Table 1.-- Sugar Alcohols and Plaque pH. Acid Production

Study	Study Design	Subjects	Methods	Results	Comments
Birkhed et al., 1978 (Ref. 41)	Intervention to study effects on in vivo pH and in vitro acid production from HSH (Swedish HSH), MALT, SOR, X. Randomized, blinded.	110 men and women (68 men, 42 women), ages 19 to 58 years.	3-month study. Ss divided into 4 groups and instructed to suck on 2 lozenges, 4 times a day between meals. Each lozenge contained 0.5 g of sweetener and 0.5 g gum arabic. No other dietary instructions were given. Changes in in vivo pH were measured after a mouth rinse for 30 sec with 10 mL of 50% soln of HSH, MALT, SOR, or X. The rinse was used 1 week before and 1 week after lozenge-consumption period. A no lozenge control group also rinsed with one of the four solns as did the test groups. Control (C) group had no diet or candy restriction during the 3-month test period. Plaque acid production activities were measured in vitro 1 week before and after the 3-month test period. Student's t-test and two-way analysis of variance used on plaque pH values of 5 groups.	Before the test period, the pH of HSH showed its lowest value at 10 min. Plaque pH values, after test, were similar, but all pH values were lower. No differences in pH values between before and after testing were statis. significant. The lowest pH values attained were above pH 6.0. Results of acid production measures showed HSH at 56-59%, compared to GLU (100%). MALT slightly raised pH from baseline to the highest value at 2 min (before and after). After the test period, pH values were lower than before, and pH differences 0-2 min, 0-10 min, and 0-30 min before compared with after the test period were statis. signif. ($p<0.05$). The lowest pH reported was about 6.8. Acid production, compared to GLU, was 26 and 32%. SOR raised pH values above baseline before test period. After test, all pH values were lower than before but remained above 6.0. pH changes 0-20 and 0-30 min before compared to after the test period were statistically significant ($p<0.05$). Acid production, compared to GLU, was 15 and 18%. X increased pH before the test period. There was no significant difference in the pH before and after the test. No acid production reported for X compared to GLU. In C group, X and MALT gave similar pH curves. The SOR curve showed an initial rise and then slight lowering to almost horizonal. HSH caused the lowest pH values.	The control group was not controlled for intake of sugar alcohols during the 3-month study period. This group was tested with GLU and not S. Authors state that HSH does not cause as large pH changes as S. It would have been helpful to have had a S group. Authors state that it may be incorrect to conclude that HSH (Swedish HSH) is non-cariogenic, since it contains high molecular weight hydrogenated saccharides from which fermentable low molecular weight sugars are set free on contact with salivary amylase.