CORRELATION BETWEEN FACIAL ATTRACTIVENESS AND CEPHALOMETRICS IN CLASS I AND CLASS III PATIENTS

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INTRODUCTION

The improvement of facial attractiveness is simultaneously an objective of the orthodontic treatment and the main reason for laypeople to search for an orthodontist.[1,2] Therefore, it is important to understand how attractiveness is perceived, and how the orthodontic treatment influences it, according to different facial types .[2]

OBJECTIVE

To evaluate the relationship between facial attractiveness in the frontal, frontal smiling, profile and the triplet (the three images presented at the same time) with several hard and soft tissue cephalometric variables, in individuals with Class I and surgical Class III.

MATERIAL AND METHODS

A total of 14 laymen evaluated facial attractiveness of 40 individuals, 20 Class I and 20 Class III, using a Visual Analog Scale (VAS), based on the frontal rest, frontal smiling, profile and triplet photographs (Fig. 1). Class III subjects were selected according to indication for orthodontics combined with orthognathic surgery treatment. Both the evaluators and the individuals in the sample were aged between 18 and 35 years.

Figure 1 : *Example of four slides viewed by the evaluators with a frontal, a frontal smiling, a profile and the triplet photographs, with the Visual Analog Scale.*

The soft and hard tissue cephalometric analysis of the 40 individuals of the sample, before the orthodontic treatment (Fig.1), was performed using the program ***Nemoceph Dental Studio NX 2005®*** (Table 1).

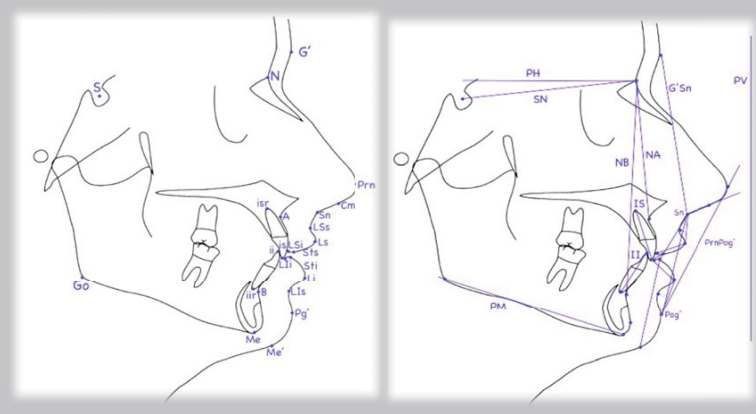


Figure 2 : *Points and lines drawn for cephalometric analysis*

G´-Sn-Pg´	Facial profile angle
Cm-Sn-Ls	Nasolabial angle
Sn-Sts – PV	Upper lip height (mm)
Sti-Me'–PV	Lower lip height (mm)
LSs-Sn;Ls	Upper lip thickness (mm)
Lis-	Lower lip thickness (mm)
Sts-Sti	Inter-labial distance(mm)
Ls-Sn;Pg'	Upper lip – SnPg´ line distance (mm)
Li-Sn;Pg'	Lower lip– SnPg´ line distance (mm)
Ls-Prn;Pg'	Upper lip– PrnPg´ line distance (mm)
Li-Prn;Pg'	Lower lip – SnPg´ line distance (mm)
LSs-Sn;Ls	Upper lip sulcus (mm)
LIs-Li;Pg'	Inferior lip sulcus (mm)
PM-SN	Mandibular plane inclination
IS-SN	Upper incisor inclination
II-PM	Lower incisor inclination
SNA	SNA angle
SNB	SNB angle
ANB	ANB angle
IS-II –PH	Overjet
IS-II -PV	Overbite

