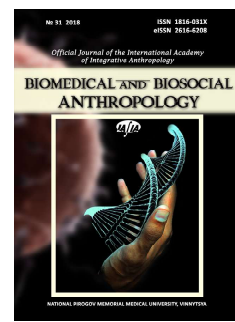




## BIOMEDICAL AND BIOSOCIAL ANTHROPOLOGY

Official Journal of the International Academy  
of Integrative Anthropology

journal homepage: <http://bba-journal.com>



# Computed tomographic characteristics of dental arches in young men and women with physiological bite, depending on types of faces

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### ARTICLE INFO

Received: 12 March, 2018

Accepted: 26 April, 2018

UDC: 616-073.75:616.314.26-053.81

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Correct approach to orthodontic treatment of patients requires studying the size of teeth and dental arches in representatives of different ethnic, age and sexual groups with physiological bite, depending on the features of the shape of the head and face type. The purpose of the work is to establish the limits of the percentile scope and the peculiarities of the computer-tomographic characteristics of dental arches in young men and young women with physiological bite, depending on the type of face. Primary computer-tomographic dimensions of dental arc characteristics, as well as cephalometric parameters 44 young men and 50 young women with normal occlusion close to orthognathic bite were obtained from the data bank of the research center of the National Pirogov Memorial Medical University, Vinnytsya. Face type was determined using the Garson morphological index. The statistical processing of the obtained results was carried out using the statistical package "Statistica 6.0" using nonparametric estimation methods. In young men and young women with a physiological bite with different face types, the borders of the percentile range of the following distances are defined: between the apexes of the palatinal roots of the upper first molars, between the apexes of the distal cheek roots of the upper first molars, between the apexes of the medial vestibular roots of the upper first molars, between the apexes of the medial the roots of the lower first molars, between the apexes of the distal roots of the lower first molars, between the molar points by Pon, between the premolar points by Pon, between medial vestibular hills of first molars, between the cutting hills of the upper canines, between root apex the upper canines, between the tops of the lower canines, between root apex of the lower canines; as well as canine sagittal distance of the upper jaw, premolar sagittal distance of the upper jaw, molar sagittal distance of the upper jaw, depth of the palate at the level of the canines, depth of the palate at the level of the first premolars and depth of the palate at the level of the first molars. The boundaries of the percentile scope of the computer-tomographic size of the characteristics of dental arches in young men with broad and young women with wide and very wide types of face with normal occlusion close to orthognathic bite are established. It was established that in young men the distance between the apexes of the medial vestibular roots of the upper first molars, between the molar and premolar points by Pon, between the vestibular medial tops of the first molars, between the cutting humps of the upper canines, between the apexes of the roots of the upper canines, as well as premolar and molar sagittal distances of the upper jaw are significantly higher ( $p < 0.05-0.001$ ) than in young women of the corresponding type. In addition, the distances between the apexes of the distal cheek roots of the upper first molars, between the apexes of the medial roots of the lower first molars and the depth of the palate at the level of the first molars in young men with a broad type of face tend to have higher values ( $p = 0.051-0.064$ ) than young women with a broad type of face. When comparing differences in the size of dental arches between young women with a very wide and wide face, it was found that in young women with a very wide face, the distance between the apexes of the medial roots of the lower first molars, between the apexes of the distal roots of the lower first molars, and between the cutting humps of the upper canines are significantly higher ( $p < 0.05-$

*0.01) than in young women with a broad type of face. Thus, pronounced sexual differences are found for most transversal and sagittal characteristics of the dental arch of the representatives with a broad type of face (larger in young men), as well as minor differences only in the transversal characteristics of the dental arc between young women with wide and very broad types of faces (larger values in representatives with a very wide type of face).*

**Keywords:** size of the dental arc, physiological bite, young men, young women, face type, computer tomography, sexual differences.

