

## Added sugar in raisin cereals increases acidity of dental plaque

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Elevated dental plaque acid is a risk factor that contributes to cavities in children. But eating bran flakes with raisins containing no added sugar does not promote more acid in dental plaque than bran flakes alone, according to new research at the University of Illinois at Chicago.

Some dentists believe sweet, sticky foods such as raisins cause cavities because they are difficult to clear off the tooth surfaces, said Christine Wu, professor and director of cariology research at UIC and lead investigator of the study.

But studies have shown that raisins are rapidly cleared from the surface of the teeth just like apples, bananas and chocolate, she said.

In the study, published in the journal *Pediatric Dentistry*, children ages 7 to 11 compared four food groups -- raisins, bran flakes, commercially marketed raisin bran cereal, and a mix of bran flakes with raisins lacking any added sugar.

Sucrose, or table sugar, and sorbitol, a sugar substitute often used in diet foods, were also tested as controls.

Children chewed and swallowed the test foods within two minutes. The [acid](#) produced by the plaque bacteria on the surface of their teeth was measured at intervals.

All test foods except the sorbitol solution promoted acid production in

dental plaque over 30 minutes, with the largest production between 10 to 15 minutes.

Wu says there is a "well-documented" danger zone of dental plaque acidity that puts a tooth's enamel at risk for mineral loss that may lead to cavities. Achint Utreja, a research scientist and dentist formerly on Wu's team, said plaque acidity did not reach that point after children consumed 10 grams of raisins. Adding unsweetened raisins to bran flakes did not increase plaque acid compared to bran flakes alone.

However, eating commercially marketed raisin bran led to significantly more acid in the plaque, he said, reaching into what Wu identified as the danger zone.

Plaque bacteria on tooth surfaces can ferment various sugars such as glucose, fructose or sucrose and produce acids that may promote decay. But sucrose is also used by bacteria to produce sticky sugar polymers that help the bacteria remain on tooth surfaces, Wu said. Raisins themselves do not contain sucrose.

In a previous study at UIC, researchers identified several natural compounds from raisins that can inhibit the growth of some oral bacteria linked to cavities or gum disease.

Provided by University of Illinois at Chicago

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