Effect of xylitol-containing chewing gums on lactic acid production in dental plaque from caries active pre-school children.

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PURPOSE: The aim of this study was to evaluate the lactic acid concentration in supragingival plaque from caries-active pre-school children after a short-term use of either xylitol- or sorbitol-containing chewing gums. MATERIAL AND METHODS: The investigation consisted of a prospective crossover design with 10 healthy children aged 2-4 years each with at least two caries lesions within the dentine (ds > or = 2). The children were instructed to chew 6 pieces of a test or a control gum every day for a 14-day period. The test gum contained 65% xylitol and the control gum was sweetened with sorbitol. At baseline and after 14 days, salivary mutans streptococci were enumerated with a chair-side test (Strip mutans) and dental plaque was collected from the upper maxillary incisors. After a washout period of 6 weeks, the same procedure was repeated with the corresponding test or control gum. Lactic acid was determined enzymatically in glucose-challenged plaque suspensions. RESULTS: The lactic acid concentration was significantly reduced (p<0.05) by 22% compared with baseline following the xylitol gum regimen but was unaltered after the control gum. The levels of salivary mutans streptococci were mainly unaffected by both chewing gums. CONCLUSION: A 14-day use of xylitol-containing chewing gums, corresponding to a daily amount of 5 grams of xylitol, could diminish glucose-initiated lactic acid formation in supragingival plaque in caries-active pre-school children.

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