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## Introduction

In-depth study of the shape and size of dental arches is due to the interest shown to this issue by dentists, forensic doctors, morphologists, as well as evolutionary and ethnic anthropologists. Competent assistance in dentistry today includes issues related not only to the disease, but also to the functional capacity of the tooth-jaw system and to the psychological comfort of the patient [10, 14, 25, 34]. The importance of morphometric research in clinical dentistry for optimization of diagnostic methods, choice of methods for treatment of patients with anomalies of occlusion and their application significance have been determined [1, 5, 12, 13, 20, 27].

Teeth groups combined into dental arches represent a single functional system that provides backstopping, crushing and grinding of products, while the look of the face and teeth is perhaps the most important factor in psychosocial health in humans [25, 29, 33]. In the high percentage of cases, there is a match between face and dental arches. Dental arches and bone facial expressions are an example of structural compatibility with each other. That is, their balanced or equivalent growth, as a rule, supports architecturally related departments of the craniofacial complex [12, 23].

Any attempt to visually classify the size of the dental arch as broad, medium and narrow, and the shape of the dental arc - as a square, narrowed and ovoid in such arbitrary order is false. For example, when picking artificial teeth, individual peculiarities of the sizes and shapes of dental arches should be reproduced with maximum proximity to face types, otherwise the functional value of the prostheses and aesthetics are not provided [9, 10, 11].

The variety of forms and sizes of dental arches is given in the works of domestic and foreign specialists [2, 6, 9, 16, 18, 27, 30, 35]. Parameters of dental arches are subject to significant variations depending on constitutional, age and individual characteristics. In view of this, a systematic approach to choosing the optimal size of the dental arc (border of percentile scope) for persons with a certain type of person, as in the diagnosis of anomalies of their shape and size, and in the stages of orthodontic treatment, is necessary.

The *purpose* of the work is to determine the boundaries of the percentile scope and the peculiarities of the computer-tomographic characteristics of dental arches in young men and young women with physiological bite, depending on the type of face.

## Materials and methods

Primary computed tomographic dimensions of dental arc characteristics and cephalometric parameters of 44 young men and 50 young women of the Podillia region of Ukraine with normal occlusion close to orthognathic bite (determined by 11 points by M. G. Bushan et al. [8]) obtained from data bank of the Research Center of National Pirogov Memorial Medical University, Vinnytsya.

The research was conducted according to the scheme developed by Gunas I.V., Dmitriev N.A. and Marchenko A.V. [18] with the help of a dental cone-ray tomograph - Veraviewepocs 3D, Moret (Japan) within these characteristics. The volume of the three-dimensional image is an 8x8cm cylinder, a layer thickness of 0,2/0,125 mm, an irradiation dose of 11-48  $\mu$ Sv, a voltage and current strength of 60-90kV/2-10mA. Measurement of the distances between apexes of the palatal roots of the upper first molars (NAPX\_6), between the apexes of the distal cheek roots of the upper first molars (DAPX\_6), between the apexes of the medial vestibular roots of the upper first molars (MAPX\_6), between the apexes of the medial roots of the lower first molars (MAPX\_46), between apexes of distal roots of the lower first molars (DAPX\_46), between molar points by Pon (PONM), between premolar points bu Pon (PONPR), between the vestibular medial molars protuberance (VESTBUGM), between the cutter tubes of the upper canines (BUGR13\_23), between apexes of the roots of the upper canines (APX13\_23), between the tops of the lower canines (BUGR33\_43), between the apexes of the lower canines roots (APX33\_43); as well as the canine sagittal distance of the upper jaw (DL\_C), premolar sagittal maxilla distance (DL\_F), molar sagittal maxilla distance (DL\_S), palatal depth at the level of the canines (GL\_1), palatal depths at the level of the first premolars (GL\_2), depth of the palate at the level of the first molars (GL\_3) was carried out in the program shell of i-Dixel One Volume Viewer [Ver.1.5.0] J Morita Mfg. Cor.

