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## **AESTHETIC INDEXES OF THE PATIENTS' SOFT TISSUES FACIAL PROFILE WITH NEUTRAL AND MESIAL OCCLUSION**

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Mesial occlusion relates to sagittal anomalies and accompanied by morphological functional and aesthetic abnormalities (deviations). Harmony of the human face depends on anomaly of teeth, bones of facial skeleton (viscerocranium), thickness of the soft tissues (Murtazayev S.S 2017). Degree of intensity of morphological abnormalities (deviations) and harmony of the human face do not always coincide.

According to the national and international authors, in these days, number of patients seeking medical attention with congenital anomalies of the dent facial system is increased (R.N. Nigmatov., I.M. Ruzmetova., 2015, W.R. Proffit, 2006).

Occlusion anomaly, in which basis irregular growth of bones of the facial skeleton is laid down, often accompanied by abnormalities (deviations) of the facial aesthetics, chewing, breathing and speech. It causes functional and psychological problems for patients, which lead to social maladjustment. According to the world literature, the basic motivation for patients to seek medical attention of orthodontists is improvement of the facial aesthetics (Shomuhamedova F.A., Akbarov K.S., 2018).

Therefore disregarding the aesthetic importance during long complex orthodontic-surgical treatment of the patients with dent facial anomalies, doctors-orthodontists and dent facial (oral) surgeons can obtain results, which do not meet the requirements of patients. The reason of that is correction of the occlusion, without taking into account of the skeletal nature of the dent facial anomalies and connected with that facial characteristic which can lead to deviations of the aesthetic face proportions and negatively affect the satisfaction of the patient of treatment outcome (Nigmatova I.M 2015).

National and international literatures do not pay enough attention to this issue. Along with that the facial skeleton (viscerocranium) of such patients, was carefully studied (Ruzmetova I.M., Nazrulayeva N.N., 2016), data of the sizes of facial soft tissues is singular (very few). Practically there is (are) no data about correlation dependence of soft tissues of the face and bones of facial skeleton (viscerocranium), probability of their changes during the process of the orthodontic treatment. (Murtazayev S.S 2019)

Our work covers the study of these issues.

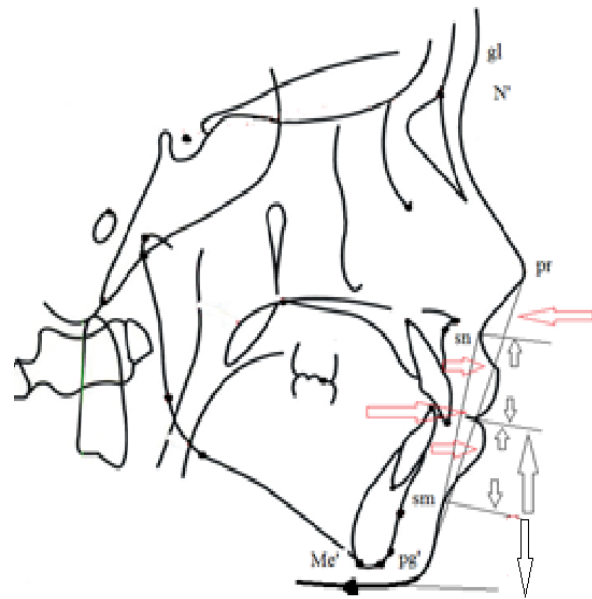
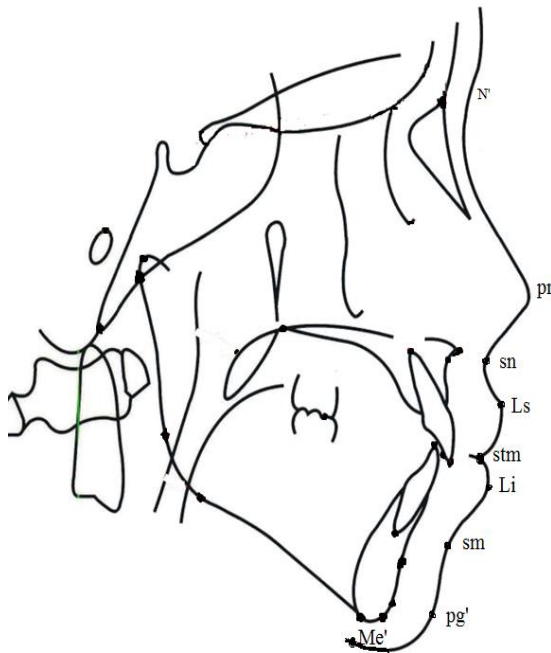
In order to achieve the goal, 52 (fifty-two) head teleroentgenograms of 28 (twenty-eight) patients with class-II mesial occlusion of age from 13 to 18 years were studied, including 28 - were received before treatment and 24 - post- treatment.

