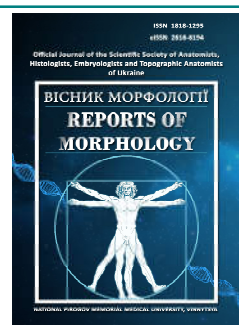




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Cephalometric parameters of the upper and lower jaws according to the COGS method in Ukrainian young men and young women with orthognathic occlusion depending on the type of face

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The key to successful orthodontic treatment is the use of a delicate, modern, accurate and scientifically sound method of intervention planning. In addition, it is critical that this method takes into account as many variables as possible that may affect the final result. Given these criteria, the most appropriate for planning orthodontic treatment is cephalometric analysis of lateral telerradiograms, which, however, requires preliminary clinical trials to adapt it to the local population. The aim of the study was to establish the features of cephalometric parameters of the upper and lower jaws, determined according to the COGS method, in Ukrainian young men and young women with orthognathic occlusion depending on the type of face. According to the COGS method, cephalometry was performed for 46 young men (aged 17 to 21) and 72 young women (aged 16 to 20) who belonged in three generations to Caucasian residents of Ukraine and had an orthognathic bite. OnyxCeph³TM software, 3DPro version, Image Instruments GmbH, Germany was used for cephalometric analysis of the upper and lower jaws. Determination of the type of face of young men and young women was carried out according to the values of the morphological index of Garson. Statistical processing of the obtained results was performed in the license package "Statistica 6.0" using non-parametric evaluation methods. The following significant or tendencies of differences between linear and angular parameters of the upper and lower jaws were found between young women with different face types: in young women with a very wide face type - lower values of ANS-Me distance and N-A-Pog, MP-HP angles (compared to other types face) and Ar-Go-Gn (compared to medium and narrow face types), as well as larger values of the distances N-B and N-Pog (compared to other face types); in young women with medium face type - smaller the values of the distances N-A (compared to other face types), N-B and N-Pog (compared to wide and narrow face types), Go-Pog (compared to very wide face type), A-B (compared to a wide face type), as well as larger values of the distance B-Pog and angles MP-HP and Ar-Go-Gn (compared to a wide face type); representatives with a narrow face type have higher values of the distances N-ANS (compared to other face types), B-Pog (compared to very wide and wide face types), PNS-N (compared to a wide face type). The following significant or tendencies of differences between linear and angular indicators of the upper and lower jaws were found between young men with different face types: representatives with very wide face type have higher values of N-B, N-Pog, ANS-PNS distances (compared to average face type), Ar-Go (compared to wide and medium face types), A-B (compared to medium and narrow face types) and N-A (compared to narrow face types), as well as smaller MP-HP angle values (compared to other face types); representatives with a narrow face type have larger values of PNS-N (compared to other face types) and N-ANS (compared to very wide and wide face types), as well as smaller values of N-A-Pog angle (compared to average face type); representatives with medium face type have only smaller values of the ANS-PNS distance (compared to wide face type). Young men with different face types also have larger upper linear dimensions of the upper and lower jaws than in young women with different face types; and in young women mainly with narrow and medium face types - angular indicators of the upper and lower jaws.

Keywords: cone-beam computed tomography, teleradiography, COGS cephalometry, cephalometry, upper and lower jaws, young men, young women, orthognathic occlusion, facial types, sex differences.

Introduction

Aesthetic and balanced facial profile from the point of view of modern medicine has certain, specific parameters that can be calculated in order to plan surgery or therapeutic intervention. What is important, a key component that influences the formation of a balanced facial profile is a person's smile. The condition of the dental and maxillary apparatus, thus, is the focus of various areas of dentistry [26].

At the same time, current data on the prevalence of pathology of the dental and maxillofacial system are not comforting.

In Saudi Arabia, bite pathologies of class I, II and III were found in 52.8 %, 31.8 % and 15.4 % of 500 randomized subjects, respectively. Also, within this sample, 23.4 % showed excessive occlusion, and 12.2 % reduced occlusion [16].

