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## AFFILIATED INSTITUTION

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## LETTER TO THE EDITOR

Mini-implants: changing the paradigms of  
orthodontic mechanics.

A new concept of anchoring and directing force was introduced in orthodontics, using a mini-implant. Its small size and high strength have made this device the greatest evolution of all time in the field of orthodontic anchorage. The various installation sites have expanded the possibilities for creating the most diverse types of mechanics, providing a secure anchorage, resulting in more effective and brief treatments.

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Factors such as facial harmony, functional occlusion, acceptable aesthetics and stability after treatment are essential for the success of the daily orthodontic clinic. For such results to be achieved, a rigorous and judicious planning must be elaborated, envisioning a tooth movement with the minimum of side effects. The displacement of a determined group of teeth, without changing the correct positioning of the system's resistance elements, has always been desired by orthodontists. Mini-implants irreversibly changed the paradigms of orthodontic mechanics, truly representing a "watershed". This is true, mainly due to factors such as clinical effectiveness, ease of handling, low cost and absence of the need for collaboration on the part of the patient.

I have heard some questions regarding the stability of this product. Mini-implants are made from titanium alloy grade V, with no osseointegration. What we can expect is a primary stability, mainly due to the contact between the device and the cortical bone. Therefore, the greater the thickness of the cortical bone, the better the final stability of the mini-implants. Another relevant issue is that they can be divided into two formats: self-tapping and self-tapping. The seconds provide greater primary stability and eliminate the need for previous perforations, shortening and facilitating the surgical procedure. I emphasize that a correct selection protocol, adopting only self-perforating devices, the exclusion of areas with little cortical bone thickness (maxillary tuber for example), a correct surgical protocol and good hygiene guidelines, would almost totally eliminate the possibilities of losses.

Different shapes of heads are currently commercialized, allowing numerous activation protocols, using elastics, springs, yarn strings and rectangular arch segments. It is up to the orthodontist to define the best option, thus optimizing the clinical result.

Movements such as opening and closing space; verticalization, distalization and molar intrusion; incisor intrusion; torques; retraction of anterior teeth and leveling of the occlusal plane can be obtained in a controlled manner, as long as the biomechanical concepts are respected. The daily clinic has demonstrated the importance of integration between implantodontists and orthodontists, enabling the use of this method with excellence.

I think the future of the mini-implant is related to revolutionary research, which seeks to create even smaller and universal devices, enabling activations with rectangular wires, elastics and springs in a multifunctional head, isolated or simultaneously,

making its use simpler , with greater comfort for the patient. At the same time, this possibility would reduce the parts of the surgical kits, reduce the amount of stock and facilitate communication between the professionals involved in their applications.