2857 Remineralization Potential For Whitening Gels

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Tooth whitening has become extremely popular as the concern over esthetics continues to increase.

Objectives: The aim of this project was to evaluate whether a whitening system with fluoride will remineralize previously demineralized enamel.

Methods: The color of 24 extracted teeth was scored using a Vitapan Classical shade guide. These teeth were then sectioned into quadrants and labeled A-D. Sections A, B, and D were demineralized with a lactic acid, methyl-cellulose gel system to mimic incipient carious lesions. Section C (untreated control) was neither demineralized nor treated with the whitening solution. Section D was demineralized, but not treated with whitening solution. Sections A and B were exposed to one of two whitening solutions (1- only whitening solution, and 2- experimental whitening system containing fluoride). This was a blinded study using two commercially prepared 10% carbamide peroxide whitening gels, one of which contained fluoride in the amount of 0.463%NaF. The level of remineralization was measured on histological sections using electron microscopy. Remineralization was evaluated using paired T tests accepting p < 0.05 as significant.

Results: Final shade analysis with the Vita shade guide was made with each section showing equal whitening efficacy of both gel A and B. Paired T tests show a significant reduction in lesion depth after treatment with the fluoride containing gel (B: mean lesion depth = 100ìm; p<0.01) while there was no difference for the gel lacking fluoride (A: mean lesion depth = 110ìm).

Conclusions: This study indicates that the addition of fluoride to a 10% carbamide tooth whitening system does not affect the gel's whitening efficacy. This study also suggests that the addition of fluoride can provide remineralization properties to the gel providing a potential mechanism for reducing sensitivity and reducing the patient's caries risk.

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