

Diet as a novel and innovative strategy for dental caries prevention

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Dental caries is a multifactorial disease and is the most common chronic oral disease that affects all ages. Dental plaque, an adherent microbial biofilm community on the tooth surfaces, ferment dietary carbohydrates to produce acids leading to carious lesion formation. Classic approaches to dental caries prevention have mostly been based on administration of fluoride, removal of plaque bacteria mechanically or by anti-plaque oral hygiene products and substitution of dietary sucrose by less-cariogenic sugars. In recent years, health-conscious consumers are receptive in natural ways to help improve oral health and overall well-being, e.g., through diet. Dietary recommendations for caries prevention have traditionally emphasized the avoidance of cariogenic diet high in sugars and fermentable carbohydrates. However, research has shown that certain foods and food components, especially plant-derived polyphenols, in edible vegetables and fruits may have caries protective effects and reducing caries risk. Studies have shown that tea polyphenols inhibit growth and cariogenic virulence factors such as acid production, plaque biofilm

formation and adhesion, metabolic activity, gene expression and mechanical integrity. Rinsing with tea extracts significantly reduced plaque pH fall, lowered plaque index and plaque regrowth and acid production. Berries polyphenolic bioactives also inhibits plaque growth, enzymes and biofilm. Polyphenols stimulate salivary flow and enhance salivary antibacterial properties. They also enhance protein absorption to enamel surface, increase the thickness of pellicle, and protect enamel against dental erosion. Dairy products including milk and cheese are considered cariostatic by neutralizing and maintaining a healthy dental plaque pH and reduce plaque pH drop after sugar consumption.

CONCLUSIONS: The role of diet on caries should not solely be seen from a caries causing standpoint, but from the caries protective perspective. Emphasis on food components that may protect against caries represents an alternative, novel and innovative approach to prevention of the disease. Further in vivo studies are needed to evaluate the protective role of diet in caries prevention.