A survey of 1,200 children in India found a prevalence of occlusal pathology in 53.7 % of young men and 32.8 % of young women. 6.8 % have a high risk of caries and 38.1 % have a moderate risk of caries [17].

During the dental examination, 671 adults, residents of Spain, observed orthodontic pathology in 31.3 % of the examined. Of these, only 21.1 % agreed that the identified pathology is really relevant to them. In particular, women agreed to a greater extent than men (23.9 % and 14.4 %, respectively) [4].

374 12-year-old children were examined in Ethiopia for orthodontic pathology. According to the analysis of scientists, almost 50 % of subjects had pathology of the dental and maxillofacial system. The most common pathologies were crowding of teeth and overbite (23.3 % and 30.8 %, respectively) [24].

Given this problem, it is necessary to take into account all possible parameters that may affect the predisposition to the formation of a pathology. An important parameter influencing the formation of the dental-maxillary system is the type of human face [13]. Thus, Duan J. and others [12] drew attention to the fact that parameters such as the angle between the axis of the first premolar of the mandible and the buccal surface of the cheek, vestibular angle and vestibular arc are much higher in people with short face type.

Individuals with brachycephalic facial type are more sensitive to orthodontic treatment and have better sagittal lip contractions [18].

Cephalometric analysis allows to apply the obtained anthropometric data in practice, in order to directly help patients.

Since its introduction to the general public, the cephalometric method of analysis has not remained out of the active attention of the world scientific community. This

powerful tool for planning orthodontic treatment has found its place in various fields of medicine - the treatment of ENT diseases, personal identification in forensic medicine, maxillofacial surgery, etc. [14]. However, at the same time, this method requires the use of adaptation of normative indicators for different variables. This can be sex, age, nationality, facial type and other parameters, which will help to maximize the effectiveness of planning the patient's treatment, which in turn will improve the end result - a beautiful and harmonious smile. The wide range of different methods of analysis of lateral teleradiograms, which is the result of almost a century of evolution of the method still does not allow researchers from around the world to fully capture and adapt them. In addition, even preliminary data need to be revised due to the active migration processes taking place in the modern world [25].

A similar problem exists in Ukraine and needs to be addressed in order to implement cephalometric analysis as soon as possible.

The aim of the study was to establish the features of cephalometric parameters of the upper and lower jaws, determined according to the COGS method, in Ukrainian young men and young women with orthognathic occlusion depending on the type of face.

Materials and methods

Cephalometric examination of lateral teleradiograms (obtained using a dental cone-beam tomograph Veraviewepocs 3D Morita) of 46 young men (aged 17 to 21 years) and 72 young women (aged 16 to 20 years) taken from the database of the research center and Department of Pediatric Dentistry National Pirogov Memorial Medical University, Vinnytsya. All young men and young women applied to Vinintermed Private Dental Clinic for a diagnostic examination, belonged in three generations to Caucasian Ukrainians, and had a physiological bite that was as close as possible to orthognathic (orthognathic bite). Committee on Bioethics of National Pirogov Memorial Medical University, Vinnytsya (protocol № 8 From 30.09.2021) found that the studies do not contradict the basic bioethical standards of the Declaration of Helsinki, the Council of Europe Convention on Human Rights and Biomedicine (1977), the relevant WHO regulations and laws of Ukraine.

Cephalometric analysis was performed according to the COGS-method [5], which was performed using OnyxCeph³™ software, 3DPro version, Image Instruments GmbH, Germany (license for software №URSQ-1799 registered to M. O. Dmitriev).

Determination of facial type was performed according to the values of the Garson morphological index [20]. The distribution of persons by the value of the Garson index

was: young men - 5 with a very wide face, 22 with a wide face, 11 with a medium face, 8 with a narrow face; young women - 25 with a very wide face, 25 with a wide face, 10 with a medium face, 12 with a narrow face.

