

Your Assignment for Today: Chew Gum

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When I was growing up, you would be sent down to the principal's office for chewing gum in school. We were told chewing gum was bad; it caused cavities.

Like chocolate and coffee, gum is now being rehabilitated. It turns out that sugar-free gum can actually prevent cavities in children. Instead of banning it, we should require children to chew it in school to promote their oral health.

The human mouth is host to many bacteria. The one that is primarily responsible for cavities is called streptococcus mutans (it's related to the bacteria that causes strep throat). When the bacteria encounters sugar, it produces acids. Saliva neutralizes acid, so teeth can handle some exposure. But large amounts of sugar — as found in candy or sugary beverages — overwhelm saliva. Prolonged exposure to that acid will damage the protective enamel on teeth — a process called “demineralization” — and eventually cause cavities.

Chewing gum of any kind increases saliva production, and therefore helps neutralize more acid. But many gums are sweetened with sugar, which of course increases the acid levels, effectively canceling out the positive benefits. Replacing sugar in gum with xylitol, a naturally occurring sweetener found in fruits and vegetables that has fewer calories than regular sugar, fixes this problem.

More saliva and less acid seems to cause the teeth to remineralize — that is, it actually reverses some cavities. But most important, chewing xylitol gum inhibits the growth of the strep bacteria, which are not able to metabolize the sweetener. Less virulent strains of bacteria slip off the teeth, and this positive xylitol effect lasts years. The gum seems to work best when it's chewed routinely just before children's adult teeth come in, at about ages 5 and 6.

We have known about all this for a surprisingly long time. In the 1980s, a high-quality, randomized trial in Finland found that children who chewed xylitol-sweetened gum had as much as 60 percent fewer cavities compared with children who didn't. A 1989-93 randomized study of children around age 10 in Belize showed an even greater benefit; chewing xylitol-sweetened gum decreased the risk of cavities by up to 70 percent, and a follow-up study showed that the benefit lasted for up to five years.

Other less definitive studies suggest more positive effects that are worth mentioning. Because the strep bacteria is passed from mothers to newborns, mothers who chew xylitol gum are less likely to transmit these bacteria to their children, and cavities among these children are reduced by up to 70 percent. Studies conducted in Finnish day care centers indicate that xylitol chewing gum may also reduce ear infections in children by up to 40 percent.

So why haven't we acted on this information? The United States Army's Public Health Command recommends that soldiers and their families chew xylitol-sweetened gum. But only schools have the power to make this recommendation a reality, when it really matters in the development of teeth. Perhaps school administrators do not know the data. Certainly, after a century of blown bubbles and gum stuck to the bottoms of desks, it must be difficult for them to begin to see chewing gum as a virtue instead of a vice. But they need to come around.

Approximately 17 million children in this country do not get basic dental care. More than 50 million hours of school are missed every year because of dental problems, not to mention those lost because of ear infections. This is an easy, cost effective solution. Gums with significant amounts of xylitol include Xylichew, Xyloburst, and Hershey's Ice Breakers Ice Cube gum — which can usually be found in any deli or drugstore.

But the best way to ensure that all children take advantage of xylitol gum is to have them chew it in school, in kindergarten and beyond. Ideally, they would chew gum three to five times a day for five minutes each time. Not only will it improve their health and school attendance but they might actually enjoy it.