
**Background:** The authors conducted a systematic review of original studies that was designed to assess the impact of polyol-containing chewing gum on dental caries compared with the effect with no chewing gum.

**Review Methods:** The authors searched MEDLINE, The Cochrane Library and Google Scholar up to May 2008 to identify peer-reviewed articles that compared polyol-containing chewing gum with no chewing gum. The authors extracted study characteristics, data on incremental dental caries and quality by consensus. Data on prevented fraction (PF) were pooled across studies.

**Results:** The results of 19 articles with data from 14 study populations showed that the use of xylitol, xylitol-sorbitol blend and sorbitol were associated with mean PF (95 percent confidence interval) of 58.66 percent (35.42–81.90), 52.82 percent (39.64–66.00) and 20.01 percent (12.74–27.27), respectively. For the sorbitol-mannitol blend, it was 10.71 percent (−20.50–41.93), which was not statistically significant. Sensitivity analyses confirmed the robustness of the findings.

**Clinical Implications:** Although research gaps exist, particularly on optimal dosing and relative polyol efficacy, research evidence supports using polyol-containing chewing gum as part of normal oral hygiene to prevent dental caries.