

**ARTICLES FROM CURRENT ORTHODONTIC LITERATURE, SELECTED AND REVIEWED BY: RESIDENTS FROM THE DEPARTMENT OF ORTHODONTICS, SAINT LOUIS UNIVERSITY, ST. LOUIS, MO**

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## Lower incisor position vs. symphyseal morphology

**Manea I, Abascal-Pineda I, Solano-Mendoza B, Solano-Reina A, Solano-Reina JE. Facial growth pattern: Association between lower incisor position and symphyseal morphology. J World Fed Orthod 2017; 6:147-151.**

The position of the lower incisors to the underlying mandibular symphysis should be maintained in a healthy relationship throughout orthodontic treatment. The aim of the current study was to analyze and determine if there is a statistically significant correlation between facial growth pattern, Holdaway ratio, symphyseal morphology, and lower incisor position, as well as validate a previous analysis performed by Aki et al. A sample of 100 white adult patients was randomly selected from the University of Seville in Spain. Manual measurements were made from the pre-treatment cephalograms at four different time points by two separate operators. The operators assessed symphyseal height/width (H/A) ratio using the Aki analysis, symphyseal morphology (constructed by point B-menton line and the mandibular plane), and facial growth pattern (determined using the Jarabak-MSE analysis retro-occlusion variable). Facial growth pattern, the Holdaway ratio, and H/A were found to be statistically significant ( $P < 0.05$ ). The study concluded that anterior

mandibular bone support and lower incisor position differs among patients, and that symphyseal morphology is related to both facial growth pattern and lower incisor inclination. Dolichofacial patterns trend towards a narrower symphysis, while broader symphyses are indicative of brachyfacial patterns. These facial patterns can then be further related to lower incisor position using the Holdaway ratio and symphyseal H/A ratio, which showed that larger degrees of lower incisor proclination are associated with dolichofacial patterns and a narrow symphysis, and more upright lower incisors are associated with brachyfacial patterns and a wider symphysis. Therefore, orthodontists must understand the limitations on lower incisor movements depending on each patient's symphyseal morphology and facial growth pattern.

*Reviewed by Evan Perkins and Spencer White*

## Panoramic evaluation of microimplant success rate

**Park JH, Chae JM, Bay RC, Kim MJ, Lee KY, Chang NY. Evaluation of factors influencing the success rate of orthodontic microimplants using panoramic radiographs. Korean J Orthod 2018; 48(1):30-38.**

In orthodontics, maintaining adequate anchorage is a common challenge for clinicians. Orthodontic microimplants (OMIs) have allowed orthodontists to achieve maximum anchorage in situations where conventional biomechanics failed to accomplish the desired results, but their failure rates can be problematic. The purpose of this prospective study was to utilize panoramic radiographs to evaluate factors that may influence the success rate of OMIs. The study included 80 participants who received bilateral maxillary buccal OMIs placed between the second premolar and first molar. The OMIs placed were 1.20-1.30 mm in diameter and were placed using a self-drilling hand driver in the attached gingiva adjacent to the mucogingival junction between the roots of the adjacent teeth. The implants were immediately loaded with 50-200 g of force and a panoramic radiograph was captured to evaluate OMI positioning. In this study, treatment success was defined as the OMIs being adequate anchors in the alveolar bone for a minimum of 1 year during the orthodontic treatment. The overall success rate of the OMIs of this study was 85%. OMIs were determined to be more successful in adults than in teens. In addition, placing the OMI more apically and increasing its length increased success by 1.53% and

1.81%, respectively. Finally, this study concluded that placing the OMI on the interradicular midline rather than placing it mesial or distal proved to have a success rate of 92.9% compared to 87.0% and 81.8%, respectively. Although this study is limited by the fact that the OMI position was determined based on panoramic radiographs, the results still provide important clinical insight for improving OMI success rates.

*Reviewed by Courtney Burns and Laurel Cook*

## Mandibular molar uprighting with miniscrew implants

**Magkavali-Trikka P, Emmanouilidis G, Papadopoulos M. Mandibular molar uprighting using orthodontic miniscrew implants: a systematic review. *Prog Orthod* 2018; 19:1-12.**

Tipped mandibular molars are frequently encountered in orthodontic patients. Many treatment modalities have been employed for molar uprighting. With the development of orthodontic miniscrew implants (MIs), unwanted side effects of conventional uprighting techniques can be reduced. The aim of this systematic review was to examine the use of MIs as a treatment option for mandibular molar uprighting. A pilot checklist of study characteristics was implemented to identify 17 eligible and relevant articles. Within the included studies, 27 cases were documented utilizing MIs as direct or indirect anchorage for molar uprighting. Multiple clinical photographs and graphics to demonstrate the mechanics were included in the review. Direct force application was successful in correction of tipped molars in sagittal and transverse planes, utilizing various insertion sites for the miniscrews and force application systems (coils, elastomeric chains, etc). Indirect force application was less frequent, but described for molar uprighting in the sagittal plane. There was one included clinical trial detailing the use of 181 miniscrew implants in 102 patients that showed high success rates using both anchorage methods, with a slight superiority of the direct anchorage. In comparison, direct anchorage is simpler and eliminates the possibility of unwanted movement of the anchorage unit, however, the single force may not be sufficient in certain cases. In conclusion, miniscrew implants constitute a reliable solution for treating tipped molars, however the outcomes of the respective studies may not be generalizable to the average patient.

*Reviewed by Taylor Geyer and Savannah Stewart*

## Trends in perception of lip protrusion in African Americans

**Battle Y, Schneider M, Magder L, Pae E. Disparity in opinions on lip protrusiveness in contemporary African American faces. *Korean J Ortho* 2018; 48(1):23-29.**

Modern orthodontics demands that facial attractiveness be a part of diagnosis and treatment. The purpose of this study was to investigate the most favorable African-American lip profile using the opinions of 10 experienced and 10 newly trained younger orthodontists, with the objective of evaluating perceptions of lip protrusion in modern African-American faces and if that perception has changed. Photographs showing various degrees of lip protrusion in African-American patients were used to determine if there was a statistically significant difference in opinion of lip profile attractiveness between experienced orthodontists and newly trained orthodontists. A total of 16 African-American patients were selected from the University of Maryland, both male and female, ages 9-18 years, with a permanent retention and a pretreatment diagnosis of bi-maxillary protrusion. Each profile was ranked using a visual analog scale, 0-5 with 0 being un-esthetic and 5 being esthetic. Numerous cephalometric measurements were also used for evaluation. The study found no significant difference in ratings between the older and younger generations. Regarding cephalometric measures, the study found the upper lip position relative to Steiner's E-line in each profile to have the highest correlation with the level of attractiveness for the older orthodontists, while upper lip protrusion showed the highest correlation for the younger orthodontists. The results indicate that perception of attractiveness in African-American faces may be different between orthodontists from different generations. The results also indicate that the influence of the nose and chin on perception of protrusion of the lips in African-American faces is reduced among younger orthodontists, relative to their older colleagues.

*Reviewed by Darren Hallums and Adam Hardin*

## Open versus closed surgical exposure for impacted canines

**Cassina C, Papageorgiou SN, Eliades T. Open versus closed surgical exposure for permanent impacted canines: a systematic review and meta-analyses. *Eur J Orthod* 2018; 40:1-10.**

Maxillary canines are one of the most frequently impacted teeth after third molars, and one of the

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