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The art of the light

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Assessment of human enamel demineralization using optical coherence tomography: a quantitative analysis.

Cara ACB, Zezell DM, Ana PA, Deana AM, Peiro GP, Freitas AZ.

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The diagnosis of dental caries in early stages enables conservative treatments centered on tooth preservation, avoiding surgical and restorative treatments. Optical Coherence Tomography (OCT) is a non-invasive and non-destructive technique that provides information about optical properties of the sample. During caries process, the optical properties of enamel change due to demineralization. The aim of this study was to evaluate the validity of applying OCT for detection of different degrees of enamel demineralization provided by artificial caries lesions. 42 samples were used, obtained from 11 sound molar teeth, which were separated in 6 groups and submitted to different periods of pH cycling producing demineralization at different stages. To analyze changes that can occur in each sample, they were submitted to the OCT technique before and after pH cycling, to obtain average attenuation coefficient at different times of pH cycling. To determine a relation between the attenuation coefficient and the mineral loss, data were compared to the microhardness analysis. The results were evaluated paired t-test. At the significance level $\alpha=0.05$ average attenuation coefficient was different before and after demineralization process for all studied periods, presenting a correlation with microhardness analysis. Therefore, OCT technique is suitable for assessment of different enamel demineralization stages in simulated caries lesions, presenting a relation with the mineral loss progress.

THURSDAY 26TH

Room 2 (Endodontics)

11:00 Rezaei-Soufi L. Effects of Er,Cr:YSGG laser surface treatment of quartz fiber posts on root dentin-post Pull-out strength in endodontically treated premolar.

11:12 Rikhtegaran S. Effect of laser application on push out bond strength of FRC post to root canal dentin.

11:24 Zezell DM. 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.

11:36 Carrara C. Analysis of the intrapulpal temperature after laser therapy in vitro study with 670 nm laser.

11:48 Pedullà E. Decontamination efficacy of photon initiated photoacoustic streaming (PIPS) of irrigants using low energy laser settings: an in vitro study.

12:00 Bago I. Antimicrobial efficacy of a high power diode laser, photoactivated disinfection, conventional and sonic activated irrigation during endodontic therapy.

12:12 Sohrabi-Araghi K. In vitro comparison of antimicrobial effect of three intracanal irrigants and diode laser on canals infected with *Enterococcus faecalis*.

12:24 Martins MR. Blind randomized clinical trial 1st year outcome- efficacy of Er,Cr:YSGG radial firing tips in the laser assisted endodontic treatment.

12:36 Montero P. Depth and penetrated perimeter of endodontic sealer after using a Nd:YAG laser.

12:48 Telesca V. The effects of Er:YAG and diode laser on *Enterococcus Faecalis*: an "in vitro" study.

Effects of Er,Cr:YSGG laser surface treatment of quartz fiber posts on root dentin-post Pull-out strength in endodontically treated premolar.

Rezaei-Soufi L, Fekrazad R.

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Introduction: Common application of fiber posts in the restoration of teeth under root canal therapy; increase the importance of finding out the new procedures to improve their strength.

Aim: The aim of this study was to determine the effects of Er,Cr:YSGG laser surface treatment of quartz fiber posts on root dentin-post Pull-out strength in endodontically treated premolars.

Method and materials: In this study 40 endodontically treated premolars were used. 40 quartz fiber posts divided in 2 groups, randomly: 1) Control group; only clean the posts surface with alcohol, 2) Test group,