Table 1: *Cephalometric variables*

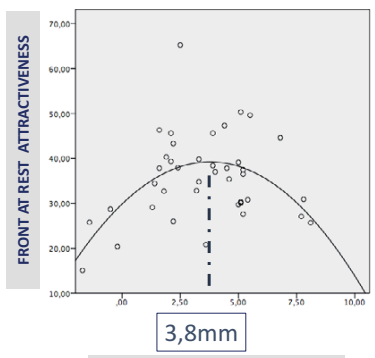
STATISTICAL ANALYSIS
α = 0,01

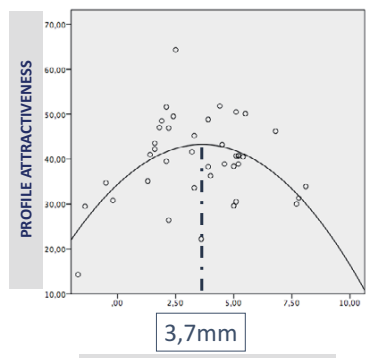
Attractiveness in different facial perspectives → **Quadratic correlation** Cephalometric variables

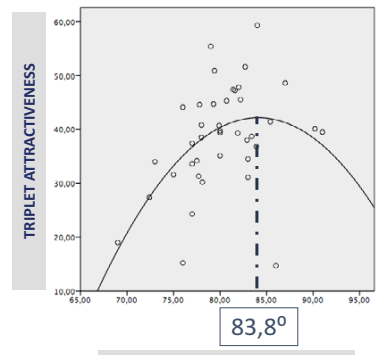
RESULTS

A significant non-linear correlation with the shape of a parabola was found between the distance of the lower lip to the SnPg´ line and the frontal at rest (r = 0,52; p = 0,003), and the profile (r = 0,49 e p = 0.003); attractiveness and between the SNA angle and the triplet attractiveness (r = 0,49; p = 0,006). Several variables presented values close to significance (Table 2), with values of p < 0,05.

Correlation between facial attractiveness and cephalometric variables







Perspective	Cephalometric variable	Value r	Value p
Frontal	Upper lip heigh	0,42	0,026
	Lower lip – SnPg´ line distance	0,52	0,003*
Frontal smiling	Upper lip	0,40	0,042
	Upper lip – SnPg´ line distance	0,42	0,027
	Lower lip – SnPg´ line distance	0,42	0,027
Profile	Upper lip heigh	0,46	0,013
	Upper lip – SnPg´ line distance	0,44	0,019
	Lower lip – SnPg´ line distance	0,42	0,003*
	Upper lip – PrnPg´ line distance	0,45	0,016
Triplet	Upper lip heigh	0,42	0,029
	Upper lip – SnPg´ line distance	0,43	0,022
	Lower lip – SnPg´ line distance	0,46	0,012
	Lower lip – PrnPg´ line distance	0,46	0,011
	SNA	0,49	0,006*

Table 2: *Cephalometric variables with significant correlation* (p <0.01) or close to significant (p <0.05) with attractiveness in different face perspectives.*

DISCUSSION

Studies that relate facial attractiveness with cephalometric measurements seek linear correlations in most cases.[3-6] However, the variables can be related according to a quadratic correlation .[7] For values above or below the cephalometric ideal, corresponding to the turning point of the parabola, the attractiveness should decrease.

In the present sample, the relationships between attractiveness and cephalometric measurements that presented a p < 0,05, were essentially related to the position of the lips (Table 2). Lower lip position, evaluated by its distance to the SnPg' line, was significant (p < 0,001) or close to significant (p < 0,05) in all the perspectives. This finding demonstrates the importance of lip position in attractiveness, especially the lower lip in Class III patients, which is in agreement with other studies.[4,8]

CONCLUSIONS

Facial attractiveness evaluated in the frontal resting and the profile demonstrated a non-linear correlation with the position of the lower lip, and the attractiveness of the triplet with the SNA angle.

CLINICAL IMPLICATIONS

The most attractive faces may not correspond to the cephalometric norms. Further studies are necessary to evaluate the characteristics that are present in the most attractive faces.

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