

Effect of Xylitol on Dental Caries and Salivary *Streptococcus Mutans* Levels among a Group of Mother-Child Pairs

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*Recent researches have focused on xylitol as convenient and effective method to inhibit cariogenic bacteria. The purpose of the present study is to assess the effect of xylitol on plaque accumulation, caries activity and salivary Streptococcus Mutans in a group of Saudi mother-child pairs. **Materials and Methods:** The study sample included 60 mother and child pairs selected on the basis of having high salivary streptococcus mutans levels. The study sample was randomly divided into experimental group (30 pairs) and control group (30 pairs). The experimental group was given xylitol treatment and the controls received fluoride varnish. Both groups were examined to assess caries, plaque and salivary streptococcus mutans levels. Xylitol treatment in the form of chewing gum for mothers and tablets for children was consumed three times/day for three months. All subjects received oral hygiene instructions, dietary counseling and restorative treatment. The **results** showed that the number of mothers and children with high streptococcus levels in the experimental group decreased to a statistically significant level at the end of the three month period, similarly, the control mothers showed the same trend. A statistically significant decrease in plaque scores was evident only among the children's experimental group. The caries level of children and mothers showed no statistically significant differences between the experimental and control groups. The factors which significantly affected the streptococcus mutans count in children after three months were the child's dmft at baseline the preventive method used and the mother's salivary streptococcus mutans level.*

Keywords: Xylitol, Streptococcus mutans, caries, saliva, plaque, mother-child pairs.

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INTRODUCTION

Dental caries is a significant public health problem for a large proportion, of the Saudi population, especially the child segment.^{1,2}

Preventive strategies tend to focus on dietary modification and the use of fluoride and pit and fissure sealants to increase the host resistance. *Mutans streptococci* (MS) in particular *Streptococcus mutans* is a major causative bacteria that are involved in dental carie.^{3,4} Accordingly, a new strategy based on the suppression of MS levels on the dentition is recently addressed in clinical practice.

Substitution therapy replacing harmful habit (excessive sucrose consumption) with a more positive practice (ingestion of non-fermentable sugar substitutes) can lead to a promising caries control strategy. Xylitol which is a polyol-a pentitol that occurs widely in nature is used originally to sweeten a number of sugar-free products and is most frequently used in chewing gum.⁵ Recent caries researches showed that xylitol, has a well documented inhibitory effect against dental caries.⁶⁻¹² The caries inhibitory effect of xylitol is related to the inability of cariogenic bacteria to ferment it, therefore plaque bacteria do not proliferate, enamel demineralization is prevented and remineralization is enhanced.⁵ Some studies suggest that xylitol reduces the ability of MS to adhere, making it more easily removed from plaque.^{13,14} In addition to its antibacterial effect, chewing gum containing xylitol has also a salivary stimulating effect that leads to an increased salivary buffering capacity and clearance of

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