



Correlation of facial profile and dental arches in a population of Yucatan

Correlación del perfil facial y los arcos dentarios en una población de Yucatán¹

Laura Beatriz Pérez Traconis,* Yasir Guadalupe Kú Santana,*
Gabriel Eduardo Colomé Ruiz,* Andrés Martín Santana Carvajal[§]

ABSTRACT

Soft tissue facial profile is one of the most important elements for orthodontic diagnosis and treatment. It is influenced by genetic factors, heritage, race, ethnicity, environmental factors (mouth breathing, atypical swallowing habits) sagittal maxillo-mandibular position, facial biotype, type of muscles among others. **Objective:** To correlate facial profile with dimensions and shape of the dental arches in a school population of Yucatan. **Material and methods:** An observational, prospective, analytical, cross-sectional study of models and photographs from 6-8 year-old scholars enrolled as regular students in two schools of southern Yucatan. **Results:** The study group consisted of 88 models and photographs: 52.27% were from male subjects and 47.72% from females. The predominant facial profile was convex for both genders. OrthoForm III arch shape was the most observed. The association between facial profile and upper and lower arch shape was determined by χ^2 test, showing a statistically significant relationship ($p < 0.05$). **Conclusions:** It would be convenient to establish specific normal values for each geographic region, taking into consideration environmental, genetic and nutritional factors as well as race, ethnicity, gender and age.

Key words: Facial profile, dental arches.

Palabras clave: Perfil facial, arcos dentarios.

RESUMEN

El perfil facial de los tejidos blandos es uno de los elementos importantes para el diagnóstico y tratamiento ortodóntico; se encuentra influenciado por factores genéticos, hereditarios, raza, grupo étnico, ambiental (respirador bucal, hábitos deglución atípica), posición sagital maxilo-mandibular, biotipo facial, tipo de musculatura, entre otros. **Objetivo:** Correlacionar el perfil facial con las dimensiones y la forma de los arcos dentarios en escolares de una población de Yucatán. **Material y métodos:** Estudio observacional, prospectivo, analítico y transversal de modelos y fotografías de escolares de 6 a 8 años inscritos como alumnos regulares en dos escuelas del sur de Yucatán. **Resultados:** El universo de estudio estuvo conformado de 88 modelos y fotografías representando el 52.27% el sexo masculino y constituyendo el 47.72% el sexo femenino. El perfil que predominó fue el convexo para ambos sexos. La forma de arco OrthoForm III fue la que más se observó. La asociación entre el perfil facial y la forma del arco superior e inferior se determinó a través de la prueba de χ^2 , observándose una relación estadísticamente significativa ($p < 0.05$). **Conclusiones:** Sería conveniente establecer normas específicas para cada región geográfica tomando en cuenta los factores ambientales, genéticos, alimenticios, raza, grupo étnico, sexo y edad.

INTRODUCTION

Facial profile is determined in the sagittal plane and may be assessed as straight, concave or convex depending on the spatial relationship or harmony between mandible and maxilla.^{1,2}

Soft tissue facial profile is an important asset to diagnosis and treatment planning in orthodontics. It is also substantial throughout treatment since it has the ability to make it conditional. Likewise, soft tissue profile is useful in interdisciplinary work with forensic sciences, plastic surgery and aesthetics, anthropology, maxillofacial surgery, genetics and psychology.^{3,4}

Each facial profile has particular features regarding the dental arches:

- Straight profile: spatial relations of bony structures in harmony.
- Convex profile: may be associated with narrow arches and high palatal vault.
- Concave Profile: dental arch relatively wide and square-shaped.¹

* Department of Orthodontics and Dentomaxillofacial Orthopedics. Faculty of Odontology.

§ Center of Regional Research, «Dr. Hideyo Noguchi».

