



НАО «КАЗАХСКИЙ НАЦИОНАЛЬНЫЙ УНИВЕРСИТЕТ ИМЕНИ АЛЬ-ФАРАБИ»

БИОМЕДИЦИНА МЕН ЭКОЛОГИЯДАҒЫ ЗАМАНАУИ ЖЕТІСТІКТЕР

СОВРЕМЕННЫЕ ДОСТИЖЕНИЯ В БИОМЕДИЦИНЕ И ЭКОЛОГИИ

MODERN ADVANCES IN BIOMEDICAL AND ECOLOGICAL SCIENCES

Алматы, 2023

ӘЛ-ФАРАБИ АТЫНДАҒЫ ҚАЗАҚ ҰЛТТЫҚ УНИВЕРСИТЕТІ" КЕАҚ
БИОЛОГИЯ ЖӘНЕ БИОТЕХНОЛОГИЯ ФАКУЛЬТЕТІ
БИОАЛУАНТҮРЛІЛІК ЖӘНЕ БИОРЕСУРСТАР КАФЕДРАСЫ
БИОЛОГИЯ ЖӘНЕ БИОТЕХНОЛОГИЯ МӘСЕЛЕЛЕРІ ҒЫЛЫМИ-ЗЕРТТЕУ ИНСТИТУТЫ
ЭКОЛОГИЯ МӘСЕЛЕЛЕРІ ҒЫЛЫМИ-ЗЕРТТЕУ ИНСТИТУТЫ

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НАУЧНО-ИССЛЕДОВАТЕЛЬСКИЙ ИНСТИТУТ ПРОБЛЕМ БИОЛОГИИ И БИОТЕХНОЛОГИИ
НАУЧНО-ИССЛЕДОВАТЕЛЬСКИЙ ИНСТИТУТ ПРОБЛЕМ ЭКОЛОГИИ

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Morphometric parameters of the dentition system in school-aged children with hypothyroidism

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Annotation. It is important to know the morphometric indicators of the teeth and jaw system of school-aged children and to calculate them and apply them in practice. As a result of the increase in the amount of T3 and T4 hormones in the blood, the production of thyrotropin hormone of the pituitary gland decreases. A decrease in the amount of the above hormones in the blood, on the contrary, causes an increase in the production of thyrotropin hormone. The endocrinological aspects of dental disease have been reflected in a number of fundamental scientific studies. The complex multifunctional relationship between the immune, nervous, and endocrine systems plays an important role in the etiopathogenesis of various dental diseases. These dimensions were measured in both healthy and hypothyroid (subclinical) children. Anatomical dimensions of the maxillofacial system are covered in detail.

Keywords: hypothyroidism, dentition, morphometric, children, Bunak.

Introduction. Hypothyroidism is associated with several disorders in all organs and systems due to the various effects of thyroid hormones. First of all, the circulatory system, the digestive system (liver function), the central nervous system, the organs of vision, and the reproductive system are affected [2,8,11,13]. As a result of the increase in the amount of T3 and T4 hormones in the blood, the production of thyrotropin hormone of the pituitary gland decreases [1,3,4,6]. A decrease in the amount of the above hormones in the blood, on the contrary, causes an increase in the production of thyrotropin hormone [5,7,9]. One of the urgent problems of modern dentistry is the reduction of calcium, fluorine and phosphorus elements in the diet [10,11]. As a result of this, cases of brittleness and breakage of teeth are observed [12,14]. As a result, it has negative consequences on the appearance of a person, especially on the facial part of the skull. If these consequences are combined with hypothyroidism, which is considered a hormonal change, the process will intensify [14,15]. The purpose of the research was to study morphometric parameters of the tooth-jaw system in school-aged children with hypothyroidism.

Materials and methods. To achieve the goal of the study, we used the Bunak method to measure anthropometric measurements of the face-jaw system in children of different ages. For this purpose, we selected 112 children living in the city of Tashkent and the city of Yangiyol and Chinaz, Tashkent region. When choosing children, we mainly focused on the normasthenic type. Bunak measured the anthropometric indicators of the teeth and jaw system in all the selected children. method was used. The youngest of the children is 7 years old, and the oldest is 16 years old. Therefore, we divided the children from 7 to 16 years into 3 groups.

Age periodization based on widespread social principles in our country was used. We received 112 children aged 7 to 16. We divided them into 3 groups. We took the first group of 2nd grade children (7-9 years old), the second group of 7th grade children (12-13 years old), the third group of 9th grade children (15-16 years old). We further divided them into 2 groups: boys and girls. Bunak method we selected 5 indicators related to face-jaw anthropometry. In each group, 1) Physiognomic height of the face 2) Morphological height of the face 3) Morphological width of the face 4) Upper depth of the face 5) Height of the lower jaw was studied.

Results and discussion. We performed calculations on 5 parameters for all children. And the following average values were calculated. In all of our observations, the average physiognomic height of the face of healthy school-aged boys of the 2nd grade (7-8 years old) was 18.7±0.33 cm. The average morphological height of the face of boys of the same age was 12±0.31 cm, the morphological width of the face was 22±0.68 cm, the upper depth of the face was 13±0.82 cm, and the height of the lower jaw was 3.5±0.50 cm. (Figure 1).

