

Paper: In situ Remineralization, Fluoride Uptake and Retention from Dentifrice Treatment (IADR/AADR/CADR 87th General Session and Exhibition (April 1-4, 2009))



[Start](#) | [Browse by Day](#) | [Keyword Index](#)

23 In situ Remineralization, Fluoride Uptake and Retention from Dentifrice Treatment

Location: D241 (Miami Beach Convention Center)

D.T. ZERO¹, M.L. BOSMA², E.E. NEWBY², S. KELLY¹, E.A. MARTINEZ-MIER¹, and H.M. PROSKIN³, ¹Indiana University School of Dentistry, Indianapolis, IN, ²GlaxoSmithKline, Weybridge, United Kingdom, ³Howard M. Proskin & Assoc, Rochester, NY

Objective: Compare the effects of experimental sodium fluoride/silica toothpaste [ED: 1100 ppm fluoride (F)] and commercially-available dentifrice Aquafresh Cavity Protection (CD: 1100 ppm F; sodium monofluorophosphate) on in situ enamel remineralization, F uptake, plaque fluid and salivary F during the retention phase of F delivery.

Methods: The pilot study (n=14) involved a three treatment period, examiner-blind, crossover study design. Treatments consisted of ED, CD, and placebo dentifrice (PD: 0 ppm F). At the beginning of each treatment period saliva sampling was performed at baseline, immediately after treatment (brushing for one minute with assigned dentifrice), and at 7.5-, 15-, 30-, 60-, and 120-min post-treatment. Plaque fluid sampling was performed at baseline, 30-, 60-, and 120-min post-treatment. The subject's partial denture, which held two gauze-covered human enamel specimens, was inserted after saliva and plaque collection. For the remainder of the 14-day test period, subjects brushed twice per day with their assigned dentifrice with the partial denture removed from their mouth before reinserting. At the end of each treatment period, the two enamel specimens were recovered and evaluated for percent surface microhardness recovery and F uptake.

Results: ED exhibited a statistically significantly greater ($p = 0.006$) mean \pm SD %SMH recovery (33.7 ± 17.2) compared to PD (19.5 ± 11.5). No difference was indicated between CD (25.2 ± 12.3) and PD. Both ED and CD had statistically significantly higher mean fluoride uptake ($p = 0.0002, 0.005$, respectively), higher salivary F levels at all post-treatment timepoints compared to PD, and at the 120-min post-treatment timepoint higher levels of plaque fluid F compared to PD. There were no significant differences between ED and CD for any of the parameters tested.

Conclusions: Evaluation of the retention phase of F delivery using an in situ caries model in combination with salivary and plaque fluid F clearance appear to be useful surrogate measures of F efficacy.

See more of: [Dental Erosion](#)
See more of: [Cariology Research](#)

[<< Previous Abstract](#) | [Next Abstract >>](#)