21. Effect of sorbitol, xylitol, and xylitol/sorbitol chewing gums on dental plaque.

Söderling E, Mäkinen KK, Chen CY, Pape HR Jr, Loesche W, Mäkinen PL.
***Caries Res.* 1989; 23(5): 378-384.**

The effect of sorbitol (SOR), xylitol (XYL), and the mixture XYL/SOR in chewing gums on dental plaque was studied in three groups of 7 adults (mean age 22.5 years). A fourth group of habitual users of sucrose-containing gums was used as a control. The study involved a 2-week, no-gum period followed by the use of the polyol gums for 2 weeks (10 gums/day in 5 2-gum doses). The daily consumption of XYL and SOR in the XYL and SOR groups was 10.9 g, whereas in the XYL/SOR group, 8.5 and 2.4 g of these polyols were used per day. At the end of the gum period the acidogenic response of the 48-hour plaque was tested using a 10-ml mouthrinse containing the polyols (10% w/v) present in the experimental gums, followed by a 10-ml rinse of 10% (w/v) sucrose solution. The plaque of the subjects who used XYL and XYL/SOR gums showed a significantly better ability to resist pH drops induced by the sucrose rinse than the plaque in the SOR gum group. No changes in resting pH values were observed in the XYL and XYL/SOR groups, whereas the use of SOR gum was associated with significantly lower pH values. The amount of plaque decreased in the XYL/SOR (24.3%) and the XYL (29.4%) groups, but increased in the SOR (48.3%) group, the changes in the SOR group differing significantly from those found in the other groups. The plaque and saliva levels of Streptococcus mutans generally increased in the SOR group, but decreased in groups which used XYL.