Autonomous University of Yucatan. Mexico

This article can be read in its full version in the following page:
<http://www.medigraphic.com/ortodoncia>

Swlerenga et al. (1994) conducted a comparative study in Mexican-American facial profiles and found large differences between groups thus concluding that Mexican-American population presents different results when compared to other groups.⁵

Shape and dimensions of the dental arches is influenced mainly by genetics, although there are inter-individual variations associated with gender, race, facial biotype, dental eruption, tooth movement after eruption, bone growth, environmental influences such as habits (digital sucking, mouth breathing, atypical swallowing, lip habit) and individual growth.^{6,7}

Agurto P. and Sandoval P. (2011) conducted a study to determine the morphology of the maxillary and mandibular arch in Mapuche and non-Mapuche population. They were able to observe a greater proportion of oval-shaped maxillary and mandibular arches both in the Mapuche and in the non-Mapuche population.⁶

The aim of this study was to correlate facial profile with dental arch dimension and shape in schoolchildren from a population of Yucatan.

MATERIAL AND METHODS

The design of the present study was observational, analytical, prospective and cross-sectional. Study universe consisted of 88 models and photographs of school children 6 to 8 years of age with an average of 7.39 years. 46 of them were male thus representing 52.27% of the population and 42 were female scholars which accounted for 47.72%, of the study universe. All schoolchildren were enrolled and regular in schools of the municipalities of Catmís and Tzucacab, Yucatan.

Name and date of birth was registered for each patient. Facial profile photographs and study models were obtained in order to determine shape and dimensions of the dental arches. Facial profile was determined by the soft tissue profile angle suggested by Arnett and Bergman: the internal angle formed by drawing a line from the following points: Glabella (G; most point prominent of the forehead), Subnasal (Sn; most posterior point of the nasal columnella) and soft tissue Pogonion (Pg': most prominent point of the chin) was measured. Study models were classified according to 3M Unitek® (OrthoForm Templates Diagnostics Set) arch shape templates which consider OrthoForm I as a triangular-shaped arch, OrthoForm II as a square-shaped one and OrthoForm III as oval.

Dimensions of the dental arches (intermolar distance, intercanine distance, palatal length and

depth) were determined with the aid of 3D Mestro Ortho Studio® software.

Normality tests were conducted in order to determine the statistical test according to the values; correlation analysis was determined using the Spearman coefficient test for intermolar distance and palatal length. Pearson correlation was used for intercanine distance and palatal depth and Pearson's χ^2 test, for arch form. The confidence interval was set at $p = 95\%$.

RESULTS

Regarding facial profile, in males, the convex type was observed in 37 individuals (80.4%); the straight, in 8 (17.4%) and the concave in 1 (2.2%). In females a convex profile was observed in 33 individuals (78.6%), a straight one in 9 (21.4%) no concave profile was observed (*Figure 1*).

The most common shape of the upper dental arches at age 6 and 7 in males was oval and square equally (5.7% at 6 years and 11.4 at 7 years of age); in the female gender, the oval shape at 6 years (9.1%) and 7 years (12.5%) of age prevailed and at 8 years the square form was the most prevalent for both genders (11.4% males and 5.7% females) (*Table I*).

Regarding lower arch form and age, the highest prevalence at 6 years of age was the oval shape; 9.1% in males and 6.8% in females; at 7 years of age, the oval shape was most prevalent in men (12.5%) and the squared shape in women (11.4%). At the age of 8, the most prevalent arch form is the squared with 9.1% in men and 8% in women the oval shape (*Table II*).

In the dental arch dimensions and intermolar distance mean values (intercanine distance palatal length and depth) an increase by age may be observed for both genders, with the exception of palatal depth which decreases 0.3 mm in 8-year-old females (*Tables III and IV*).

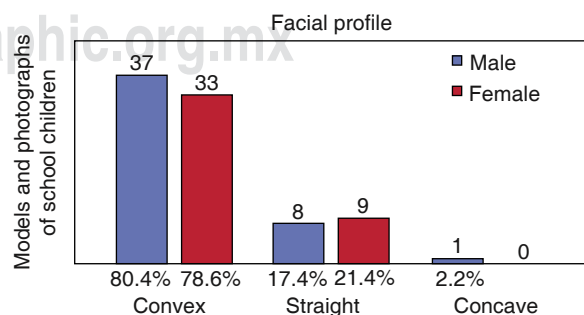


Figure 1. Facial profile by gender.

Download English Version:

<https://daneshyari.com/en/article/8708451>

Download Persian Version:

<https://daneshyari.com/article/8708451>

[Daneshyari.com](https://daneshyari.com)