For the convenience of clinical use and correct modeling of a large array of metric characteristics, we used the distribution of teleradiographic indicators proposed by Dmitriev M. O. [6, 7, 8], according to which the second group includes indicators of the dental system, which often need to focus on orthodontic treatment of patients who are in the process of growth, as well as in persons with a formed skeleton, which with the help of orthognathic surgery can change the width, length, angles and positions of the upper and lower jaws.

The main cephalometric points and measurements included in the second group of indicators (Fig. 1, 2):

A (subspinale) - the most posterior point of the anterior contour of the upper jaw;

ANS (spina nazalis anterior) - point at the apex of the anterior nasal spine;

apOcP (anterior point of occlusal plane, anterior Downs point) - the middle of the line connecting the cutting edges of the upper middle **Is1u** and lower **Is1L** cutters;

Ar (articulare) - intersection of the anterior surface of the main part of the occipital bone with the posterior surface of the neck of the mandible;

B (submentale) - the deepest point of the anterior contour of the mandible;

Me (menton) - the lowest point of the symphysis of the mandible;

N (nasion) - the most anterior point of the frontal-nasal suture;

PNS (spina nazalis posterior) - point at the apex of the posterior nasal spine;

Pog (pogonion) - the foremost point of the chin protrusion;

ppOcP (posterior point of occlusal plane) - the point is located in the place of the most posterior contact of the first molars;

tGo (tangens gonion) - projection point at the angle of the mandible, formed at the intersection of lines, one of which is a tangent line to the posterior edge of the mandibular branch from the point **Ar**, the second is a tangent line to the lower edge of the mandible from the point **Me**. It is usually a few millimeters below and distal to the **Go** point;

distance **A-B** (distance of **A** to **B** on occl. Plane, the distance from point **A** to point **B** on the closing plane) - distance from point **A** and **B** defined along the line **Occl. Plane**, which passes through the points **apOcP** and **ppOcP** (mm);

distance **ANS-PNS** (maxillary length, PNS-ANS) - distance from the point **ANS** to point **PNS** parallel to the horizontal line **HR-Line** (mm);

distance **ANS-Me** (anterior lower facial height, ANS-Gn) - distance from the point **ANS** to point **Me** (mm);

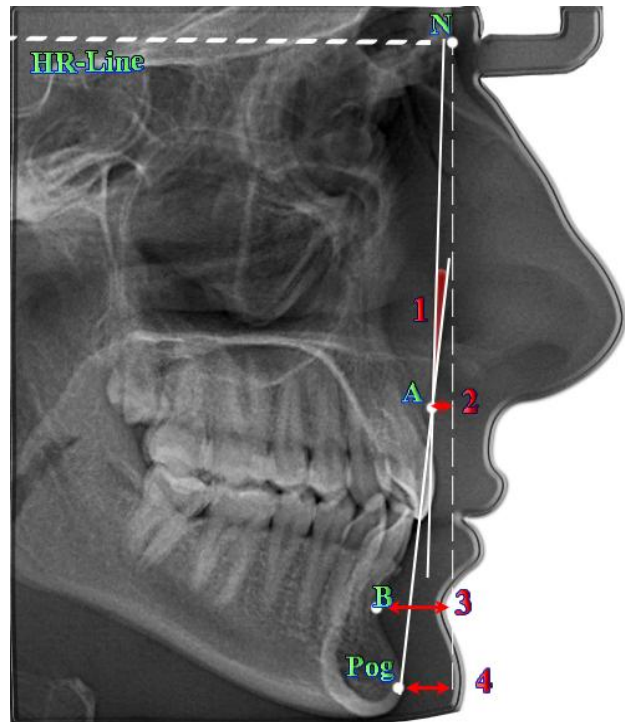


Fig. 1. The main cephalometric points and measurements included in the second group of indicators of the COGS method. 1 - angle **N-A-Pog**; 2 - distance **N-A**; 3 - distance **N-B**; 4 - distance **N-Pog**.