Cephalometric dimensions were measured with a soft centimeter ribbon and a large compass with a scale in the real size of the Martin system [7]. The face type was determined using the Garson morphological index [28]. From the following distribution of young men and young women by type of face (young men with a very wide face - 6, with wide faces - 25, with middle faces - 6, with a narrow face - 6, with a very narrow face - 1, young women from a very wide face - 21, with a wide face - 20, with a middle face

- 6, with a narrow face - 6, young men with a very narrow face - 0) it is clear that for further research we took into account only young men and young women with wide faces and young women with a very wide face.

The statistical processing of the obtained results was carried out using the statistical software package "Statistica 6.0" using non-parametric estimation methods. Evaluated the nature of the distributions for each of the variation series obtained, the mean for each studied feature, the standard quadratic deviation, and the boundaries of the percentile scope. The reliability of the difference between independent quantitative values was determined using the Man-Whitney U-criterion.

### Results

In the young men and young women with normal occlusion close to the orthognathic bite with different types of faces the limits of the percentile scale (correspondingly 25.0 percentl and 75.0 percentl) of the computer-tomographic size of the characteristics of the dental arches (Table 1) are established.

Sex differences of morphometric computer-tomographic dimensions of the characteristics of dental arches between young men and young women with wide faces, as well as the discrepancy between the data of indicators between young women with a broad and very wide face are given in Table 2.

**Table 1.** Percentile scale of computer-tomographic dimensions of the characteristics of dental arches in young men and young women with normal occlusion with different types of faces (mm).

Indexes	Boys		Girls			
	wide face		very wide face		wide face	
	25.0 <sup>th</sup> percentl	75.0 <sup>th</sup> percentl	25.0 <sup>th</sup> percentl	75.0 <sup>th</sup> percentl	25.0 <sup>th</sup> percentl	75.0 <sup>th</sup> percentl
NAPX_6	34.5	38.1	32.1	36.9	33.7	36.2
DAPX_6	53.5	60.0	51.0	56.0	51.4	56.7
MAPX_6	53.3	58.0	50.6	54.4	49.8	54.0
MAPX_46	50.7	55.5	52.6	54.4	49.9	53.2
DAPX_46	54.0	58.4	55.0	59.3	52.9	56.4
PONM	47.7	51.0	46.3	48.8	44.9	48.9
VESTBUGM	54.3	57.8	53.0	55.0	51.5	55.8
PONPR	37.4	39.9	35.5	37.1	34.7	37.2
BUGR13_23	34.4	36.5	33.7	35.5	31.6	34.5
APX13_23	30.2	33.9	27.6	28.8	26.7	30.9
BUGR33_43	25.0	27.0	24.8	27.1	24.4	26.9
APX33_43	19.7	22.5	20.3	23.5	19.3	22.1
DL_C	9.5	10.8	8.6	9.8	8.8	10.3
DL_F	17.8	19.3	16.4	18.2	16.6	18.4
DL_S	31.6	33.9	29.8	32.3	30.4	32.3
GL_1	9.0	12.7	9.0	10.6	9.1	11.8
GL_2	15.4	19.8	15.9	18.2	15.6	19.0
GL_3	21.5	24.0	20.0	22.2	19.3	22.8

**Table 2.** Differences in the morphometric computational-tomographic dimensions of the characteristics of dental arches between young men and young women with a wide face, as well as between young women with wide and very wide types of faces (mm, M±σ).