Considering lack of the generally accepted procedure (method) for evaluation of the soft facial tissues, we studied 18 linear and 11 angular soft tissues parameters (by procedure/ method of Y.CH. Park and Ch.J. Burstone, 1986; CH.G. Zylinski, R.S. Nanda, S. Kapila 1992), and 19 linear and 30 angular parameters of the bones of facial skeleton (viscerocranium), (Figures 1, 2). We analyzed more than 2986 correlation connections between soft tissue and bone parameters of head in norm, before treatment of mesial occlusion, post-treatment, and probability of changes of facial soft tissues depending on changes during treatment process.

It was revealed that patients with mesial occlusion, the upper lip longer and thicker (sn-stm, A-sn, Ls), than in norm, positioned further from aesthetic plane Ricketts (Ls-E) and is closer relative to Burstone plane (Ls (sn-pg')), depth of nasolabial sulcus (<tg-nose sn Ls) was increased.

The lower lip is also longer than norm, but more thin (stn-Me', Li), positioned further from Burstone plane (Ls (sn-pg')), that leads to decreasing of the depth of the mentolabial sulcus (<tg Li sm pg'). The thickness of the soft tissues of the chin (Pg-pg') was increased.

Statistically guaranteed reduction of the parameters connected with the prominence of soft tissue profile (<N'sn pg' <gl sn pg', <N' pr pg') and also the angle of nose prominence (<sn N pr) (Table 1). Consequently, thickness of the soft tissues of the upper lip is increased, and of the lower lip is reduced. It might be supposed that if they corresponded with the norm then aesthetic deviations would be much more intensive. Possibly, these changes carry compensatory character.



**Figure 1. Identification points of the facial soft tissues in lateral projection of the skull.**

**Figure 2. Parameters of soft tissues of the head in the lateral projection.**

*Table 1*

**Comparison of parameters of facial soft tissues of patients with mesial occlusion with normal data**

Parameters	Physiological occlusion	Mesial occlusion	Discrepancies with norm	P
	M ± m	M ± m	d ± md	

**Angular Parameters, deg.**

<N'sn pg'	22.30±2.02	9.07±1.94	13.23±2.80	<0.001
<N'pr pg'	49.90±2.99	38.67±2.05	11.23±3.62	<0.001
<gl sn pg'	15.00±0.86	4.81±1.74	10.19±0.94	<0.001
<tg nose snLs	109.90±5.88	104.14±1.38	5.76±8.91	<0.001
<tg Li sm pg'	120.20±6.19	141.4±4.56	-21.20±7.69	<0.001
<sn N'pr	22.00±0.38	19.67±0.87	2.33±0.95	<0.05

**Linear Parameters, mm.**

A-sn	16.00±0.27	17.07±0.69	-1.07±0.74	<0.01
Ls	12.00±0.36	14.15±1.01	-2.15±1.07	<0.001
Li	13.83±0.36	13.00±0.41	0.83±0.55	<0.01
Pg-pg'	11.50±0.41	12.22±0.57	0.72±0.71	<0.05
Sn-snm	17.00±0.37	19.94±1.15	-2.94±1.20	<0.001
Stm-sm	13.50±0.18	17.81±0.92	-4.31±0.93	<0.001

Ls-E	-2.44±0.43	-5.19±1.21	2.75±1.28	<0.001
Ls(sn-pg')	3.18±0.36	2.48±0.44	0.68±0.51	<0.05
Li(sn-pg')	2.18±0.32	4.26±0.77	-2.08±0.84	<0.001

For treatment of the teenagers with mesial occlusion, fixed equipment (Angle's arch and «Edgewise» technology) was applied. Force of the applied devices affects teeth, in a less degree alveolar bone and very less body of jaws, the device does not produce direct effect to soft tissues.

During treatment there was an increase of the thickness of the upper lip in projection of point A (A-sn) for 2,11±0,98 mm (p <0.05), its lengths (sn-stm) for 1.14±0.86 mm (p <0.01), at the same time the tip of nose rises upwards and depth of dorsum of nose (pr/r-N') increases for 0,81±1,12 mm (p <0.01). The total length of the lower lip and chin (stm-Me') increases for 3,08±1,72 mm (p <0.001). Position of the lips changes most accurate relatively to aesthetic Burstone plane (Ls (sn-pg')) for 0.93 ±0.66 mm (p <0.01) and Li (sn-pg') for 1,52±0,73 mm (p <0.001). Facial soft tissues prominence increases (<gl \*sn pg') for 1.24 ±1.28 (p <0.05).

In spite of the fact that as a result of treatment only 4 parameters from 29 soft tissues parameters were normalized, in all the cases improvement of the face aesthetics was observed, that can be explained by statistically authentic normalisation of position of the lips relatively to aesthetic Burstone plane (Ls (sn-pg'), (Ls (sn-pg')) thickness of the lower lip (Li) and the chin (Pg-pg'). Consequently, these parameters are reasonable to use for evaluation of the efficiency of orthodontic treatment of patients with mesial occlusion.