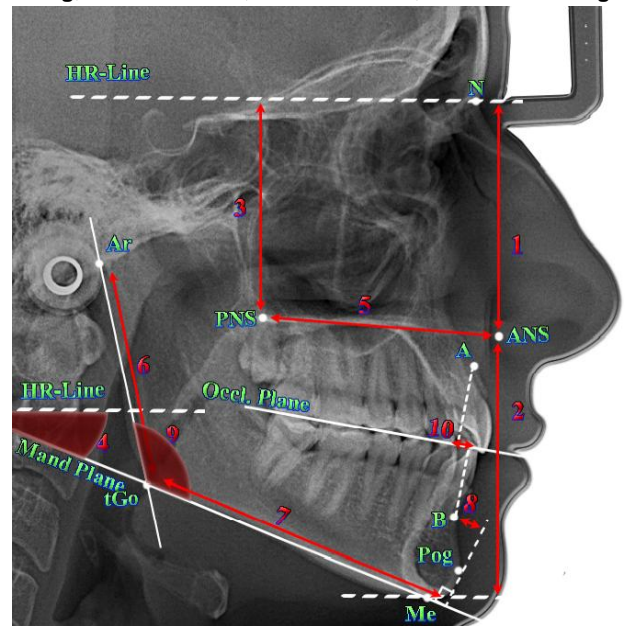


Fig. 2. The main cephalometric points and measurements included in the second group of indicators of the COGS method. 1 - distance **N-ANS**; 2 - distance **ANS-Me**; 3 - distance **PNS-N**; 4 - angle **MP-HP**; 5 - distance **ANS-PNS**; 6 - distance **Ar-Go**; 7 - distance **Go-Pog**; 8 - distance **B-Pog**; 9 - angle **Ar-Go-Gn**; 10 - distance **A-B**.

distance **Ar-Go** (ramus length, the length of the mandible ramus, distance **ar-Go**) - distance from the point **Ar** to point **tGo** (mm);

distance **B-Pog** - distance from the point **Pog** to point **B**

parallel to the mandibular plane, line **tGo-Me** (mm);

distance **Go-Pog** (mandibular length, the length of the base of the mandible) - distance from the point **Pog** to point **tGo** (mm);

distance **N-A** (maxillary position) - distance between points **N** and **A**, defined along the line HR-Line (HR-Line - the line is drawn through the point **N** and seven degrees above the line **S-N**) (mm);

distance **N-ANS** (anterior upper facial height) - distance from the point **N** to point **ANS** (mm);

distance **N-B** (mandibular position) - distance between points **N** and **B**, defined along the line HR-Line (mm);

distance **N-Pog** (position of chin) - distance between points **N** and **Pog**, defined along the line HR-Line (mm);

distance **PNS-N** (posterior upper facial height) - distance from the point **PNS** to line HR-Line (mm);

angle **Ar-Go-Gn** (gonial angle) - the angle is formed by lines **Ar-tGo** and **tGo-Me** (°);

angle **MP-HP** (angle of mandibular to horizontal plane) - the angle formed by the mandibular plane **tGo-Me** and line HR-line (°);

angle **N-A-Pog** (convexity, angle of facial convexity) - the angle is formed by lines **N-A** and **A-Pog** (°).

Statistical processing of the obtained results was performed in the license package "Statistica 6.0" using non-parametric evaluation methods. Mean values and standard deviation were determined for each trait. The reliability of the difference between the values between the independent quantitative values was determined using the U-Mann-Whitney test.

Results

Tables 1 and 2 present the results of the linear and angular values of the upper and lower jaws in young men or young women with orthognathic occlusion, depending on the type of face.

