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LOCAL ADMINISTRATION OF SIMVASTATIN (CHOLESTEROL-LOWERING DRUG) DECREASES ORTHODONTIC MOVEMENT

We work in a dual state where we want a higher movement rate during active orthodontic treatment and no movement in the orthodontic retention phase; however, in many clinical situations, what we want occurs in reverse. Much has been reported about accelerating orthodontic movement using drugs, corticotomies or osteoperforations, among other treatments. But to reduce the movement rate, which device to use? In specific situations, where the focus is on a particular tooth, either as an anchor

feature during active treatment or in the retention phase, what to do? Seeking answers to these questions, Egyptian researchers developed a study¹ that investigated the effects of the local administration of simvastatin on the magnitude of orthodontic tooth movement and alveolar bone modeling in rats (Fig 1) whose teeth were moved, in association with the local administration of this drug. The use of simvastatin reduced the rate and magnitude of orthodontic tooth movement as a result of a decrease in the bone resorption processes associated with orthodontic tooth movement, thereby reducing the number of osteoclasts.

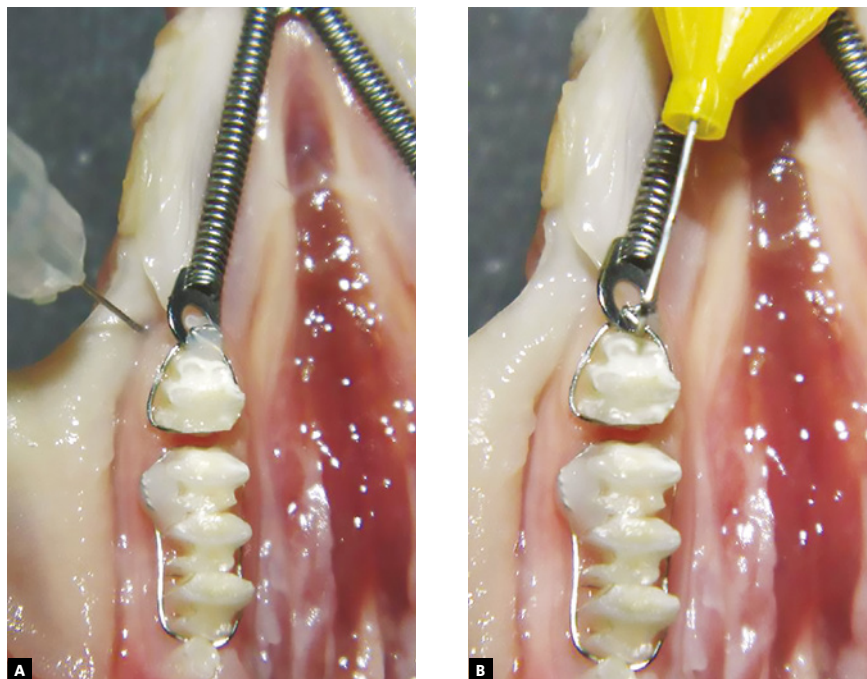


Figure 1 - Images showing the local administration of simvastatin via submucosal (A) and intraligament (B) injections. Source: AlSwafeeri et al.¹, 2019.

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FACE SCANNER PROVES TO BE AN ACCURATE AND RELIABLE TOOL

Technology has invaded our lives in such a way that we cannot live without it. In the past, we were annoyed by power outages or the lack of water, but nowadays the Internet dropping annoys us a lot more. Orthodontics is not being left out of the world of scientific advances, with various online discussions being dedicated to the presentation of new technologies. New ideas need scientific proof to validate their use in clinical situations. With this in mind, Brazilian researchers developed a study² to evaluate the time, reliability and accuracy of craniofacial measurements using a 3D light scanner. Eleven facial measurements from 15 volunteers (Fig 2) were obtained using both a scanner (Artec Eva™) and a caliper placed directly on the face, with or without the demarcation of facial reference points. The authors concluded that the craniofacial measurements obtained with the scanner were reliable and accurate, thus approving this method for clinical and research use. The authors pointed out that the accuracy improved when facial reference points were marked on the face prior to scanning. However, measures taken with the scanner took twice as long, compared with the direct method.

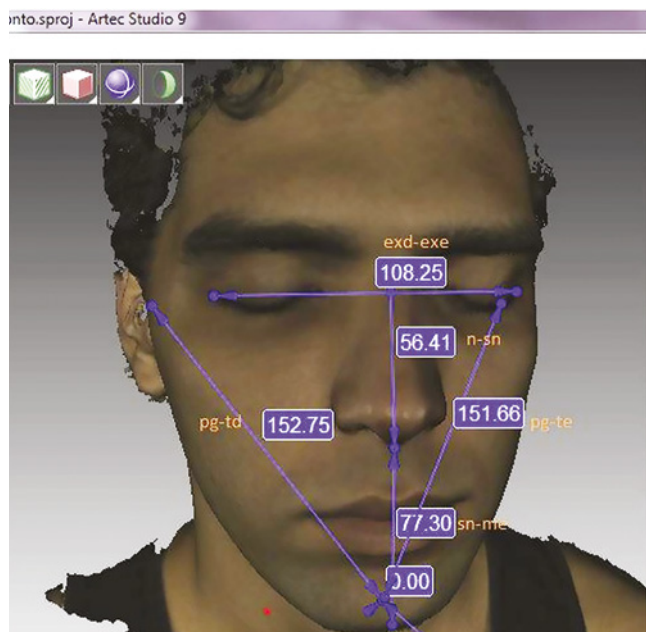


Figure 2 - Obtaining linear facial measurements from a digital model. Source: Gomes et al.², 2019.

