LIMITS OF THE PERCENTAGE OF TELEROENTGENOGRAPHIC PARAMETERS IN YOUNG MEN AND YOUNG WOMEN WITH ORTHOGNATHIC OCCLUSION, DETERMINED BY THE METHOD OF JARABAK

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Introductions. Improper occlusion is a fairly common phenomenon. Occlusion anomalies occur in early childhood and are caused by violations of the timing of tooth loss and eruption, incorrect placement of tooth germs, features in the structure of the skeletal bones of the face, the shape and size of dental arches (Кисельова І. В. та ін., 2014).

Proper occlusion is the key not only to the aesthetics of a smile, but also to good health, pronunciation, breathing, swallowing. In the vast majority of clinical cases, orthodontic treatment helps to normalize the act of chewing, reduce the risk of periodontal disease and caries (Aggarwal I., Singla, A. 2016).

At clinical inspection and the analysis of plaster models of jaws it is impossible to receive the careful and detailed information on tooth-maxillofacial deformations and anomalies. This is due to the fact that these methods give only an idea of the dimensional characteristics of teeth, dental arches and their relationship. The success and effect of treatment of dental-maxillofacial deformities and anomalies is ensured by correct and skillful examination, which allows to correctly diagnose and choose the best method of treatment, considering age, sex, nature, type of anomaly with mandatory consideration of the location of teeth in relation to soft tissue and bone and facial structures (Al-Khawaja N. F., Kadhom Z. M., Al-Tuma R. R., 2015; Giri J., Pokharel P. R., Gyawali R., 2017). Currently, among all the applied hardware and software methods, only teleroentgenographic examination makes it possible to obtain a reference, standardized and suitable for morphometric characteristics of the jaws and

skull as a whole (Шінкарук-Диковицька М. М., Коцюра О. О., Орловський В. О., 2012; Дмитриев Н. А. и др., 2015; Дмітрієв М. О., Руда І. В., Ясько В. В., 2017; Дмітрієв М. О., Костенко М. П., 2019).

Aim. To establish the limits of the percentage of teleroentgenographic parameters in young men and young women with orthognathic occlusion, determined by the method of Jarabak

Materials and methods. The analysis of lateral teleroentgenograms (teleroentgenographic examination was performed on a dental cone-beam tomograph Veraviewepocs 3D Morita (Japan)) in 49 young men aged 17 to 21 years and 76 young women aged 16 to 20 years with a physiological bite as close as possible to orthognathic. Cephalometric analysis was performed using OnyxCeph® software, 3DPro version, Image Instruments GmbH, Germany (software license URSQ-1799).

Cephalometric points were determined in accordance with the recommendations of Phulari B. S. (2013), Doroshenko S. I. and Kulginsky E. A. (2007).

The main cephalometric points and measurements were determined and performed according to one of the modern modifications of the method Jarabak (1972) – Roth-Jarabak, used in specialized medical diagnostic software OnyxCeph German company ImageInstruments – 1) angle NS-Ar, characterizes the position of the temporomandibular joint (°); 2) the angle S-Ar-Go, characterizes the position of the temporomandibular joint and the branch of the mandible (°); 3) the angle Ar-Go-Gn, characterizes the value of the angle of the mandible (°); 4) distance N-S, characterizes the length of the anterior base of the skull (mm); 5) the distance S-Ar, characterizes the location of the temporomandibular joint relative to the sella turcica (mm); 6) the angle N-Go-Ar, characterizes the angle of inclination of the branch of the mandible to the line N-tGo (°); 7) the angle N-Go-Gn, characterizes the angle of the body of the mandible to the line N-tGo (°); 8) the distance Ar-Go, characterizes the length of the branch of the mandible (mm); 9) the distance Go_Me, characterizes the length of the body of the mandible (mm); 10) angle S-N-A, characterizes the position of the upper jaw in the sagittal plane (°); 11) angle S-N-B, characterizes the

position of the lower jaw in the sagittal plane (°); 12) angle A-N-B, characterizes the intermaxillary ratio in the sagittal plane (°); 13) the angle SN-GoGn, characterizes the inclination of the body of the lower jaw to the anterior base of the skull (°); 14) the distance N-Go, characterizes the height of the bone base of the face (mm); 15) distance S-Gn, distance of the chin from the sella turcica (mm); 16) the angle N-S-Gn, characterizing the direction of the axis of development of the mandible (°); 17) the distance S-Go, determines the degree of development of the branch of the mandible mainly in the vertical plane (mm); 18) distance N-Me, characterizes the front height of the face (mm); 19) the angle S-N-Pog, characterizing the position of the lower jaw (°); 20) the angle N-A-Pog, characterizing the convexity of the bone profile of the face (°); 21) the angle OcP-GoGn, characterizing the inclination of the closing plane to the mandibular plane (°); 22) angle II, characterizes the angular ratio of the medial incisors of the upper and lower jaws (°); 23) angle Max1-SN, characterizes the inclination of the upper medial incisor to the anterior base of the skull (°); 24) angle Mand1-GoMe, characterizes the inclination of the lower medial incisor to the mandibular plane (°); 25) distance 1up-NPog, characterizes the anterior-posterior position of the upper medial incisor (mm); 26) distance 1lo-NPog, characterizes the anterior-posterior position of the lower medial incisor (mm); 27) the distance Ls-NsPog', characterizes the position of the upper lip relative to the line Ns-Pog` (mm); 28) the distance Li-NsPog', characterizes the position of the lower lip relative to the line Ns-Pog` (mm); 29) Sum – the sum of the angles N-S-Ar, S-Ar-Go and Ar-Go-Gn, characterizes the direction of development of the mandible (°); 30) the ratio of Go_Me:N-S, allows you to assess the degree of development of the lower jaw relative to the anterior base of the skull (%); 31) the ratio of S-Ar:Ar-Go, allows you to assess the degree of development of the branch of the mandible relative to its body (%); 32) the ratio S-Go:N-Me, characterizes the ratio between the front and rear heights of the face (%).

