



Polyol

Case Study

Case Study: Polyols for Caries Prevention – a Report from the Marshall Islands

Children ages nine to fifteen months living in the Marshall Islands, an area where the experience of early childhood caries is high, were included in the study. Children were assigned to one of two treatment groups: 8 g of xylitol syrup orally per day divided into two doses (i.e. 4 g twice/day) or divided into 3 doses (i.e. 2.67 g xylitol 3 times per day). A control group of children received a single 2.67 g xylitol dose daily. All groups received a daily syrup 3 times per day for 12 months. The additional syrup contained 2 g of sorbitol. The three syrups had the same color, taste and thickness. Thus the study groups were:

- 4 g xylitol twice/day + 2 g sorbitol
- 2.67 g xylitol 3 times per day
- 2.67 g xylitol once and 2 g of sorbitol twice per day

All families received oral health education and free health care during the study period. The study hypotheses was that 8g of xylitol daily (in 2 or 3 does) would provide a stronger caries preventive benefit than a control. A dental examiner who was blinded as to the exposure of the child and who was trained and calibrated using WHO criteria evaluated all children in the study. The primary outcome was the number of decayed primary teeth. Community health workers visited with families throughout out the study to educate them about applying the xylitol syrup and to encourage adherence to the study protocol.



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Of the 108 children who were enrolled on the study, 94 had at least one follow up examination and 84 children completed the entire study. The children who received the 8 g of xylitol experienced significantly fewer new caries than those in the control group who received only 2.67 g of xylitol. The children who received only xylitol 3 times per day had the fewest cavities. The study conclusion was that 8g of xylitol syrup applied twice daily decreased the occurrence of dental caries by 70%. Although the effectiveness of the 8 g was maintained at 3 doses it was not enhanced. Thus a twice daily application of a total of 8g of xylitol syrup was demonstrated to significantly reduced the occurrence of dental caries in young toddlers.

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