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Evaluation of dental demineralization around orthodontic brackets by means of laser fluorescence

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The use of laser in orthodontics has been a reality for some years in clinical practice and has been researched in order to achieve maximum dental hygiene control during the entire period of orthodontic treatment. Demineralization at the bracket / dental enamel interface was evaluated with fluorescence spectroscopy at 440 nm in 128 randomized premolars included in four separate groups of 32 teeth, which were divided into four subgroups. The laser fluorescence readings were performed in two steps: the first, before the teeth were placed in the solutions of their respective groups; and the second, after the surface treatments. The groups were divided as follows: Group 1 (untreated surface), Group 2 (six hours demineralization), Group 3 (demineralization 15 days) and Group 4 (demineralization 18 hours). The results were analyzed by the Kruskal-Wallis, Student-Newman-Keuls, Tukey and Spearman tests ($p < 0.05$). The results showed a significant difference for all materials tested when the demineralization process was used, compared to the models using only six or 18 hours of demineralization. The fluorescence laser (440 nm) has an effective sensitivity in the detection of decalcification of dental enamel and in the development of early lesions of caries around orthodontic brackets.



Recent Publications

1. Monte, Thiago L; Aranha Nouer, Paulo Roberto. More precision in expansion, more accuracy in retention. American Journal of Orthodontics and Dentofacial Orthopedics, v. 151, p. 234-235, 2017.
2. Tiago, Carollyne Mota; Previdente, Luis; Nouer, Paulo Roberto Aranha. Molar intrusion with orthodontic mini-implants: Case reports. RGO. Revista Gaúcha de Odontologia (Online), v. 64, p. 327-332, 2016.
3. Queiroz, V S; Nouer, P R A; Tabchoury, C P M; Lima-Arsati, Y B O; Nouer, D F. *In vivo* evaluation of fluoride dentifrice and diet control on the demineralization/remineralization process using laser readouts at the margin of the orthodontic bracket/enamel interface. American Journal of Dentistry, v. 28, p. 23-27, 2015.

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4. Lorenzi, Lígia Maria; Nouer, Darcy Flávio; Garbui, Ivana Uglík; Fontanella, Vânia; Padilha, Nelson; Nouer, Paulo Roberto Aranha. Wylie-Johnson analysis of adolescents of Afro-Brazilian descent with normal occlusion: investigation of the mean values. RGO. Revista Gaúcha de Odontologia (Online), v. 62, p. 13-17, 2014.
5. Ferreira, Fabiano G; Nouer, Darcy F; Silva, Nelson P; Garbui, Ivana U; Correr-Sobrinho, Lourenço; Nouer, Paulo R A. Qualitative and quantitative evaluation of human dental enamel after bracket debonding: A noncontact three-dimensional optical profilometry analysis. Clinical Oral Investigations (Internet), v. 18, p. 1853-1864, 2014.

Biography

Paulo Roberto A Nouer is graduated in Dentistry - Campinas State University FOP-UNICAMP - Brazil (1985) and PhD. Federal University of Rio de Janeiro UFRJ - Brazil (1995). Post graduated in Orthodontics - New York University - USA (1995/1996) and Post-Doctoring in Orthodontics at FOP-UNICAMP (2003). From 2006 to 2010 was Visiting Research Professor at FOP-UNICAMP. At present he is Professor - São Leopoldo Mandic College of Dentistry - Brazil - teaches in continuing education program in Orthodontics, Master and Post-Doctoring programs. He has experience in Orthodontics focusing on: Malocclusion, Treatment; Cephalometrics; Dental Materials in Orthodontics; Lasers and Biomechanics.

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