Efficacy of Sugar Substitutes in Reducing Dental Caries in Children: A Systematic Review

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Abstract:

Objectives: This systematic review aims to evaluate the existing scientific evidence on the effectiveness of sugar substitutes in preventing dental caries in children.

Methods: We conducted a systematic search of electronic databases like PubMed, MEDLINE, Science Direct, and Scopus. Two independent reviewers screened and extracted data from eligible studies.

Results: Nine studies included 2006 children in total and their ages ranged from 3 to 15 years. The reported follow-up duration mentioned in these RCTs ranged from 1 month to 36 months. Xylitol has antimicrobial activity, has a positive effect on salivary profile values, and efficiently reduces the risk of caries in either the short or long term in primary or permanent teeth. Three studies investigated xylitol and erythritol; one reported that the erythritol group showed fewer teeth and surfaces with dentin caries than the xylitol group, one reported that there was no difference between the two substances after 3 years of application, and the other found that lollipops that contain xylitol and erythritol have the ability to raise salivary pH and prevent it from falling below the necessary level.

Conclusion: In children and teenagers, the use of xylitol or erythritol as sugar substitutes may be beneficial in avoiding caries in permanent teeth. Using xylitol is just one component of the caries prevention jigsaw, anyway. It is necessary to do more comparison studies with longer follow-up times.

Keywords:

Dental caries, Children, Sugar substitutes, Xylitol, Sorbitol, Caries prevention.