We also found sex differences in the value of these indicators, namely significantly higher or trends toward higher values:

in young men - values of distances N-A (with very wide, $p=0.075$ and medium face, $p=0.067$), N-B (with medium face, $p<0.05$), N-Pog (with wide, $p=0.062$ and medium face, $p<0.05$), N-ANS (with wide, $p<0.001$, medium, $p<0.05$ and narrow face, $p=0.082$), ANS-Me (with wide, $p<0.01$ and narrow face, $p=0.097$), PNS-N (with wide, $p<0.001$, average, $p=0.067$ and narrow face, $p<0.01$), ANS-PNS (with very wide, $p<0.01$, wide, $p<0.001$ and narrow face, $p=0.054$), Ar-Go (with very wide, $p<0.001$, wide, $p<0.001$, medium, $p<0.05$ and narrow face, $p<0.01$), Go-Pog (with very wide, $p<0.01$, wide, $p<0.01$, medium, $p<0.01$ and narrow face, $p<0.01$), B-Pog (with wide face, $p<0.001$) and A-B (with very wide, $p<0.01$ and medium face, $p=0.078$), and angle N-A-Pog (with very wide face $p=0.075$);

in young women - values of angles N-A-Pog (with a narrow face $p<0.05$), MP-HP (with very wide, $p<0.01$, medium, $p<0.05$ and narrow face, $p<0.01$) and Ar-Go-Gn with medium, $p=0.091$ and narrow face, $p=0.054$).

Discussion

Analysis of 23 indicators of 100 teleradiograms (including 50 men and women aged 20, ethnic Bangladesh) using the COGS method allowed to adapt

Table 1. The magnitude of the linear and angular parameters of the upper and lower jaws in young men with different face types ($M \pm \sigma$).

Indicator	Face type				P_{1-2}	P_{1-3}	P_{1-4}	P_{2-3}	P_{2-4}	P_{3-4}
	Very wide (1)	Wide (2)	Average (3)	Narrow (4)						
Angle N-A-Pog	3.020±5.119	1.659±5.202	2.618±5.642	-1.538±4.378	>0.05	>0.05	>0.05	>0.05	>0.05	=0.076
Distance N-A	3.600±4.888	0.305±3.644	-0.427±3.267	-0.850±3.127	>0.05	>0.05	=0.079	>0.05	>0.05	>0.05
Distance N-B	1.580±7.088	-3.355±6.825	-4.409±4.382	-3.688±3.841	>0.05	=0.062	>0.05	>0.05	>0.05	>0.05
Distance N-Pog	4.900±7.635	-1.005±8.121	-2.464±5.542	-0.450±5.792	>0.05	=0.079	>0.05	>0.05	>0.05	>0.05
Distance N-ANS	47.34±6.50	50.90±2.72	51.85±3.21	53.55±2.09	>0.05	>0.05	=0.079	>0.05	<0.05	>0.05
Distance ANS-Me	60.74±7.33	62.89±3.93	63.41±3.56	62.81±3.66	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Distance PNS-N	49.34±2.51	51.36±2.63	50.47±2.84	54.06±2.55	>0.05	>0.05	<0.05	>0.05	<0.05	<0.05
Angle MP-HP	11.38±4.20	18.70±6.71	20.97±4.98	17.33±5.64	<0.05	<0.01	=0.079	>0.05	>0.05	>0.05
Distance ANS-PNS	57.02±4.57	54.65±2.90	52.49±3.61	53.20±3.06	>0.05	=0.070	>0.05	=0.089	>0.05	>0.05
Distance Ar-Go	56.38±2.80	52.67±5.13	51.37±4.22	53.59±3.37	=0.066	=0.054	>0.05	>0.05	>0.05	>0.05
Distance Go-Pog	81.66±5.49	77.51±5.38	78.80±5.12	79.10±6.01	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Distance B-Pog	6.360±2.620	7.191±1.685	7.632±1.462	7.825±1.440	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Angle Ar-Go-Gn	114.5±7.6	119.7±6.6	118.9±4.6	117.0±4.7	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Distance A-B	1.880±1.359	0.118±2.692	-0.773±2.763	-0.088±2.234	>0.05	<0.05	=0.057	>0.05	>0.05	>0.05

Notes: here and in the following table, $M \pm \sigma$ - average sample \pm standard deviation; $p_{(1-2, 1-3, 1-4, 2-3, 2-4, 3-4)}$ - the reliability of the differences between the respective types of faces in young men or young women.

