

Why Raisins Won't Ruin Your Teeth

By Willet Sunga

According to the World Health Organization, five billion people, or nearly 80 percent of world's population, suffer from tooth decay. In addition, 60 to 90 percent of school children are affected by tooth decay. In the Philippines, a survey showed that 97.1 percent of six years old and 78.4 percent of the 12 years old kids have dental caries.

What Causes Tooth Decay?

The hard, outside covering of our teeth is called *enamel*. Enamel is very hard, mainly because it contains durable mineral salts, like calcium. Mineral salts in our saliva help add to the hardness of our teeth. Mineral salts, however, are prone to acid attacks. Acid causes them to break down. This process is known as *demineralization*. The acids that cause tooth demineralization (cavity formation) are produced by specific types of bacteria (*Streptococcus mutans* and *lactobacilli*). These bacteria feed on the foods that get stuck into our mouth. Foods or drinks that are high in concentration of sugar and starch, and sticky or acidic foods generally cause tooth decay.



*Some raisins a day, keep the dentist away.
Raisins, although sweet, are good for the teeth.*

Sweet Alternative to Oral Care

Here's good news for all you sweet tooth out there. Yes, you can eat something sweet and still can keep your teeth healthy—raisins.

Raisins, according to scientists at the University of Illinois in Chicago (UIC) in the United States, contain compounds that prevent tooth decay and gingivitis. This "nature's candy" may be good for your teeth.

Laboratory analyses showed that phytochemicals in this popular snack food suppressed the growth of oral bacteria associated with caries and gum disease. Christine Wu, professor and associate dean for research at the UIC College of Dentistry, headed a pool of experts



Sweet smile. Foods and drinks high in sugar generally cause tooth decay.

in conducting a thorough research on the chemical contents of Thompson seedless raisins. They performed routine chemical analyses and were able to identify five phytochemicals in the raisins: oleanolic acid, oleanolic aldehyde, betulin, betulinic acid and 5-(hydroxymethyl)-2-furfural. Oleanolic acid is known for its antiviral properties and together with oleanolic aldehyde and 5-(hydroxymethyl)-2-furfural, can inhibit the growth of two species of oral bacteria: *Streptococcus mutans*, which causes cavities and *Porphyromonas gingivalis*, which causes periodontal

disease. At concentrations ranging from about 200 to 1,000 micrograms per milliliter, these compounds were found effective against the bacteria.

Oleanolic acid is also capable of blocking *Streptococcus mutans* adherence to teeth surfaces when given at 31 microgram per milliliter. When bacteria adhere on teeth surfaces, a sticky biofilm called dental plaque forms. These bacteria then release acids that erode the tooth enamel.

Further experiments revealed that betulin and betulinic acid were less effective and required higher concentrations for similar antimicrobial activity.


Sugar Not the culprit

Prior to UIC study, raisins were considered one of the most cavity-promoting food due to their very high sugar concentration.

“Foods that are sticky do not necessarily cause tooth decay; it is mainly the added sugar (sucrose) that contributes to the problem,” Wu said. She insisted that the sweetness of raisins comes from fructose and glucose, not sucrose or table sugar, the type that is bad for teeth. Thus, eating sweet stuffs like chocolate and candies which contain sucrose is “much worse” than having raisins for snacks.

Dr. Wu emphasized that the results of their studies does not state that raisins will prevent cavities. Their findings only proved that raisins are not all bad for our oral health.

Remember!

Although these studies claim that raisins have beneficial effects for our dental health, eating them frequently does not guarantee that we’ll have healthy teeth. Brushing and flossing our teeth regularly and eating the right kind of food are still the best means of caring for our teeth. 

Sources

http://en.wikipedia.org/wiki/Dental_caries

Acid Attack

1. Eat a cracker and spit it out on a paper plate.
2. Place cracker on paper plate. Add water. What happened? Why?
3. Place another cracker on paper plate. Add vinegar. What happened? Why?

Science Behind

The cracker mixed with vinegar dissolved even more than the one mixed with water, which showed that saliva contains a weak acid similar to vinegar.

The Power of Fluoride

This experiment simulates the protection power of Fluoride.

What you will need:

- 1 bottle of Fluoride rinse solution (available from your dentist, local dental supply company and some pharmacies)
- 2 eggs
- 1 bottle of white vinegar
- 3 containers

What you will do:

Pour 4 inches of Fluoride rinse solution into one of the containers and then place an egg in the solution. Let it sit for 5 minutes. Remove the egg. Pour four inches of vinegar into each of the remaining two containers. Put the egg that has been treated with the Fluoride into one container of vinegar and the untreated egg in the other container of vinegar.

What will happen:

One egg will start to bubble as the vinegar (an acid) starts to attack the minerals in the egg shell. Which egg do you think will start to bubble?