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Abstract

[ANTUNES, Livia Azeredo Alves](#); [PEDRO, Rafael Lima](#); [VIEIRA, Aurea Simone Barrôso](#) and [MAIA, Lucianne Cople](#). Effectiveness of high speed instrument and air abrasion on different dental substrates. *Braz. oral res.* [online]. 2008, vol.22, n.3, pp. 235-241. ISSN . doi: 10.1590/S1806-83242008000300008.

The aim of this study was to compare the effectiveness of high speed (HS) and air abrasion (AA) instruments on groups of teeth (deciduous, permanent, bovine), in terms of preparation time, topography and presence of smear layer. Each group consisted of 5 teeth that had their buccal/lingual surfaces prepared by using either HS or AA. All procedures were standardized and timed. The teeth were then sectioned and prepared for evaluation of both the topography and the presence of smear layer by scanning electron microscopy. As regards preparation time, HS yielded preparations 1.5 times quicker than AA did on the three types of dental substrates (Wilcoxon test, $p < 0.05$). In both techniques (Kruskal-Wallis Test, $p < 0.05$) the preparation time was influenced by the dental substrate, particularly in deciduous teeth (Mann-Whitney test with Bonferoni's correction, $p < 0.017$), which required a longer preparation time. In the descriptive analysis of the topography, no difference was found between the substrates. Nonetheless, the different instruments used determined distinctive topographies. Both techniques produced a smear layer (χ^2 McNemar, $p > 0.05$) in all substrates, but with different formations. In conclusion, the HS instrument was found to be more rapid than the AA. No difference was found between the three dental substrates as regards both the topography and the presence of smear layer. The differences found in the present study were only in relation to the effects of each instrument used.

Keywords : Tooth preparation; Air abrasion, dental; Tooth, deciduous; Microscopy, electron, scanning; *In vitro*.

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