

INTRAORAL SCANNERS SHOW GREATER ACCURACY FOR CREATING ARTICULATED DIGITAL MODELS

Technological development has significantly improved people's lives. Several segments of society, such as engineering, telecommunication, education and health, have benefited from these technological advances. In orthodontics it is not different, informatics have invaded our offices in an irreversible way, making our clinical and laboratorial activity more practical and faster. A good example of this is the way we obtain orthodontic models nowadays. Manually produced models are being replaced at an impressive speed by digital models, although there are still doubts about the accuracy of the measurements obtained in the latter. At present, there are a multitude of scanners used to obtain models, ranging from intra to extraoral scanners, the latter being used in the scanning of orthodontic models. Given this diversity of scanning possibilities, the following question arises: which scanner has the greatest accuracy to generate articulated digital models of teeth in occlusion? In the search for answers to this question, American researchers developed a study¹ in which they evaluated an extraoral scanner with a wax or vinyl polysiloxane bite registration, and three intraoral digital scanners utilizing confocal static, confocal

continuous, and blue LED light technologies (Fig 1). The results from this study revealed that only scanners with confocal imaging technology produced articulated models with precision. Differences between the scanners may be related to measurement errors inherent in the technologies employed and the software systems used to process the images.

ORTHODONTIC TREATMENT IMPROVES PATIENTS' MENTAL HEALTH STATUS

The benefits of orthodontic corrections are known to anyone. These benefits extrapolate the oral limits and reverberate in the entire organism and in the social relations of the individual. In the face of these discoveries, new research is emerging every day addressing this issue. Recently a group of Iranian researchers developed a study² that aimed to determine the relationship between orthodontics, mental health and body image. To this end, Goldberg's General Health Questionnaire (GHQ) and a Multidimensional Body-Self Relations Questionnaire (MBSRQ) before and after orthodontic treatment were applied. The results of this study revealed that orthodontic treatment significantly increases the status of mental health in patients and also improves their attitudes towards their body image.



Figure 1 - Example of the indentations made in the models. Source: Porter et al,¹ 2018.

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PATIENTS USING THERMOPLASTIC ALIGNERS OR FIXED APPLIANCES HAVE THE SAME LEVEL OF MICROORGANISMS

The presence of orthodontic devices represents a risk of increase in the number of microorganisms in the oral cavity. Orthodontic appliances become bacterial niches due to their complex architecture. In recent years, orthodontic correction with the use of aligners has grown exponentially — a fact that is due to its superior aesthetics and also to the hygienic ease of these, as well as the teeth, by the patients. But is it true that what is said about the level of cariogenic microorganisms? In the search for this answer, Swiss researchers³ developed a study that aimed to evaluate the salivary prevalence of cariogenic bacteria *Streptococcus mutans*, *Lactobacillus acidophilus* and *Streptococcus sanguinis* in orthodontically treated adolescents using aligners or fixed appliances. The results support the authors to conclude that no differences were found in the salivary levels of *S. mutans* and *L. acidophilus* among adolescent patients treated for one month with thermoplastic

aligners or fixed appliances. However, they call attention to the fact that lower salivary levels of *S. sanguinis* occurred in the patients treated with aligners.

CONVENTIONAL AND MINISCREW-SUPPORTED RAPID MAXILLARY EXPANSION: AN EXCELLENT OPTION IN ADOLESCENTS

Rapid maxillary expansion supported by mini-implants opened a new orthodontic possibility, maxillary expansion in adult patients without the need for the surgical step. But would that be the only indication? What are the strengths and weaknesses of this procedure in young people? In order to answer these questions, Turkish and American researchers proposed a clinical study⁴ with forty patients divided into two groups (Fig 2): one group receiving a tooth-borne expander and the other group receiving an expander supported by four miniscrews. Multiplanar coronal and axial slices obtained from cone-beam computed tomography were used to measure changes in skeletal transverse widths, bone thickness, tooth inclination

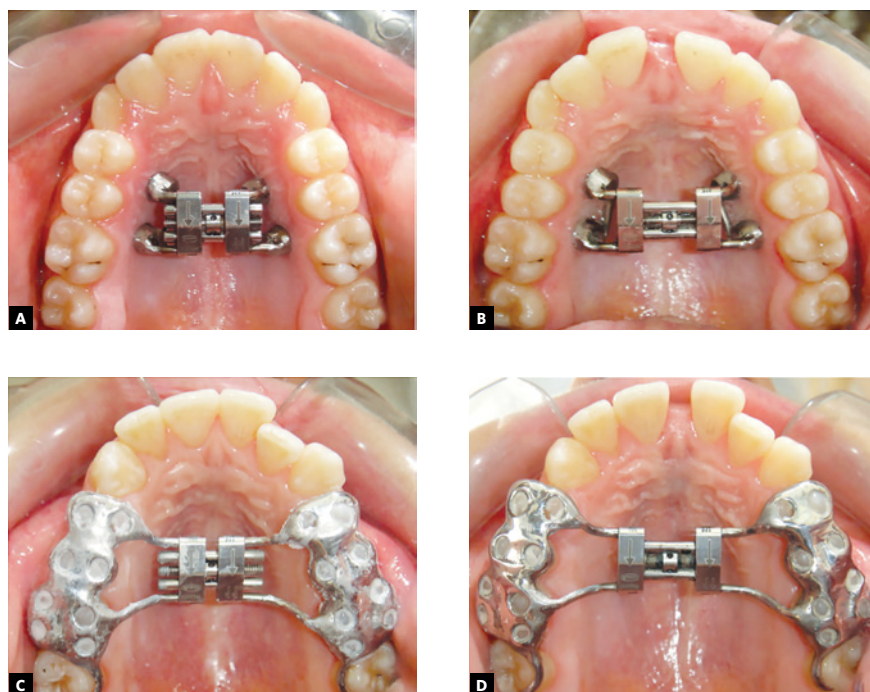


Figure 2 - Pre- (A) and post-expansion (B) occlusal photographs of a patient in the rapid maxillary expansion (RME) group supported by miniscrews. Pre- (C) and post-expansion (D) occlusal photographs of a patient of the conventional RME group. Source: Celenk-Koca et al,⁴ 2018.

and root length. The results of this study showed that, compared to tooth-borne expansion, the use of bone-borne expansion in the adolescent population increased the extent of skeletal changes in the range of 1.5 to 2.8 times and did not result in any dental collateral effects. The findings of the present study revealed another possibility regarding the use of these devices.

TEXT MESSAGES HELP PATIENTS WITH THE USE OF INTERMAXILLARY ELASTICS

Collaboration in the use of orthodontic auxiliary accessories is essential for orthodontic treatment to occur more quickly and predictably. Daily, we struggle with our patients in order for them to correctly use intermaxillary elastics; however, in many situations we do not succeed. Several are the excuses given, highlighting aesthetics, pain and forgetfulness. With respect to

aesthetics and pain, little can we interfere. And regarding forgetfulness? Could text messages remind patients to use the elastics? With the proposal to validate this new approach, Brazilian researchers developed a study⁵ with the objective of evaluating the influence of text messages on the cooperation of patients with the use of Class II intermaxillary elastics. The sample consisted of 42 orthodontic patients aged between 14 and 34 years, which were randomly assigned to two groups: control group, with 21 patients who did not receive messages; and an experimental group, with 21 patients who received motivational text messages and reminders. The messages were sent twice a week for a period of 3 months. The authors were able to conclude from this study that the text messages positively influence the patients' cooperation regarding the use of intermaxillary elastics in the orthodontic treatment of Class II malocclusion.

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