

0926 Enamel Hardening Properties of Two Dental Pastes

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Dental tooth pastes and topical pastes with remineralizing properties have been introduced to the market to help prevent demineralization that eventually may result in dental caries or erosion.

Objective: To determine the effect of two types of remineralizing paste on the microhardness of demineralized human enamel.

Methods: Eighteen extracted teeth were mounted on acrylic-cylinders so that the occlusal surface was exposed. The surface was polished using SiC paper. A groove was made on the acrylic rings to divide exposed enamel of each tooth into two halves. Thirty-six enamel surfaces were available. Twelve surfaces were randomly assigned for treating with WhiteLasting Tooth Whitening gel (WL: Frontier Pharmaceutical, NY, USA) containing calcium lactate, trisodium phosphate and fluoride, a PROSPEC™ MI paste (MI: GC America, IL, USA) containing casein phosphopeptide-amorphous calcium phosphate (CPP-ACP), or water as a control. Remineralizing treatment was applied for 20 minutes twice daily for three days. Knoop microhardness was determined at three areas at 500 microns from the edge with a microhardness tester (FM-7, Future-Tech, Tokyo, Japan) on three opportunities: prior treatment, after 15 hours immersion in Diet Coke®, and after treatment with the pastes. The data were statistically analyzed using paired t-test and one-way ANOVA/Tukey's test ($\alpha = 0.05$).

Results: Means (SD) for Knoop microhardness are as follows [identical letters indicate no statistical differences ($p > 0.05$)]:

	Baseline	After Demineralization	After Treatment
WL	260 ^a (31)	121 ^d (34)	211 ^b (40)
MI	253 ^a (27)	134 ^{cd} (22)	206 ^b (35)
Water	259 ^a (26)	135 ^{cd} (24)	167 ^c (26)

Conclusion: Within the limitations of this study, both pastes tested showed significant increase in microhardness of the demineralized enamel; however, the increase in the hardness of the enamel did not reach the pre-demineralization levels.

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