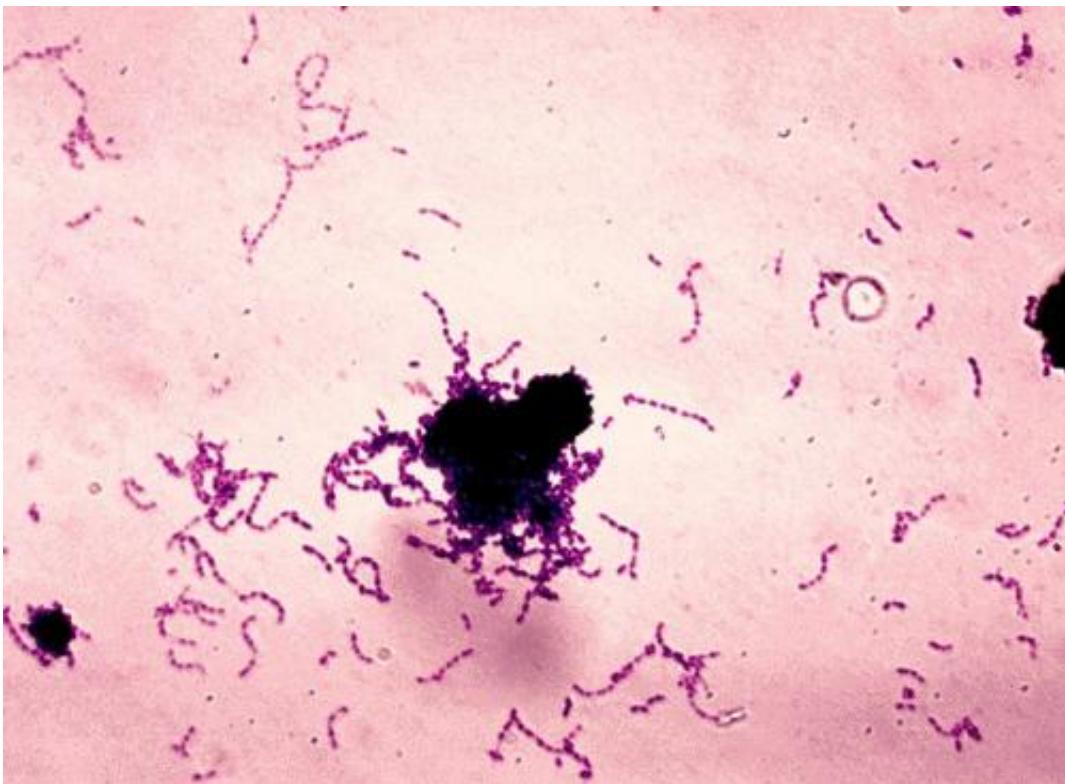


## Scientists create candy that's good for teeth

December 3 2013, by Marcia Malory



Streptococcus mutans. Gram stain. Credit: CDC

(Medical Xpress)—Dentists warn us that too many sweets can cause cavities. In fact, it's not candy, but bacteria on the tooth surface that cause tooth decay. If you reduce the amount of cavity-causing bacteria, the number of cavities should decrease. Christine Lang of the Berlin biotech firm ORGANOBALANCE and her colleagues have developed a candy that can do this. This candy contains dead bacteria that bind to the bacteria most likely to cause cavities. Subjects who ate the candy had

reduced levels of "bad" bacteria in their mouths. The research appears in *Probiotics and Antimicrobial Proteins*.

After you eat, bacteria attached to the surface of your teeth release acid. Slowly, this acid dissolves your tooth enamel. As the enamel wears down, cavities can develop. The strain of bacteria most likely to cause cavities is mutans [streptococci](#). When you chew, you shed mutans streptococci into your saliva. Swallowing or spitting removes some of the bacteria from your mouth after you finish chewing. The remaining bacteria reattach themselves to your teeth.

The researchers knew that another type of bacteria, *Lactobacillus paracasei*, found in kefir, reduces levels of mutans streptococci and decreases the number of cavities in rats. A sugar on the surface of *L. paracasei* binds with mutans streptococci. Lang and her team think that by binding with mutans streptococci, *L. paracasei* prevents mutans streptococci from reattaching to teeth.

To test whether *L. paracasei* could help prevent [cavities](#) in people, Lang and her team developed a sugar-free [candy](#) containing heat-killed samples of the bacteria. They then tested the candy on a group of 60 volunteers. One third ate candies with one milligram of *L. paracasei*, one third ate candies with two milligrams and one third ate candies that tasted the same, but contained no bacteria.

Each of the subjects ate five candies over a one and half day period. At the end of the experiment, about three fourths of the volunteers who'd eaten candies with bacteria had significantly lower levels of mutans streptococci in their saliva than they'd had the day before. Subjects who consumed candies with two milligrams of bacteria experienced a reduction in mutans streptococci levels after eating the first candy.

The researchers point out that they by using dead bacteria, they were

able to avoid problems live bacteria might have caused. Killing the *L. paracasei* does not destroy the sugar that binds with mutans streptococci. *L. paracasei* does not bind with beneficial oral bacteria. This makes it a better choice for cavity prevention than other probiotics.

**More information:** Lactobacillus paracasei DSMZ16671 Reduces Mutans Streptococci: A Short-Term Pilot Study, *Probiotics and Antimicrobial Proteins*, December 2013, Volume 5, Issue 4, pp 259-263. [link.springer.com/article/10.1007%2Fs12602-013-9148-9](http://link.springer.com/article/10.1007%2Fs12602-013-9148-9)

## Abstract

Reducing the burden of pathogenic mutans streptococci is a goal of oral health. Lactobacillus paracasei DSMZ16671, even after heat-killing, specifically co-aggregates mutans streptococci in vitro and retains this activity in human saliva. In rats, it reduces mutans streptococcal colonization of teeth and caries scores. This pilot study sought to assess the potential of heat-killed *L. paracasei* DSMZ16671 (pro-t-action®) to reduce levels of salivary mutans streptococci in humans, using sugar-free candies as a delivery vehicle. A randomized, placebo-controlled, double-blind in vivo study of three groups examined the short-term effect of sugar-free candies containing 0 (placebo), 1, or 2 mg/candy piece of heat-killed *L. paracasei* DSMZ16671 on the levels of salivary mutans streptococci determined before and after consumption of the candies. The candies were consumed 4 times during 1.5 consecutive days. Compared to the placebo group, the test groups' saliva had significantly reduced mutans streptococci as an immediate effect. These results suggest the use of heat-killed *L. paracasei* DSMZ16671 in suckable candies as a method to reduce mutans streptococci in the mouth and, thereby, caries risk. We think this a new concept and strategy for caries prevention and management.

Tip: [Science magazine](#)

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