



Preferences of AP position of the straight Caucasian facial profile



Steven Mees^a, Raúl Jiménez Bellinga^b, Maurice Y. Mommaerts^{b,*}, Guy A.M. De Pauw^a

^a Department of Orthodontics (Chair: Prof. Guy A.M. De Pauw, DMD, LDS, PhD), University of Ghent, Belgium

^b Department of Maxillo-Facial Surgery and European Face Centre (Chair: Prof. Maurice Y. Mommaerts, MD, DMD, PhD, FEBOMFS), Vrije Universiteit Brussel, Belgium

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ABSTRACT

Introduction: Several investigators have compared the perception of profile attractiveness between professional and non-professional people, different groups of clinicians, and different ethnic groups. Our aim was to study preferences for facial protrusion in the lateral view for a straight Class I profile and to study the influence of gender, age, sex preference, and profession.

Material and methods: Portrait images of one male and one female model with a Class I occlusal relationship were warped into nine different antero-posterior positions. An internet site was established to reach as many people as possible, and a request was sent by email to participate in a scientific experiment. Finally, 1707 Caucasian assessors could be grouped.

Results: The preferred male profile is the straight full ante profile. For a feminine facial profile, the straight average and the straight 2/3 ante profiles were perceived as the most attractive. Surgeons tended to give significantly higher scores to attractive (ante) profiles, which correlated strongly with scores of the orthodontists.

Conclusion: Whenever possible with combined orthodontic/surgery treatment, straight ante profiles should be aimed for.

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1. Introduction

Cephalometric measurements have followed the introduction of craniometry (dry skull measurements) and facial anthropometry (live head and face measurements) (Vegter and Hage, 2000; Bashour, 2006). Although the standards set by cephalometric measurements can correlate with judgements of facial aesthetics, they cannot be fully relied upon for a perfect evaluation of facial attractiveness (Peck and Peck, 1970; Proffit et al., 1992; Riedel, 1950). Edward H. Angle stated the paradigm of soft tissue as following the underlying skeletal structures, meaning that a perfect occlusion would cause an ideal face in harmony (Angle, 1907). According to Tweed, a Class I occlusion was a feature of a normal face, with a few exceptions (Tweed, 1945). Furthermore, both Downs and Riedel also associated facial pattern with occlusion (Riedel, 1950; Downs, 1948).

Contemporary literature agrees that facial beauty of the profile has changed over time (Auger and Turley, 1999; Nguyen and Turley, 1998). The media probably have the biggest influence today on our perception of beauty. The impact appears to be that the “Hollywood

standard” has become the generally accepted cannon. In “Die Röntgenostatik”, Schwartz suggested that there are subdivisions of a Class I profile which are generated by horizontally shifting the lower anterior face (Schwartz, 1958). Specifically, the lower facial half can slide forward in the antero-posterior direction, which creates a “straight ante profile”, whereas a “straight retro profile” holds a lower facial height more to the rear (Fig. 1). These two profile lines should be regarded as “straight” variations of the average. Schwartz also stressed that the head position is essential for evaluating a face in profile. Orientation of the head should occur according to the Frankfurt horizontal (FH). The line perpendicular to the FH ideally contains three outline landmarks (sellion, subnasal point, and the upper lip), and serves as a reference for the straight average profile (Schwartz, 1958; Gonzalez-Ulloa, 1962).

Our aim was to study preferences for facial protrusion in the lateral view for a straight Class I Caucasian profile, and to study the influence of sex, age, sex preference, and profession on such preferences.

2. Materials and methods

Portrait images were taken of one male and one female professional model with a Class I occlusal relationship. The models

* Corresponding author. Universitair Ziekenhuis Brussel, Dienst Mond-, Kaak- & Aangezichtsheelkunde - European Face Centre, Laarbeeklaan 101 - 1090, Brussel, Belgium. Tel.: +32 (0) 2 477 60 12.

E-mail address: mauricemommaerts@uzbrussel.be (M.Y. Mommaerts).



Fig. 1. Division of straight profiles according to Schwartz.

were seated and looking at a perpetual point and were oriented according to the Frankfurt plane. The images were taken with a digital camera (Nikon D80, 15-200 lens) by the same photographer. Based on the subdivisions of Schwartz (1958) there were nine variations constructed for each profile (Fig. 2).

