

Fluoride dentifrice containing Xylitol: *In vitro* root caries formation

Lisa Marie Kao
Myntsmile Oral Health, USA

Purpose: To evaluate the effects of experimental xylitol dentifrices with and without fluoride on *in vitro* root caries formation.

Methods: Root surfaces from caries-free human permanent teeth (n=10) underwent debridement and a fluoride-free prophylaxis. The tooth roots were sectioned into quarters, and acid-resistant varnish was placed with two sound root surface windows exposed on each tooth quarter. Each quarter from a single tooth was assigned to a treatment group: (1) No treatment control; (2) Aquafresh Advanced (0.15% F = 1, 150 ppm F); (3) Experimental xylitol dentifrice without fluoride (0.45% xylitol); and (4) Diamynt fluoride dentifrice with xylitol (0.83% sodium monofluorophosphate = 1, 100 ppm F and 0.20% xylitol). Tooth root quarters were treated with fresh dentifrice twice daily (3 minutes) followed by fresh synthetic saliva rinsing over a 7-day period. Controls were exposed twice daily to fresh synthetic saliva rinsing daily over a 7-day period. *In vitro* root caries were created using an acidified gel (pH 4.25, 21 days). Longitudinal sections (three sections/tooth quarter, 60/group) were evaluated for mean lesion depths (water inhibition, polarized light, ANOVA, DMR).

Results: Mean lesion depths were $359 \pm 37 \mu\text{m}$ for the control Group; $280 \pm 28 \mu\text{m}$ for Aquafresh Advanced; $342 \pm 41 \mu\text{m}$ for the experimental xylitol dentifrice without fluoride; and $261 \pm 34 \mu\text{m}$ for Diamynt. Aquafresh Advanced and Diamynt had mean lesion depths significantly less than those for the no treatment control and the experimental xylitol without fluoride dentifrice ($P < 0.05$). There were minimal non-significant differences in mean lesion depths between Aquafresh Advanced and Diamynt ($P > 0.05$). (Am J Dent 2013;26:56-60).

Biography

Lisa Marie Kao R.D.H., B.S has 17 years of clinical experience in cosmetic, prosthodontic, periodontal and general dental procedures. She has worked in many New York City high end based cosmetic dental practices and identified a need for porcelain toothpaste for patients who have cosmetic dental treatments. Unable to recommend an oral care product specific to porcelain, Ms. Kao developed a porcelain veneer toothpaste, a product that would restore gloss and luster to porcelain and maintain the long term beauty of porcelain restorations. She has discovered trends and voids in the dental care market that have led to development of the DIAMYNT formulation and product. Ms. Kao is an active member of the (IADR) International Association for Dental Research (AACD) American Academy of Cosmetic Dentistry and (AMC) Aventura Marketing Council (Florida). Ms Kao resides between NYC and Florida. Ms. Kao is currently doing research and development on new innovative products.

lisamarielkao@gmail.com