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Functional Parameters of the Facial Part of the Upper Jaw in Children During the Period of Replacement Bite

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Relevance of the study. The size of the upper incisors is the starting point of textbook methods of biometric diagnosis of dental arch anomalies in various periods of ontogenesis. The sum of the width of the crown parts determines the width of the dental arches between the premolars and the first molars of the permanent bite. The difference in the numerical values of the coefficients proposed by the authors determines their limited use, taking into account the typological features of the upper dental arches, even with physiological occlusion.

The sizes of permanent incisors and first permanent molars are variable and, according to most researchers, determine the dental type of the dental system, namely: macro-, micro- or normodontism. At the same time, the authors recommend comparing the size of the incisors with the transversal zygomatic size of the face. According to the authors, this technique makes it possible to determine the correspondence of tooth sizes to jawbone sizes and to propose modern research methods. It is recommended to evaluate the type of dental system both by the sum of the four upper incisors and by the modulus of the first permanent molars, calculated as a half-sum of the mesial-distal and vestibular-lingual diameters. There are many methods for determining the dental type in the literature, but most of them relate to the period of permanent bite formation. In this case, experts noted not only the variability of face size in representatives of both sexes, but also showed that the size of teeth is less determined by gender differences and, as a rule, depends on the diagonal and latitudinal (transversal) dimensions of the facial region of the head. A comparative assessment of the functional state of the dental and maxillary system was carried out and the features of metabolism in anomalies of occlusal relationships were presented, which is also recommended to be evaluated in clinical orthodontics. The estimate of the length of the lateral segment is comparable to the size of the teeth located in this segment, which are represented by premolars in a permanent bite. At the same time, the size of the milk molars differs from the size of the teeth replacing them, which determines the relevance of the study and determines its purpose. The aim of the study was to conduct a comparative analysis of the size of the Gerlach lateral segment with the size of teeth during the period of replacement bite in children with different dental types of dental systems. Materials and methods of research. A retrospective stratified study of models of dental arches in children aged 7-9 years was carried out after changing the milk incisors of both jaws with optimal functional occlusion and a neutral ratio of the first permanent molars. On plaster models of the jaws, the mesial-distal width of the crowns of the teeth of both generations was measured to determine the length of the dental arch and the

vestibular-lingual size of the first permanent molar to assess the modulus of the first permanent molars and the total modulus of the molars of the upper and lower jaw.

The mesial-distal dimensions of the crowns of the lower first permanent molars were 10.89±0.14 mm, and the vestibular-lingual diameter was 10.61±0.09 mm, and the modulus of the lower molars was 10.75±0.11 mm. The average modulus of the four permanent molars is 10.69±0.08 mm, which can be used in clinical orthodontics to determine the dental type of the dental system. The total component of the mesial-distal dimensions of the milk teeth (canine and two molars on each side) averaged 21.34±0.53 mm, and on the lower dental arch – 20.59±0.47 mm. At the same time, the length of the Gerlach lateral segment on the upper and lower jaws was 31.66±1.24 mm and 32.02±1.31 mm, respectively, and was close to the sum of the width of the crowns of the upper permanent incisors. In the replacement bite, the length of the upper normodont arch was 93.59±1.05 mm. The lower arch was 86.86±1.11 mm long.

The mesial-distal dimensions of the crowns of the lower first permanent molars were 10.20±0.12 mm, and the vestibular-lingual diameter was 10.36±0.11 mm, and the modulus of the lower molars was 10.28±0.11 mm. The average modulus of the first four permanent molars was 10.32±0.11 mm, which determined the microdental type of the dental system. The total component of the mesial-distal dimensions of the milk teeth (canine and two molars on each side) averaged 19.87±0.57 mm. The size of the antagonizing group of teeth was 19.45±0.44 mm. The length of the upper lateral segment according to Gerlach was 29.88±1.21 mm.

Conclusion. In people with macrodontinal variants of dental systems, the size of the upper incisors in the total value was 33.16±1.14 mm, while the length of the lateral segment according to Gerlach was 34.42±1.29 mm (upper segment) and 33.76±1.34 mm (lower segment). For microdental variants of dental arches, the sum of the width of the upper incisors averaged 28.76±1.06 mm, and the lateral upper segment was 29.88±1.21 mm, the value of the antagonizing group was 29.68±1.18 mm

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