Statistical processing of the results was performed in the license package "Statistica 6.0" using non-parametric evaluation methods.

Results and discussion. In young men and young women, the following limits of the percentage scale of teleroentgenographic indicators according to the Jarabak method are established: the value of the angle N-S-Ar – from 122 to 129 in young men and from 121 to 129 in young women (°); the value of the S-Ar-Go angle – from 138 to 147 for young men and from 138.5 to 147.5 for young women (°); the value of the angle Ar-Go-Gn – from 115 to 122 in young men and from 115 to 125 in young women (°); the value of the distance N-S – from 68 to 72 in young men and from 64 to 68 in young women (mm); the value of the distance S-Ar – from 33 to 37 in young men and from 30 to 34 in young women (mm); the value of the angle N-Go-Ar – from 48 to 53 in young men and from 48 to 53 in young women (°); the value of the angle N-Go-Gn – from 65 to 72 in young men and from 66 to 73 in young women (°); the value of the distance Ar-Go – from 50 to 55 in young men and from 44 to 49 in young women (mm); the distance Go_Me – from 70 to 77 for young men and from 66.5 to 71.5 for young women (mm); the magnitude of the angle S-N-A – from 80 to 85 in young men and from 80 to 84 in young women (°); the magnitude of the angle S-N-B – from 78 to 83 in young men and from 78 to 82 in young women (°); the magnitude of the angle A-N-B – from 1 to 4 in young men and from 1 to 3 in young women (°); the value of the angle SN-GoGn – from 21 to 30 in young men and from 25 to 32 in young women (°); the value of the distance N-Go – from 116 to 122 for young men and from 106.5 to 114 for young women (mm); the value of the distance S-Gn – from 124 to 132 in young men and from 116.5 to 124 in young women (mm); the value of the angle N-S-Gn – from 62 to 68 in young men and from 63 to 68 in young women (°); the value of the distance S-Go – from 81 to 85 in young men and from 72 to 78 in young women (mm); the value of the distance N-Me – from 111 to 119 in young men and from 105 to 112 in young women (mm); the value of the angle S-N-Pog – from 79 to 85 in young men and from 79 to 84 in young women (°); the value of the angle N-A-Pog – from -3.2 to 5.3 in young men and from -2.2 to 5.4 in young women (°); the value of the angle OcP-GoGn – from 11 to 16 in young men and from 12 to 16.5 in young women (°); the value of the angle II – from 129 to 138 for young men and from 126.5 to 138 for young women (°); the value of the angle

Max1-SN – from 99 to 107 in young men and from 101 to 107.5 in young women (°); the value of the angle Mand1-GoMe – from 92 to 103 in young men and from 89 to 100 in young women (°); the value of the distance 1up-NPog – from 3 to 7 in young men and from 3 to 6.5 in young women (mm); the value of the distance 1lo-NPog – from 0 to 4 in young men and from 0.5 to 4 in young women (mm); the value of the distance Ls-NsPog' – from -7 to -3 in young men and from -7 to -4 in young women (mm); the value of the distance Li-NsPog' – from -5 to -1 in young men and from -4.5 to -1 in young women (mm); the value of Sum – from 381 to 390 for young men and from 385 to 392 for young women (°); the value of the ratio Go_Me:N-S – from 100 to 109 in young men and from 100 to 108.5 in young women (%); the value of the ratio S-Ar:Ar-Go – from 138 to 147 in young men and from 138.5 to 147.5 in young women (%); the value of the ratio S-Go:N-Me – from 68 to 76 in young men and from 66.5 to 72 in young women (%).

Thus, in healthy urban young men and young women with a physiological bite as close as possible to orthognathic, the limits of the percentile range of teleroentgenographic indicators, determined by the method of Jarabak.

Conclusions. In Ukrainian young men and young women with orthognathic occlusion, the limits of the percentile range of teleroentgenographic parameters of dental structures according to the Jarabak method were determined, which can serve as standards for this group of indicators.