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ZOOM!

Relief ACP

Benefits of ACP

in vitro study

Effect of Remineralizing Agents on Enamel Microhardness After Bleaching

Ochiai K, Sung EC, Chung J, Caputo AA. Effect of Remineralizing Agents on Enamel Microhardness After Bleaching. J Dent Res 86 (Spec Iss A), 2007.

Objective

To determine the potential of remineralizing agents to increase microhardness of enamel after bleaching

Materials

- Five human incisors
- 15% carbamide peroxide (Opalescence, Ultradent)
- MI Paste (Ultradent)
- Relief ACP (Discus Dental)

Methodology

Five human incisors were sectioned in half superior inferiorly. The halves were then mounted on cold cure acrylic for ease of manipulation. Six VH readings were then done per specimen on Micromet 2100 (Buehler, Lake Bluff, IL) with 500 gm load to establish baseline. Six cycles of bleaching with 15% carbamide peroxide (Opalescence, Ultradent) were then performed. Each cycle lasted one hour prior to placement of new solutions. The teeth again were tested for VH hardness with six readings per specimen. Upon completion of bleaching, the halves of the teeth were divided into either Group A (MI Paste, Ultradent) or Group B (Relief, Discus Dental). The systems were applied for 30 minutes then rinsed with tap water. The specimens again were tested for VH hardness with 6 readings per specimen. The procedure was repeated for a total of three remineralization cycles. All data gathered were analyzed using ANOVA with $p<0.05$ for significant differences.

Results

After six cycles of bleaching, there was a significant decrease in hardness on all specimens from a VH of 313.1 to 280.8. After three applications of remineralization agents in both groups, all hardness measurements returned to baseline.

Conclusion

There was a statistically significant decrease in enamel hardness for the bleaching system tested in this study. The application of remineralization agents reversed the decrease in enamel hardness to baseline after three applications.

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