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DIGITAL PRESSURE AND STRESS RELIEF: MEANS TO AVOID PAIN DURING REMOVAL OF ORTHODONTIC BRACKETS

Pain is a frequent and commonplace feeling reported by patients using braces. The need of inducing inflammation for tooth movement to take place is no secret to anyone. Pain arising from orthodontic appliance activation is important and necessary, but other discomforts during treatment should be avoided for the well-being of our patients. When thinking of other discomforts during therapy with fixed orthodontic appliances, the stage of removing orthodontic brackets comes to our mind. Various are the available techniques and equipment that are intended to minimize it; however, none is effective without side effects. In the search for a simple and effective means to do so, Turkish researchers conducted a clinical study¹ in which they compared the discomfort caused during the removal of brackets while pressing the teeth with the finger during removal, asking the patient to bite a rubber, and also suggesting the patient that the procedure would not cause pain (stress relief) (Fig 1). Results showed that digital pressure was more effective than biting the rubber, with respect to pain experience during removal. Additionally, the stress relief method did not differ from any of the other techniques.

HYALURONIC ACID ENCOURAGES BONE NEOFORMATION IN THE SUTURE REGION AFTER MAXILLARY EXPANSION

Bone neoformation is continuous and important during orthopedic-orthodontic therapy. The possibility of modulating this biological response may lead to shorter treatment time and predictability regarding the results. Recently, the benefits of using hyaluronic acid in facial esthetic procedures have been widespread. According to the literature, hyaluronic acid is a high-molecular-weight mucopolysaccharide; a macromolecule of the glycosaminoglycan group widely found in tissues and intercellular fluids with an important role in the regulation and proliferation of fibroblasts and myofibroblasts. With these characteristics, hyaluronic acid stands out as a promising product for areas in which accelerated bone formation is needed. In this perspective, the following question arises: Would hyaluronic acid be capable of stimulating bone neoformation at the suture region? Seeking to answer this question, Turkish researchers conducted a study² which evaluated the histomorphometric effects of hyaluronic acids with different molecular weights on bone formation in rats after maxillary expansion. The authors concluded that the infiltration of hyaluronic acid with high molecular weight stimulates bone neoformation after the maxillary expansion procedure and can thereby reduce the retention period and the risk of relapse.



Figure 1 - Methods evaluated to control pain: (A) digital pressure, (B) biting in rubber, (C) stress relief (Source: Bavbek et al¹, 2016).

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UNCONTROLLED DIABETES LEADS TO SLOW ORTHODONTIC MOVEMENT

Patient's general health cannot be neglected when conducting orthodontic planning. There are several systemic changes that can lead to unusual orthodontic response. It is noteworthy that for the teeth to move, it is necessary that the inflammatory process occur in a natural way. Diabetes mellitus is one of those alterations that can alter the pitch of orthodontic movement as, in its presence, high glucose levels occur in the blood that may be related to deficient insulin secretion, insulin action, or both. But doubts persist on this assumption, leading us to wonder: What could the real influence of diabetes on orthodontic tooth movement be? Aiming to verify this hypothesis, Japanese and Australian researchers developed a study³ in which induced orthodontic tooth movement in the presence of diabetes was assessed. The study was conducted using rats as animal models, and it was concluded that diabetes significantly reduces orthodontic movement and root resorption orthodontically induced in rats. The authors point out that regulation of glucose levels in the blood by insulin administration reduces undesirable responses when applying orthodontic force. These results reinforce the need to ask for an assessment of patient's overall health before starting orthodontic treatment.

HERBST PLUS LINGUAL VERSUS HERBST PLUS LABIAL ARE EFFECTIVE IN CLASS II CORRECTION WITHOUT OCCURRENCE OF PERIODONTAL DAMAGE

The protocol for Class II malocclusion treatment carried out by means of extraoral appliances has already been well established and reported by the scientific literature. Extraoral appliances are considered the gold standard when considering skeletal correction of this malocclusion without dental compensation, in addition to being responsible for incredible facial changes. However, their aesthetics works against them, since, even among young people, aesthetics are valued. In the search for Class II treatment without compromising patients's aesthetics, mandibular propellants arise, particularly the Herbst appliances. These devices have intraoral anchorage, which can be achieved by buccal or lingual accessories. Opting for lingual would better for aesthetics at smiling. Given these possibilities, the following questions arise: Would an Herbst appliance present the same efficiency with buccal or lingual anchorage? And what about periodontal damage? Seeking answers to these questions, German researchers developed a clinical study⁴ which compared the results for Class II correction and the occurrence of periodontal damage in patients using Herbst with labial and lingual anchorage (Fig 2). The results achieved by

