special circle. One leg of the circle is placed on the glabella, and the other is placed on the point on the nape of the neck, which is located farthest from the glabella on the medial-sagittal surface.

Transverse dimension (the greatest width of the head) is measured by placing a compass on the most outwardly protruding points on the right and left sides of the head sidewall. These points can be located on the crown or the temporal bone.

To determine the morphological height of the face, measurements can be taken using a special circle from the Selion point, that is, the deepest point of the

nasion, to the mental point, that is, the lowest point of the nasion on the medial-sagittal surface, but the nazion point is either can also be measured from the intersection of the middle surface with the nose-forehead seam.

The physiognomic height of the face is also determined by measuring the trichion using a special circle - the point on the forehead lying at the intersection of the middle surface with the line drawn from the hairline to the forehead.

To analyze the nasal area, it is necessary to measure the height and width of the nose: using a special circle, the height of the nose is measured from the point of sellion to the point of the nose, that is, to the back point of the lower edge of the nasal septum, and the width of the nose is measured between the points of the wings of the nose is determined by measuring the distance in.

To determine the size of the eye area, the distance between the outer corners of the eyes, called the external eye width, and the distance between the inner corners of the eyes - the interocular width are measured.

Other measurements should be taken for a deeper examination of the head. Head circumference is measured using a centimeter tape, for which the tape is passed from the back through the most convex point of the nape of the neck, and in front along the glabella or along the arches of the eyebrows.

The transverse size of the forehead is also measured with the help of a special compass, which is placed on the most lateral points of the forehead bone and directly behind the cheekbones. Height or vertical diameter is measured on a special circle at the intersection of the coronal and arcuate sutures between the bregma point and the tragus of the ear.

Determining the dimensions of the base of the skull. The length of the base of the skull is measured as follows: one leg of the special circle is placed on the nasion, that is, at the intersection of the middle surface with the nose-forehead seam, and the other leg is placed at the intersection of the opisthion-middle surface with the back edge of the large occipital foramen.

The width of the base of the skull, that is, the distance between the base of the cheekbone of the temporal bone and the vertical line passing through the center

of the external auditory canal from the right and left sides, is measured using a special circle, and its legs are between the two ear points.

The diameter of the cheek is determined by measuring the greatest width of the face, that is, the distance between the most outwardly protruding points of the cheek arch using a special circle.

The diameter of the mandible is determined by placing special circular feet on the most outwardly protruding points of the corner of the mandible.

Inspection tools (table 2)

Measurement of craniometric indicators means determining the circumference, longitudinal and transverse dimensions of the head.

An obstetrician's tape measure was used to measure the longitudinal and transverse diameters of the head. Horizontal head circumference was measured using a centimeter tape. A millimeter ruler (L=30 cm), large (L=250 mm) and small (L=125 mm) barbell circles and measuring circles of different structures were used to measure the rest of the head's parameters (Fig. 1).

Table 2

Inspection tools and information about them

№	***The name of the tool***	***Series and number***	***Signs***	***Place of manufacture***
1.	Midwives pelvimeter	M 61	max.=50 sm (i=0.5 sm)	Russia
2.	Big clippers	F 36573 (35433)	max.=25 sm (i=0.05mm)	Russia
3.	Small clippers	N 21181	max.=12,5 sm (i=0.1mm)	Russia

4.	Large millimeter ruler	“Rm-kelajak” x/f	max.=30 sm (i=0.1sm)	Uzbekistan
5.	Large millimeter ruler	Swordfish-brand Xiaoniba	max.=30 sm (i=0.1sm)	China
6.	Small millimeter ruler	Swordfish-brand Xiaoniba	max.=10 sm (i=0.1sm)	China
7.	Collection of compasses	Nchk-14-1-01 (Tu 25-03.1998-78)	max.=50 sm (i=0.5 sm)	SSI
8.	Centimeters tape	FIBER-GLASS	max.=50 sm (i=0.5 sm)	China

Verification process

Speransky V.S., Zaychenko A.I. in measuring anthropometric parameters of the head. (1980,1988) and Avtandilov G.G. (1990) methods were used. The process of measuring indicators was carried out while the children were standing [7, 8].

During the measurement of craniometric indicators, craniometric points recommended by Marthin R. (1928) were used.

Because the use of Marthin R.'s numerical symbols is understandable for scientists from all over the world, and also provides clear information about what kind of symbol we are talking about.

The ratio between different parts of the head is analyzed with indicators reflecting the relationship between the main diameters. For this, the ratio of small diameters to large diameters is calculated as a percentage.

a) shtangensirkullar;

b) Centimeter tapevaruler

v) Midwives pelvimeter;

g) compasses

Figure 1. Inspection tools

It is necessary to have a constant comfortable temperature in the place of anthropometric examination, and the entire floor of the room where the examination is conducted should be on the same horizontal plane.

Examinations of students were conducted in special medical rooms of the 7th and 41st general education schools. The research rooms were provided with natural and artificial light.

The most convenient time for measuring anthropometric indicators is the morning on an empty stomach or 2-3 hours after eating. In the middle of the day, the length of the human body decreases by 2-4 centimeters due to the decrease in muscle tone.

The main part of craniometric examinations related to our scientific research was conducted from 8:00 a.m. to 12:00 p.m. Taking into account that the study time in some classes of schools is in the afternoon, it was held between 14:00 and 16:00.

Craniometric indicators were studied based on the following procedure:

Horizontal circumference of the head – it is a circular line between the glabella(g) and the opisthocranium(op). This indicator was measured with a centimeter tape while the child was standing.

E.G. Martirosov (1982) stated that it is advisable to make a centimeter tape from raw materials with low elasticity. Otherwise, it is recommended to replace the tape after every 50 tests in order to ensure the reliability of the test results. When measuring the skull, the distance between the specified points can be measured on a tape made of metal or fabric.

A metal tape is usually used to measure the arcuate dimensions of the skull. If a tape made of cloth or paper is used, its accuracy should be regularly checked by comparing it with a tape made of metal.

Taking into account the above, a separate centimeter tape was used for each 60 examinees. From the beginning to the end of the inspection, a 5-centimeter tape manufactured at the same enterprise was used.

Longitudinal diameter of the head - this is a straight line between the glabella(g) and the opisthocranion (op). This indicator is the largest diameter of the head. It was measured with a pelvimeter.

The transverse diameter of the skull - this indicator line is directed perpendicular to the sagittal axis and connects the most prominent points of the side walls of the brain box. In this case, the distance between the eurion (eu) points on both sides was measured with a taziometer (Fig. 2).

The width of the neck – this indicator is the distance between the asterion (ast) points and was measured with a barbell.

Forehead diameter (width) – we measured the distance between the most protruding parts of the forehead bumps on both sides (Fig. 3).

The widest part of the forehead – the widest part of the frontal bone circle, the distance between the stephanion (st) points on both sides of the head. It was measured using a barbell circle (Fig. 4).

The narrowest part of the forehead – this is the distance between the frontotemporal (ft) points (Figure 5). According to A.D.Dzhagaryan, this indicator is equal to the distance between the right and left brontopetal points.

We measured using a straight line between the frontotemporal points, using a caliper.

The width of the eye socket – this indicator is of two types: the maxillofrontal width of the eye socket and the dacryal width of the eye socket.

Some researchers say that this indicator is equal to the distance between the zygomolare-ectoconchion points.

To determine this indicator, we took the width of the intermediate distance from the maxillofrontal (mf) point of the eye socket to the middle of the posterior edge of the eye socket. We measured this indicator with a barbell (Fig. 6).

In craniometry, measurement of the orbit on the left side is accepted. Therefore, all craniometric examinations of the eye socket were performed on the left eye socket.

The height of the eye socket – the distance between the middle of the upper edge of the eye socket and the middle of the lower edge. We measured this indicator with a barbell circle (Fig. 7).

The outer width of the eye socket – this indicator is equal to the distance between the outer (lateral) edges of the eye sockets on both sides (Fig. 8).

Interorbital width – this indicator was determined by measuring the distance between the inner (medial) edges of the eye sockets on both sides using a caliper (Fig. 9).

Dacrial latitude – this is the distance between the dacryon (d) points on both sides. We measured using a barbell circle.

Dacral height – the distance from the bridge of the nose to the center of the line connecting the dacryon (d) points (Fig. 10).

Nose height – this is the distance between the nasal (n) and nasospinal (ns) points. We measured using a barbell circle.

Nose width – this is the largest distance between the outer edges of the nostril. The width of the nose was measured from the outer borders of the widest part of the wings of the nose using a caliper (Fig. 11).

Nose length – this is the distance between the oral and staphylion points. This indicator was determined by calculating the distance from the shoulder to the tip of the nose. This indicator was measured with a barbell circle.

Cheek diameter – this is the maximum distance between the outer surfaces of the cheekbones on both sides of the head. This indicator was measured with a caliper in the direction of the frontal axis between the right and left zygion (zy) points.

Full face height– this is the distance between the nazion (n) and gnation (gn) points. We measured this indicator with the help of a barbell circle in the normal occlusion of the upper and lower tooth rows of children.

The height of the upper part of the face – distance between nazion (n) and prosthion (pr) points. This indicator was also measured using a barbell circle.

The upper width of the face– this is the distance between the fronto-molar-temporal (fmt) points on the right and left sides. Measured with a barbell.

Medium width of the face– the distance between the zygomolar (zm) points on both sides of the skull. This indicator was measured with a barbell circle.

Morphological height of the face – this indicator is usually the distance between nazion (n) and gnation (gn) points.

In some literature, it is considered equal to the distance between the points of sellion (se) and gnation (gn). We took into account the range of sellion (se) and gnation (gn) points. The indicator was measured in children with the standard occlusion of the upper and lower tooth rows using a caliper.

The morphological height of the face is one of the dimensions of the head, and is practically equal to the full height of the face from the head.

Physiognomic height of the face – it is a straight line from the trichion to the gnathion (Fig. 12).

Mandibular diameter (bigonal width) – the distance between the right and left gonion (go) points. We measured the straight line distance between the most protruding points of the lower jaw using a caliper.

The height of the body of the lower jaw – this is the distance between the gnathic (gn) and infradental (id) points. This indicator is the distance from the base of the gingival suction of the mandibular central incisors to the lower edge of the body of the mandible. This indicator was also measured with a barbell circle.

The length of the body of the lower jaw – corresponds to the distance between the gonion (go) and gnath (gn) points. This indicator was measured with a barbell circle.

The length of the king of the lower jaw – corresponds to the distance between the tragion (tr) and gonion (gn) points. We measured this indicator with a barbell circle.

Using the method of craniometry and cranioscopy, it is possible to determine the exact structure of the skull, to observe the development of the human skull during ontogenesis, and to take into account the age-related features of the skull.

At different ages, the percentage of manifestation of one or another form of the skull varies and differs between men and women.

Brachymorphic and dolichomorphic forms of the skull are often observed in newborn boys, and mesomorph is more common in newborn girls.

The study of the bones of the skull is necessary for the ability to distinguish the skull according to age, sex and race, as well as to measure the bones and to diagnose pathological processes in the development of the human skull.

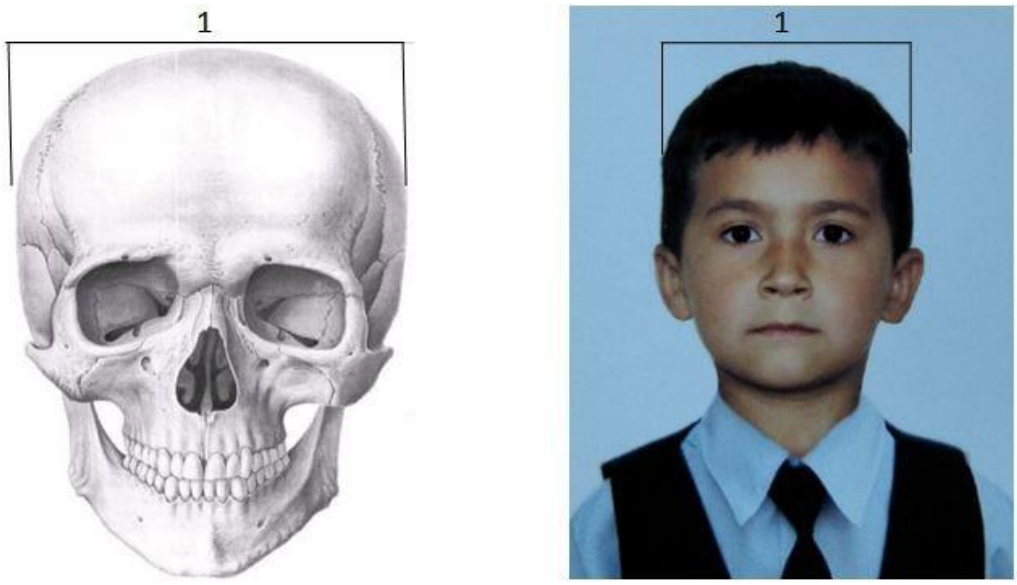

Figure 2. The field of measurement of the transverse diameter of the skull

1-transverse diameter of the head

Note: All drawings of the skull presented in this section (except photographs) are by Sinelnikov R.D. , Sinelnikov Ya.R. Atlas anatomy human 1 volume. - M.: Medicine, 1996. - taken from.

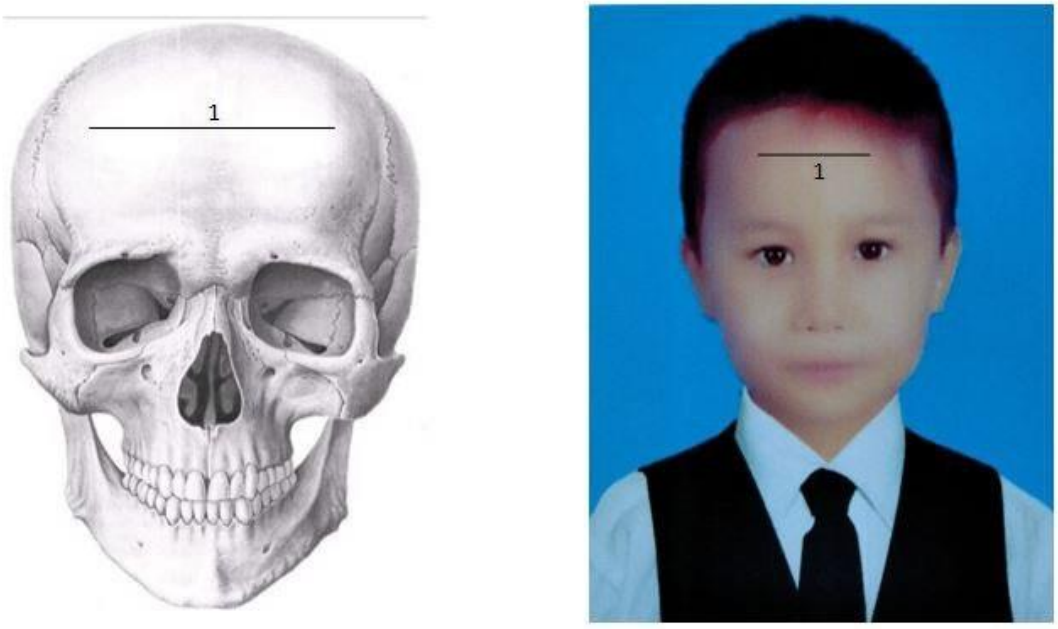

Figure 3. Forehead diameter (width) measurement area

1-forehead diameter (width).

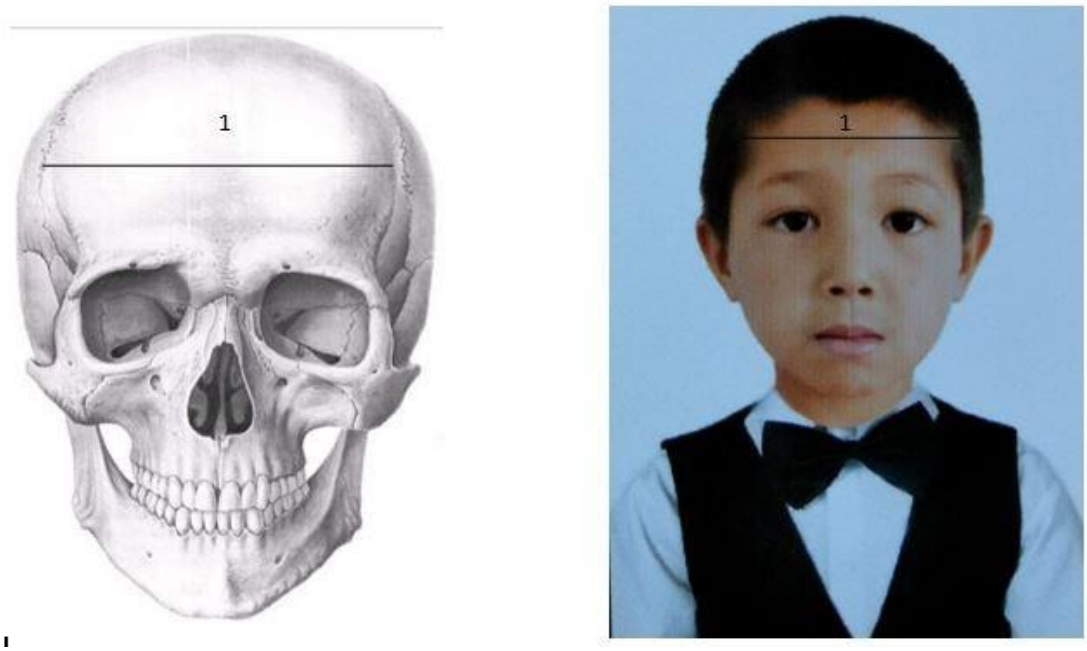

Figure 4. Area measuring the widest part of the forehead

1-the widest part of the forehead.

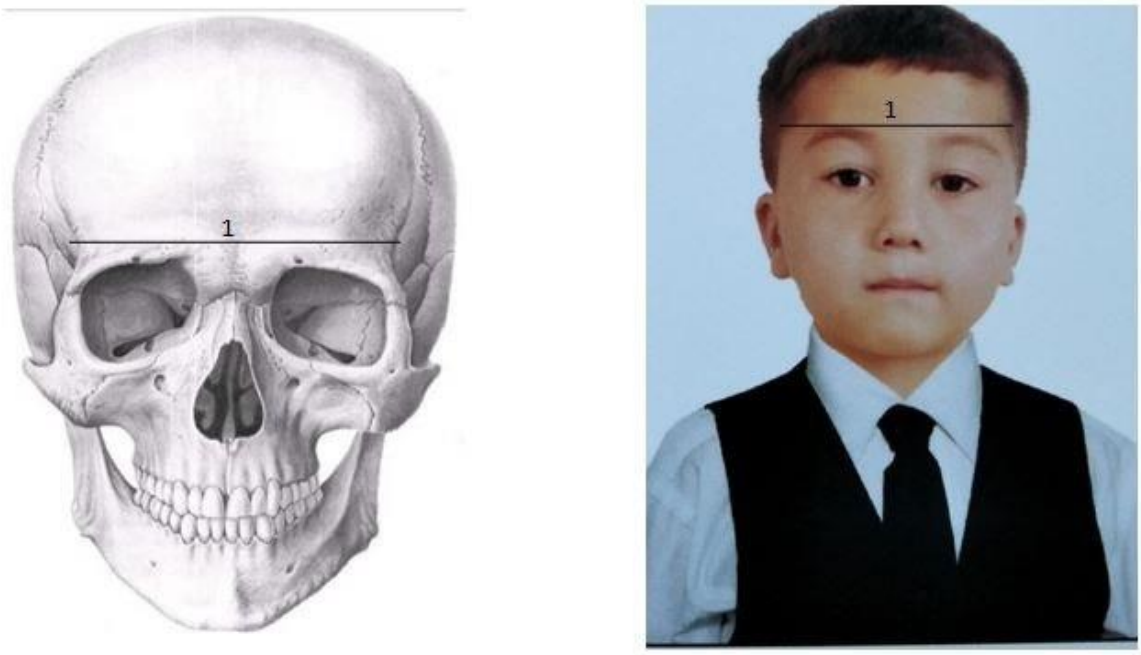

Figure 5. The measurement area of the narrowest part of the forehead

1-the narrowest part of the forehead.