Correlation connections between parameters of soft tissues and bones of facial skeleton of patients with mesial occlusion were studied. 29 connections from 2986 are strong, rest are moderate and weak.

*Table 2*

**Probability of changes of the parameters of facial soft tissues during changes of the bone parameters of patients with mesial occlusion**

<b>&lt;SNB</b>	Li (sn -pg')	50 % (+)	<b>&lt;SNPg</b>	Li (sn -pg')	90 % (+)
	sn -stm	50 % (+)		Ls	70 % (-)
<b>MT1</b>	Stm-Me	50 % (+)	<b>AR-Go</b>	Li (sn -pg')	70 % (+)
	Li-E	50 % (+)		Stm-Me	50 % (-)
<b>&lt;1SpP</b>	A-sn	50 % (-)	<b>&lt;1 NS</b>	A-sn	70 % (-)
	<b>Ls</b>	<b>50 % (-)</b>		Stm-Me'	50 % (-)
	<b>Li(sn-pg')</b>	<b>70 % (+)</b>			

	<b>Pg-pg'</b>	50 % (+)			
	Ls(sn-pg')	50 % (+)			
<b>1-APg</b>	stm-Me'	50 % (+)	<b>A'-PNS</b>	sn-stm	50 % (+)
	Li(sn-pg')	70 % (+)		stm-sm	50 % (+)
	Ls(sn-pg')	50 % (+)		Pg-pg'	50 % (+)

(+) direct relation (-) back relation.

On the basis of the findings, it is possible to make conclusion, that patients with mesial occlusion have a proportionality of the facial soft tissues (sn-stm, stm-sm), which depends on the direction of growth of bones of facial skeleton (<Sum, <Y axis).

Analysis of the correlation connections of the changes of the parameters of bones of facial skeleton and the soft tissues, occurring as the result of the orthodontic treatment, has allowed determining their interrelation (Table 2).

Change of angulations of the upper jaw incisors (<1SpP) in 50-70 % of cases is accompanied by change of the thickness of the upper lip (A-sn, Ls), positions of the lips relatively to the Burstone plane (Ls (sn-pg') Li (sn-pg'), chin thickness (Pg-pg').

Change of position of the lower incisors (1-Apg) leads to change of the position of lips (Ls (sn-pg', Li (sn-pg')) and total length of the lower lip and the chin (stm-Me').

Change of the length of the apical basis of the upper jaw (A'-PNS) is accompanied by the change of the length of the lips (sn-stm, stm-sm) and chin thickness (Pg-pg').

Along with the change of the size of the lower jaw and heights of its branches (MT1, S-Go, Ar-Go), lower lip position (Li-E, Li (sn-pg'), total length of the lower lip and the chin (stm-Mt'), and length of the upper lip (sn-stm) are changing.

Based on our study it is possible to conclude, that studying of soft tissues allows to determine degree of intensity of the face harmony and probability of the changes occurring in the course of the orthodontic treatment and to prognose appearance of the patient after the end of treatment (post-treatment).

### Summary

With sagittal anomalies were examined - 52 patients. 18 linear and 11 angular soft parameters were studied (according to the methods of Y.CH. Park and Ch.J. Burstone, 1986; CH.G. Zylimski, RS Nanda, S. Kapila 1992), and also 19 linear and 30 angular parameters of the bones of the facial part of the skull according to which it is possible to determine the degree of harmony of the face and the likelihood of changes and occurring in the process of orthodontic treatment and predict the appearance of the patient after the end of treatment.

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## ПРИМЕНЕНИЕ ДЕНТАЛЬНЫХ ИМПЛАНТАТОВ РАЗЛИЧНОЙ КОНСТРУКЦИИ ДЛЯ ВОССТАНОВЛЕНИЯ ДЕФЕКТОВ ЗУБНЫХ РЯДОВ

(Обзорная статья)

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**Аннотация.** Протезирование пациентов с использованием имплантатов находит достаточно широкое применение в стоматологической практике и представляет собой сложный и взаимосвязанный комплекс биомедицинских, технических и технологических проблем. Научные исследования по этому вопросу и сейчас представляют большой интерес. В данной статье проанализирован литературный материал последних лет по применению дентальных имплантатов различной конструкции для восстановления дефектов зубных рядов.

**Ключевые слова:** дентальная имплантация, литературные данные, биоактивное покрытие, отечественный имплантант.

**Annotation.** Prosthetics of patients using implants is widely used in dental practice and represents a complex and interconnected complex of biomedical, technical and technological problems. Scientific research on this issue is still of great interest. This article analyzes the literature material of recent years on the use of dental implants of various designs for the restoration of dentition defects.