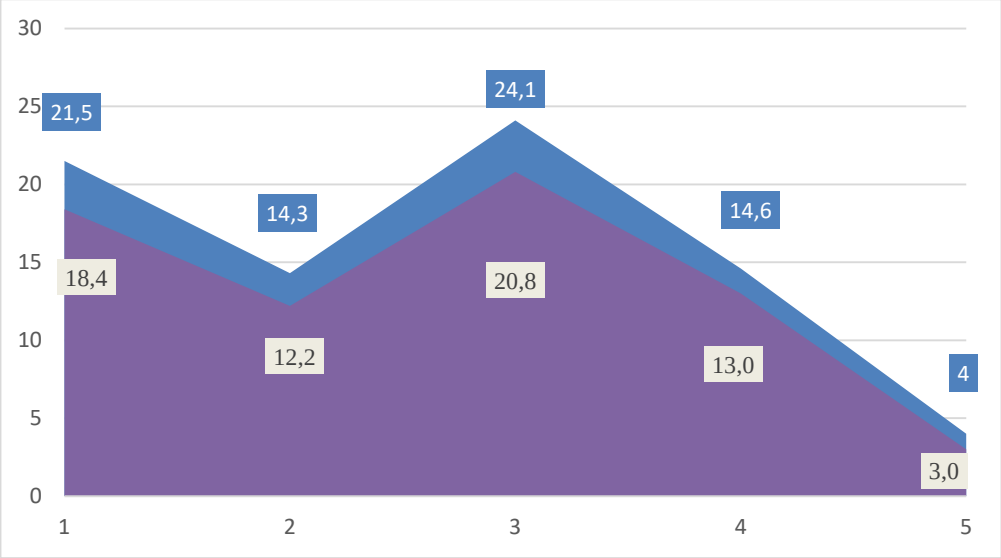

Figure 1. 7th grade boys face morphometry.
Blue color – norm, purple color – hypothyroidism.

In girls of this age, these parameters were equal to the following parameters on average: the physiognomic height of the face was on average 17±0.97 cm, the morphological height of the face was on average 10.7±1.03 cm, the morphological width of the face was 20.2±0.84 cm, the depth of the upper jaw was 11.1±0.78 cm, and the height of the lower jaw was 3.4±0.48 cm. We also studied the anthropometric indicators of the teeth and jaw system of children in the healthy (control) group of 12-13 years old. In this case, the physiognomic height of the face in the group of boys was 21.5±0.97 cm on average, and in the group of girls it was 21.8±0.85 cm. During this period, the total morphological height of the face was found to be 14.3±0.94 cm in the boys' group, and 13.3±0.91 cm in the girls' group. (Figura 2).

The average morphological width of the face is 24.1±0.89 cm in the group of boys and 23.4±0.70 cm in the group of girls. In the same period, the depth of the upper part of the face was 14.6±0.76 cm in the group of boys, and 13.5±0.83 cm in the group of girls. The average height of the lower jaw was 4.0±0.52 cm in the group of boys, and 4.3±0.42 cm in the group of girls.

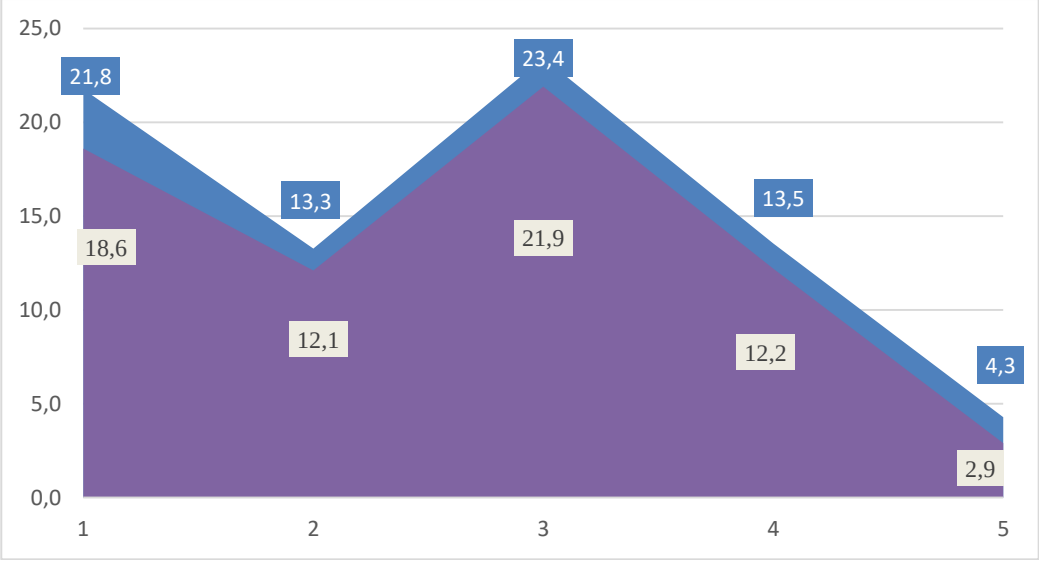

Figure 2. 7th grade girls face morphometry.
Blue color – norm, purple color – hypothyroidism.

We measured the anthropometric parameters of the teeth and jaw system of 15-16-year-old healthy (control) children. The following indicators were observed, the physiognomic height of the face in the boys' group was on average 29.5±0.73 cm, and in the girls' group it was 23.7±0.94 cm. In the same period, the total morphological height of the face was 18.0±0.82 cm in the group of boys, and 14.9±0.84 cm in the group of girls. The average morphological width of the face is 29.4±0.79 cm in the group of boys and 25.9±0.80 cm in the group of girls. During this period, the depth of the upper part of the face is 17.2±0.83 cm in the group of boys, and 15.1±0.74 cm in the group of girls. The height of the lower jaw was found to be 5.7±0.62 cm in the boys' group, and 5.2±0.39 cm in the girls' group.

Conclusion. Thus, the results of the morphological study of the hard tissues of the teeth can be used in the case of caries against the background of the main experimental hypothyroidism in the pathological and anatomical departments of health care institutions for the diagnosis of dental pathology. The structural changes shown in the hard tissues of the teeth can be used to study the induction of antioxidants in caries in patients with primary hypothyroidism.

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