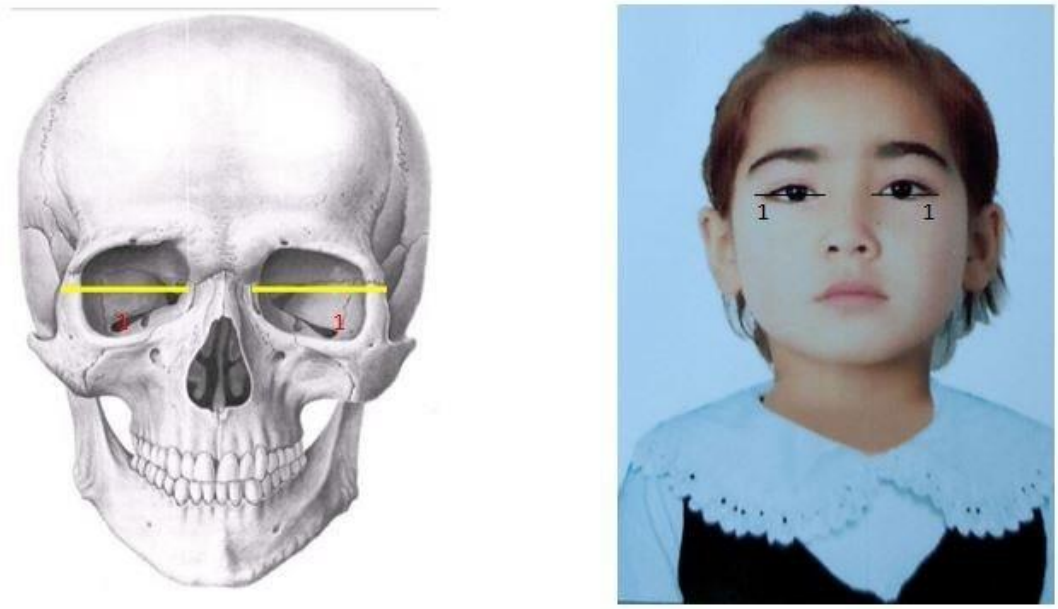

Figure 6. Field of measurement of the width of the eye socket

1-the width of the eye socket.

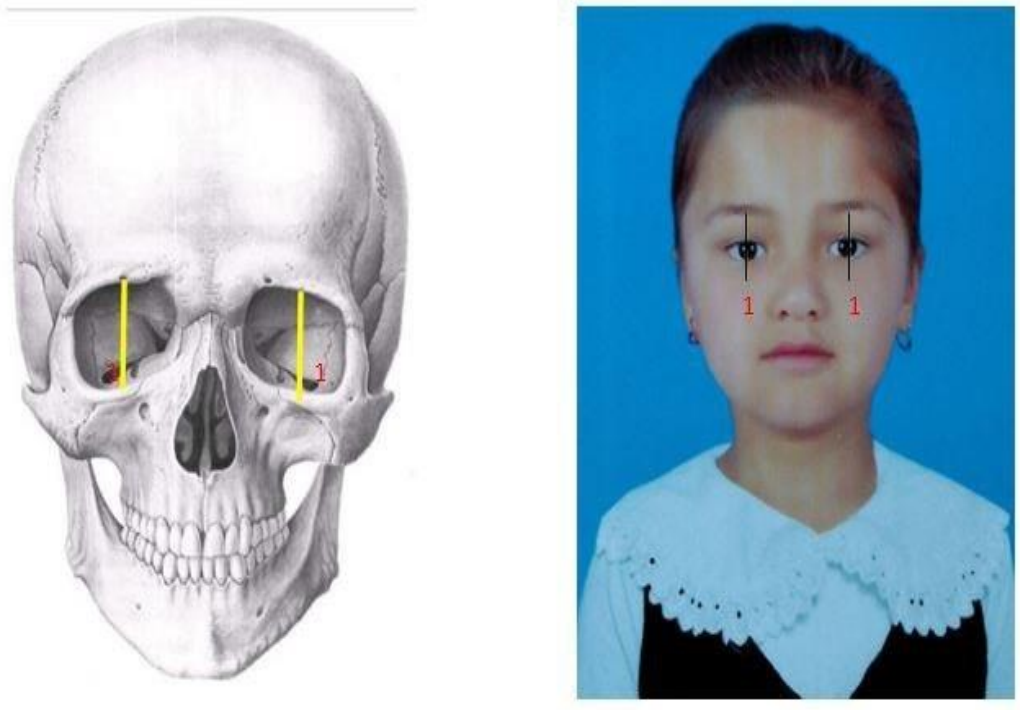

Figure 7. The field of measurement of the height of the eye socket

1-eye socket height.

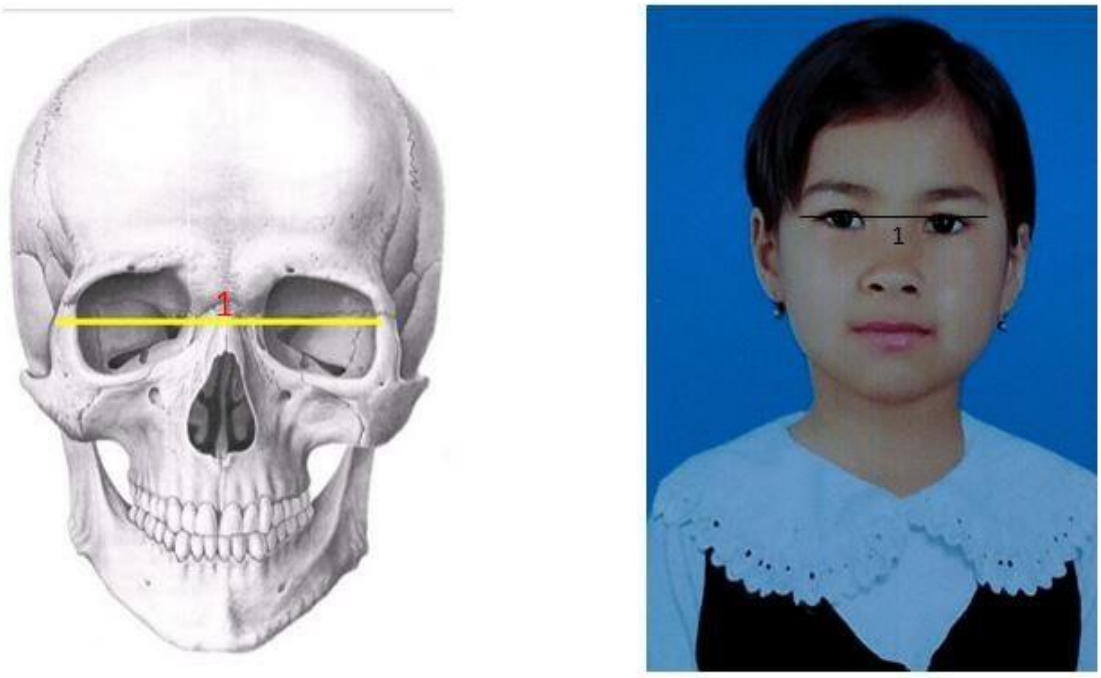

Figure 8. The field of measurement of the external width of the eye socket

1-external width of the eye socket.

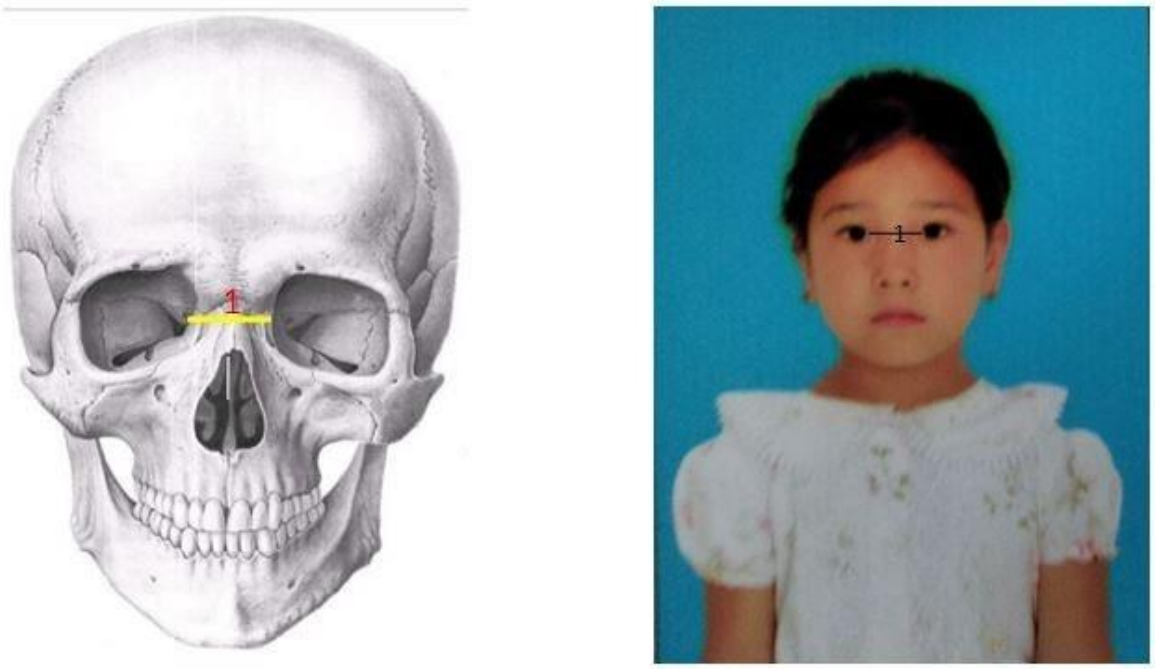

Figure 9. Field of measurement of the width between sockets

1-width between sockets.

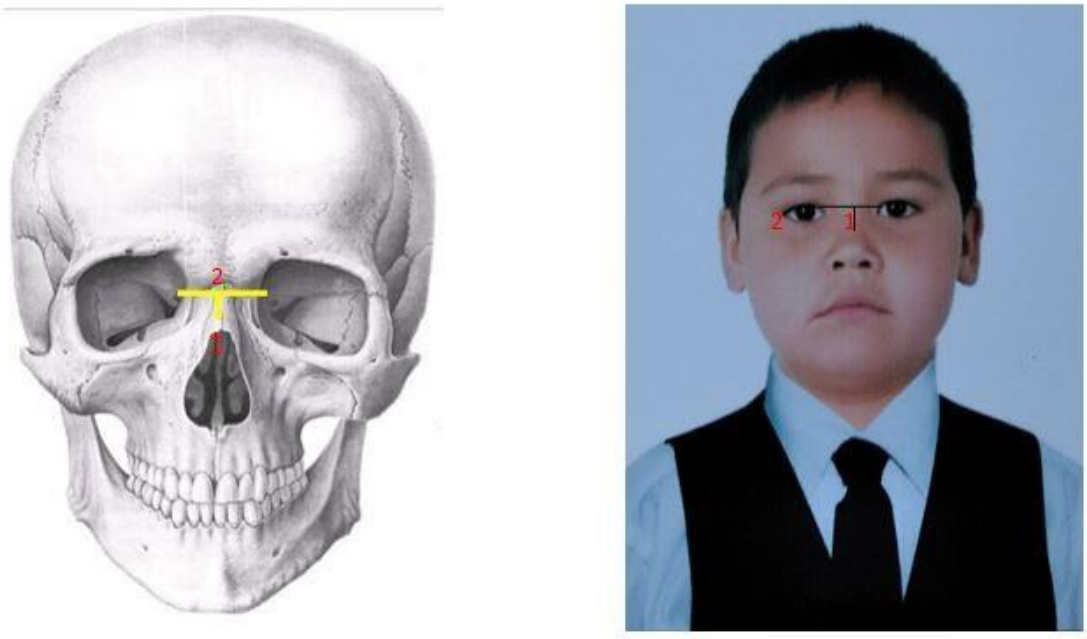

Figure 10. Field of measurement of dacryal latitude and dacryal height

1-dacryal height;

2-dacryal width.

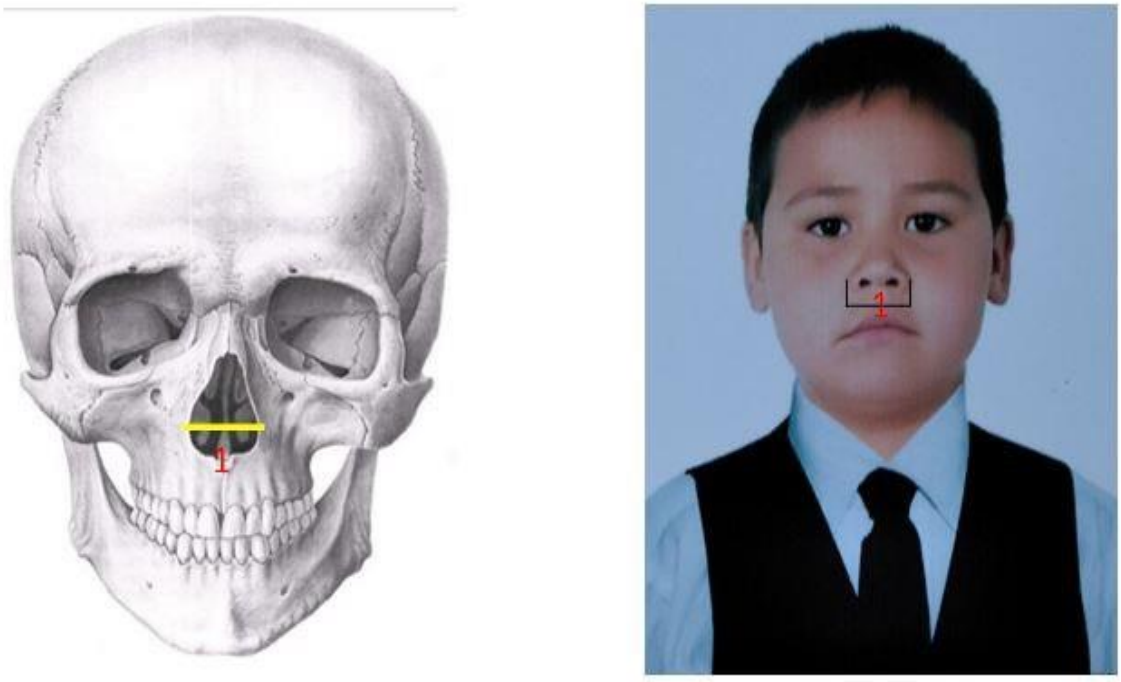

Figure 11. Nose width measurement area

1-nose width.

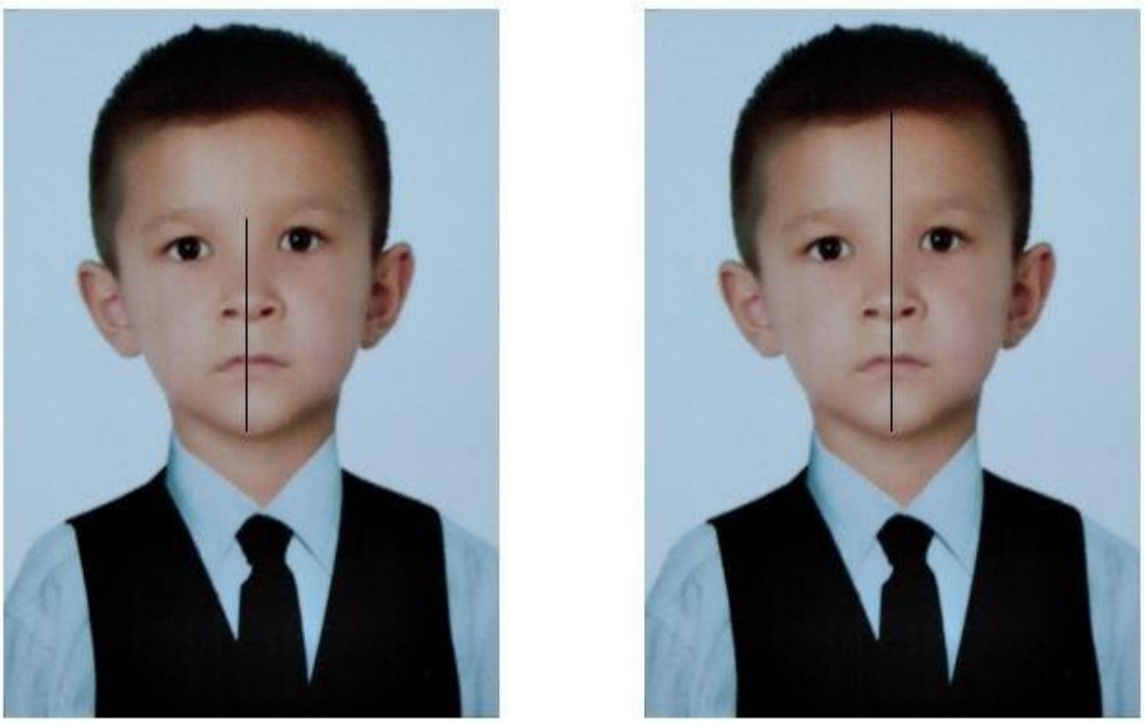

Figure 12. The field of measuring the morphological and physiognomic heights of the face

Morphological height of the face (in the photo on the left);

Physiognomic height of the face (pictured on the right).

Craniometry is a set of methods for measuring the skull, designed to study changes in its structure, and is used in anthropology, forensic medicine, as well as in some fields of medicine.

Basion - middle of leading edge of large opening.

Opistion - middle of posterior margin of large opening.

Inion - the middle of the external occipital protrusion.

Bregma - fusion of coronal and sagittal sutures.

Asterion - sfenoid, temporal, oksipital and parietal fusion of bones.

Lambda - combination of lambdoid and swept seams.

The crown is the highest point of the cranial vault.

Nazion - the middle of the seam between the frontal and nasal bones.

The height of the skull is measured between the points of nasion - the intersection of the nasofrontal seam with the inner nose (the point is located at the

root of the nose) and gnatation - the most protruding point of the lower edge of the lower jaw.

Determination of skull index:

To determine the shape of the skull, something called the head or cranial index is used. It is determined by the percentage of the transverse diameter (its width) to the longitudinal diameter (its length). In addition to these basic forms, there are also anomalous forms associated with the early fusion of one of the sutures of the skull.

Cranial and facial indicators of the skull are taken into account. Cranial index is the ratio of the longitudinal diameter of the skull to the longitudinal diameter of the skull and multiplying it by 100.

Facial index is the ratio of facial height to zygomatic diameter. According to the skull index, the skull is divided into 3 types:

- brachycranial - there is an index of more than 80 and above;
- mesocranial - if the indicator is from 75 to 79.9;
- dolichocranial, if the cranial index is less than 75.

The facial index can also be calculated without a point on the lower jaw, but with a value expressed as a percentage of the upper height of the facial skull divided by the zygomatic diameter.

The height of the upper part of the skull is the distance from the nason point to the prosion point of the upper jaw, which protrudes forward from the point between the middle incisors.