Table 2. The magnitude of linear and angular parameters of the upper and lower jaws in young women with different face types ($M \pm \sigma$).

Indicator	Face type				p_{1-2}	p_{1-3}	p_{1-4}	p_{2-3}	p_{2-4}	p_{3-4}
	Very wide (1)	Wide (2)	Average (3)	Narrow (4)						
Angle N-A-Pog	-1.188±4.718	2.600±6.150	2.200±3.207	3.858±3.487	<0.05	<0.05	<0.01	>0.05	>0.05	>0.05
Distance N-A	-0.472±3.476	-1.196±3.738	-3.180±2.538	-0.608±3.734	>0.05	<0.05	>0.05	=0.062	>0.05	=0.065
Distance N-B	-2.200±5.302	-5.268±5.046	-8.290±3.089	-5.317±4.822	=0.068	<0.001	<0.05	<0.05	>0.05	=0.093
Distance N-Pog	0.160±5.945	-4.484±5.594	-7.980±4.195	-4.342±5.863	<0.05	<0.001	<0.05	=0.093	>0.05	=0.087
Distance N-ANS	47.77±2.88	47.56±2.55	48.97±3.37	51.23±2.99	>0.05	>0.05	<0.01	>0.05	<0.001	=0.099
Distance ANS-Me	57.06±2.93	59.96±3.78	61.87±5.24	60.09±3.53	<0.01	<0.01	<0.05	>0.05	>0.05	>0.05
Distance PNS-N	48.56±2.58	47.87±2.11	48.02±2.92	49.38±2.03	>0.05	>0.05	>0.05	>0.05	<0.05	>0.05
Angle MP-HP	18.38±4.89	21.89±4.17	25.97±3.64	24.65±3.90	<0.05	<0.001	<0.001	<0.01	>0.05	>0.05
Distance ANS-PNS	50.38±2.19	50.78±2.49	50.75±4.07	50.28±2.72	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Distance Ar-Go	47.97±5.89	47.20±6.46	46.69±4.27	47.61±3.50	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Distance Go-Pog	74.32±3.44	72.81±3.40	70.85±4.16	72.32±3.67	>0.05	<0.05	>0.05	>0.05	>0.05	>0.05
Distance B-Pog	6.464±1.412	5.856±1.235	6.890±1.593	7.192±1.196	>0.05	>0.05	=0.062	=0.068	<0.01	>0.05
Angle Ar-Go-Gn	117.8±6.6	118.7±7.2	123.2±5.4	123.0±6.4	>0.05	<0.05	<0.05	=0.065	>0.05	>0.05
Distance A-B	-1.628±2.331	-0.808±2.686	-2.140±1.688	-0.792±2.944	>0.05	>0.05	>0.05	=0.080	>0.05	>0.05

this method for the local population. According to the results of the study - 15 indicators had pronounced manifestations of sexual dimorphism [1].

A similar study was performed using COGS analysis for residents of Saudi Arabia (160 people). The results of 38 measurements were selected for statistical processing. In this study, the manifestations of sexual dimorphism were not detected. But at the same time there are significant differences with European regulatory indicators [2]. These data are confirmed by the work of another team of authors, where the sample was 500 people aged 18-30 years [21].

There are also significant differences in the normative indicators of the COGS analysis for Sudanese residents. In particular, the latter have smaller values of height, length of the upper jaw, shorter base of the skull. In addition, significant manifestations of sexual dimorphism have been identified [15].

Residents of Kerala (India) also have significant differences with European data, which was made possible by studying their lateral telerradiograms using the COGS method [19]. Another study, however, already conducted in a sample of 100 indigenous peoples in northern India, also found significant differences with regulatory data and also found differences in the rates of men and women [22].

Also positive results were obtained when surveying people living in the central regions of India. This contingent found a decrease in the height of the upper and lower incisors, the height of the upper third of the face and the length of the anterior base of the skull [23].