The three acceptable profile types according to Schwartz are a straight average profile (also called the biometric face), a straight

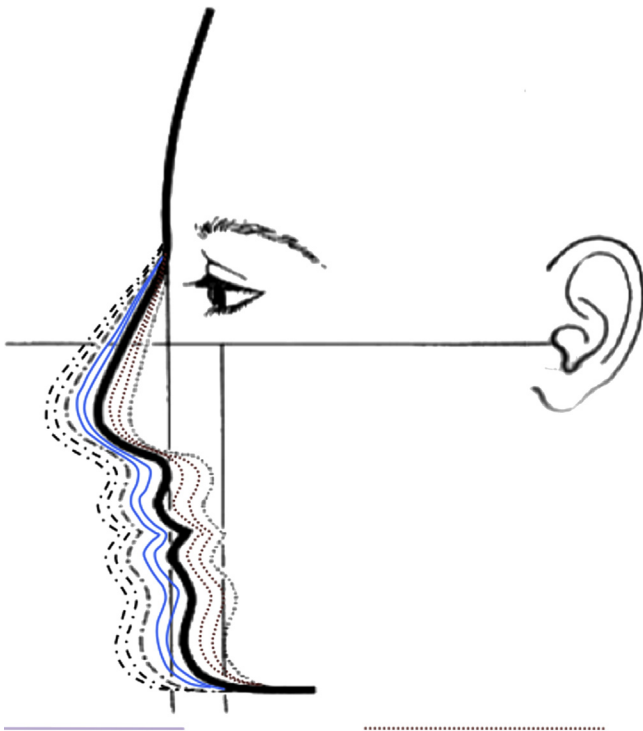


Fig. 2. A total of nine profiles were created for assessment.

“retro”-profile (where the lower anterior face is in a more dorsal position), and a straight “ante”-profile (where the lower anterior face is in a more ventral position). The maxilla and mandible are as one entity with a Class I occlusion with positive lip step. There were also six extra profiles constructed using the warping tool of Adobe® Photoshop® CS3. These extra profiles were generated as one third of the distance between the most ventral or most dorsal position of the lower anterior face according to Schwarz, and the average. A digital template was used as a base for warping the standard profile to a 2/3 retro profile, a 1/3 retro profile, a 1/3 ante profile, a 2/3 ante profile, a 4/3 ante profile, and a 5/3 ante profile. As a result, a full straight retro profile (Full-), a 2/3 straight retro profile (2/3-), a 1/3 straight retro profile (1/3-), a straight average profile (Av), a 1/3 straight ante profile (1/3+), a 2/3 straight ante profile (2/3+), a full straight ante profile (Full+), a 4/3 straight ante profile (4/3+), and a 5/3 straight ante profile (5/3+) made up the nine profile lines for the female (Fig. 3) and the male model (Fig. 4).

An internet site was established (www.facelook.be) in order to reach as many people as possible. Survey participants were recruited by email with the request for assistance in a scientific experiment. A welcome word explained the objective of the study, and the website was accessible when the potential participant indicated themselves to be 18 years or older. With informed consent, personal information was gathered in regards to age, sex, sexuality, ethnicity, professional occupation, and scientific background. These personal data remained anonymous.

The profiles were shown at random as a slideshow, which was manageable with a mouse click. Ratings of attractiveness were ranked with a visual analogue scale (VAS) that ranged from 0 (very unattractive) to 100 (very attractive). Participants were only allowed to score once in order to have a consistent group of observers. There was no time limit to complete the assessment in order not to cause mental pressure.

Statistical analysis was performed with IBM SPSS v19 (IBM Corp 2010 NY). The Fisher’s exact test was used for the analysis of associations between categorical variables. Group comparisons of the scores were analysed with the following non-parametric tests: Mann–Whitney *U*-test (two groups) and Kruskal–Wallis test (comparisons between more than two groups). The non-parametric correlation between variables was verified by means of the Spearman correlation. The non-parametric Friedman test was carried out to investigate whether there were significant differences between different profile types. Multiple range tests were performed with the Wilcoxon test with Bonferroni correction. Determination of the error of the method (reliability) took place by repeating the test after 2 months in 28 participants, from which the intra-correlation coefficient (ICC) was calculated. The significance level was set at $\alpha = 0.05$.

3. Results

A group of 1707 white observers (from 3145 website visitors) was obtained through the internet by means of an exponential mailing list. The mean age of the participants was 27.7 ± 11.1 years. The ages of the participants ranged from 18 to 78 years. From the sample of observers there were two age groups generated: under 30 years and older than 30. Of the 3145 website visitors, 1707 responded to all the questions, including 524 men (30.7%; mean age 32.2 ± 13.3 years) and 1183 women (69.3%; mean age 25.9 ± 9.3 years). Of these, 1548 were heterosexual, 60 were male homosexuals, and 99 were lesbian, which totalled 159 (9.3%) homosexual people. Regarding professions, 204 (12%) were general dental practitioners, 89 (5%) were orthodontists, 17 (1%) were orthognathic (OMF) surgeons, 2 (0.1%) were plastic surgeons and 1395 (73%) were non-professionals.

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