Also, depending on the facial index, the skull is divided into 3 types:

- wide or euryprosopic, where the index is less than 85;
- average or mesoprosopic index from 85 to 89.9;
- narrow or leptozoan with an index of 90 or more.

An important indicator for characterizing the skull of the face is the size of the facial angle, that is, the angle between the orbito - auricular horizontal and the line connecting the upper nasal point and the prosion. It is formed by a simple horizontal line (a straight line between the porion point - the upper edge of the

external auditory canal and the lower point of the lower orbital edge of the orbit) and the line between the nason and prosion points.

According to the size of the angle of the face, the types of the skull are distinguished:

- mesognathic (moderately protruding jaws, angle 80-84.9 °);
- prognathic (protruding jaws, angle 70-79.9 °);
- orthognathic (orthos - straight ahead, angle 85–92.9°).

There are also hyperprognathic (angle less than 70°) and hyperorthognathic (angle more than 93°) skulls.

Many attempts to determine the proportions of the face are known, which is of interest to objectively think about the limits of its variability in order to identify pathological abnormalities. This issue is given attention in craniology. We will only give some specific examples. So, the face can be divided horizontally into four parts of equal height:

a) from the top of the hairline to the edge;

b) forehead area;

c) the height of the nose and the lower part of the face.

On average, the distance between the ears should be equal to the distance from the eyebrow to the lower edge of the chin, and the distance between the outer corners of the eyes should correspond to the distance to the upper border of the eye. to the upper border of the nose and chin (to the edge of the lower lip).

It is allowed to adjust the length of the mouth cavity and the distance from the closing line of the lips to the edge of the chin protrusion.

The ratio of the height, width and profile of the face changes with age, but due to the limited number of measurements, the average absolute indicators of the corresponding dimensions are not yet considered very reliable.

The facial index in a newborn baby is 62-63%, such a small value characterizes a very wide face and is due to the fact that the height of the face is almost 2 times less than its width (the zygomatic diameter). In a two-year-old child, the face index rises to 79%, the face is still wide. By the age of six, the face

index rises to 89% and the face passes into the middle category - children become "medium-faced".

It can be seen that changes in the child's facial proportions in the postpartum period are mainly related to the laws of absolute and relative growth of the face height due to the formation of teeth. After 5-6 years of age, the change in the size that determines the facial index is not unique, but it contributes to the formation of a wide, narrow or average face of a person, which is regulated by individual genetic mechanisms.

Craniometric indices:

A. ***Head index –*** $\frac{transverse\ diameter\ of\ the\ head * 100}{longitudinal\ diameter\ of\ the\ head}$

In the subjects of the groups, the longitudinal diameter of the head is larger than its transverse diameter, which depends on the length of the body. Therefore, tall people have smaller heads than short people. A relatively high head index is recorded in women and children, which may be related to their relatively short stature. During the growth of the body, the longitudinal diameter of the head increases faster than the transverse diameter, as a result of which the head index becomes smaller. The shape of the head depends on the ratio of these diameters.

The skull index can be analyzed as follows: up to 74.9 - dolichocrania; 75.0-79.9 – mesocranium; 80.0 and higher - brachycrania.

B. Face index – $\frac{\text{the upper width of the face *100}}{\text{cheek width}}$

C. Eye cup index- $\frac{\text{eye socket height *100}}{\text{the width of the eye socket}}$

Depending on the index of the eye socket, the orbit is divided into three types: up to 75.9 - low eye socket (hameconchia), from 76.0 to 84.9 - middle eye socket (mesoconchia), 85.0 and above if it is high, it is called a high eye cup (hypsiconchia).

D. Nasal index – $\frac{\text{nose width *100}}{\text{height}}$

The nose indicator is analyzed as follows: up to 46.9 - leptorinia (narrow nose); 47.0-50.9 – mesorina (middle nose); If it is 51.0 or higher, it is called chamerinia or platyrinia (broad nose).

The average value of the nasal index on the head of women is greater than that of men. People belonging to the Negroid and South-Mongoloid groups are distinguished by the sign of a wide nose.

E. Face indicator– full face height *100
cheek width

This indicator is analyzed as follows: if it is less than 79.9%, it is a very wide face (hypereuriprozop); 80 – 84.9% have a wide face (euryprosop); 85 – 89.9% is the middle face (mesoprosop); 90-94.9% is considered a long face (leptiprosop) and 95% or more is considered a very long face (hyperleptiprosop).

F. Transverse-cheek index (transverse-craniofacial or transverse faciocerebral)– cheek diameter *100
transverse diameter of the head

This indicator was relatively high in ancient hominids. In the course of individual development, due to the sharp increase in the height of the upper part of the face, the transverse fasciocerebral index increased by almost 25%.

G. Forehead-cheek indicator–the narrowest part of the forehead *100
cheek diameter

H. Top face indicator – the height of the upper part of the face *100
cheek diameter

This indicator is analyzed as follows: up to 49.9 - eurien; 50.0-54.9 – mesen; 55.0 and above - leptin. Among the indicators of the facial skeleton, the upper facial index is of great importance in racial diagnosis.

I. Dacrial indicator – <u>dacryal height *100</u>

dacryal width

The dacryal index is analyzed as follows: up to 44.9 - small; 45.0-53.9 - average; If it is 54.0 or more, it is considered large.

Numerical data of all craniometric indicators obtained during scientific examination were processed using the method of variational statistics. The following mathematical formulas were used, and the level of reliability of the obtained data was determined using the Student's equation:

$$\mathbf{X = A + i\frac{\sum pd}{n}}$$

$$\sigma = \pm i \sqrt{\frac{\sum pd^2}{n-1} - \left(\frac{\sum pd}{n-1}\right)^2}$$

$$m = \pm \frac{\sigma}{\sqrt{n}}; \quad V = \frac{\sigma \cdot 100}{X}; \quad m\sigma = \frac{m}{\sqrt{2}}; \quad mV = \frac{V}{\sqrt{2n}}; \quad t = \frac{X_1 - X_2}{\sqrt{m_1^2 + m_2^2}},$$

buerda,

X – average arithmetic value;

A – conditional arithmetic mean value;

i –variation row interval;

p – the recurrence frequency of the variant;

d – the deviation of the alternative from the arithmetic mean value;

n – number of observations in a group;

m – arithmetic mean value error;

σ –mean squared deviation;

V – varianta.

CONCLUSIONS FROM CHAPTER II

In order to study the craniometric indicators of children of small school age living in the conditions of Izboskan district of Andijan region, the following should be done:

To study the changes of craniometric indicators in the period between 7-12 years of age.

Determination of gender differences between the craniometric parameters of boys and girls of junior school age.

To determine the periods of relatively intensive growth of craniometric indicators between the ages of 7-12.

I. Methods used to conduct the audit:
   a) Morphometric methods;
   b) Variational statistical methods.

II. In order to provide a more complete description of the skull of children of primary school age, the following craniometric indicators should be measured:
   1. Craniometric indicators of the brain part of the skull.
   2. General craniometric indicators of the facial part of the skull.
   3. Craniometric indicators of the forehead area of the skull.
   4. Craniometric indicators of the eye socket.
   5. Craniometric indicators of the nose.
   6. Craniometric indicators of the lower jaw bone.

III. When organizing craniometric examinations, attention was paid to the following:
   1. Proper selection and proper grouping of material.
   2. Appointment of a place with favorable conditions and meeting sanitary requirements for carrying out craniometric examination.
   3. Set a specific time for the inspection.
   4. Selection and collection of inspection tools. To standardize the correctness of their operation.

CHAPTER III

RESULTS OF CRANIOMETRIC STUDY AND THEIR ANALYSIS

The results of the study show that the horizontal head circumference in boys continues to increase from 7 to 12 years of age and increases from 51.0±0.60 cm P<0.001 to 54.2±0.50 cm P<0.001 (Fig. 13). Relatively intensive growth is observed in boys aged 7-10, while growth slows down between 11-12 years of age [99, 101].

It was observed that the horizontal circumference of the head of girls also increased in accordance with age in the studied age range (from 50.1±0.20 cm P<0.001, to 53.1±1.02 cm P<0.001) (Tab. 3). Research results confirm that the period of relatively intensive growth falls between 7-10 years of age [81].

Table 3

Growth dynamics of horizontal head circumference indicators in children aged 7-12 (in X±m, cm),(In the case of children living in Izboskan district)

Age	7	8	9	10	11	12
Boy	51,0±0,60 P<0,001	51,2±0,40 P<0,001	52,2±0,70 P<0,001	52,8±0,03 P<0,001	54,1±0,30 P<0,001	54,2±0,50 P<0,001
Girl	50,1±0,20 P<0,001	50,2±0,60 P<0,001	52,0±0,60 P<0,001	52,6±0,50 P<0,001	53,0±0,60 P<0,001	53,1±1,02 P<0,001

Longitudinal diameter of the head in 7-year-old boys was 16.0±0.02 cm, P<0.001, at 10 years it was 16.4±0.20 cm, P<0.001, and at 12 years it was 16.6 P<0.001 up to ±0.28 cm, increasing and increasing by 4% during this period. The results of the study revealed that the period of the most rapid growth of indicators corresponds to the age of 7-10 years (Fig. 14).

In girls, the longitudinal diameter of the head increases from 15.0±0.08 cm, P<0.001, to 16.3±0.20 cm, P<0.001, between the ages of 7-12. During this period, this indicator will increase by 9%. In girls, the longitudinal diameter of the head undergoes relatively more changes in the studied youth than in boys (Tab.4).

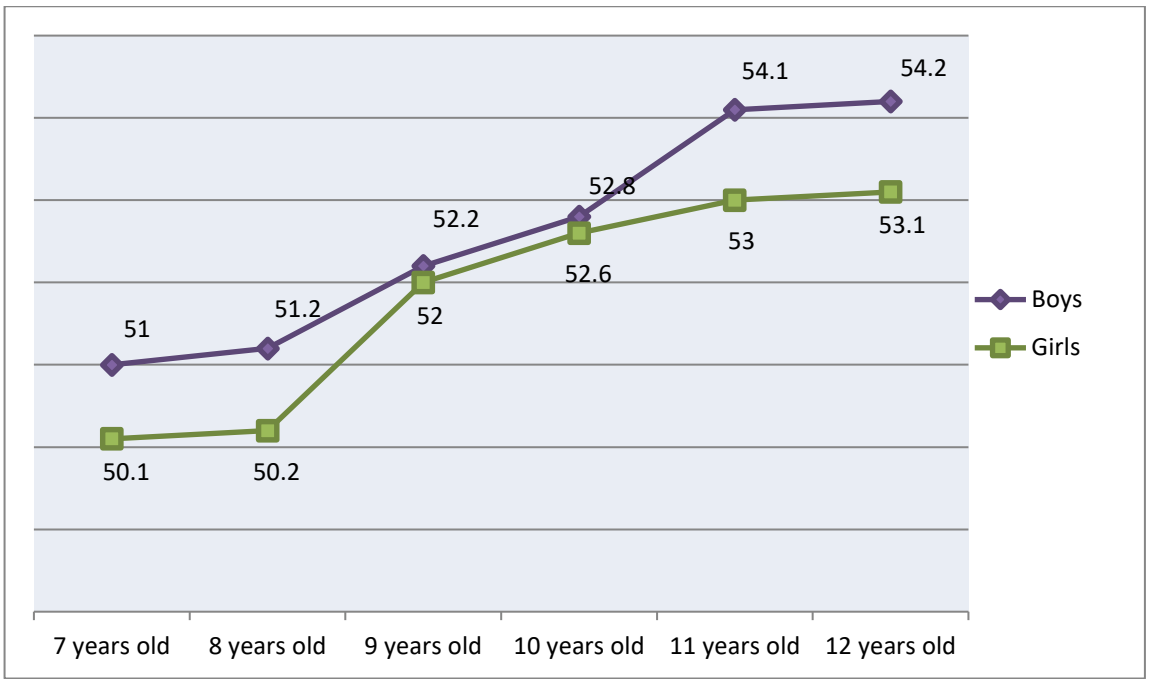

Figure 13. Growth dynamics of horizontal head circumference indicators in children aged 7-12 years (in X±m, cm)

Table 4

Growth dynamics of the longitudinal diameter of the head in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	16,0±0,02 P<0,01	16,1±0,18 P<0,01	16,2±0,21 P<0,01	16,4±0,20 P<0,01	16,5±0,24 P<0,01	16,6±0,28 P<0,01
Girl	15,0±0,08 P<0,01	15,2±0,24 P<0,01	15,3±0,2 P<0,01	15,5±0,30 P<0,01	16,1±0,18 P<0,01	16,3±0,20 P<0,01

In 7-12-year-old subjects, the longitudinal diameter of the head increases intensively depending on age. The period of the fastest growth of the longitudinal diameter of the head in the boys of the research area is observed at the age of 7-10 years. In girls living in this region, the longitudinal diameter of the head changes more than in boys [79, 83].

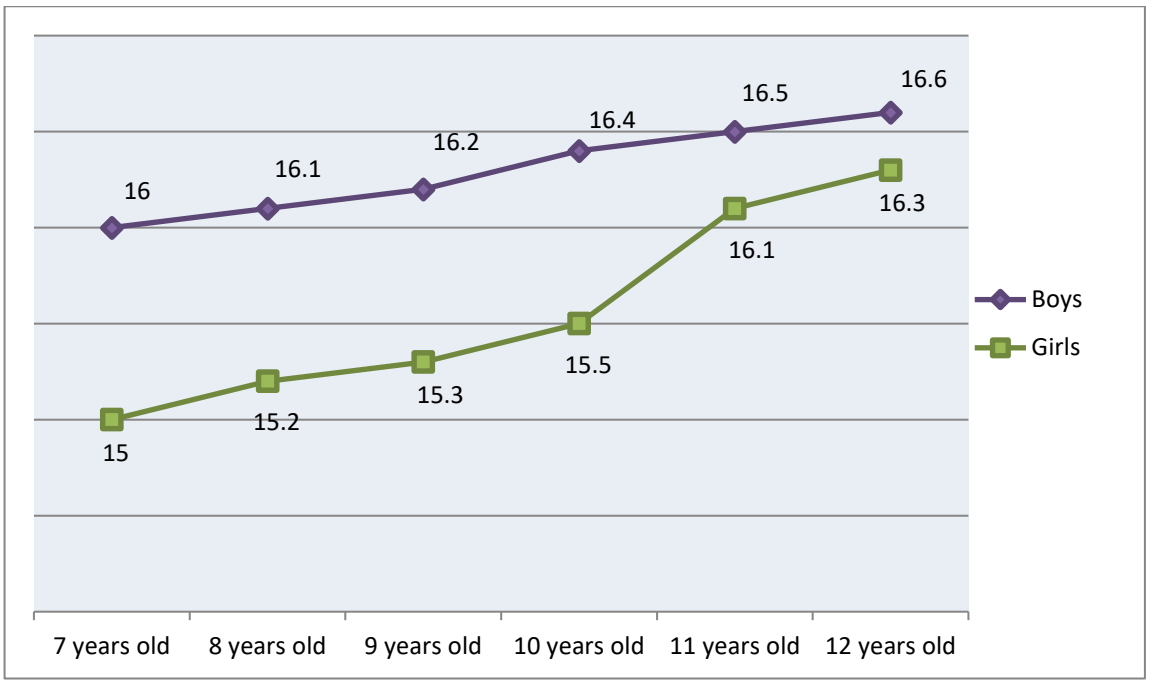

Figure 14. Growth dynamics of the longitudinal diameter of the head in children aged 7-12 years (in X±m, cm)

In 7-year-old boys, the transverse diameter of the head is 14.1±0.20 cm, P<0.01, while in girls this indicator is 14.0±0.22 cm, P<0. 01, will be equal. This indicator continues to increase in boys and girls at the studied age and in boys at the age of 12 it is 15.1±0.12 cm, P<0.01, in girls of the same age at 15 ,0±0.10 cm, P<0.01 (Fig. 15).

The growth of the transverse diameter of the skull increases by 7% in girls aged 7-12 years, and by 8% in boys [109].

The periods of the most rapid growth of indicators are between the ages of 7-11 in both sexes (Tab. 5).

Table 5

Growth dynamics of the transverse diameter of the head of children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	14,1±0,20 P<0,01	14,2±0,12 P<0,01	14,4±0,30 P<0,01	14,6±0,24 P<0,01	15,0±0,03 P<0,01	15,1±0,12 P<0,01

Girl	14,0±0,22 P<0,01	14,0±0,24 P<0,01	14,1±0,26 P<0,01	14,4±0,14 P<0,01	14,6±0,05 P<0,01	15,0±0,10 P<0,01

The size of the nape of the neck was 10.14±0.30 cm, P<0.01, in boys aged 7 years, and 10.72±0.42 cm by the age of 10, P<0.01, and at the age of 12, it reaches 11.08±0.36 cm, P<0.01. The size of this indicator is 9.84±0.24 cm in 7-year-old girls, P<0.01, 10.36±0.44 cm in 10-year-old girls, P<0.01, and 10.96 in 12-year-old girls. Increases to ±0.26 cm, P<0.01.

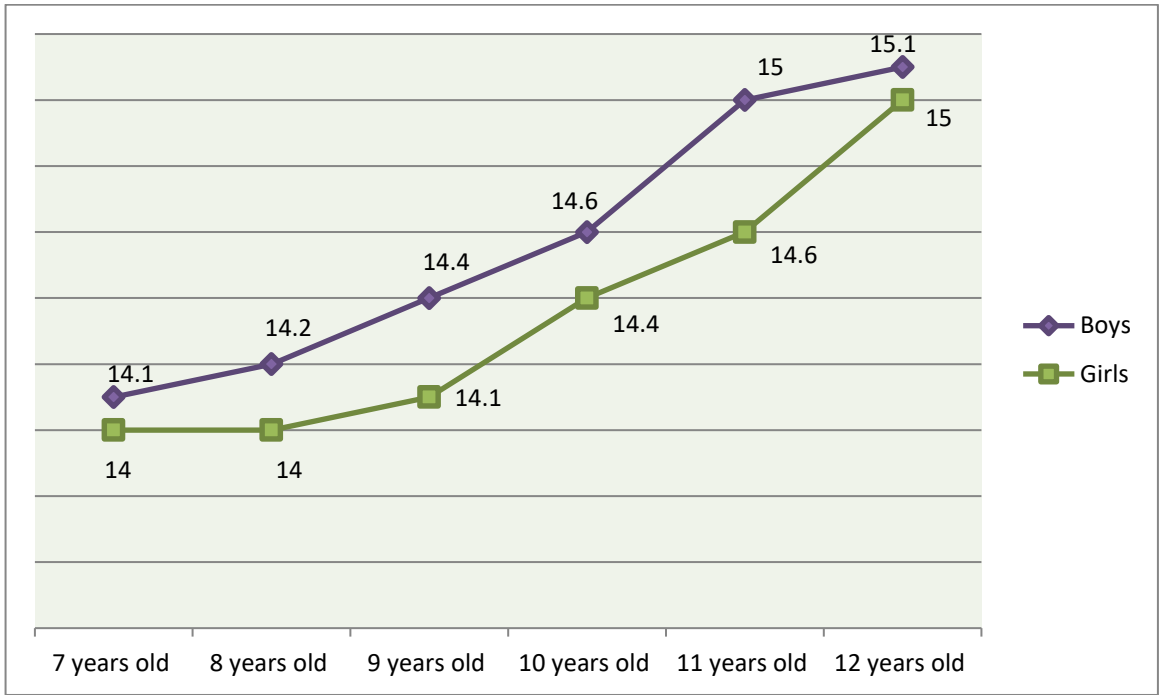

Figure 15. Growth dynamics of the transverse diameter of the head of children aged 7-12 years (in X±m, cm)

The width of the nape increases by 9.2% in boys between the ages of 7 and 12 (from 10.14±0.30 cm, P<0.01 to 11.08±0.36 cm, P<0,01). A relatively faster growth is observed in girls, and during this period the width of the neck of girls increases by 11.3% (from 9.84±0.24 cm to 10.96±0.26 cm, P<0.01) (Fig. 16). The period of the most rapid growth of the indicators falls between the ages of 7-10 in both sexes (Tab. 6).