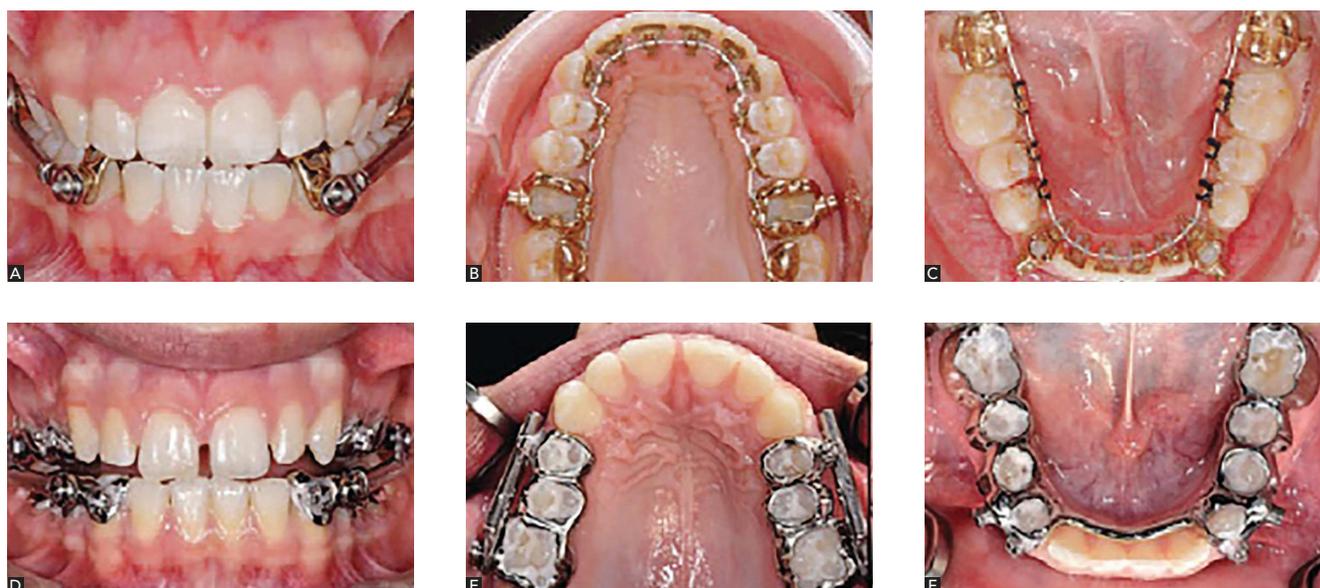


Figure 2 - Compared appliances: A, B, C) Herbst lingual and D, E, F) Herbst buccal (Source: Bock et al.⁴, 2016).

the authors enabled them to conclude that both treatment modalities successfully corrected Class II malocclusion without the occurrence of gingival recession in the treated cases.

SKELETAL ANCHORAGE SHOWS TO BE EFFECTIVE IN ANTERIOR OPEN BITE CORRECTION

Although historically Orthodontics has given emphasis on correcting orthodontic problems in the anteroposterior direction (Classes I, II and III), vertical problems cannot be neglected. Vertical orthodontic problems (open bite and overbite) have been proved difficult to be corrected and maintained after correction due to the influence exerted by the patient's facial pattern over the development and maintenance of these malocclusions. With the advent of intraoral devices for skeletal anchorage, the correction of

orthodontic problems became possible. There have been several case reports presented at conferences and published in journals showing these possibilities. Nonetheless, little research has been dedicated to the evaluation of these treatment modalities and the few existing research shows dichotomy of results. Given these circumstances, Syrian researchers developed a systemic review⁵ in which they evaluated the effect of molar intrusion with skeletal anchorage on vertical facial morphology and mandibular rotation during open bite treatment in permanent dentition. The results of this study revealed that the use of these devices corrected open bite followed by counterclockwise mandibular autorotation. The authors alert for the need for methodologically well-conducted studies in order to verify other changes as well as confirm those found in the present one. This should be a call to all researchers of this domain.

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