Indexes	Boys with a wide face	Girls with a wide face	p	Girls with a very wide face	p <sub>1</sub>
NAPX_6	36.37±2.93	34.65±3.73	>0.05	35.16±3.42	>0.05
DAPX_6	56.83±4.24	54.00±4.83	=0.064	53.32±4.52	>0.05
MAPX_6	55.52±3.31	52.00±3.65	<0.01	52.20±3.10	>0.05
MAPX_46	53.11±2.51	51.63±2.35	=0.060	53.52±2.08	<0.01
DAPX_46	56.16±2.82	55.37±3.52	>0.05	57.18±2.42	<0.05
PONM	49.34±2.12	47.09±2.53	<0.01	47.77±2.07	>0.05
VESTBUGM	55.71±2.62	53.30±2.83	<0.05	54.30±1.75	>0.05
PONPR	38.60±1.62	35.91±2.16	<0.001	36.61±1.63	>0.05
BUGR13_23	35.30±1.85	33.29±1.79	<0.001	34.65±1.08	<0.05
APX13_23	32.24±2.17	28.25±3.00	<0.001	28.29±1.63	>0.05
BUGR33_43	26.04±1.58	25.69±2.02	>0.05	27.03±3.68	>0.05
APX33_43	21.49±2.28	21.09±2.92	>0.05	22.55±4.01	>0.05
DL_C	10.17±1.36	9.583±1.180	>0.05	9.188±0.888	>0.05
DL_F	18.50±1.56	17.42±1.62	<0.05	17.21±1.18	>0.05
DL_S	32.65±1.73	31.11±1.78	<0.01	30.96±1.45	>0.05
GL_1	10.87±2.47	10.42±1.88	>0.05	9.719±1.473	>0.05
GL_2	18.04±2.90	17.66±2.54	>0.05	16.89±1.68	>0.05
GL_3	22.63±2.31	21.11±2.34	=0.051	21.11±1.67	>0.05

**Notes:** p - the validity of the difference between the values of the respective indicators of young men and young women with a broad face; p<sub>1</sub> - the validity of the difference between the values of the respective indicators of young women with a wide and very wide face.

### Discussion

The number of special works that investigate the dimensional typology of dental arches, depending on the sex of a person, is insignificant in available literature. In forensic medicine and anthropological literature, the fact of sexual dimorphism of the size of the dental arches of the upper and lower jaw is noted. This group of signs is included in the method of diagnosis of human sex by skull [2, 7]. In general, the accuracy of gender diagnosis in the size of the dental arcs is slightly inferior to the methods of traditional cephalometry. Nevertheless, the advantage of studying the sexual characteristics of their size is that these data can be used in cases of significant fragmentation of the skull [27].

Most random samples showed non-random sexual differences, which manifest themselves at the level of multidimensional checks both at the complex of signs and at the level of most of the individual attributes. It is necessary to keep in mind that in some groups there is a weakly expressed sexual dimorphism [26, 32].

For men, larger sizes of transverse and sagittal diameters are observed, and the last differences are the smallest. Angular indices in the sexual dimorphism scheme

don't take part, which suggests that gender differences are manifested mainly in the size of the parameters of the dental arches and very weak in their form [5, 6, 26].

Analysis of sexual differences in the computer-tomographic dimensions of the characteristics of dental arches between young men and young women with a wide face (see Table 2) showed that in young men, the distance between the apexes of the medial vestibular roots of the upper first molars, between the molar and premolar points by Pon, between the vestibular medial tops of the first molars, between the cutting humps of the upper jaws, between apexes of the roots of the upper jaws, as well as premolar and molar sagittal distances of the maxilla are significantly higher ( $p < 0.05-0.001$ ) than young women with that type of face. In addition, the distances between the apexes of the distal cheeky roots of the upper first molars, between the apexes of the medial roots of the lower first molars and the depth of the palate at the level of the first molars in young men with a broader type of face tend to have higher values ( $p = 0.051-0.064$ ) than in young women with a broad-faced type (see Table 2).

In studies Glushak A. [17] and Gunas I., Glushak A. and Samoylenko A. [19], between boys and girls of Podillia with orthognathic bite with the corresponding facial types, the following differences in the size of dental arches were found: in boys with wide and very wide faces higher values of the transverse size of the upper (in all cases, in boys with wide faces) and lower jaw (mostly in boys with very wide faces) are determined, than in girls; and in boys with a middle face - larger values are established only for the distances between the cutting hollows of the canines, the distance between the molar points by Pon and between the tops of the neighbors buccal edge of the 36 and 46 teeth. Sex differences in the value of the vertical characteristics of the dental arc between adolescents with different facial types are practically not established [17].

The constant search of ideal sizes and shapes of dental arches attracted the attention of specialists from ancient times. The in-depth study of the variability of the size of the dental arches of the upper, lower jaw in the projection into various types of face, due to their anatomical and topographic proximity and morphological unity, has a fundamental theoretical value [4, 10, 31].

