

## Mechanical retention: an important factor for the bond strength of glass fiber posts.

Juan A. Fernández Tarazona<sup>1,2</sup>  
Zady J. Torres Rivera.<sup>3</sup>

**Affiliations:** <sup>1</sup>Universidad Privada Juan Pablo II. Escuela Profesional de Odontología. Lima, Perú. <sup>2</sup>Universidad Nacional Hermilio Valdizán. Escuela Profesional de Odontología. Huánuco, Perú. <sup>3</sup>Universidad Privada de Huánuco. Escuela Profesional de Odontología. Huánuco, Perú.

**Corresponding author:** Juan A. Fernández Tarazona. Jr. Los Ciruelos N° 180, Pillco Marca. Huánuco – Perú. Email: jaft57@hotmail.com

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The rehabilitation of endodontically treated teeth with extensive structural loss is associated with the use of posts, intra-radicular retention elements that help to retain the definitive restoration and preserve the remaining structure. These devices have evolved vertiginously in the last decades from metal cast posts to fiber-reinforced posts of organic base (carbon, glass and quartz). The main driver of this development has been improving their physical, mechanical and aesthetic properties, with the glass fiber posts offering the best clinical performance.

These have an excellent biomechanical behavior very similar to the dental structure, but the biggest disadvantage reported with the use of glass fiber posts has been the de-bonding of these in clinical function, in some cases within very short periods.<sup>1</sup> There are multiple factors that interfere with intra-radicular bonding such as: specific characteristics of the substrate, smear layer formation, endodontic substances and cements, irrigation materials used for the preparation of the post, polymerization shrinkage and the configuration of the root canal cavity.<sup>2</sup>

As such, we recognize that adhesive procedures are not enough to ensure the retention of the glass fiber posts to the root canal, due to the multiple negative factors inherent to the substrate, to the resin cement and to the adhesive systems used.<sup>3</sup> The mechanical retention that results from relining of the glass fiber posts with resin composites mainly allows to reduce the thickness of the resin cement to be used, thereby reducing the abovementioned negative factors.<sup>4</sup>

Thus, friction is the principal mechanism for the primary retention of the glass fiber posts. When the glass fiber posts are individualized and are then cemented using adhesive procedures, great improvements are gained in terms of adhesive strength values and long-term stability.<sup>4</sup>

Finally, we suggest the cementation of glass fiber posts previously individualized in order to guarantee their long-term adhesive strength as well as the longevity of the supported restorations.

### REFERENCES.

1. Skupien JA, Sarkis-Onofre R, Cenci MS, Moraes RR, Pereira-Cenci T. A systematic review of factors associated with the retention of glass fiber posts. *Braz Oral Res.* 2015;29(1):pii: S1806–83242015000100401.
2. Penelas AG, Piedade VM, Borges AC, Poskus LT, da Silva EM, Guimarães JG. Can cement film thickness influence bond strength and fracture

resistance of fiber reinforced composite posts? Clin Oral Investig. 2016;20(4):849–55.

3. Fernández JA, Torres ZJ. Influencia de la aplicación de clorhexidina al 2% en el protocolo adhesivo sobre la resistencia adhesiva de postes de fibra de vidrio. RODYB. 2018;7(1):1–6.

4. Gomes GM, Gomes OM, Gomes JC, Loguercio AD, Calixto AL, Reis A. Evaluation of different restorative techniques for filling flared root canals: fracture resistance and bond strength after mechanical fatigue. J Adhes Dent. 2014;16(3):267–76.