Table 6

Dynamics of growth of craniometric indicators of the width of the neck in children of junior school age (7-12 years old) (in X±m, cm)

Age	7	8	9	10	11	12
Boy	10,14±0,30	10,44±0,28	10,60±0,40	10,72±0,42	10,86±0,52	11,08±0,36
Girl	9,84±0,24	10,16±0,30	10,20±0,46	10,36±0,44	10,64±0,34	10,96±0,26

Forehead diameter in boys was 8.10±0.60 cm P<0.01 at 7 years old, 8.52±0.30 cm at 10 years old P<0.01 and 8.86±0.01 at 12 years old 0.20 cm reaches P<0.01. A relatively rapid growth of this indicator during this period corresponds to the age of 10-12 years (from 8.52±0.30 cm to 8.86±0.20 cm P<0.01).

Forehead diameter in girls increases from 7.66±0.60 cm, P<0.01, to 8.54±0.46 cm, P<0.01, in the period up to 7-12 years. During this period, the relatively rapid growth of the indicator corresponds to the age group of 8-11 years (Fig. 17).

In children from 7 to 12 years of age, the size of the forehead diameter, like other anthropometric indicators, grows in accordance with age and gender. In boys aged 7-12, the size of the forehead diameter increased from 8.10±0.60 cm, P<0.01, to 8.86±0.20 cm, P<0.01, and in girls aged 7 From 66±0.60 cm, P<0.01, to 8.54±0.46 cm, P<0.01, an increase is observed (Tab. 7).

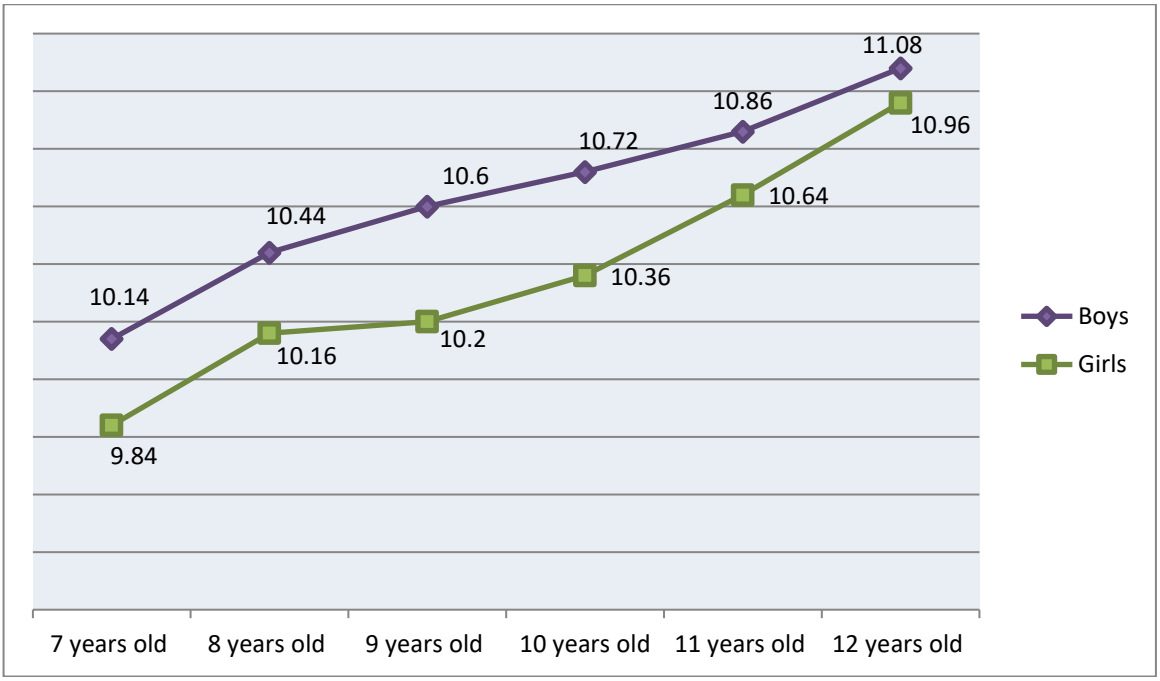

Figure 16. Dynamics of growth of craniometric indicators of the width of the neck in children of junior school age (7-12 years old) (in X±m, cm)

Table 7

Growth dynamics of forehead diameter indicators in children of primary school age (in X±m, cm)

Age	7	8	9	10	11	12
Boy	8,10±0,60 P<0,01	8,24±0,26 P<0,01	8,44±0,20 P<0,01	8,52±0,30 P<0,01	8,68±0,28 P<0,01	8,86±0,20 P<0,01
Girl	7,66±0,60 P<0,01	7,92±0,28 P<0,01	8,14±0,32 P<0,01	8,28±0,32 P<0,01	8,42±0,36 P<0,01	8,54±0,46 P<0,01

The widest part of the forehead is 12.24±0.76 cm in 7-year-old boys, it reaches 12.76±0.20 cm in 10-year-old boys and 13.36±0.40 cm in 12-year-old boys. The size of this indicator is 12.08±0.20 cm in 7-year-old girls, 12.56±0.40 cm in 10-year-old girls, and 13.10±0.34 cm in 12-year-old girls.

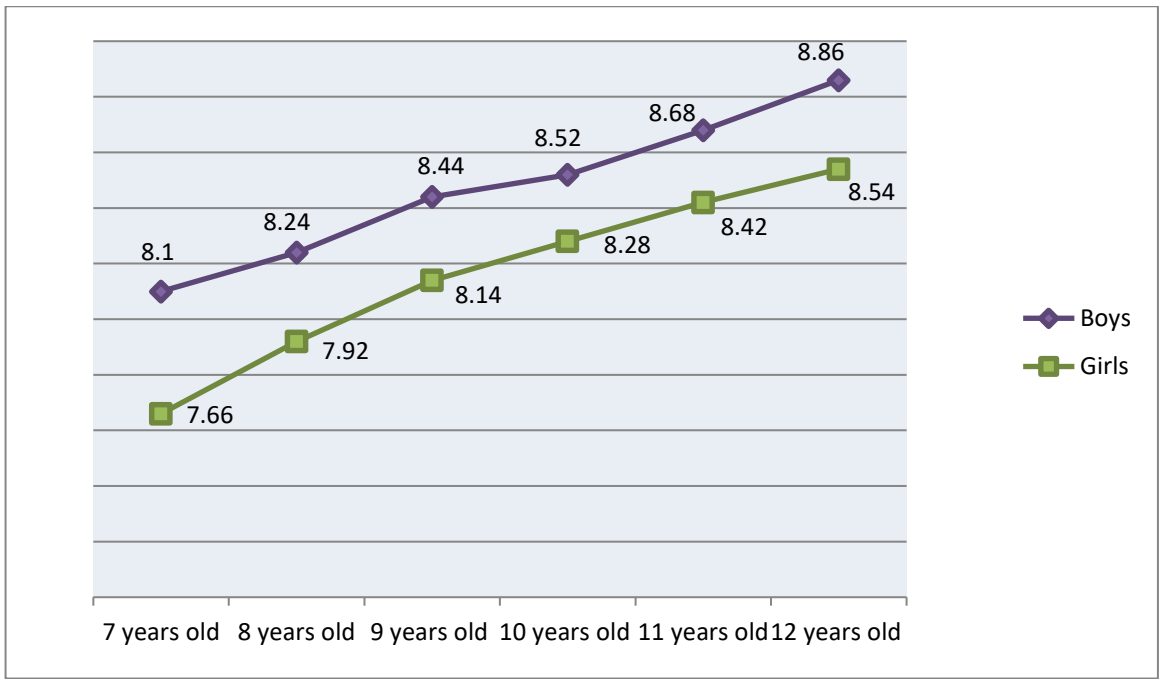

Figure 17. Growth dynamics of forehead diameter indicators in children of primary school age (in X±m, cm)

The widest part of the forehead grows mainly in girls, up to the age of 10-12 [93].

The size of the narrowest part of the forehead is equal to 10.14±0.10 cm in 7-year-old boys, and increases to 11.18±0.22 cm in 10-year-old boys. The indicator is 11.72±0.34 cm in boys by the age of 12 (Fig. 18).

In girls, it is equal to 10.06±0.26 cm at the age of 7, increases to 10.68±0.54 cm at the age of 10, and reaches 11.22±0.36 cm by the age of 12 (Tab. 8).

Table 8

Growth dynamics of craniometric indicators of the widest and narrowest parts of the forehead in the period from 7 to 12 years of age (in X±m, cm)

Age	Sex	The widest part of the forehead	The narrowest part of the forehead
7	Boy	12,24±0,76	10,14±0,10
	Girl	12,08±0,20	10,06±0,26

8	Boy	12,38±0,28	10,32±0,36
	Girl	12,26±0,26	10,28±0,16
9	Boy	12,62±0,28	10,64±0,44
	Girl	12,42±0,32	10,52±0,40
10	Boy	12,76±0,20	11,18±0,22
	Girl	12,56±0,40	10,68±0,54
11	Boy	13,06±0,38	11,30±0,28
	Girl	12,72±0,26	11,06±0,24
12	Boy	13,36±0,40	11,72±0,34
	Girl	13,10±0,34	11,22±0,36

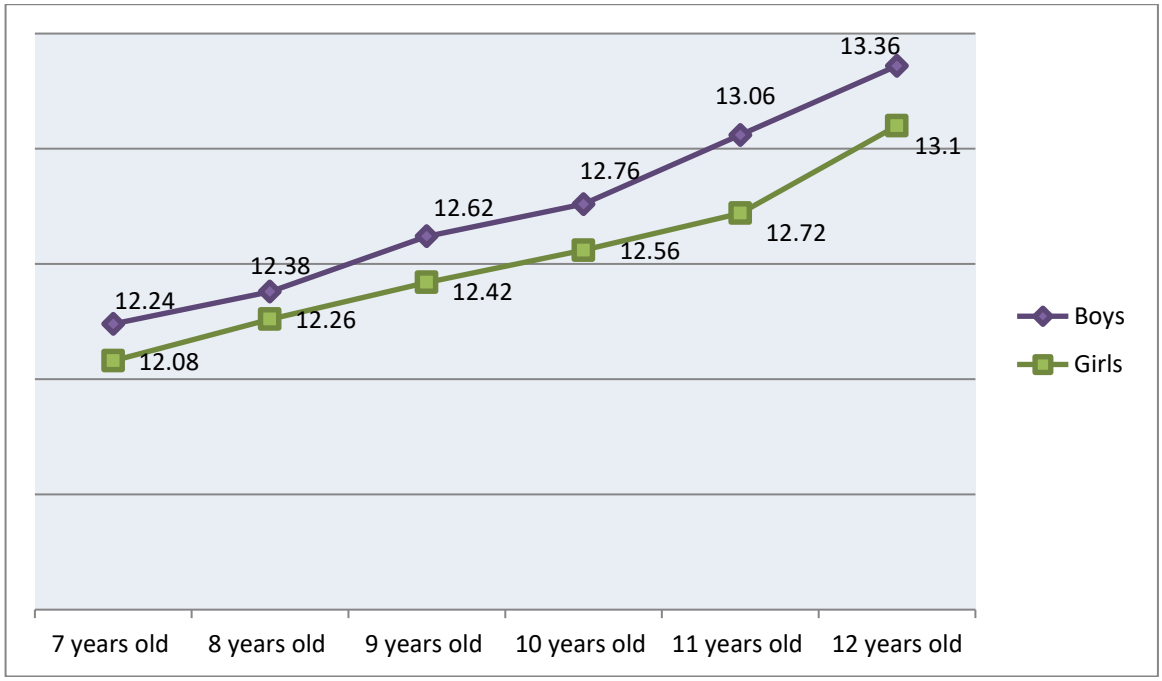

Figure 18. Growth dynamics of craniometric parameters of the widest part of the forehead in the period from 7 to 12 years old (in X±m, cm)

The width of the eye cup was equal to 3.08±0.02 cm in 7-year-old boys, P<0.001, while the indicator was 3.26±0 in 8-year-old boys 01 cm, P<0.001, and at the age of 9 it is 3.34±0.01 cm, P<0.001. The width of the eye cup reaches 3.46±0.03 cm, P<0.001 by the age of 10, and this indicator reaches 3.84±0.04 cm, P<0.001 at the age of 12. It was found that in girls, this indicator continues to grow at the same pace in the period from 7 to 12 years old. In 7-year-old girls, this

indicator is equal to 3.02±0.05 cm, P<0.001, in 10-year-old girls it is 3.36±0.10 cm, P<0.001, and in 12-year-olds it is 3.74±0.07 cm., P<0.001, increases (Tab. 9).

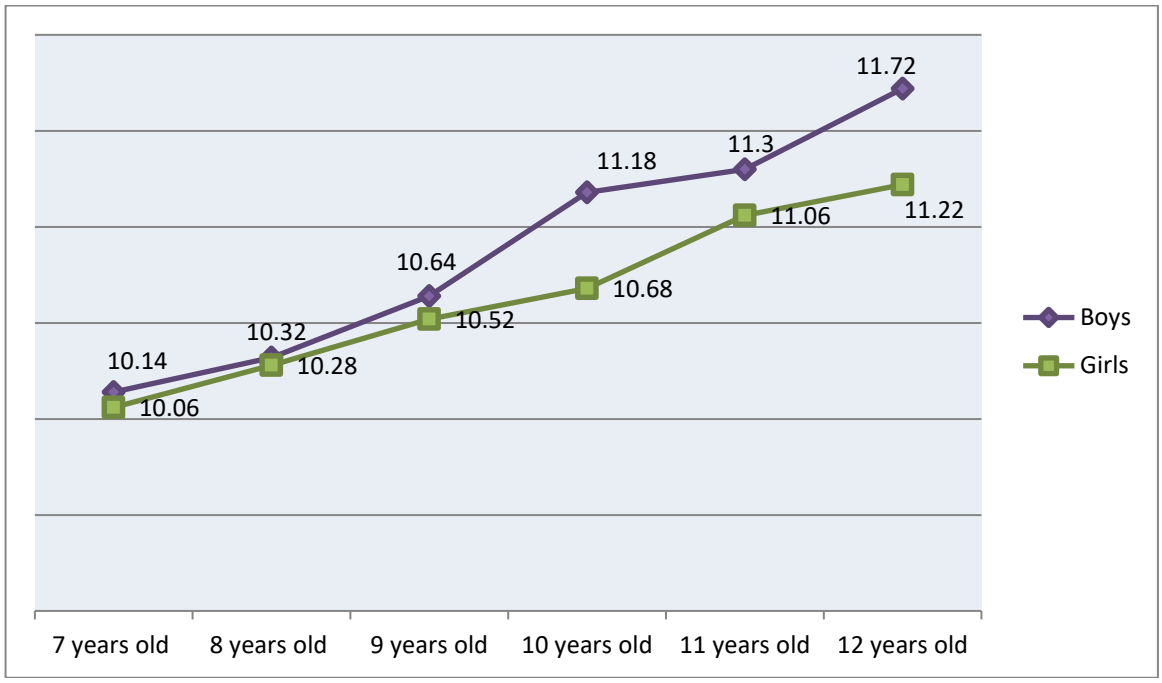

Figure 19. Growth dynamics of craniometric indicators of the narrowest part of the forehead in the period from 7 to 12 years old (in X±m, cm)

Table 9

Growth indicators of width of eye socket in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	3,08±0,02 P<0,001	3,26±0,01 P<0,001	3,34±0,01 P<0,001	3,46±0,03 P<0,001	3,62±0,11 P<0,001	3,84±0,04 P<0,001
Girl	3,02±0,05 P<0,001	3,14±0,04 P<0,001	3,26±0,02 P<0,001	3,36±0,10 P<0,001	3,52±0,13 P<0,001	3,74±0,07 P<0,001

This indicator increases from 3.08±0.02 cm, P<0.001, to 3.84±0.04 cm, P<0.001 in boys from 7 to 12 years, and 3.02 in girls, respectively. From ±0.05 cm, P<0.001, to 3.74±0.07 cm, P<0.001, it was revealed from the results of the study (Fig. 20).

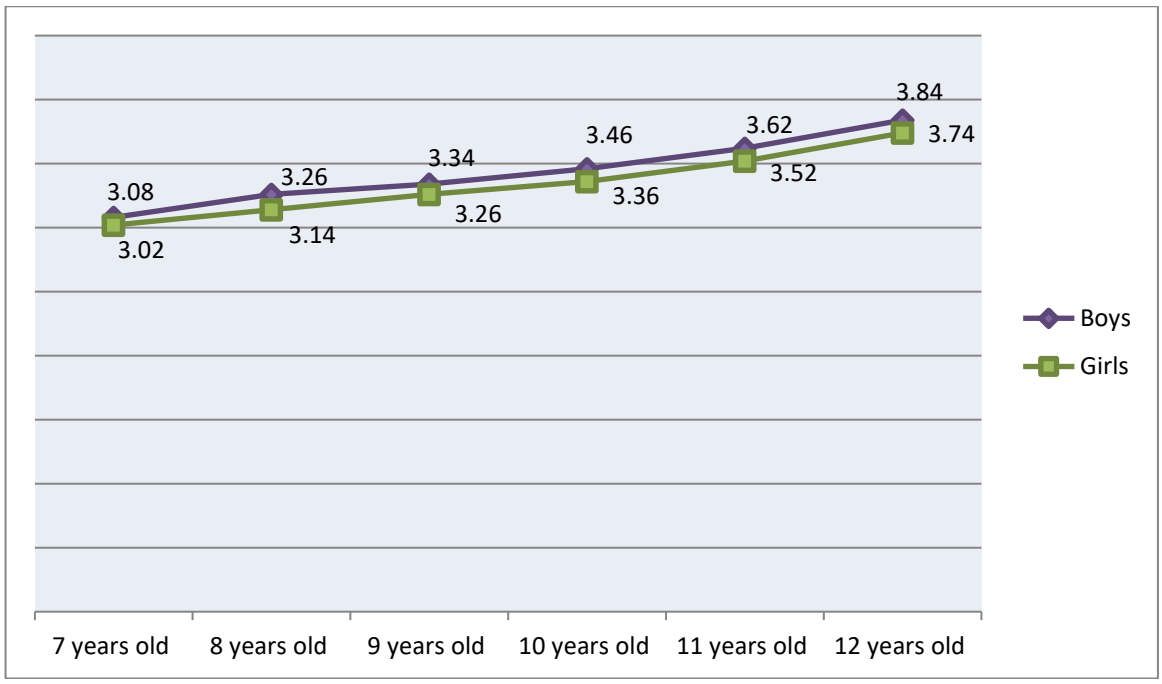

Figure 20. Growth indicators of width of eye socket in children aged 7-12 years(in X±m, cm)

In boys, the height of the eye socket at 7 years is 2.44±0.01 cm, P<0.001, and in girls it is 2.34±0.08 cm, P<0.001. This indicator is 2.82±0.02 cm in boys, P<0.001, and 2.62±0.03 cm in girls, P<0.001, according to the research results. found his confirmation. The indicator ranges from 2.92±0.05 cm, P<0.001, to 3.04±0.06 cm, P<0.001 in boys aged 11-12 years in girls it increases from 2.74±0.04 cm, P<0.001 to 2.84±0.04 cm, P<0.001 (Tab. 10). It was confirmed during the study that the periods of the most rapid growth of the above-mentioned indicators are between the ages of 7-10 among boys and girls living in the conditions of Izboskan district [85, 100].