Researchers have established the following dimensional features of the dental arches, depending on the types of faces:

- in persons with a narrow and very narrow face: the dental arches are elongated in the anterior-posterior and narrowed in the medio-lateral directions [5, 6, 27], have the smallest values of the ratio of the width of the tooth arch to the depth of the upper jaw [9], the width of the dental arc the lower jaw at the level of premolars and molars [26], the angle MP-SN [3, 15], the posterior intermolar width [2] and the largest values for the length of the anterior segment of the dental arch [15, 26];

- in persons with a middle face: the sizes of dental arches are balanced in the anterior-posterior and medial-lateral

- directions [5, 6, 27], have mean values of the ratio of the width of the tooth arch to the depth of the upper jaw [9], the width of the dental arch of the mandible at the level of premolars and molars [26], posterior intermolar width [2], length of the anterior segment of the dental arc [15, 26];

- in persons with wide and very wide face dental arches shorter in the anterior-posterior and wider in the medial-lateral directions [5, 6, 27], have the greatest values of the ratio of the width of the tooth arch to the depth of the upper jaw [9], the width of the lower dental artery jaws at the level of premolars and molars [26], angle MP-SN [15, 28], posterior intermolar width [2], and the smallest values for the length of the anterior segment of the dental arc [15, 26].

An analysis of differences in the computer-tomographic characteristics of sizes of the dental arches between young women with a very wide and broad face (see Table 2) showed that young women with a very wide type of face have distances between apexes of medial roots of the lower first molars, between apexes of distal roots of the lower first molars and between the cutting humps of the upper jaws significantly higher ( $p < 0.05-0.01$ ) than in young women with a broad-faced face. Other computer-tomographic dimensions of dental arc characteristics did not have any reliable or tendency differences between young women with broad and very broad types of faces (see Table 2).

When comparing differences in the sizes of dental arches between young women of Podillia with orthognathic occlusion with different face types [17, 19], smaller values of the distance between the tops of the canines, the distance between the molar points by Pon, the displacement of the 16 tooth relative to the palatal suture and the linear size between the tops of neighbors buccal edge of 36 and 46 teeth in young women with a broad-face than young women with middle faces; and for young women with a middle face - only smaller values of the depth of the sky at the level of canines than those with other types of faces.

The progressive level of fundamental and applied research related to morphogenesis, typical and individual variability of dental arches are important for the diagnosis of pathological changes in the dental-jaw system, interpretation of CT-X-ray data [1, 12, 13, 21, 22].

The obtained results concerning computer-tomographic dimensional characteristics of dental arches in men and women with physiological bite with different types of face allows not only to improve existing conservative and surgical methods of treatment of patients in the dental profile, but also to minimize the probability of diagnostic errors and complications.

## Conclusions

1. In young men with wide and young women with and very wide types of faces, having normal occlusion close to orthognathic bite, population characteristics of computer-tomographic sizes of dental arches are established.

2. In young men with a broad face established significantly higher or tended to greater values of the majority

of transversal and sagittal characteristics of the dental arch than in young women with a similar type of face.

3. In young women with a very wide type of face

established significantly higher values of only a small part of the transversal characteristics of the dental arch, than in young women with a broad-type face.

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### КОМП'ЮТЕРНО-ТОМОГРАФІЧНІ ХАРАКТЕРИСТИКИ ЗУБНОЇ ДУГИ У ЮНАКІВ І ДІВЧАТ З ФІЗІОЛОГІЧНИМ ПРИКУСОМ В ЗАЛЕЖНОСТІ ВІД ФОРМИ ГОЛОВИ

