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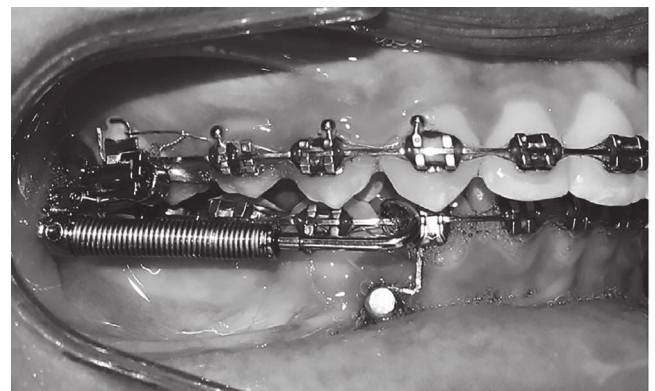
### **RAPID MAXILLARY EXPANSION IMPROVES HEARING IN PATIENTS WITH HEARING LOSS**

Rapid maxillary expansion (ERM) is an orthopedic procedure consecrated in the world's Orthodontics. The benefits that come from it go beyond simply obtaining space for teeth accommodation. It is currently known that with ERM, changes occur in all neighboring facial structures such as: mandible, nasal cavity, temporomandibular joint, pharyngeal structure, pterygoid process and middle ear. One may be wondering, middle ear? Yes, that is what you read. But what are the auditory repercussions of palatal disjunction? There is a dichotomy of information regarding the auricular repercussions of palatal disjunction. Aiming to verify the available evidence in the literature, Brazilian researchers developed a systematic review.<sup>1</sup> After a selective search in the literature, the authors were able to conclude that hearing improvement occurs in patients with hearing loss after performing the rapid maxillary expansion procedure. However, the authors emphasize the need for randomized studies to better elucidate this situation.

### **MINISCREW ANCHORED FORSUS® DOES NOT HAVE INCREASED SKELETAL EFFECT NOR PREVENT LOWER INCISORS PROJECTION**

The treatment of skeletal Class II malocclusion in growing patients represents a challenge to the orthodontists. The gold-standard for the treatment of this malocclusion is with by using extraoral appliances that are currently not well considered from the aesthetic point of view. Following this tendency, functional devices in the format of mandibular protraction appliances have gained field. Studies reveal a pseudo correction with these devices, since in the vast

majority of cases dental compensation occurs rather than pure orthopedic correction. In the pursuit of ways that reduce dental compensation and intensify mandibular growth, skeletal anchoring devices have been associated with them. However, doubts persist as to whether or not this association is effective. Searching to answer this clinical question, Egyptian and Canadian researchers developed a study<sup>2</sup> in which they evaluated the dental and skeletal effects of the Forsus-type device with (Fig 1) and without support in mini-implants. The results achieved with this randomized clinical trial demonstrated that Class II correction was mainly dentoalveolar in both treatment groups. According to the authors, the use of mini-implants associated with the Forsus did not increase anterior mandibular growth nor did it prevent the labial inclination of the mandibular incisors.



**Figure 1** - Used Forsus associated with mini-implants. Source: Eissa et al.<sup>2</sup>, 2017.

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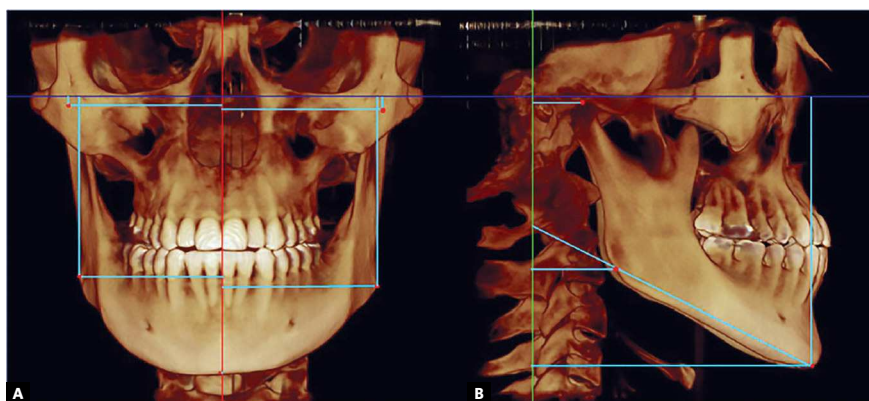
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## SURGICALLY-ASSISTED MAXILLARY DISLOCATION PROMOTES CLOCKWISE ROTATION AND LATERAL DISPLACEMENT OF THE MANDIBLE