IN CASES OF LATERAL INCISOR AGENESIS, SPACE CLOSURE IS PREFERABLE

Lateral incisor agenesis is a very common dental anomaly observed in routine clinical assessments. As orthodontists, we are usually prone to develop treatment plans that aim to close orthodontic spaces. However, it is known that either closing or opening spaces for prosthesis installation is not a matter of personal preference, but rather of indication or not. Given this, from the aesthetic and functional points of view, which of the two therapies — opening or closing — produces the better long-term results? With the purpose of answering this question, Swedish researchers³ developed a study to evaluate whether implant therapy or orthodontic space closure was the best treatment option for patients with missing upper lateral incisors. Forty-four patients were analyzed, 22 having a space closed, and 22 having a space made for prosthesis installation. Examinations were performed at least five years after the end of the prosthetic therapy or orthodontic treatment. The conclusion was that, when both treatment alternatives are available, space closure is preferable.

ORTHODONTIC MOVEMENT WITH ALIGNERS LEADS TO MINOR ROOT RESORPTION

It is already a matter of agreement among orthodontists that aligners are a reality and are here to stay. The search for superior aesthetics in orthodontic devices has made aligners a main attraction at orthodontic meetings and courses. In addition to the obvious aesthetic improvement, they provide greater comfort, easier hygiene and — as some orthodontists believe — more natural physiological movement with less resorption. But is this true? Can the dreaded resorption be overcome by the use of orthodontic aligners? Seeking for answers to this question, Chinese researchers performed a systematic review using meta-analysis⁴ that investigated external root resorption in patients who used aligners, comparing the results with those treated with fixed appliances. The findings showed that current evidence suggests that aligners may not prevent root resorption, but the incidence and severity of resorption may be lower than in fixed-appliance treatment.

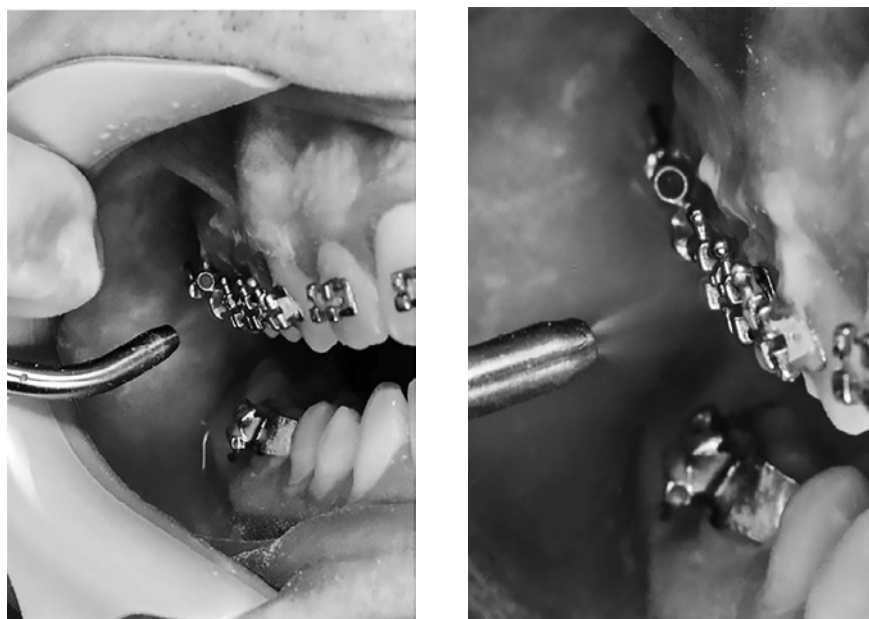


Figure 3 - Prophylaxis performed monthly. Source: Cury et al.⁵, 2019.

PROPHYLACTIC BLASTING PREVENTS INCREASED FRICTION DURING SLIDING MECHANICS

Since sliding mechanics are the most frequently used in Orthodontics, friction control has become a major concern for the success of this type of treatment. The frictional resistance generated at the bracket/orthodontic wire interface can influence the mechanical efficiency, resulting in lower rates of tooth movement and, consequently, increased orthodontic treatment time. Many variables can influence the amount of friction generated between the bracket/wire/ligature system. The most common factor is the accumulation of debris and plaque, which increases the surface roughness of orthodontic materials, especially brackets, which remain until the end of orthodontic treatment. In order to evaluate whether the removal of debris and plaque would influence the friction of the bracket/wire system, Brazilian researchers developed an in-situ study⁵ in which, after performing prophylaxis (Fig 3) for 10 months using sodium bicarbonate and glycine powder (clinical stage), the friction and roughness of the brackets were evaluated. The results revealed that prophylactic blasting with sodium bicarbonate or glycine can significantly prevent the increase in frictional force in sliding mechanics during dental alignment and leveling.

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