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Коректний підхід до ортодонтичного лікування пацієнтів потребує вивчення розмірів зубів та зубних дуг у представників різних етнічних, вікових та статевих груп населення з фізіологічним прикусом в залежності від особливостей форми голови та типу обличчя. Мета роботи - встановити межі процентильного розмаху та особливості комп'ютерно-томографічних характеристик зубних дуг в юнаків і дівчат із фізіологічним прикусом в залежності від типу обличчя. Первинні комп'ютерно-томографічні розміри характеристик зубних дуг, а також кефалометричні параметри 44 юнаків та 50 дівчат із нормальною оклюзією наближеною до ортогнатичного прикусу отримані з банку даних науково-дослідного центру Вінницького національного медичного університету ім. М. І. Пирогова. Тип обличчя визначали за допомогою морфологічного індексу Гарсона. Статистичну обробку отриманих результатів проводили за допомогою ліцензійного статистичного пакету "Statistica 6.0" з використанням непараметричних методів оцінки. В юнаків і дівчат із фізіологічним прикусом із різними типами обличчя визначені межі процентильного розмаху наступних відстаней: між апексами палатинальних коренів верхніх перших кутніх зубів, між апексами дистальних щічних коренів верхніх перших кутніх зубів, між апексами медіальних вестибулярних коренів верхніх перших кутніх зубів, між апексами медіальних коренів нижніх перших великих кутніх зубів, між апексами дистальних коренів нижніх перших великих кутніх зубів, між молярними точками за Поном, між премолярними точками за Поном, між вестибулярними медіальними горбками перших великих кутніх зубів, між ріжучими горбками верхніх іклів, між апексами коренів верхніх іклів, між верхівками нижніх іклів, між апексами коренів нижніх іклів; а також іклової сагітальної відстані верхньої щелепи, премолярної сагітальної відстані верхньої щелепи, молярної сагітальної відстані верхньої щелепи, глибини піднебіння на рівні іклів, глибини піднебіння на рівні перших малих кутніх зубів і глибини піднебіння на рівні перших великих кутніх зубів. Встановлені межі процентильного розмаху комп'ютерно-томографічних розмірів характеристик зубних дуг у юнаків із широким і дівчат із широким та дуже широким типами обличчя, що мають нормальну оклюзію наближену до ортогнатичного прикусу. Встановлено, що в юнаків відстані між апексами медіальних вестибулярних коренів верхніх перших кутніх зубів, між молярними та премолярними точками за Поном, між вестибулярними медіальними горбками перших великих кутніх зубів, між ріжучими горбками верхніх іклів, між апексами коренів верхніх іклів, а також премолярна та молярна сагітальні відстані верхньої щелепи достовірно більші ( $p < 0,05-0,001$ ), ніж у дівчат із відповідним типом обличчя. Крім того, відстані між апексами дистальних щічних коренів верхніх перших кутніх зубів, між апексами медіальних коренів нижніх перших великих кутніх зубів і глибина піднебіння на рівні перших великих кутніх зубів в юнаків із широким типом обличчя мають тенденції до більших значень ( $p = 0,051-0,064$ ), ніж у дівчат із широким типом обличчя. При порівнянні розбіжностей розмірів зубних дуг між дівчатами з дуже широким і широким обличчям встановлено, що у дівчат із дуже широким типом обличчя відстані між апексами медіальних коренів нижніх перших великих кутніх зубів, між апексами дистальних коренів нижніх перших великих кутніх зубів і між ріжучими горбками верхніх іклів достовірно більші ( $p < 0,05-0,01$ ), ніж у дівчат із широким типом обличчя. Таким чином, встановлені виражені статеві розбіжності для більшості трансверзальних і сагітальних характеристик зубної дуги у представників із широким типом обличчя (більші значення в юнаків), а також незначні розбіжності лише трансверзальних характеристик зубної дуги між дівчатами з широким і дуже широким типами обличчя (більші значення у представниць із дуже широким типом обличчя).

**Ключові слова:** розміри зубної дуги, фізіологічний прикус, юнаки, дівчата, тип обличчя, комп'ютерна томографія, статеві відмінності.