As already mentioned at the beginning of this section, maxillary expansion is a unanimous procedure in Orthodontics, given the innumerable benefits aforementioned. Nevertheless, conventional maxillary rapid expansion is only possible in growing patients in which there has been no fusion of the medial palatine suture. In adults, a surgical step is necessary in order to weaken the maxillary bones and to allow the disjunction to occur. Surgically-assisted maxillary expansion has become increasingly common because a higher number of adult patients have sought orthodontic treatment. Despite this tendency, few studies have focused on its effects, being perhaps a small sample number or lack of standardization responsible. With the proposal to fill part of this gap, Brazilian researchers have developed a study<sup>3</sup> in which they aimed to evaluate three-dimensional changes (Fig 2) in the mandibular position after surgically-assisted maxillary expansion (SARME). The results of this study revealed the presence of mandibular displacement in the majority of the patients after the expansion, however the direction of this displacement cannot be predicted. According to the authors, the clockwise rotation and mandibular lateral displacement are transient.

## CUTS IN THE INCISAL OF ALIGNERS CHANGE ALL THEIR BIOMECHANICS

Aligners are here to stay. The search for satisfactory aesthetics combined with advances in computational technology has revived one of the most primitive forms of dental alignment: thermoplastic aligners. I believe that the issue of aligners is the most discussed and presented at trade and scientific events around the world. Despite much commercial information, little is discussed about their biomechanics, the scientific literature that focuses on the biomechanical principles of aligners is scarce. Currently, this type of information is being requested by professionals, given the need for adjustments in the plates in order to achieve the best clinical results. From this perspective, a study was carried out<sup>4</sup> with the objective to evaluate the release of force from removable thermoplastic appliances modified by incisal cuts of different sizes (Fig 3), during the inclination of a maxillary central incisor in the palatal and vestibular direction. The authors were able to conclude from this study that removable thermoplastic aligners modified by incisal cuts on the incisors exhibit altered biomechanical properties and a possible reversal of the vertical force component. They also found that incisal cuts significantly decrease horizontal and vertical force components. The authors emphasize that this finding could be used in order to reduce the number of aligners during clinical application.



**Figure 2** - Three-dimensional representation of linear and angular measurements between mandibular landmarks and the reference planes: **A)** measurement of the mandibular landmarks related to axial plane (blue) and sagittal plane (red); **B)** measurement of the mandibular landmarks related to the coronal plane (green) and mandibular plane angle. Source: Oliveira et al.<sup>3</sup>, 2017.



**Figure 3** - A) Uncut aligner. B) Aligner with incisal cut on tooth #11. C) Aligner with incisal cut from tooth #12 to #21. Source: Brockmeyer et al.<sup>4</sup>, 2017.

### ORAL RINSES REDUCE THE CORROSION RESISTANCE OF ALLOYS CONTAINING TITANIUM

Dental caries in the form of white spots are a common problem in orthodontic practice since orthodontic accessories facilitate the deposition of food remains and micro-organisms. The importance of fluoride in the prevention of dental caries is already known. Still, the corrosive power of this chemical element in contact with metallic agents, especially titanium, is well described in the literature. Based on this assumption, the

question arises as to what would be the repercussion on titanium-containing orthodontic alloys when in contact with fluoride-containing rinses? In the search for a response to this clinical doubt, Korean researchers developed an *in vitro* study<sup>5</sup> in which titanium alloys were exposed to four different oral rinses. The results of this study revealed that commercially available oral rinses with high fluoride content and low pH can reduce the corrosion resistance of titanium alloys used in orthodontic appliances.

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