

CALIFORNIA RAISINS



Raisin Compounds May Reduce Cavity-Causing Bacteria

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Dental health and nutrition have always been linked. Good food choices help to build strong teeth, and poor food choices are one of the culprits in gum disease (gingivitis) and cavities (dental caries). Several factors work together in the mouth to promote tooth decay. Prevention strategies involve inhibiting or changing one of the factors.

Dental Caries and New Raisin Research

While raisins are sticky, recent data shows that raisins contain phenolics and other antioxidants that help prevent the production of acid by mouth bacteria. Dr. Christine Wu and her colleagues^{1,2} from the University of Illinois at Chicago Dental School have shown that various compounds in raisins – oleanolic acid and its derivatives – inhibit growth of *Streptococcus mutans* and the periodontal pathogen *Porphyromonas gingivalis* that causes gum disease. These compounds also interfere with adherence of these cariogenic bacteria. Therefore, raisins may not promote dental caries like other sticky foods.

Other research has indicated polyphenolic compounds in raisins, such as catechins, epicatechins and flavonols, have anticariogenic properties.^{1,2,3} Catechins have been shown to have a direct bactericidal effect against *Streptococcus mutans* and *Streptococcus sobrinus* and prevent adherence of bacteria to teeth. Further, they inhibit two enzymes – glucosyl transferase and amylase – that could increase dental caries. The glucosyl transferase is involved in the biosynthesis of sticky glucan involved in plaque, and the amylase hydrolyzes starches into sugars which is the first step in acid production. In addition, catechin and other phenolic antioxidants quell reactive oxygen species that are root causes of inflammation in gingivitis.

Raisins contain phenolics and other antioxidants that help prevent the growth of mouth bacteria. Thus, even though they adhere to tooth surfaces, compounds in raisins do not promote the growth of decay-causing bacteria.



Dental Caries - Background

Decay-causing *Streptococcus mutans* are normal mouth inhabitants. These bacteria can convert sugars and starches from foods into acids. Plaque is formed when bacteria, acid, food debris and saliva combine in the mouth. This sticky mixture accumulates on teeth within 20 minutes after eating. Plaque that remains on the teeth forms tartar. Both plaque and tartar irritate the gums, resulting in gingivitis and, ultimately, periodontitis.

The number one strategy for keeping teeth healthy is good dental hygiene, including frequent brushing and flossing and use of fluoride products.

Dental Caries and Food Choices

Food choice is also a strategy for keeping teeth healthy. Diets that build strong teeth and enamel are critical to teeth resistant to dental caries. While some experimental and animal studies suggest that fruits and some starchy staples are cariogenic, this is not supported by epidemiological data. Several studies show that high intakes of starchy staple foods, such as vegetables and fruits, are associated with low levels of dental caries.^{4,5} In fact, a large survey of 2-to 5-year-old children showed that eating fewer than 5 servings of vegetables and fruits more than tripled the risk of tooth decay.⁶ Since discretionary foods and snacks with sugars and starches have long been suspected of increasing the risk of tooth decay, health professionals have recommended limiting their intake. This has been especially true when recommending between-meal snacks if the food sticks to the tooth surface.

Sticky foods have been shown to be more cariogenic than non-sticky foods because they remain on the tooth surface.⁷ Dental professionals have commonly recommended that healthy choices, such as raisins and other dried fruit, be part of a meal rather than a between-meal snack because they were considered sticky. However, in light of this new research, California Raisins may be an ideal snack. They provide nutrients, energy, sweetness and a serving of fruit to nourish the whole body without promoting dental caries.

Antioxidants

Fiber

Fat Free

Cholesterol Free

Natural

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