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## Poster Presentation

treatment did not affected wound contraction, but accelerated re-epithelialization ( $p=0,0007$ , 14 days after lesion for both laser treatments). Thirty-five days after lesion the animals were euthanased and skin samples were collected for analysis. The analysis of collagen arrangement showed that lesions treated with 685 nm laser presented collagen network denser and collagen fibers thicker than controls; lesions treated with 830 nm laser presented a collagen network less dense than controls but with a pattern that resembles those observed in normal skin. We showed that low-intensity laser treatment affects cutaneous wound healing, but the effect change according to laser used. Further studies are necessary state adequate treatment protocols in special conditions, as when the wound healing is hindered.

### P05

#### Effects of Er, Cr:YSGG Laser irradiation on endodontics system permeability.

Ana, P.A.; Rocha, R.M.M.; Blay, A.; Aun, C.E.; Lage - Marques, J.L.; Zezell, D.M.

Doutoranda em Ciências pelo IPEN.

The aim of this study was to evaluate the effects of Er,Cr:YSGG laser irradiation on root dentin permeability. Twenty extracted single-rooted teeth were instrumented with K-files and divided in four groups, according to laser fluences: GI (non-irradiated), GII (12.5 mJ/pulse; 2.8 J/cm<sup>2</sup>), GIII (25 mJ/pulse; 8.5 J/cm<sup>2</sup>) and GIV (75 mJ/pulse; 16.98 J/cm<sup>2</sup>). Lased groups had an association of irrigating solution EDTA-T and Er,Cr:YSGG laser irradiation, which was performed at 20 Hz repetition rate without air-water spray, with four helicoidal movements during approximately 5 seconds. NDP associated with rhodamine B dye was used to evaluate dentin permeability. After the experimental period, the samples were transversely cut into six 2.0 mm thick slices for subsequent reading using the ImageLab software. The results showed that dentin permeability of root canals was decreased when exposed to Er,Cr:YSGG laser irradiation compared with non-irradiated samples, and this alteration was higher when higher fluences were applied. The cervical and middle thirds had permeability values statistically similar ( $p > 0.05$ ) and significantly greater than the apical third. It can be concluded that the use of Er,Cr:YSGG laser irradiation at the utilized parameters decreases dentin permeability, favoring the root canal sealing.

### P06

#### 3D-Finite element and thermographic analysis of human teeth irradiated with ErCrYSGG.

Ana, P.A.; Veloso Júnior, W.F.; Cláudio, T.; Zezell, D.M.

Doutoranda em Ciências pelo Ipen.

The purpose of this study was to analyse surface and pulpal temperature changes in extracted human teeth subjected to Er,Cr:YSGG laser irradiation by using Finite Element Method (FEM) and comparing with thermal analysis made by thermocouple and thermocamera. Twelve extracted human molar teeth were selected and divided into three groups, according to the following Er,Cr:YSGG laser irradiation conditions: 2.8 J/cm<sup>2</sup>, 5.6 J/cm<sup>2</sup> and 8.5 J/cm<sup>2</sup>. During laser irradiation, surface temperature was measured using a thermocamera (FLIR Systems - USA) and the pulpal temperature was monitored by means of a thermocouple type T placed in the pulpal chamber. For FEM analysis, it were constructed numerical models that reproduced a typical sound molar teeth and the analysis simulated the absorption of the laser energy and the heat transfer through the tooth in three dimensions, considering the same laser energy and conditions performed in thermocouple and thermocamera measurements. The results showed that theoretical FEM calculation showed good agreement with the thermocamera and thermocouple obtained data, simulating heat transfer and predicting the temperature increase. It was possible to conclude that 3D Finite Element Method gives good results that makes possible to understand the thermal behavior of dental material.

### P07

#### The effects of diode laser irradiation to the dye-stained root canal walls.

Anjo, T.; Ebihara, A. ; Takeda, A. ; Suda, H.

The effects of diode laser irradiation to the dye-stained root canal walls were preliminarily investigated. The root canals of anterior human teeth were cleaned and shaped, and stained with ophthalmic photosensitizer or methylene blue dye. An optical fiber (diameter: 0.4mm) was inserted into the root canal, and the root canal walls were irradiated using a diode laser system (ZHM1530JP, Matsushita Electric Industrial Co. Ltd., Japan) at 60mJ/pulse (pulse frequency:33pps). During lasing, the fiber tip