

# MEDICINA ORAL PATOLOGÍA ORAL Y CIRUGÍA BUCAL


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## INDEXED

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*The art of the light*

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posts' surface were treated by Er,Cr:YSGG laser beam with 1 watt power, water 10%, air 15% irradiated from 2 mm distance perpendicular to the post surface as it moves parallel to the longitudinal axes of the posts. Silane was painted on the posts' surface and air dried after 60 seconds. After canal preparation, posts were cemented by resin cement. Pull out strength of the posts test was measured by universal testing machine and failure mode was evaluated by stereomicroscope. Data was analyzed using SPSS.

Results: Mean and standard deviation of pull out strength of control and laser group was  $236.04 \pm 14.53$  and  $281.90 \pm 17.67$  N, respectively. T-test showed significant difference between two groups. The majority of failure mode was mixed.

Conclusion: Based on the results of the present study, Er,Cr:YSGG laser surface treatment of quartz fiber posts increase root dentin-post pull out strength compared to the common clinical methods.

#### **Effect of laser application on push out bond strength of FRC post to root canal dentin.**

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Introduction: Fiber-reinforced composite posts are being used in restoring endodontically treated teeth. Optimum adhesion between the post and root canal dentin is a basic concept which needs appropriate treatment procedure applied on the post surfaces. There are few methods to condition the surface of such posts, including chemical and physical procedures. aim of the study: Investigating the effect of CO<sub>2</sub> and Nd:YAG lasers on push out bond strength of quartz fiber composite posts to root canal dentin.

Methods and materials: In this study 60 premolars after root canal preparation were obturated and the post spaces were prepared. Samples were divided in three groups. In first and second groups posts were treated with Nd: YAG and CO<sub>2</sub> lasers (2 watts, 1mm distance and 15 s). In The third group the posts had no treatment. The posts were cemented into the teeth root canals by a self-etch resin cement. By sectioning samples a whole number of 180 specimens were undergone the Push-out bond test using a universal testing machine. Data analyzed using ANOVA and Tukey (HSD) tests. Results: Bond strength Mean values of 3 groups of the study are Nd: YAG laser:  $46.4646 \pm 9.74742$ ; CO<sub>2</sub> laser  $27.6128 \pm 11.37682$  and Control group:  $26.4015 \pm 8.30417$ .

Conclusion: With the parameters used in this study

Nd:YAG laser could be an effective surface treatment method, while CO<sub>2</sub> laser had no significant effect on bond strength of posts.

#### **Influence of Er,Cr:YSGG irradiation in prosthetic post space in the adhesion of fiber posts cemented with self-etching, total-etching or self-adhesive.**

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This study evaluated the influence of using Er,Cr:YSGG laser in the prosthetic post space before post placement (FRC Postec) using three different adhesive systems (self-etching- Panavia F; total-etching- Excite DSC + Variolink II and self-adhesive- Rely X Unicem Aplicap). 90 human dental single roots sectioned at CEJ, were endodontically treated with rotatory technique, filled with gutta-percha points and sealer. The proper energy density was determined as 40 J/cm<sup>2</sup>, that lead intracanal dentinal tubules unobstructed, as well as causes thermal changes within biological safe condition, suggesting its possible clinical use. Each root canal was irradiated five times with helicoidal movements from apical to cervical (2 mm/s), through an endodontic sapphire laser tip (Z4, 400 μm diameter), with 20 seconds intervals. Posts were immediately cemented and samples randomly divided in nine groups (n=10). Each root was cut in six discs for push out tests, in which the maximum failure load was obtained and the bond strength was calculated as a function of post bonded area. The bond strength differences among cervical, middle and apical thirds were evaluated. The samples cemented with self-adhesive had superior push out bond strength among all irradiated groups in all root thirds (p < 0.01). In the conditions of this work using Er,Cr:YSGG laser inside dentin walls of a prosthetic post space before its cementation may increase the bond strength between the post and root canal dentin.

#### **Analysis of the intrapulpal temperature after laser therapy in vitro study with 670 nm laser.**

**Carrara C, Brugnera A, Zanin F, Silveira L.**

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One of the limiting factors of the use of laser on the dental tissues is the injury caused on the pulp tissues. The purpose of this study was to evaluate intra-pulp