Table 10

Growth dynamics of height of eye socket in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	2,44±0,01 P<0,001	2,56±0,01 P<0,001	2,73±0,10 P<0,001	2,82±0,02 P<0,001	2,92±0,05 P<0,001	3,04±0,06 P<0,001

Girl	2,34±0,08 P<0,001	2,43±0,02 P<0,001	2,54±0,11 P<0,001	2,62±0,03 P<0,001	2,74±0,04 P<0,001	2,84±0,04 P<0,001

This indicator ranges from 2.44±0.01 cm in boys, P<0.001, to 3.04±0.06 cm, P<0.001, in girls from 7 to 12 years old, and It increases from 2.34±0.08 cm, P<0.001, to 2.84±0.04 cm, P<0.001. In the subjects of the studied area, the fastest development periods of eye socket height growth indicators are observed in the age range of 7-10 years [78]. It is observed that the parameters of growth indicators are faster in girls than in boys (Fig. 21).

The external width of the eye socket was 9.32±0.11 cm, P<0.001, in 7-year-old boys, 9.65±0.21 cm, 10-year-old, P<0.001, and 12-year-old and equals to 10.10±0.30 cm, P<0.001 (Fig. 22). During this period, this indicator will increase by 8.2% [87, 108].

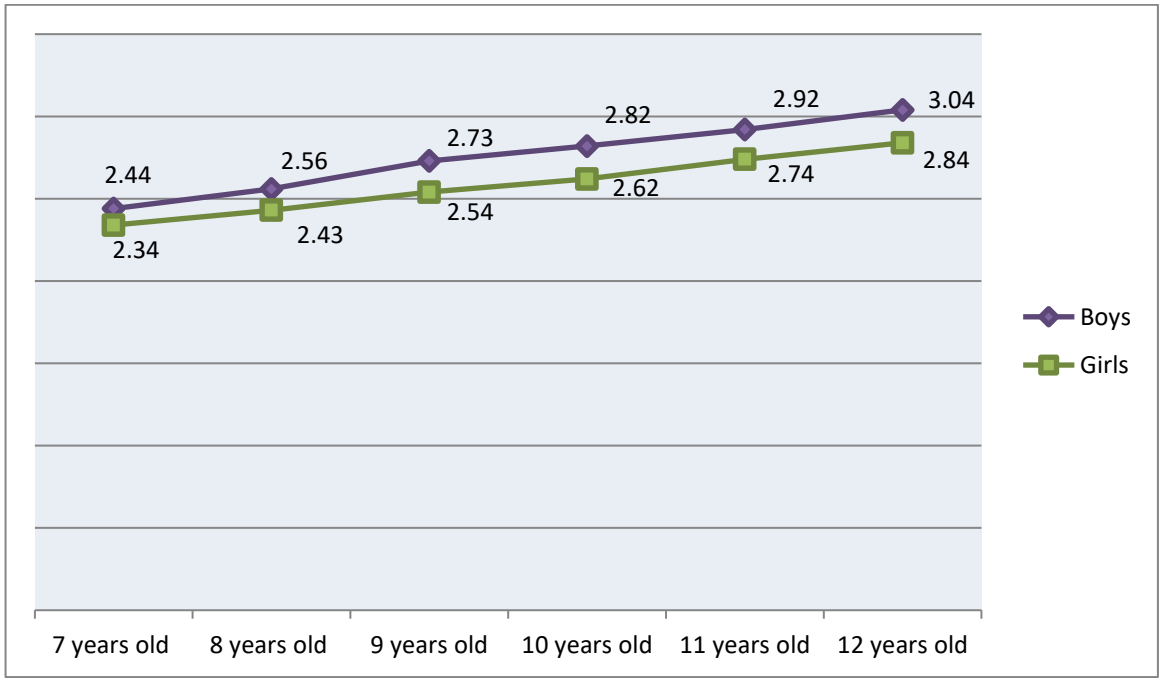

Figure 21. Growth dynamics of height of eye socket in children aged 7-12 years (in X±m, cm)

In girls, it was 9.12±0.12 cm at the age of 7, P<0.001, 9.52±0.20 cm at the age of 10, P<0.001, and 9.96±0.16 cm at the age of 12, P<0.001. 0.001 is reflected

in the results of craniometric research. During this period, this indicator will increase 1.2 times (Tab. 11). During the analysis of the obtained results, it was determined that the period of rapid growth of the indicator corresponds to the age of 7-10 years [86, 112].

Table 11

Growth indicators of the outer width of the eye socket in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	9,32±0,11 P<0,001	9,42±0,24 P<0,001	9,50±0,24 P<0,001	9,65±0,21 P<0,001	9,82±0,16 P<0,001	10,10±0,30 P<0,001
Girl	9,12±0,12 P<0,001	9,22±0,20 P<0,001	9,38±0,11 P<0,001	9,52±0,20 P<0,001	9,75±0,12 P<0,001	9,96±0,16 P<0,001

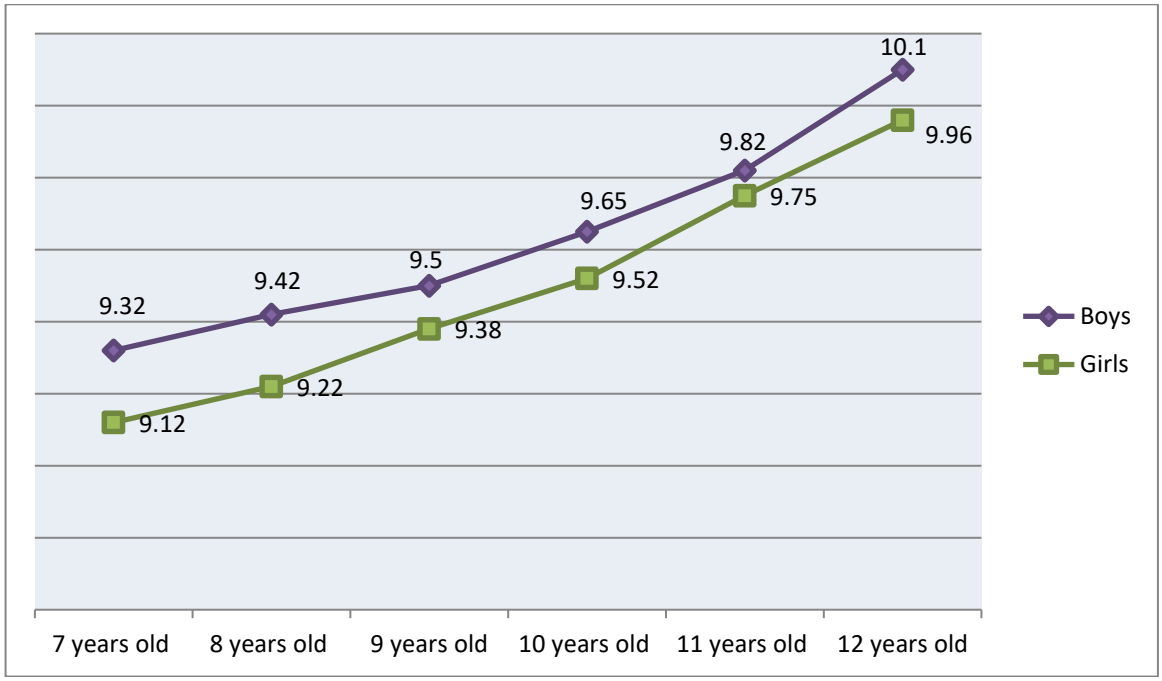

Figure 22. Growth indicators of the outer width of the eye socket in children aged 7-12 years (in X±m, cm)

In boys, the size of the interorbital space was 2.14±0.02 cm at 7 years, P<0.001, 2.40±0.05 cm at 10 years, P<0.001, and at 12 years reaches 2.70±0.05

cm, P<0.001. A relatively rapid increase of this indicator during this period corresponds to the age of 10-12 years (from 2.40±0.05 cm to 2.70±0.05 cm, P<0.001) (Fig. 23).

The size of the interorbital space in girls increases from 1.82±0.03 cm, P<0.001, to 2.54±0.07 cm, P<0.001, in the period up to 7-12 years. The size of the interorbital space in 7-year-old girls was 1.82±0.03 cm, P<0.001, in 10-year-old girls it was 2.34±0.06 cm, P<0.001, and in 12-year-old girls it was 2.54±0.07 cm, P<0.001, increase is reflected in the obtained results. This indicator increases by 25% for boys and 38% for girls between the ages of 7-12 [96]. It can be seen that girls are more active than boys during the period from 7 to 12 years old (Tab. 12).

Table 12

Dynamics of growth of the dimensions of the interorbital space in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	2,14±0,02 P<0,001	2,24±0,06 P<0,001	2,26±0,08 P<0,001	2,40±0,05 P<0,001	2,54±0,07 P<0,001	2,70±0,05 P<0,001
Girl	1,82±0,03 P<0,001	2,15±10,05 P<0,001	2,24±0,05 P<0,001	2,34±0,06 P<0,001	2,42±0,04 P<0,001	2,54±0,07 P<0,001

The size of the dacryal width was 2.70±0.10 cm in boys at the age of 7, P<0.01, at the age of 10 it was 2.90±0.07 cm, P<0.01, and at the age of 12 The indicator is equal to 3.10±0.02 cm, P<0.01. In girls, this indicator was 2.60±0.02 cm at the age of 7, P<0.01, 2.80±0.04 cm at the age of 10, P<0.01 and 2.90±0 at the age of 12, respectively. 04 cm, P<0.01, is observed (Fig. 24).

Dacryal height in boys and girls aged 7-12 years increased from 0.90±0.10 cm in boys, P<0.01, to 1.42±0.04 cm, P<0. 01, in girls it increases from 0.88±0.04 cm, P<0.01 to 1.32±0.10 cm, P<0.01 (Fig. 25).

The period of the most rapid growth of indicators is between the ages of 7-9 in both sexes (Tab. 13).

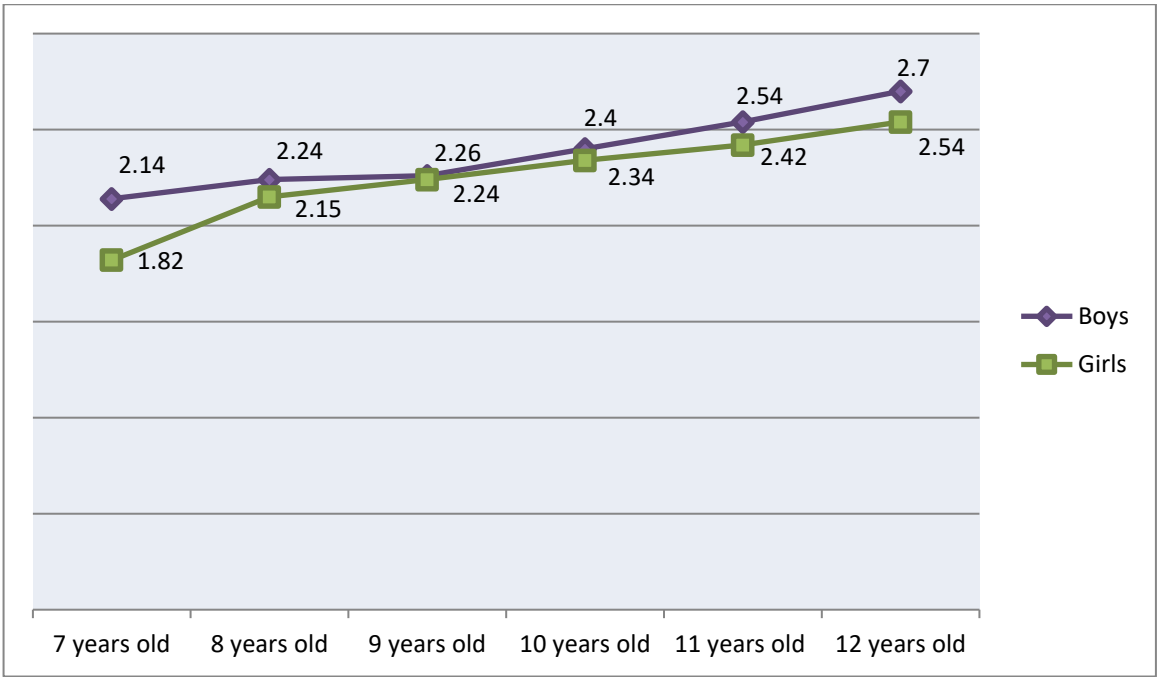

Figure 23. Dynamics of growth of the dimensions of the interorbital space in children aged 7-12 years (in X±m, cm)

Table 13

Growth dynamics of dacryal width indicators in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	2,70±0,04 P<0,01	2,72±0,06 P<0,01	2,80±0,10 P<0,01	2,90±0,07 P<0,01	2,96±0,09 P<0,01	3,10±0,02 P<0,01
Girl	2,60±0,02 P<0,01	2,62±0,03 P<0,01	2,73±0,04 P<0,01	2,80±0,04 P<0,01	2,84±0,06 P<0,01	2,90±0,04 P<0,01

It was found out from the results of the research that the growth of the nose height index occurs at the same rate in boys and girls aged 7-12 years. This craniometric index increased by 14% in boys (from 4.03±0.15 cm to 4.60±0.08 cm, P<0.01), and it was found to increase by 13% in girls. (from 3.94±0.15 cm to 4.47±0.12 cm, P<0.01). The results of the research confirmed that the periods of the fastest growth of indicators correspond to the age of 7-10 years in both sexes.

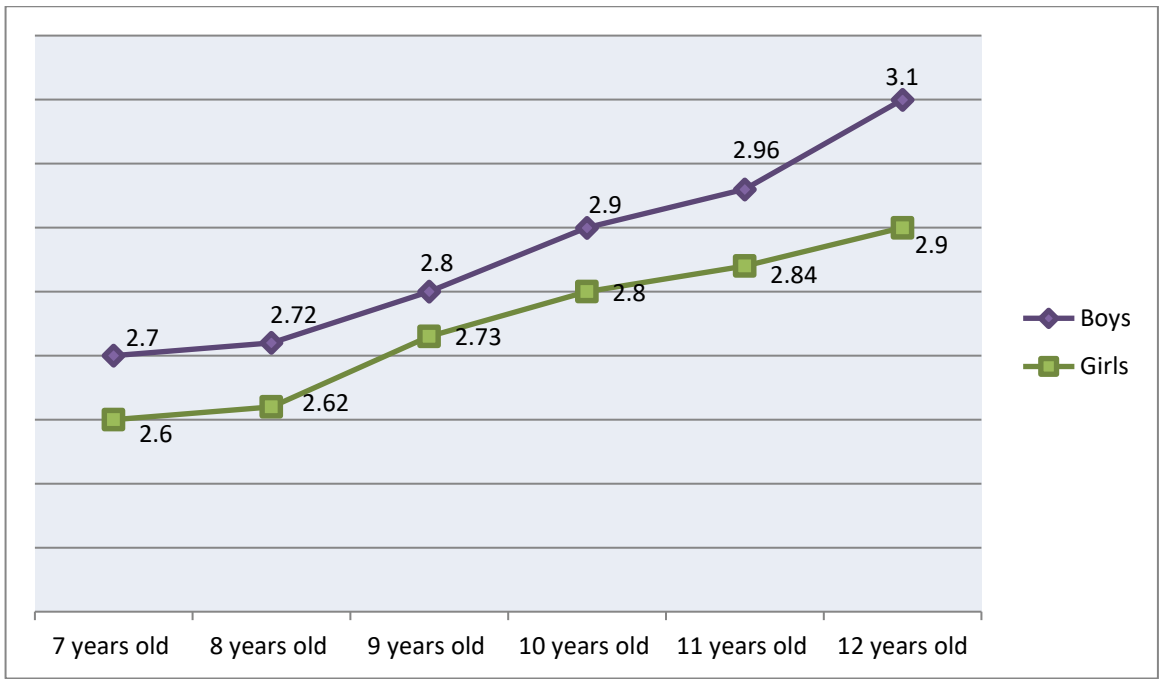

Figure 24. Growth dynamics of dacryal width indicators in children aged 7-12 years (in X±m, cm)

Table 14

Growth dynamics of dacryal height indicators in children aged 7-12 (in X±m, cm)

Age	7	8	9	10	11	12
Boy	0,90±0,10 P<0,01	1,10±0,06 P<0,01	1,20±0,06 P<0,01	1,24±0,05 P<0,01	1,30±0,06 P<0,01	1,42±0,04 P<0,01
Girl	0,88±0,04 P<0,01	1,02±0,04 P<0,01	1,10±0,07 P<0,01	1,12±0,06 P<0,01	1,20±0,03 P<0,01	1,32±0,10 P<0,01

Craniometric indicators of nasal height were 4.01±0.08 cm at 7 years old, P<0.01, 4.42±0.06 cm at 10 years old, P<0.01 and 4.56±0.04 at 12 years old. cm, P<0.01, reaches, and in girls between 7-12 years old, from 3.90±0.03 cm, P<0.01, to 4.40±0.10 cm, P<0. 01, increases (Fig. 26).

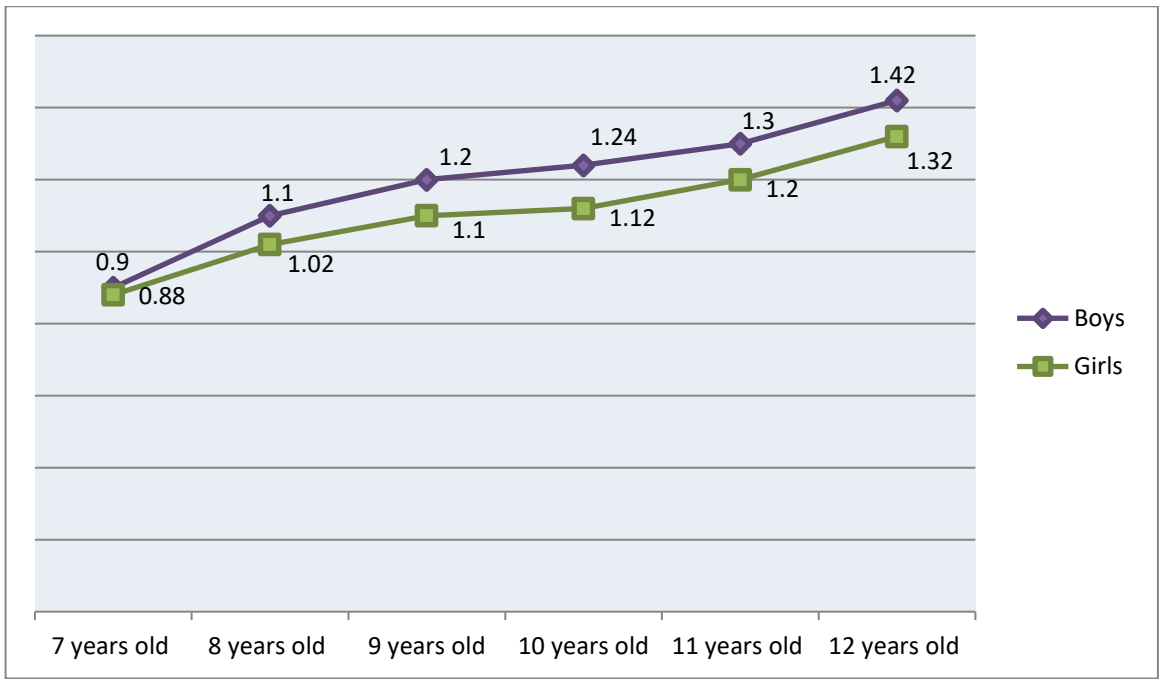

Figure 25. Growth dynamics of dacryal height indicators in children aged 7-12 (in X±m, cm)

The growth of the nose height indicator occurs at the same rate in boys and girls aged 7-12 years [97, 103, 104]. In boys it increases by 14% (from 4.01±0.08 cm to 4.56±0.04 cm, P<0.01), in girls it increases by 13% (from 3.90±0.03 cm 4.40±0.10 cm, P<0.01) (Tab. 15). The periods of the most rapid growth of indicators are between the ages of 7-10 in both sexes [116].