A COGS survey of ethnic Malaysians and Chinese living in Malaysia was conducted. Of the 38 indicators, statistically significant differences between the sexes were found in 4

indicators of Malaysian Chinese and 18 Malaysians. There was also a significant difference between ethnic groups in 16 indicators [3].

When comparing between young men or young women with orthognathic occlusion with different face types of linear and angular indicators of the upper and lower jaws, determined by the COGS method, more pronounced differences were found between young women with different face types, namely:

in women with a very wide face type significantly smaller, or a tendency to lower values of the distance ANS-Me and angles N-A-Pog, MP-HP (compared to other face types) and Ar-Go-Gn (compared to medium and narrow face types), as well as significantly higher values of the distances N-B and N-Pog (compared to other types of faces);

in young women with medium face type significantly smaller, or tendencies to smaller values of distances N-A (compared to other face types), N-B and N-Pog (compared to wide and narrow face types), Go-Pog (compared to very wide face type), A-B (compared to a wide face type), as well as significantly larger, or tendencies to larger values of the distance B-Pog and angles MP-HP and Ar-Go-Gn (compared to a wide face type);

in women with a narrow face type significantly greater, or tendencies to greater values of the distances N-ANS (compared to other face types), B-Pog (compared to very wide and wide face types), PNS-N (compared to a wide face type).

Between young men with different face types, most of the reliable, or tendencies of differences between linear and angular indicators of the upper and lower jaws, determined by the COGS method, are established with

representatives of very wide or narrow face types:

in representatives with a very wide face type significantly greater, or tendencies to greater values of the distances N-B, N-Pog, ANS-PNS (compared to the average face type), Ar-Go (compared to wide and medium face types), A-B (compared with medium and narrow face types) and N-A (compared to narrow face type), as well as significantly smaller, or tendencies to smaller values of the MP-HP angle (compared to other face types);

representatives with a narrow face type have significantly larger, or tend to greater values of the distances PNS-N (compared to other types of faces) and N-ANS (compared to very wide and wide types of faces), as well as a tendency to smaller values of the angle N-A -Pog (compared to the average face type);

representatives with medium face type have only a slight tendency to lower values of the ANS-PNS distance (compared to wide face type).

We also found pronounced manifestations of sexual dimorphism of linear and angular parameters of the upper and lower jaws, determined by COGS-method, namely: in young men with different face types significantly larger or tendencies to larger values of most linear sizes of upper and lower jaws; and in young women, mostly with narrow and medium face types - angular indicators.

It should be noted that in the studies of Drachevskaya I. Yu. and others [9, 10, 11] conducted a survey and found the features of cephalometric indicators for Ukrainian young men and young women with orthognathic occlusion according to the methods of Ricketts, Downs, Steiner, taking into account the type of face of the subject. In particular, in all cases there were manifestations of sexual dimorphism.

Our results of linear and angular parameters of the upper and lower jaws, determined by COGS-method in Ukrainian young men and young women will provide dental care at the current level, taking into account not only age, sex and ethnicity, but also face type.

Conclusion

1. Between young men or young women (more pronounced) with orthognathic occlusion with different face types, numerous significant or tendencies of discrepancies between the linear and angular indices of the upper and lower jaws by the COGS method have been established.

2. Between young men and young women with orthognathic occlusion and the corresponding facial types, there are pronounced manifestations of sexual dimorphism of the upper and lower jaws by COGS-method: in young men - in most cases larger linear dimensions; for young women - angular.

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ОСОБЛИВОСТІ ЦЕФАЛОМЕТРИЧНИХ ПАРАМЕТРІВ ВЕРХНЬОЇ ТА НИЖНЬОЇ ЩЕЛЕП ЗА МЕТОДОМ COGS В УКРАЇНСЬКИХ ЮНАКІВ І ДІВЧАТ ІЗ ОРТОГНАТИЧНИМ ПРИКУСОМ В ЗАЛЕЖНОСТІ ВІД ТИПУ ОБЛИЧЧЯ

