

SPECIFIC FEATURES OF MAJOR ANGULAR PARAMETERS OF CRANIO-FACIAL COMPLEX IN MALES AND FEMALES WITH MESIAL OCCLUSION IN THEIR FIRST MATURE AGE

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INTRODUCTION

Uneven growth, leading to an abnormal ratio of the upper and lower jaws, underlies the development of various occlusion issues [1, 2, 3]. The respective literature holds it that the dental anomalies variability in different areas ranges from 11% to 90%. The high prevalence of occlusion issues should be attributed primarily to the difficulty associated with their correct and timely diagnostics [4, 5, 6, 7]. The research carried out to identify occlusion anomalies reveal the lack of a decrease trend, which means there are stable mechanisms triggering the development of this pathology, which keep its prevalence at a stable level [8, 9, 10]. Besides, this pathology is complicated with occlusive and musculo-articular disorders [11, 12].

Aim

to study the variability of the major angular parameters of the cranio-facial complex in males and females with mesial occlusion in their first adult period.

MATERIALS AND METHODS

The material of the study included 50 lateral head teleoradiographs of young men and women with mesial occlusion in their first mature age. For age periodization, we used the classification adopted at the 7th Research Conference on Age Morphology, Physiology, and Biochemistry (Moscow, 1965). The material was divided into two age groups: 1) males aged 22–35

(n = 26); 2) females aged 21–35 (n = 24). The teleoradiographs had the following cranio-cephalometric points applied: Nasion, Sellion, Orbitale, Porion, Spina nasalis anterior, Spina nasalis posterior, Incision superioris, Incision inferioris, Molare superius coronare, Molare inferioris coronare.

Through the cranio-cephalometric points, planes were drawn further used to measure the angular parameters: 1) the angle of occlusal plane inclination towards the skull base plane (NSe – OcP); 2) the angle between the Camper horizontal and the occlusal plane (Pc – OcP); 3) the angle of the occlusal plane inclination towards the Frankfurt horizontal (H – OcP); 4) the angle between the maxillary plane and the occlusal plane (SpP – OcP); 5) the angle between the mandibular plane and the occlusal plane (Mp – OcP).

The teleoradiographies analysis was done subject to the A.M. Schwarz method (1961).

Results. The average angle of occlusal plane inclination towards the skull base plane in males was $13.3^\circ \pm 1.4^\circ$ (A = $1.5^\circ - 19.0^\circ$), and in females – $12.4^\circ \pm 0.7^\circ$ (A = $1.0^\circ - 17.5^\circ$), which made a statistically significant difference (P < 0.05). In all the groups, the parameter was subject to significant variability (CV = 42.2–44.4%). The angle of the occlusal plane inclination towards the Frankfurt horizontal for males was an average of $8.4^\circ \pm 1.5^\circ$ (A = $1.0^\circ - 18.0^\circ$), and for females aged 21–35 it was $9.1^\circ \pm 1.7^\circ$ (A = $1.0^\circ - 18.0^\circ$). The prevalence of the average angle H – OcP in women was statistically insignificant (P > 0.05). The parameter was subject to significant variability in both males and females (CV = 63.8–70.1%).

The angle between the Camper horizontal and the occlusal plane in males was an average of $8.6^\circ \pm 1.5^\circ$ (A = $2.5^\circ - 20.0^\circ$), and for females – $9.1^\circ \pm 1.7^\circ$ (A = $2.5^\circ - 20.0^\circ$). The prevalence of the Pc – OcP angle in young females was statistically significant (P < 0.05). The angle is subject to a significant degree of variability in both males and females (CV = 68.3–66.2%).

The average values of the angle between the occlusal plane and the mandible body plane in males and females were about identical (P > 0.05). The average

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value for males was $20.9^{\circ} \pm 0.6^{\circ}$ ($A = 18.5^{\circ} - 24.5^{\circ}$), and for females – $20.8^{\circ} \pm 0.7^{\circ}$ ($A = 18.5^{\circ} - 24.5^{\circ}$). The parameter in question proved not very variable, be that males (CV = 11.5%) or females (CV = 12.3%). The angle between the the occlusal plane and the mandible body plane revealed a statistically significant predominance in males ($P < 0.05$). Its average value for males was $8.5^{\circ} \pm 1.3^{\circ}$ ($A = 1.5^{\circ} - 14.0^{\circ}$), and for females – $7.9^{\circ} \pm 1.5^{\circ}$ ($A = 1.5^{\circ} - 14.0^{\circ}$). The parameter manifested high variability in both males and females (CV = $62.4^{\circ} - 68.9\%$).

CONCLUSIONS

The above means that almost all the investigated angular cranio-fascial parameters in males and females with mesial occlusion in their first adult period, except the Mp-OcP angle, are subject to great variability, which proves their significant individualization. This issue should be taken into account when developing an examination and treatment plan for patients belonging to this group.

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