34. Remineralization of artificial caries-like lesions in human enamel in situ by chewing sorbitol gum.
Leach SA, Lee GT, Edgar WM. *J Dent Res.* 1989; 68(6): 1064-1068.

The objective of the study was to determine quantitatively the effect on the potential for in situ remineralization of artificial caries-like lesions in human enamel when sugar-free gum containing mainly sorbitol as sweetener was chewed after meals and snacks. Artificial white-spot lesions were created in extracted human premolars and divided into three parts. One part was used as reference and the other two worn consecutively for two 21-day periods by 10 volunteers in a cast silver band cemented on lower molar teeth and covered with gauze to promote plaque formation. During the experimental periods, the subjects used fluoridated toothpaste twice daily, and consumed three meals (breakfast, lunch, and dinner) and two snacks (selected from chocolate bar, raisins, chocolate wafer, and iced cupcake). Sorbitol gum was chewed for 20 min immediately after each meal or snack during one of the experimental periods. The three parts of the enamel lesions were then sectioned (congruent to 80 microns) and examined together by means of quantitative microradiography and by polarized light microscopy. All estimates of mineral content indicated that significant remineralization occurred and was approximately doubled with gum-chewing. It is suggested that sorbitol gum stimulates salivation, which is responsible for the significantly enhanced remineralization, thus contributing to a therapeutic, caries-preventive effect. Because the gum was chewed immediately after meals and snacks, inhibition of demineralization may also have occurred.