Table 15

Craniometric indicators of nose height in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	4,01±0,08 P<0,01	4,20±0,02 P<0,01	4,32±0,02 P<0,01	4,42±0,06 P<0,01	4,50±0,05 P<0,01	4,56±0,04 P<0,01
Girl	3,90±0,03 P<0,01	4,01±0,10 P<0,01	4,20±0,03 P<0,01	4,22±0,07 P<0,01	4,32±0,03 P<0,01	4,40±0,10 P<0,01

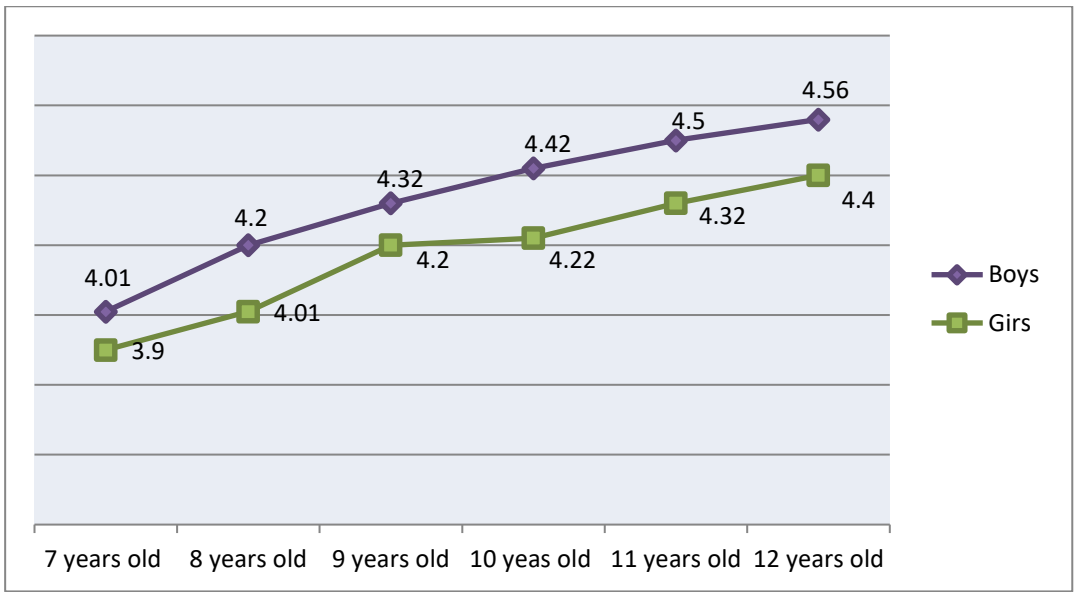

Figure 26. Craniometric indicators of nose height in children aged 7-12 years (in X±m, cm)

Table 16

Growth dynamics of nose width indicators in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	2,40±0,10 P<0,01	2,50±0,06 P<0,01	2,60±0,08 P<0,01	2,70±0,02 P<0,01	2,80±0,06 P<0,01	3,02±0,08 P<0,01
Girl	2,30±0,04 P<0,01	2,34±0,04 P<0,01	2,40±0,02 P<0,01	2,50±0,06 P<0,01	2,60±0,05 P<0,01	2,90±0,04 P<0,01

The size of the width of the nose at the age of 7 years is almost the same in boys and girls. In 7-year-old boys, this indicator is 2.40±0.10 cm; P<0.01, 2.70±0.02 cm at 10 years, P<0.01, 3.02±0.08 cm at 12 years, P<0.01, equal, and in 7-year-old girls by 2.30±0.04 cm; P<0.01, it is equal to 2.50±0.06 cm in 10-year-old girls, P<0.01 and 2.90±0.04 cm in 12-year-old girls, P<0.01. In representatives of both sexes, acceleration of growth is observed between 7-10 years of age (Fig. 27).

In 7-year-old boys, the measurement of the length of the nose was 3.45±0.03 cm, P<0.01, and in 10-year-old boys it was 3.75±0.04 cm, P<0.01 and 12 at the age of 3.86±0.14 cm, P<0.01, increases 3.30±0.34 cm in girls at the age of 7; P<0.01, 3.54±0.04 cm at 10 years, P<0.01 and 3.76±0.04 cm at 12 years, P<0.01 (Tab. 16).

During the mentioned period, the length of the nose increases by 12% in boys, and by 14% in girls [117].

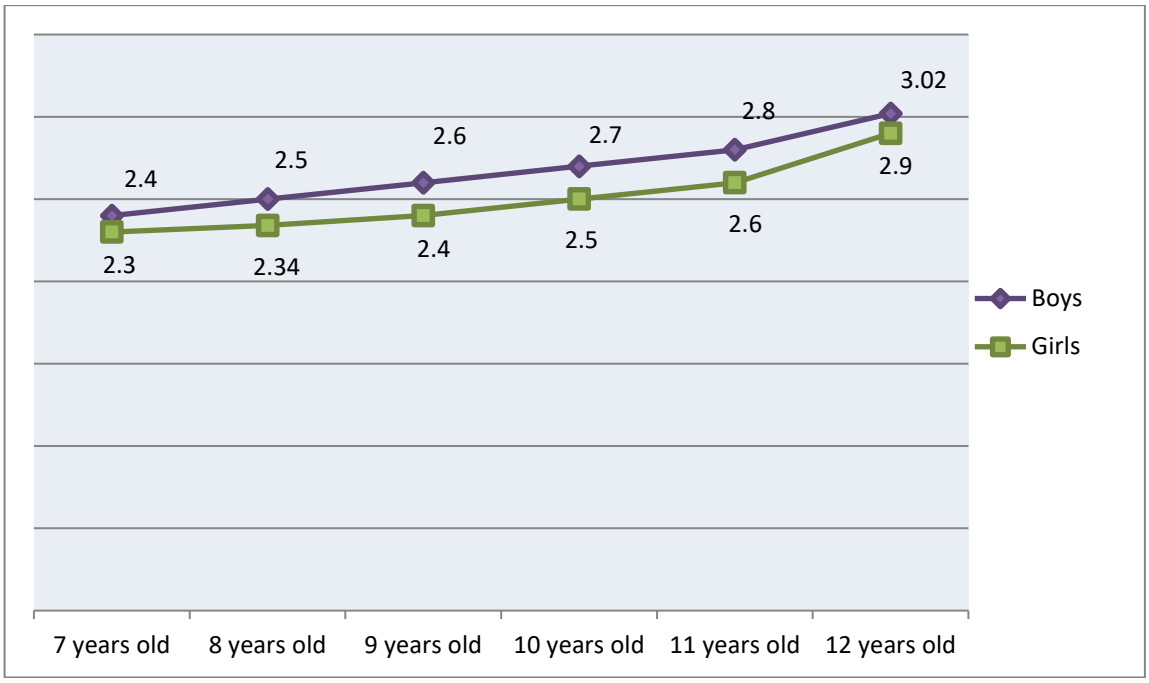

Figure 27. Growth dynamics of nose width indicators in children aged 7-12 years (in X±m, cm)

Table 17

Age-appropriate craniometric dimensions of the nose length of children aged 7-12 (in X±m, cm)

Age	7	8	9	10	11	12
Boy	3,40±0,02 P<0,01	3,48±0,40 P<0,01	3,60±0,02 P<0,01	3,70±1,02 P<0,01	3,60±0,05 P<0,01	3,80±0,10 P<0,01

Girl	3,28±0,30 P<0,01	3,30±0,02 P<0,01	3,46±0,06 P<0,01	3,50±1,02 P<0,01	3,56±0,04 P<0,01	3,70±0,02 P<0,01

One of the main indicators explaining the width of the face is the cheek diameter. This indicator is equal to 9.8±0.22 cm in 7-year-old boys, P<0.01.

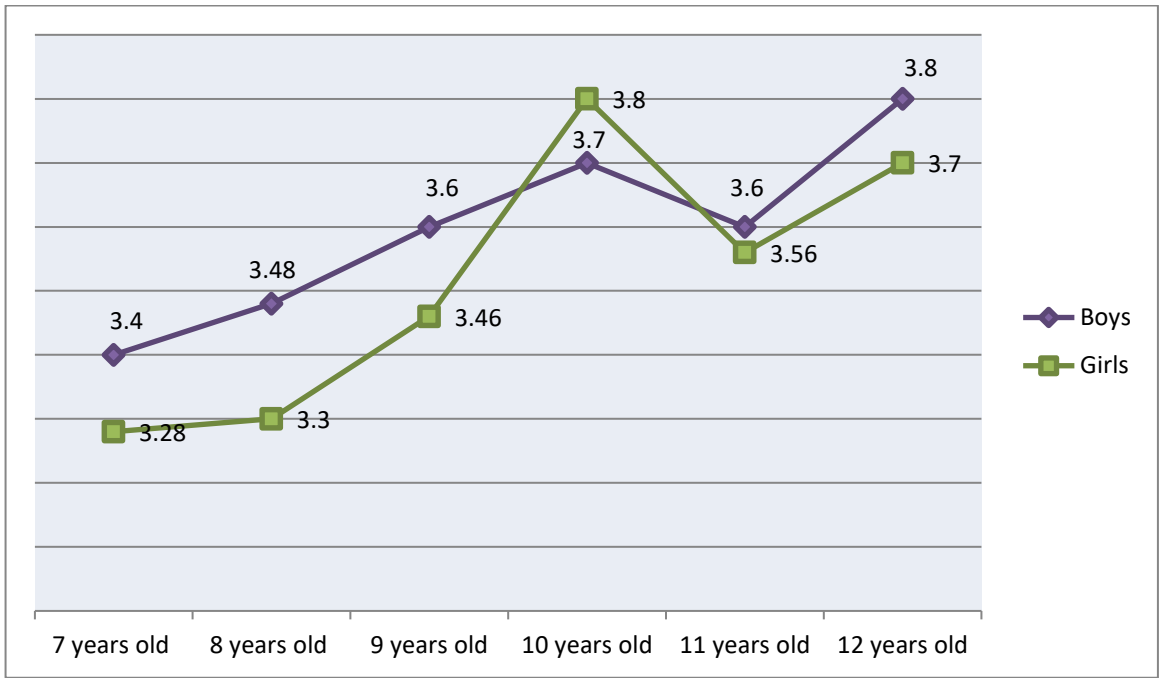

Figure 28. Age-appropriate craniometric dimensions of the nose length of children aged 7-12 (in X±m, cm)

In boys aged 7-10 years, this indicator continues to grow intensively and equals 10.6±0.30 cm at the age of 10, P<0.01. Later, growth slows down and reaches 11.2±0.24 cm in 11-year-old boys, P<0.01, and 11.4±0.16 cm in 12-year-old boys, P<0.01. This craniometric index is 1.2 times greater in boys aged 12 than in girls of the same age.

The diameter of the cheek increases in girls of the studied age, that is, 9.6±0.34 cm in 7-year-old girls, P<0.01, and 10.2±0.40 cm in 10-year-old girls, P<0.01, and at the age of 12, it increases to 10.6±0.36 cm, P<0.01 (Fig. 29). Cheek diameter indicators increase by 16% in boys and 11% in girls [88, 94].

Cheek diameter in boys from 7 to 12 years from 9.8±0.22 cm, P<0.01, to 11.4±0.16 cm, P<0.01, and in girls from 9, It grows intensively from 6±0.34 cm, P<0.01, to 10.6±0.36 cm, P<0.01 (Tab. 18).

Table 18

Growth dynamics of cheek diameter in children aged 7-12 (in X±m, cm)

Age	7	8	9	10	11	12
Boy	9,8±0,22 P<0,01	10.1±0,26 P<0,01	10,2±0,12 P<0,01	10,6±0,30 P<0,01	11,2±0,24 P<0,01	11,4±0,16 P<0,01
Girl	9,6±0,34 P<0,01	9,8±0,36 P<0,01	10,0±0,16 P<0,01	10,2±0,40 P<0,01	10,4±0,14 P<0,01	10,6±0,36 P<0,01

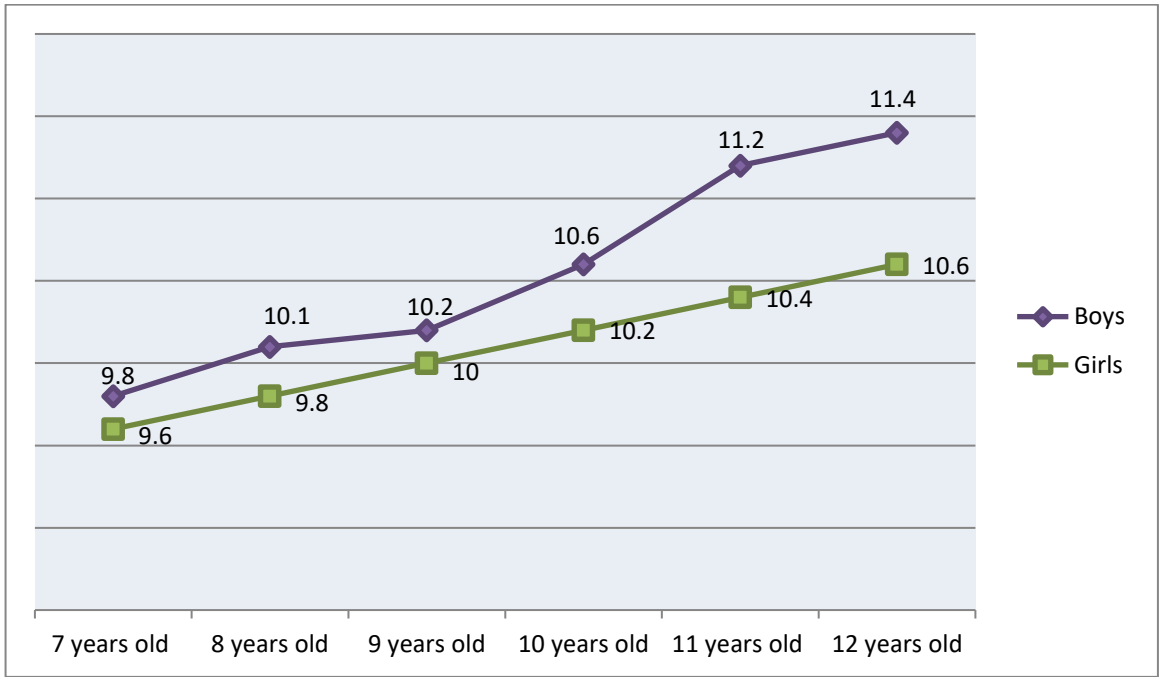

Figure 29. Growth dynamics of cheek diameter in children aged 7-12 years (in X±m,cm)

The size of the full height of the face in 7-year-old boys was 7.8±0.20 cm, P<0.001, and was equal to 8.6±0.26 cm among 8-10-year-old boys, P<0.001. 0.001, will increase and the difference between the indicators will not be so great.

In girls, the growth of the full height of the face is relatively slower at 7-9 years old (7.6±0.14 cm in 7-year-old girls, P<0.001; 8.2±0.22 cm in 9-year-old girls, P< 0.001), then this indicator grows relatively faster and equals to 8.8±0.08 cm, P<0.001 (Fig. 30).

It was found that the height of the upper part of the face is greater in boys than in girls. In 7-year-old boys, this indicator is equal to 5.31±0.22 cm, P<0.001, and in girls of the same age, it is equal to 5.38±0.32 cm, P<0.001. . In later youth, this indicator increased by the same rate and reached 6.38±0.20 cm in 12-year-old boys, P<0.001, and 5.90±0.10 cm in girls, P<0.001, equals This indicator increases by 7% for boys between 7-10 years old, and by 5% between 11-12 years old (Tab. 19).

In girls, it increases by 5.6% at the age of 7-10, and by 1% at the age of 11-12, respectively. Based on the obtained results, we can say that the growth of boys between the ages of 10 and 12 significantly increases compared to girls.

Table 19

Growth indicators of the height of the full and upper part of the face in children aged 7-12 years (in the example of the indicators of children aged 7-12 years living in Izboskan district) (in X±m, cm)

Age	Sex	Full face height	The height of the upper part of the face
7	Boy	7,8±0,20 P<0,001	5,38±0,22 P<0,001
	Girl	7,6±0,14 P<0,001	5,32±0,32 P<0,001
8	Boy	8,0±0,28 P<0,001	5,40±0,16 P<0,001
	Girl	7,9±0,04 P<0,001	5,36±0,24 P<0,001
9	Boy	8,4±0,14 P<0,001	5,48±0,32 P<0,001
	Girl	8,2±0,22 P<0,001	5,42±0,26 P<0,001
10	Boy	8,6±0,26	5,72±0,18

		P<0,001	P<0,001
	Girl	8,4±0,36 P<0,001	5,60±0,16 P<0,001
11	Boy	9,0±0,25 P<0,001	6,12±0,18 P<0,001
	Girl	8,7±0,30 P<0,001	5,82±0,34 P<0,001
12	Boy	9,6±0,26 P<0,001	6,38±0,20 P<0,001
	Girl	8,8±0,08 P<0,001	5,90±0,10 P<0,001

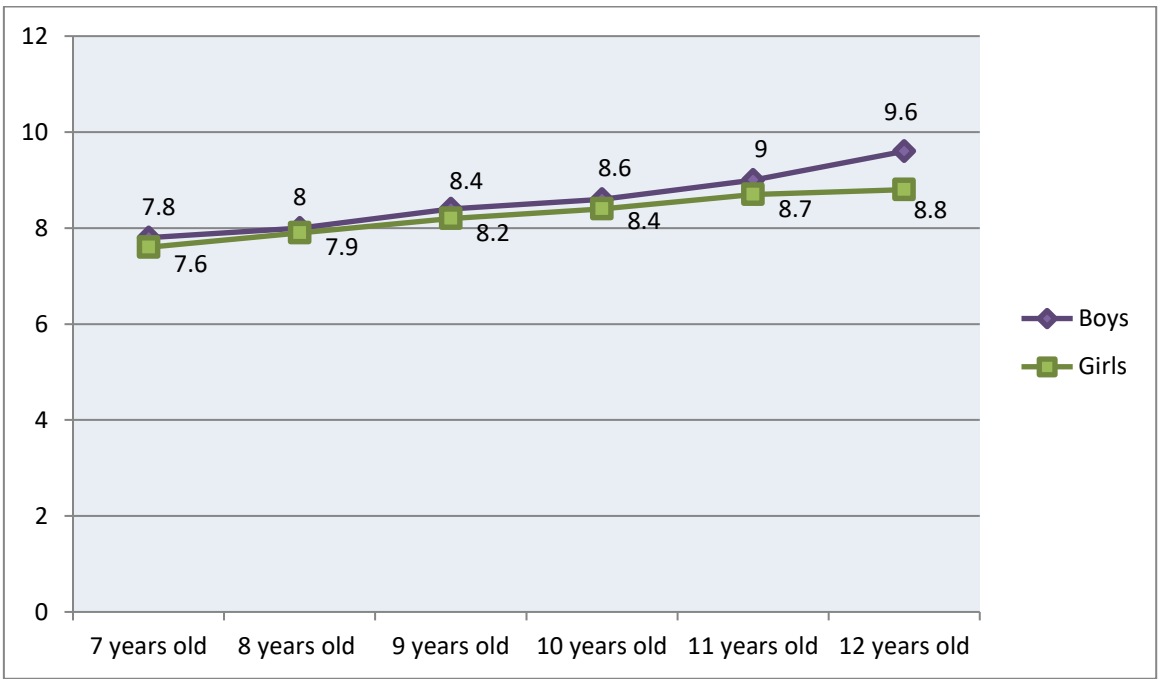

Figure 30. Growth indicators of the full height of the face in children aged 7-12 years (on the example of indicators of children aged 7-12 years living in Izboskan district) (in X±m, cm)

The size of the upper width of the face grows in accordance with the age and gender of children. The size of the upper width of the face is equal to 10.00±0.30 cm, P<0.001, in 7-year-old boys, by the age of 10, this indicator is 10.84±0.36 cm, P<0.001 and in the 12th year of a child's life, it increases to 11.54±0.06cm, P<0.001 (Fig. 31). In girls, this indicator increased to 9.80±0.26 cm at the age of

7, P<0.001, to 10.70±0.24 cm at the age of 10, P<0.001, and to 10.96±0.24 cm at the age of 12, P<0.001. <0.001 (Tab. 20).