### КОМП'ЮТЕРНО-ТОМОГРАФІЧЕСКИЕ ХАРАКТЕРИСТИКИ ЗУБНОЙ ДУГИ У ЮНОШЕЙ И ДЕВУШЕК С ФИЗИОЛОГИЧЕСКИМ ПРИКУСОМ В ЗАВИСИМОСТИ ОТ ФОРМЫ ГОЛОВЫ

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Корректный подход к ортодонтическому лечению пациентов требует изучения размеров зубов и зубных дуг у представителей различных этнических, возрастных и половых групп населения с физиологическим прикусом в зависимости от особенностей формы головы и типа лица. Цель работы - установить границы процентильного размаха и особенности компьютерно-

томографических характеристик зубных дуг у юношей и девушек с физиологическим прикусом в зависимости от типа лица. Первичные компьютерно-томографические размеры характеристик зубных дуг, а также кефалометрические параметры 44 юношей и 50 девушек с нормальной окклюзией приближенной к ортогнатическому прикусу получены из банка данных научно-исследовательского центра Винницкого национального медицинского университета им. Н. И. Пирогова. Тип лица определяли с помощью морфологического индекса Гарсона. Статистическую обработку полученных результатов проводили с помощью лицензионного статистического пакета "Statistica 6.0" с использованием непараметрических методов оценки. В юношей и девушек с физиологическим прикусом с различными типами лица определены границы процентильного размаха следующих расстояний: между апексами палатинальных корней верхних первых коренных зубов, между апексами дистальных щечных корней верхних первых коренных зубов, между апексами медиальных вестибулярных корней верхних первых коренных зубов, между апексами медиальных корней нижних первых больших коренных зубов, между апексами дистальных корней нижних первых больших коренных зубов, между молярными точками за Поном, между премолярными точками за Поном, между вестибулярными медиальными бугорками первых больших коренных зубов, между режущими бугорками верхних клыков, между апексами корней верхних клыков, между верхушками нижних клыков, между апексами корней нижних клыков; а также икловое сагиттальное расстояние верхней челюсти, премолярное сагиттальное расстояние верхней челюсти, молярное сагиттальное расстояние верхней челюсти, глубина неба на уровне клыков, глубина неба на уровне первых малых коренных зубов и глубина неба на уровне первых больших коренных зубов. Установленные пределы процентильного размаха компьютерно-томографических размеров характеристик зубных дуг у юношей с широким и девушек с широким и очень широким типами лица, имеющие нормальную окклюзию приближенную к ортогнатическому прикусу. Установлено, что у юношей расстояния между апексами медиальных вестибулярных корней верхних первых коренных зубов, между молярными и премолярными точками за Поном, между вестибулярными медиальными бугорками первых больших коренных зубов, между режущими бугорками верхних клыков, между апексами корней верхних клыков, а также премолярное и молярное сагиттальные расстояния верхней челюсти достоверно больше ( $p < 0,05-0,001$ ), чем у девушек с соответствующим типом лицом. Кроме того, расстояния между апексами дистальных щечных корней верхних первых коренных зубов, между апексами медиальных корней нижних первых больших коренных зубов и глубина неба на уровне первых больших коренных зубов у юношей с широким типом лица имеют тенденции к большим значениям ( $p = 0,051-0,064$ ), чем у девушек с широким типом лица. При сравнении различий размеров зубных дуг между девушками с очень широким и широким лицом установлено, что у девушек с очень широким типом лица расстояния между апексами медиальных корней нижних первых больших коренных зубов, между апексами дистальных корней нижних первых больших коренных зубов и между режущими бугорками верхних клыков достоверно больше ( $p < 0,05-0,01$ ), чем у девушек с широким типом лица. Таким образом, установлены выраженные половые различия для большинства трансверсальных и сагиттальных характеристик зубной дуги у представителей с широким типом лица (большие значения у юношей), а также незначительные расхождения только трансверсальных характеристик зубной дуги между девушками с широким и очень широким типами лица (большие значения у представительниц с очень широким типом лица).

**Ключевые слова:** размеры зубной дуги, физиологический прикус, юноши, девушки, тип лица, компьютерная томография, половые различия.

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