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Ключем до успішного проведення ортодонтичного лікування є застосування делікатного, сучасного, точного та науково обґрунтованого методу планування втручання. Окрім того критично важливо, аби даний метод враховував якомога більшу кількість змінних, що можуть впливати на остаточний результат. З урахуванням даних критеріїв, найбільш доцільним для планування ортодонтичного лікування є цефалометричний аналіз бокових телерентгенограм, який, проте, потребує проведення попередніх клінічних досліджень з метою адаптації його для місцевого населення. Мета дослідження - встановити особливості цефалометричних параметрів верхньої та нижньої щелеп, що визначаються за методом COGS, в українських юнаків і дівчат із ортогнатичним прикусом у залежності від типу обличчя. Згідно COGS-методу проведено цефалометрію 46 юнаків (віком від 17 до 21 років) і 72 дівчат (віком від 16 до 20 років) які належали у трьох копіях до мешканців України європейської раси та мали ортогнатичний прикус. Для проведення цефалометричного аналізу показників верхньої та нижньої щелеп використовувалось програмне забезпечення ОпухСерф^{3™}, версії 3DPro, компанії Image Instruments GmbH, Німеччина. Визначення типу обличчя юнаків і дівчат проводилося відповідно значенням морфологічного індексу Гарсона. Статистичну обробку отриманих результатів проводили в ліцензійному пакеті "Statistica 6.0" з використанням непараметричних методів оцінки. Між дівчатами з різними типами обличчя встановлені наступні достовірні або тенденції відмінностей лінійних і кутових показників верхньої та нижньої щелеп: у представниць із дуже широким типом обличчя - менші значення величини відстані ANS-Me та кутів N-A-Pog, MP-HP (порівняно з іншими типами обличчя) і Ar-Go-Gn (порівняно з середнім і вузьким типами обличчя), а також більші значення величини відстаней N-B і N-Pog (порівняно з іншими типами обличчя); у представниць із середнім типом обличчя - менші значення величини відстаней N-A (порівняно з іншими типами обличчя), N-B і N-Pog (порівняно з широким і вузьким типами обличчя), Go-Pog (порівняно з дуже широким типом обличчя), A-B (порівняно з широким типом обличчя), а також більші значення величини відстані B-Pog і кутів MP-HP та Ar-Go-Gn (порівняно з широким типом обличчя); у представниць із вузьким типом обличчя - більші значення величини відстаней N-ANS (порівняно з іншими типами обличчя), B-Pog (порівняно з дуже широким і широким типами обличчя), PNS-N (порівняно з широким типом обличчя). Між юнаками з різними типами обличчя встановлені наступні достовірні або тенденції відмінностей лінійних і кутових показників верхньої та нижньої щелеп: у представників із дуже широким типом обличчя - більші значення величини відстаней N-B, N-Pog, ANS-PNS (порівняно з середнім типом обличчя), Ar-Go (порівняно з широким і середнім типами обличчя), A-B (порівняно з середнім і вузьким типами обличчя) і N-A (порівняно з вузьким

типом обличчя), а також менші значення величини кута MP-HP (порівняно з іншими типами обличчя); у представників із вузьким типом обличчя - більші, значення величини відстаней PNS-N (порівняно з іншими типами обличчя) і N-ANS (порівняно з дуже широким і широким типами обличчя), а також менші значення величини кута N-A-Pog (порівняно з середнім типом обличчя); у представників із середнім типом обличчя - лише менші значення величини відстані ANS-PNS (порівняно з широким типом обличчя). Також в юнаків із різними типами обличчя встановлені більші значення, ніж у дівчат із відповідними типами обличчя більшості лінійних розмірів верхньої та нижньої щелеп; а у дівчат переважно з вузьким і середнім типами обличчя - кутових показників верхньої та нижньої щелеп.

Ключові слова: конусно-променева комп'ютерна томографія, телерентгенографія, цефалометрія за COGS-методом, кефалометрія, верхня та нижня щелепи, юнаки, дівчата, ортогнатичний прикус, типи обличчя, статеві розбіжності.