Table 20

Growth dynamics of upper facial width indicators in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	10,00±0,30 P<0,001	10,10±0,34 P<0,001	10,42±0,16 P<0,001	10,84±0,36 P<0,001	11,20±0,20 P<0,001	11,54±0,06 P<0,001
Girl	9,80±0,26 P<0,001	9,96±0,16 P<0,001	10,26±0,20 P<0,001	10,70±0,24 P<0,001	10,84±0,36 P<0,001	10,96±0,24 P<0,001

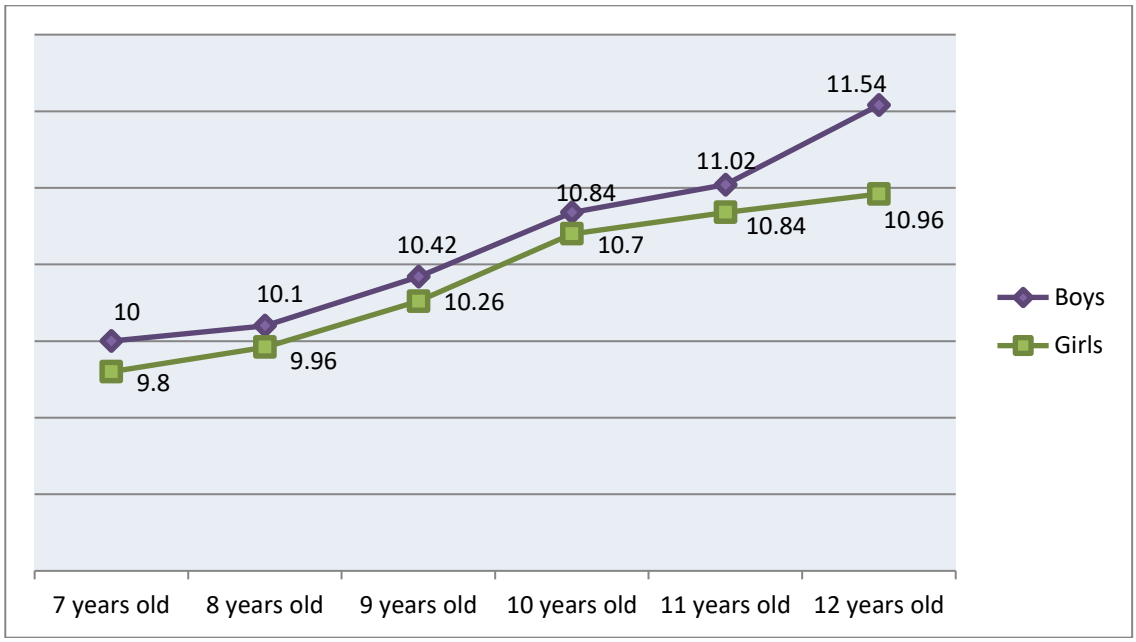

Figure 31. Growth dynamics of upper facial width indicators in children aged 7-12 years (in X±m, cm)

The average width of the face in 7-year-old boys equals 9.52±0.22 cm, P<0.001, and by the age of 10, this indicator reaches 9.96±0.08 cm, P<0.001. This indicator grows relatively intensively between the ages of 10-12, that is, from

9.96±0.08 cm at the age of 10, P<0.001, to 10.90±0.22 cm at the age of 12 (Fig. 32). The mean width of the face in 7-year-old girls was 9.80±0.12 cm, P<0.001, and in 10-year-old girls it was 10.10±0.10 cm, P<0.001, and in 12-year-old girls it was 10. An increase of 50±0.12 cm, P<0.001, is observed (Tab. 21).

Table 21

Growth dynamics of average facial width indicators in children aged 7-12 years (in X±m, cm)

Age	7	8	9	10	11	12
Boy	9.52±0.22 P<0,001	9.66±0.20 P<0,001	9.92±0.18 P<0,001	9.96±0.08 P<0,001	10.02±0.34 P<0,001	10.90±0.22 P<0,001
Girl	9.80±0.12 P<0,001	9.86±0.22 P<0,001	9.96±0.08 P<0,001	10.10±0.10 P<0,001	10.32±0.20 P<0,001	10.50±0.12 P<0,001

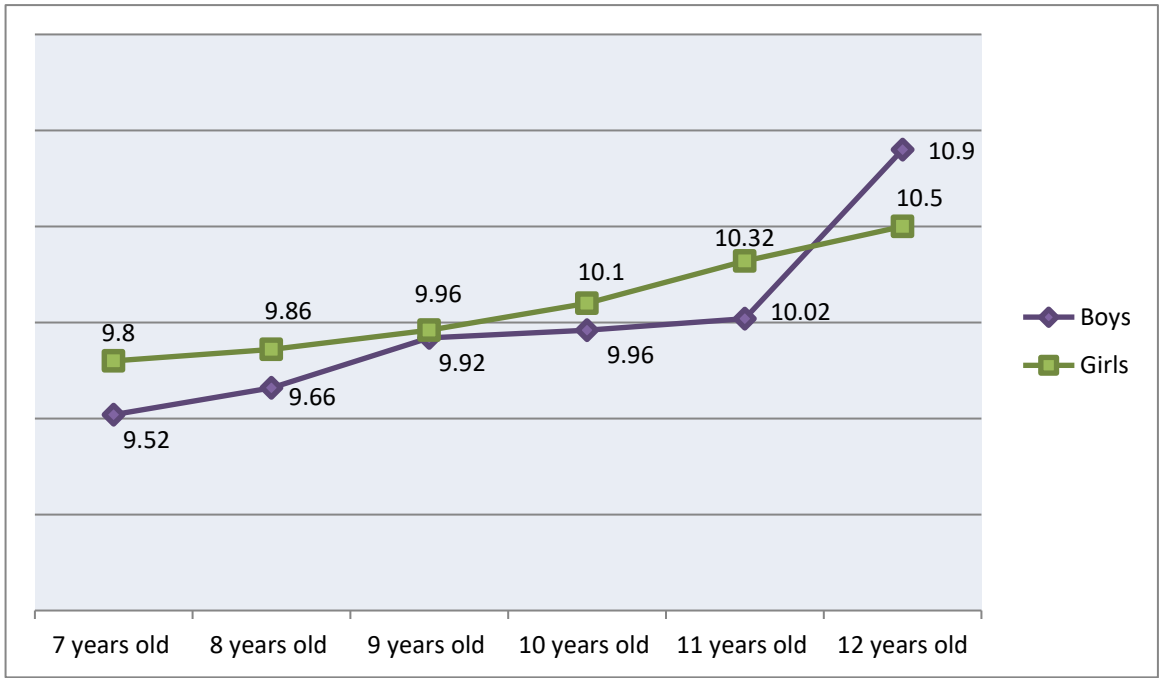

Figure 32. Growth dynamics of average facial width indicators in children aged 7-12 years (in X±m, cm)

The most intensive growth of the middle width of the face is observed between 10-12 years of age [80, 106].

The morphological height of the face is almost the same in 7-year-old boys and girls (boys 9.72±0.10 cm, P<0.001, girls 9.71±0, 04 cm, P<0.001) (Fig. 33). The obtained results showed that the morphological height of the face continued to increase in boys and girls, reaching 11.1±0.12 cm in boys at the age of 12, P<0.001, in girls equals to 10.80±0.20 cm, P<0.001 (Tab. 22). In the period between 7-12 years old, the rate for boys increases by 13.4%, and for girls by 11.1% [84, 89].

Table 22

Growth dynamics of the morphological height of the face in children of primary school age (7-12 years old) living in Izboskan district (in X±m, cm)

Age	7	8	9	10	11	12
Boy	9,72±0,10 P<0,001	9,84±0,16 P<0,001	9,92±0,20 P<0,001	10,50±0,30 P<0,001	10,90±0,02 P<0,001	11,1±0,12 P<0,001
Girl	9,71±0,04 P<0,001	9,80±0,12 P<0,001	9,84±0,12 P<0,001	9,90±0,22 P<0,001	10,70±0,18 P<0,001	10,80±0,20 P<0,001

Physiognomic height of the face in boys is 15.5±0.20 cm at 7 years old, 16.2±0.24 cm at 8 years old, P<0.001, 16.6±0.28 cm at 9 years old, P< 0.001, 10 years to 17.0±0.26 cm, P<0.001, 11 years to 17.4±0.22 cm, P<0.001, and 12 years to 17.5±0.28 cm, P<0.001 (Fig. 34). Intensive growth of this indicator is observed in 7-10-year-old boys [90, 114].

In girls, the physiognomic height of the face increases from 15.2±0.15 cm, P<0.001, to 16.4±0.16 cm, P<0.001, between the ages of 7-10. At the age of 11-12 years, growth slows down (increases from 17.1±0.26 cm, P<0.001 to 17.2±0.18 cm, P<0.001) (Tab. 23).

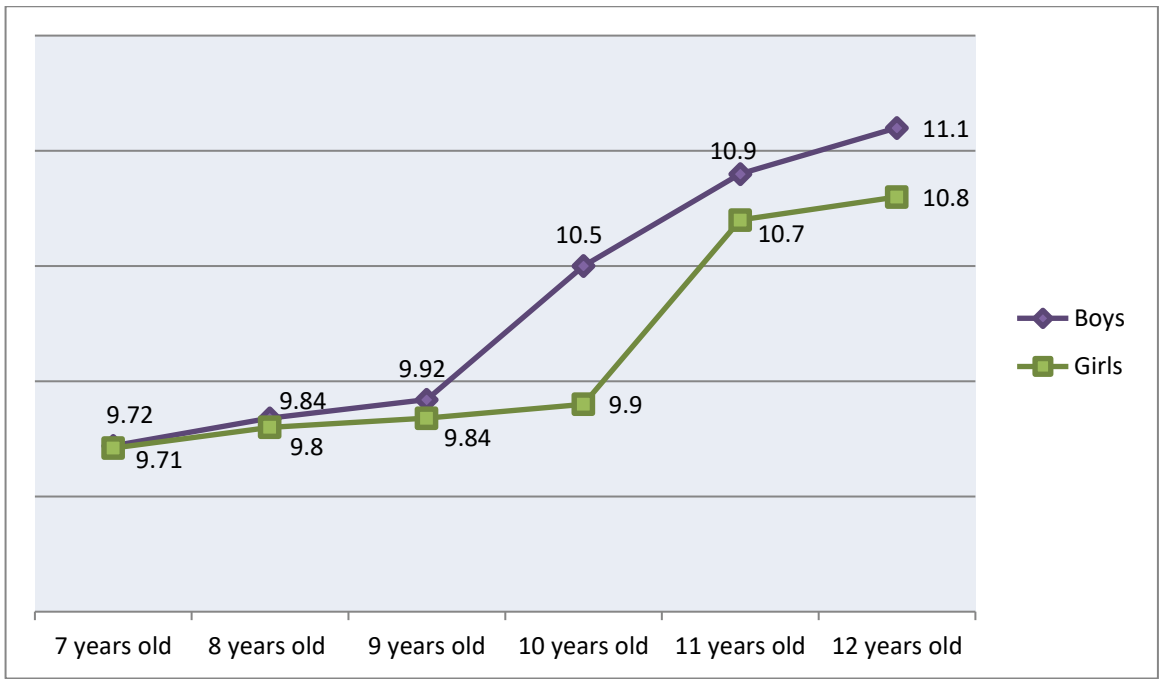

Figure 33. Growth dynamics of the morphological height of the face in children of primary school age (7-12 years old) living in Izboskan district (in X±m, cm)

Table 23

Growth dynamics of the physiognomic height of the face in children of junior school age (7-12 years old) (X±m, in cm)

Age	7	8	9	10	11	12
Boy	15,5±0,20 P<0,001	16,2±0,24 P<0,001	16,6±0,28 P<0,001	17,0±0,26 P<0,001	17,4±0,22 P<0,001	17,5±0,28 P<0,001
Girl	15,2±0,15 P<0,001	16,0±0,22 P<0,001	16,2±0,23 P<0,001	16,4±0,16 P<0,001	17,1±0,26 P<0,001	17,2±0,18 P<0,001

The diameter of the lower jaw at 7 years of age is almost equal in boys and girls (9.35±0.04 cm, P<0.01, and 9.24±0.12 cm, P< 0.01), at the age of 10, the indicator increases by 3.3% in boys, and by 3.7% in girls (Fig. 35). For boys aged 7-12, this indicator increases by 7.9%, and for girls by 7.1% [115].

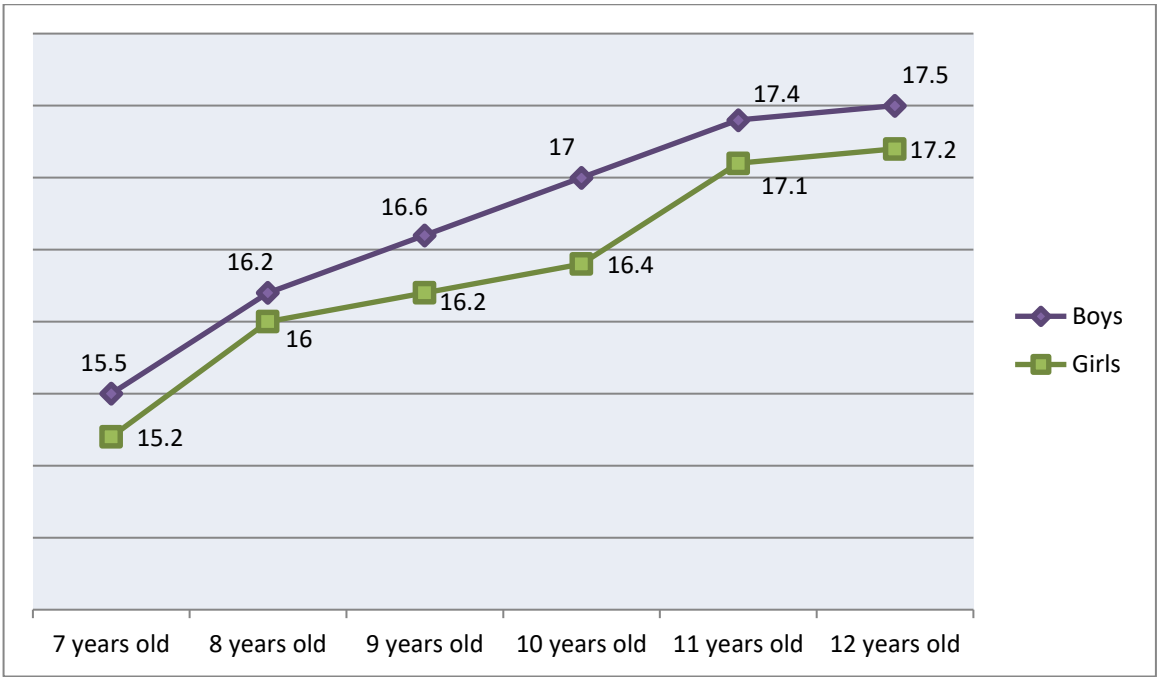

Figure 34. Growth dynamics of the physiognomic height of the face in children of junior school age (7-12 years old) (X±m, in cm)

Table 24

Growth dynamics of mandibular diameter (bigonal width) indicators (in X±m, cm) from 7 to 12 years old

Age	7	8	9	10	11	12
Boy	9,35±0,04 P<0,01	9,44±0,22 P<0,01	9,52±0,04 P<0,01	9,64±0,04 P<0,01	10,02±0,10 P<0,01	10,10±0,06 P<0,01
Girl	9,24±0,12 P<0,01	9,26±0,22 P<0,01	9,36±0,04 P<0,01	9,56±0,08 P<0,01	9,76±0,12 P<0,01	9,90±0,24 P<0,01

Mandibular trunk height was 2.74±0.06 cm in 7-year-old boys, P<0.01, and 3.12±0.16 cm in 10-year-old boys, P<0.01, equals later, at 11-12 years of age, the growth slows down a bit and at the end of 12 years, we can see that it is equal to 3.18±0.08 cm, P<0.01., 2.65±0.04 cm in girls at the age of 7, P<0.01; 2.94±0.08 cm at 10 years, P<0.01 and 3.10±0.08 cm at 12 years, P<0.01, equal to indicators

grow differently in both sexes at the age of 7-12, and at the age of 12, the indicator is almost equal (Fig. 36). The period of relatively intensive growth falls between 7-10 years of age [107].

