

Original

## Effect of Fluoride Application on Remineralization of Bovine Tooth Enamel Using QLF *in Vitro*

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**Abstract:** The purpose of this *in vitro* study was to evaluate the tooth remineralization process in relation to different topical fluoride applications with QLF. Eighty bovine enamel specimens were mounted on acrylic rods and polished. Incipient lesions were formed in specimens by immersion for 48 and 96 h in a demineralizing solution. The lesions were quantified with parameter  $\Delta Q$  (total mineral loss from the lesions). Then, specimens in each group were divided into 4 subgroups receiving different fluoride treatments (control, fluoridated dentifrice, APF-gel, and fluoridated dentifrice plus APF-gel). All specimens were immersed in artificial saliva for 28 days, excluding the duration of the respective fluoride treatments. In the low demineralization group, mineral recovery reached a plateau after 9 days. For groups with high demineralization rates, such a plateau was reached after 15 days. For each demineralization period, the rate of recovery of control and F-dentifrice groups was higher than for both APF-gel treated groups ( $p < 0.05$ ). There was no difference between the mineral recovery rates of the two APF-treated groups. It was concluded that APF-gels inhibited mineral recovery in comparison with F-dentifrice treatments or artificial saliva alone.

**Key words:** Enamel, Fluoride, *In vitro* study, QLF, De-Remineralization