35. Prevention of sucrose-induced demineralization of tooth enamel by chewing sorbitol gum.

Measurements were made of the effect of chewing sorbitol gum on the intra-oral demineralization induced by rinsing with 10% sucrose solutions. Blocks of bovine enamel were covered with a layer of Streptococcus mutans IB1600, and mounted on palatal appliances that were worn by five subjects for defined periods of time. Enamel demineralization was determined by following changes in iodide penetrability (delta Ip) of the enamel surfaces. Delta Ip increased to a maximum of about 15 units between 30 and 45 min, while the pH of the S. mutans plaque dropped to below 4 by 15 min. Plaque pH returned to 4.9 by 60 min. Chewing sorbitol gum after the sucrose rinse minimized further increases in delta Ip and brought about a more rapid return of the S. mutans plaque pH toward neutrality. The effect of chewing gum was greater when chewing was initiated earlier so that, when gum was given at five min after the sucrose rinse, demineralization was only 37% of that obtained without gum. The findings confirm earlier reports on the effect of gum on plaque pH, and directly demonstrate the profound protective effects that chewing sorbitol gum can have on tooth enamel.