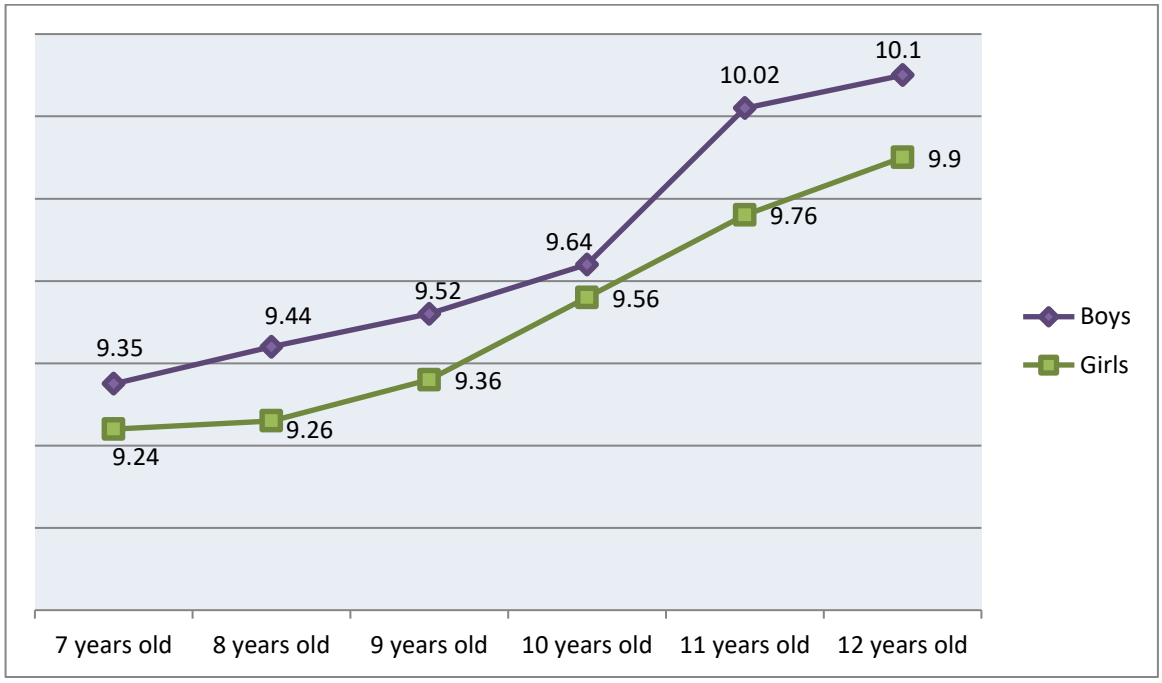

Figure 35. Growth dynamics of mandibular diameter (bigonal width) indicators (in X±m, cm) from 7 to 12 years old

Table 25

Growth dynamics of mandibular body height indicators (in X±m, cm) from 7 to 12 years old

Age	7	8	9	10	11	12
Boy	2,74±0,06 P<0,01	2,82±0,08 P<0,01	3,08±0,22 P<0,01	3,12±0,16 P<0,01	3,16±0,10 P<0,01	3,18±0,08 P<0,01
Girl	2,65±0,04 P<0,01	2,80±0,08 P<0,01	2,92±0,10 P<0,01	2,94±0,08 P<0,01	3,08±0,18 P<0,01	3,10±0,08 P<0,01

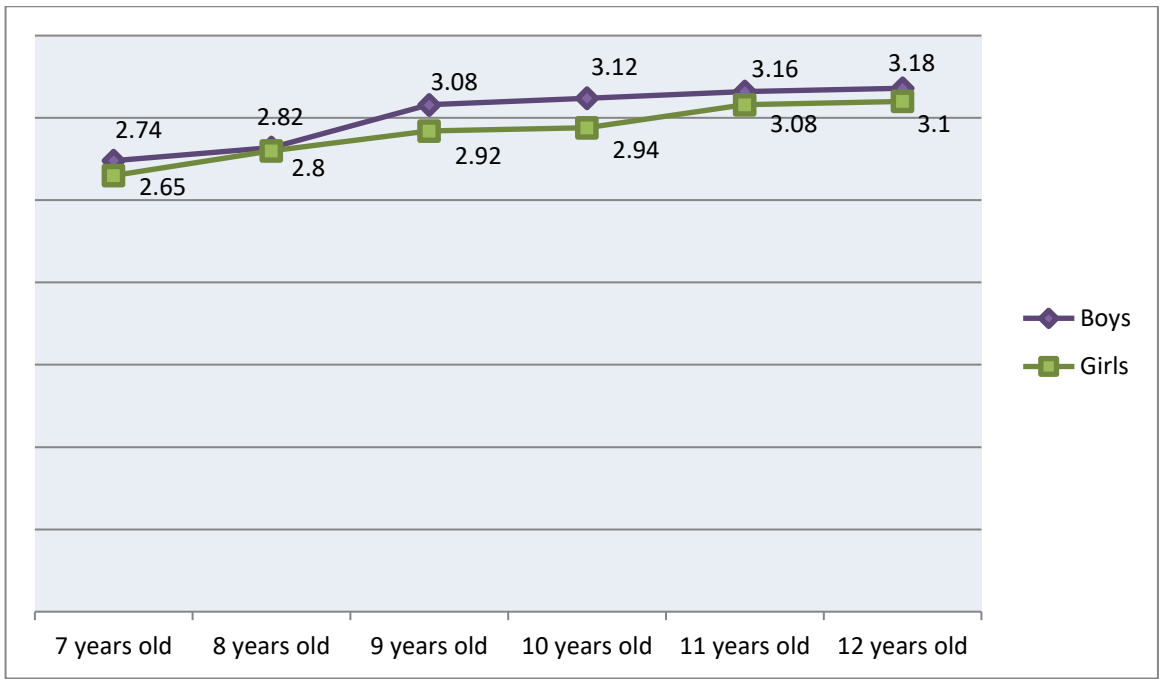

Figure 36. Growth dynamics of mandibular body height indicators (in X±m, cm) from 7 to 12 years old

Between the ages of 7-12 years, the length of the mandibular body in boys increased by 1.2 times (from 9.02±0.24 cm, P<0.01, to 11.30±0.16 cm, P<0.01) increases, and in girls it increases by 21% (from 9.10±0.14 cm, P<0.01 to 11.10±0.24 cm, P<0.01) (Fig. 37), (Tab. 25). The periods of the most rapid growth of indicators are between the ages of 10-12 in both sexes [102].

Table 26

Growth dynamics of mandibular body length indicators (in X±m, cm) from 7 to 12 years of age

Age	7	8	9	10	11	12
Boy	9,02±0,24 P<0,01	9,24±0,26 P<0,01	9,40±0,22 P<0,01	9,56±0,16 P<0,01	10,65±0,16 P<0,01	11,30±0,16 P<0,01
Girl	9,10±0,14 P<0,01	9,24±0,16 P<0,01	9,26±0,20 P<0,01	9,44±0,08 P<0,01	10,50±0,22 P<0,01	11,10±0,24 P<0,01

The height of the mandibular horn in 7-year-old boys was 4.56±0.26 cm, P<0.01, and in 10- and 12-year-old boys, respectively: 5.60±0, It is equal to 14 cm, P<0.01 and 6.22±0.14 cm, P<0.01. In this period (age between 7-12 years old), the indicator increases by 36%.

4.82±0.16 cm in girls at the age of 7, P<0.01; 5.46±0.14 cm at the age of 10, P<0.01 and 6.14±0.26 cm at the age of 12, P<0.01. In 7-12-year-old girls, the indicator increases by 27% (Fig. 38).

The facial index decreases in boys at the age of 7-10 years. It increases relatively at the age of 11-12. In girls, the face index increases between the ages of 7-10. Later, among 11-12-year-olds, it decreases by 1.1 times. If the index of the eye cup increases intensively in boys under the age of 7-10 years, then a decrease of this index is observed.

In girls, the index of the eye cup increases between the ages of 7-11, and it can be seen to decrease at the age of 12. The indicator of the eye cup index is of the chameconchia type in both sexes aged 7-12 years.

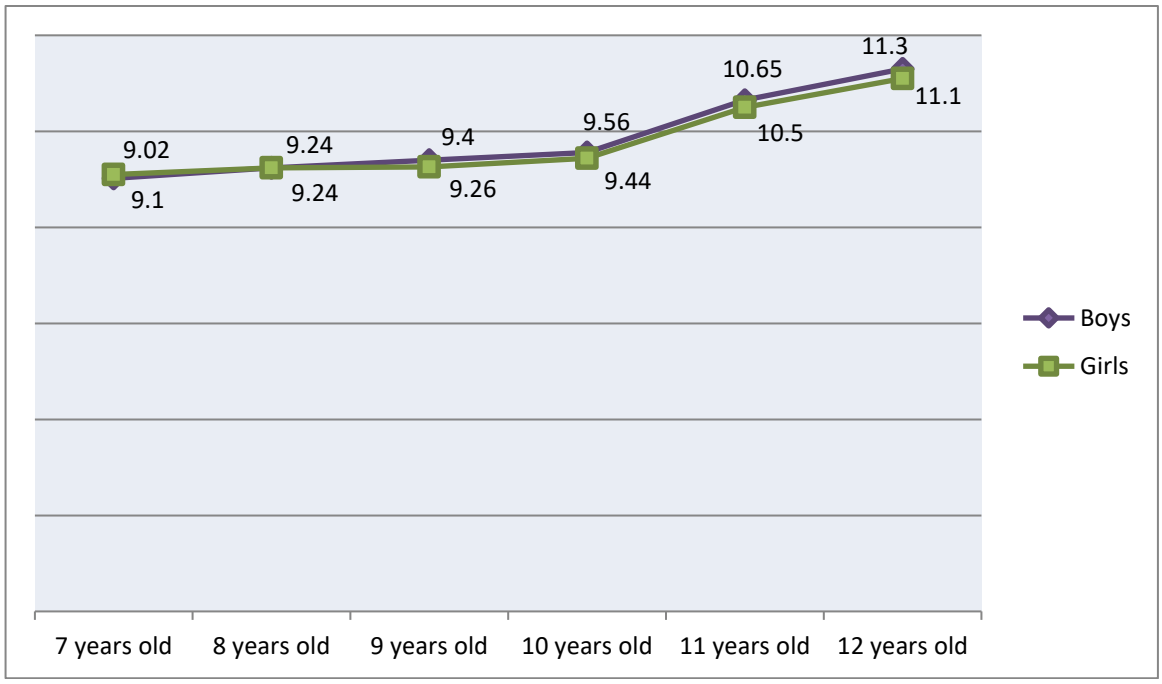

Figure 37. Growth dynamics of mandibular body length indicators (in X±m, cm) from 7 to 12 years of age

Table 27

The growth dynamics of indicators of the height of the mandibular horn in the period from 7 to 12 years old (in X±m, cm)

Age	7	8	9	10	11	12
Boy	4,56±0,26 P<0,01	5,24±0,16 P<0,01	5,42±0,34 P<0,01	5,60±0,14 P<0,01	6,02±0,12 P<0,01	6,22±0,14 P<0,01
Girl	4,82±0,16 P<0,01	5,16±0,24 P<0,01	5,36±0,20 P<0,01	5,46±0,16 P<0,01	5,94±0,20 P<0,01	6,14±0,26 P<0,01

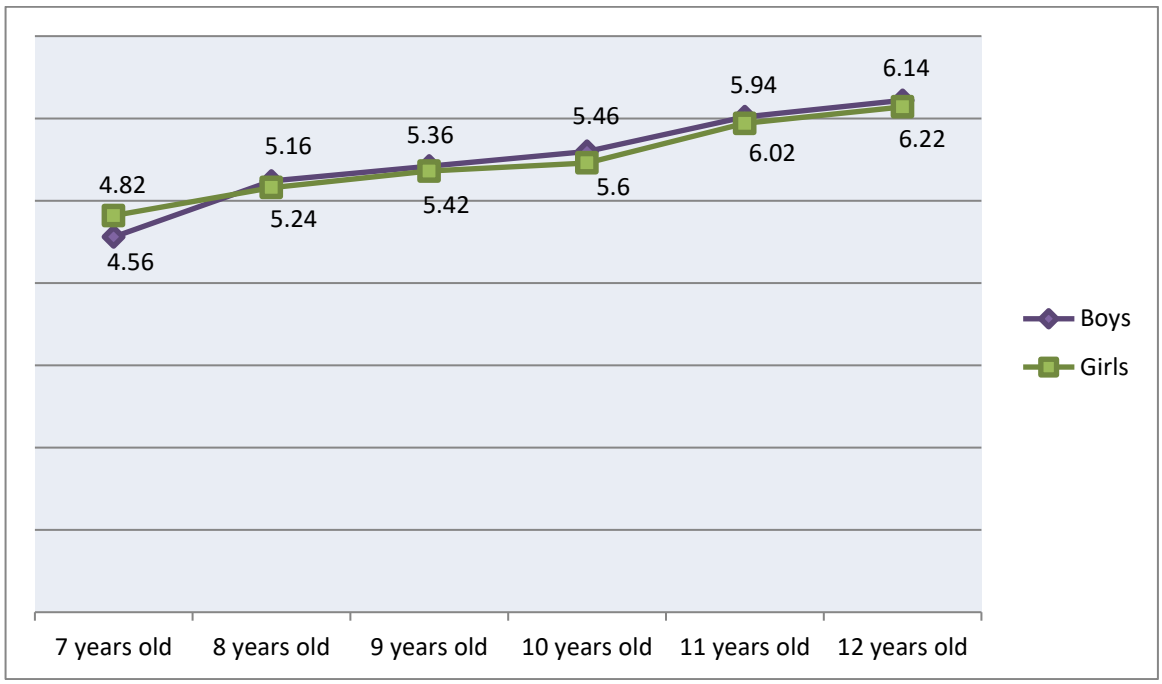

Figure 38. The growth dynamics of indicators of the height of the mandibular horn in the period from 7 to 12 years old (in X±m, cm)

The size of the nose index can be observed in boys and girls between 7 and 12 years old in the case of a chemerinia (platyrinia) type of nose or a wide nose. When interpreting face indicators, we divided all indicators into 6 types:

Type 1 - a very wide type of face (hypereuriprozop);

Type 2 – wide-faced face (euryprosop);

Type 3 - medium-type face (mesoprosop);

Type 5 - long type of face (leptiprosop);

Type 6 - a very long type of face (hyperleptiprosop).

Table 28

Dynamics of growth of head index, face index and eye socket index in the period from 7 to 12 years old (in X±m, cm)

The age of the child	Sex	Craniometric parameters		
		Head index	Face index	Eye socket index
7 years old	Boy	86,74	100,01	79,34
	Girl	92,32	100,18	77,94
8 years old	Boy	87,64	99,20	79,24
	Girl	92,12	100,68	77,52
9 years old	Boy	88,32	99,32	82,12
	Girl	91,60	102,6	78,64
10 years old	Boy	89,08	100,44	82,72
	Girl	92,38	102,96	78,14
11 years old	Boy	90,36	99,18	81,06
	Girl	91,90	101,38	78,22
12 years old	Boy	92,14	100,50	79,24
	Girl	91,44	100,62	76,10

The facial index size is 79.76 in 7-year-old boys, 78.68 in 10-year-old boys, and 83.45 in 12-year-old boys. Based on this, the face of 7-year-old boys has a mesozopic (medium face) type, and 10-12-year-old boys have a euriprozopic (broad face) type (Tab. 29).

In girls, at the age of 11-12, the facial expression is hypereuriprozop type. The transverse-cheek index increases by 6% in 10-12-year-old boys, and in girls,

the index increases by 1 times during this period. The transverse-cheek index is larger and grows faster in girls than in boys.

Forehead-cheek index in boys up to 10-11 years of age increases relatively less (from 103.30 to 100.04). But by the age of 12, this indicator increases by 1.6% and reaches 101.70. In girls, relative growth decreases and decreases by 2% (Tab. 30).

Table 29

Dynamics of growth of nose index, face index and cross-cheek index in the period from 7 to 12 years old (X±m, in cm)

The age of the child	Sex	Craniometric parameters		
		Nasal index	Face indicator	Cross-cheek index
7 years old	Boy	61,24	79,76	69,70
	Girl	59,60	79,56	68
8 years old	Boy	59,64	79,40	71,80
	Girl	58,02	80,78	70,70
9 years old	Boy	60,74	80,92	72,90
	Girl	57,76	80	70,40
10 years old	Boy	60,96	78,68	73,42
	Girl	59,60	81,72	71,20
11 years old	Boy	62,40	80,50	75,30
	Girl	59,80	79,40	72,26
12 years old	Boy	65,63	83,45	75,12
	Girl	65,96	79,80	72,62

The upper face index in boys does not change between the ages of 10-11 years. At the age of 12, this indicator increases to 55.62 and increases by 1.1 times. In girls, it does not change between the ages of 10-11, and increases by 2% at the age of 12 (Tab. 30).

10-11-year-old girls have the eurien type, and 12-year-old girls have the mezen type. It is of the mezen type in all ages of boys.

The dacryal index is observed to decrease in growth between the ages of 10-11 years in both sexes. In boys, this indicator decreases by 10% in the period up to 10-12 years, and in girls it is equal to 1.5%. In 14-year-old girls, the dacryal index is considered small, and in 10-12-year-old girls, it is of an average type. Boys have a medium type at the age of 11-12, and a large type at the age of 10 (Tab. 30).

Table 30

Growth dynamics of the transverse diameter of forehead-cheek index, upper-face index and dacryal index (in X±m, cm) from 7 to 12 years of age

Bolaningyoshi	Sex	Craniometric parameters		
		Forehead-cheek indicator	Top-face indicator	Dacrial indicator
7 years old	Boy	102,60	54,42	34,74
	Girl	102,92	54,34	34,32
8 years old	Boy	101,34	52,92	41,70
	Girl	103,90	54,32	40,34
9 years old	Boy	101,50	52,34	43,28
	Girl	104	54,2	41,42
10 years old	Boy	103,30	53,20	42,62
	Girl	102,56	54,10	41,30
11 years old	Boy	100,04	53,94	45,76
	Girl	103,24	54,04	44,68
12 years old	Boy	101,70	55,62	45,02
	Girl	102,02	54,38	45,60

CONCLUSIONS FROM CHAPTER III

1. According to the results of the conducted research, the rapid growth of the main craniometric indicators in girls corresponds to the first half of the junior school age period, between 8-10 years old, while in boys the growth of the skull accelerates in the second half of the junior school age, between 10-12 years old. This suggests that girls skull development begins earlier than boys.

2. All craniometric indicators of the facial part of the skull grow faster and faster in boys than in girls.

3. Children's skulls are of the brachycrania type during school age.

4. From 7 to 12 years old, both boys and girls face index decreases. This age transition is explained by the acceleration of the growth of the cheek diameter and the slowdown of the growth of the upper face width.

CONCLUSIONS

1. It is possible to observe the intersection of the lines representing the growth dynamics of some craniometric indicators of boys and girls of junior school age. Such crossing points are often observed between the ages of 8-9.

2. Gender-related differences are observed among the craniometric indicators of children of junior school age.

3. In children of small school age, the growth of the eye socket in the longitudinal and transverse directions does not occur simultaneously, but alternately. As a result, children's eye sockets appear in different types at different stages of the school age period.

4. In the craniometric indicators of the brain part of the skull, it is possible to observe a continuous growth process in children of both sexes. Children of small school age living in the conditions of Izboskan district have a brachycranial skull.

5. Craniometric indicators of the facial part of the skull increase rapidly in boys of primary school age, and the ratio of the facial part of the skull to the brain increases. In girls, as the age increases, the growth of the craniometric parameters of the face slows down, and the ratio of the skull to the face of the brain decreases. The facial index decreases with age in both sexes.

6. The results of measuring the craniometric parameters of the cranial bone on the forehead showed that the period of growth of the forehead in boys corresponds to the 1st half of the junior school age period, and in the 2nd half in girls.

PRACTICAL RECOMMENDATIONS

1. Craniometric data obtained from children of primary school age are used in educational processes conducted in the departments of human anatomy, topographical anatomy, surgical dentistry, orthopedic dentistry, orthodontics, children's dentistry, pediatrics, forensic medicine, as well as practical training and lecture materials. can be used in preparation.

2. The obtained craniometric indicators are used in reconstructive plastic surgery of the face and jaw, in the practice of forensic medical expertise, in the development of new standards of physical development, in the production of prostheses of the face and jaw area and in prosthetics of the face and jaw area, new standards in the production of headgear can be used to create and study racial, ethnic, and population differences between people.

3. Studying physical development based on scientific research is a relatively objective and unique indicator of population health assessment. One of the main requirements is to take into account their unique anthropometric and age-related individual characteristics when directing children to a certain type of sport.

4. To conduct fundamental, practical and innovative scientific researches in the field of sports medicine, to develop advanced methods of prevention and treatment of sports pathology, to develop standards for improving the diagnosis and functional condition of athletes, taking into account the physical loads allowed, the characteristics of the sport The role of anthropometric indicators is incomparable in monitoring athletes during the exit and introduction, preparation for competitions.

5. In order to identify and describe anthropometric data, functional capabilities and health defects in children, it is necessary to use the anthropometric standards developed based on the geographical area where these children live.

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