



Benefits of ACP

in vivo study

Tooth Surface Enhancement by a 16% Carbamide Peroxide Take-Home Bleaching Gel Containing ACP

Giniger M, et al. Tooth Surface Enhancement by a 16% Carbamide Peroxide Take Home Bleaching Gel. J Dent Res (Spec Iss A), 1793, 2005.

Objective

To evaluate the effectiveness of a dual-barrel, 16% carbamide peroxide equivalent, take-home bleaching gel containing amorphous calcium phosphate (ACP) in enhancing tooth surface smoothness and gloss.

Materials

- 16% carbamide peroxide equivalent gel containing ACP (NiteWhite Excel 3 ZCP, Discus Dental)

Methodology

Ten healthy adults wore a custom tray containing the test ACP gel for a minimum of four hours daily (or overnight) for two weeks. Evaluations of tooth color, surface roughness and gloss were made at baseline, one week, two weeks and five days post treatment. The surface gloss index (SGI) and surface roughness index (SRI) measurements were performed by a single experienced examiner who evaluated the anterior teeth. The SGI utilizes a six-point subjective scale, and the SRI uses a four-point scale. For the tooth color evaluation a 16-point Vita Shade Guide score index was used. Mean "before" and "after" tooth color scores, SGI scores and SRI scores were calculated. Mean differences between baseline values and after-treatment values were also reported. A t-test was used to determine significant differences with alpha set at 0.05.

Results

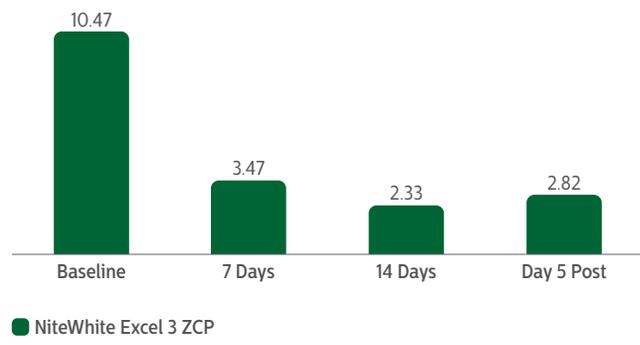
Compared to the baseline control values, the ACP gel showed a significant ($p < 0.01$) longitudinal percent improvement in tooth surface gloss and roughness at one week (SGI = 10.1%; SRI = 6.15%) and two weeks (SGI + 22.4%; SRI = 15.4%). Tooth color was also improved significantly compared to baseline, reaching a maximum shade change of 8.13 (± 1.02) units at day 14 (t-test, $p < 0.0001$). At the five days post-treatment evaluation, no significant changes in tooth color, SGI or SRI were found compared to day 14 results ($p < 0.0001$).

Conclusion

The dual-chambered, 16% carbamide peroxide equivalent, ACP-containing bleaching gel has superior tooth whitening and surface properties that include excellent tooth-whitening ability (8+ Vita Shade Guide improvements from baseline) and improving teeth luster (significantly increased enamel gloss and decreased enamel roughness compared to baseline).

Mean Tooth Color Scores

Vita Shade Guide Score



Tooth Gloss and Roughness

