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## THE INFLUENCE OF THE AMOUNT AND FLUORIDE CONCENTRATION ON DENTAL ENAMEL DEMINERALIZATION IN SITU

PAIVA, M. F. (UNESP - Universidade Estadual Paulista "Júlio de Mesquita Filho"); DELBEM, A. C. B. (FOA - Faculdade de Odontologia de Araçatuba); DANELON, M. (UNAERP - Universidade de Ribeirão Preto); NAGATA, M. E. (UENP - Universidade Estadual do Norte do Paraná); COCLETE, G. E. G. (FOA - Faculdade de Odontologia de Araçatuba); CUNHA, R. F. (UNESP - Universidade Estadual Paulista "Júlio de Mesquita Filho"); BUZALAF, M. A. R. (FOB - Faculdade de Odontologia de Bauru); PESSAN, J. P. (FOA - Faculdade de Odontologia de Araçatuba)

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The early use of fluoride dentifrices has been shown to be a risk factor for the development of dental fluorosis. Health officials have advocated the use of dentifrices with concentrations above 1000 ppm F, but applied in small quantities for young children, assuming that this measure minimizes the F systemic exposure to that source without compromising the clinical efficacy of the product. Based on this, the study assessed the effect of brushing with conventional dentifrice (CD) or low-fluoride dentifrice (LFD) applied in different quantities, on bovine dental enamel demineralization and on fluoride (F) concentrations in the dental biofilm in situ. Five experimental phases were conducted (7 days each), totaling 5 combinations of dentifrices and quantities: placebo (F-free) - applied on all brush bristles; LFD applied using the transversal technique (0.3 g - T1) or on all bristles (0.6 g - T2); and CD applied as a pea sized amount (0.15 g - T3) or using the transversal technique (0.3 g - T4), in order to produce comparable intensities. Volunteers (n=13) wore palatal devices containing 4 bovine enamel blocks, selected by surface hardness (SH). The cariogenic challenge was performed 6x/day, using a 30% sucrose solution and brushing 3x/day with the experimental dentifrices, following a double-blind, cross-over and randomized protocol. The biofilm formed on the blocks was collected at 5 and 60 min after brushing on the 8th experimental day. F concentration in biofilm and biofilm fluid were analyzed, as well the calculation of the percentage of surface hardness loss (%SH) and integrated loss of subsurface hardness ( $\Delta$ KHN). Results were analyzed by ANOVA and Student-Newman-Keuls test ( $p < 0.05$ ). For %SH, T3 was significantly higher than T4. Significantly lower  $\Delta$ KHN was achieved for blocks treated with the highest intensity (T2 and T4) compared with the lowest intensity (T1 and T3). It was concluded that the treatment intensity has a significant influence on the development of caries lesions, as well on F concentrations of dental biofilm formed in situ.

**Descritores:** Fluoride; Dentifrices; Dental Caries.