

Antimicrobial in common toothpaste doesn't impact gut, oral microbiome

May 18 2016



Personal hygiene products such as soaps and toothpastes that contain the antibiotic triclosan do not have a major influence on microbial communities or endocrine function, according to a small, randomized trial. The study findings were published online this week in *mSphere*, an open-access journal of the American Society for Microbiology.

"There are a lot of people who are fearful of triclosan, but we didn't find anything to support that concern in our study," said principal study

investigator Julie Parsonnet, MD, George Deforest Barnett Professor in Medicine and Professor of Health Research and Policy, Stanford School of Medicine. "When you throw most antibiotics into humans, they are an atom bomb on the microbiota, but we found that when people are exposed to triclosan through normal household products, it does not cause a major blow to our [microbial ecosystems](#)."

In recent years, changes in the composition of the human microbiome have been implicated in diseases, such as diabetes, metabolic syndrome, and obesity. Triclosan, first licensed for use in the early 1960s, has been integrated into a wide range of household cleaning and [personal care products](#). Use of triclosan was so common that as recently as 2008, triclosan was detected in 75% of human urine samples.

In more recent years, researchers have become concerned that the widespread use of triclosan could contribute to antimicrobial resistance or have an adverse effect on the human microbiome. In 2013, the FDA issued a proposed rule requiring manufacturers of antibacterial soaps and body washes to provide evidence within one year that their products containing triclosan are safe and more effective than plain soaps in preventing illness. In response, triclosan has now been largely removed from commercial soaps in the United States, but it still found in some hospital cleaning products and the most common toothpaste in the United States, Colgate Total. Triclosan is known to mitigate plaque burden and gingivitis.

In the new double-blind, randomized, crossover study, Stanford researchers randomized 13 healthy individuals to use household and personal care products (toothpaste, hand soap, and dishwashing liquid) that either contained triclosan or did not contain triclosan for four months. After four months, individuals were switched to the alternative arm for four months. The researchers analyzed blood samples for metabolic and endocrine markers, urine samples for triclosan, and stool

and oral samples for microbiome composition.

While triclosan-containing products had a significant impact on the levels of triclosan found in urine, exposure to triclosan did not have a significant impact on the oral or gut microbiome or on a panel of metabolic markers. "We found that some organisms were changed a little bit, but there was no major blow to oral flora or gut flora," said Dr. Parsonnet. "For people who are very fearful of triclosan, this study should be reassuring."

Provided by American Society for Microbiology

Citation: Antimicrobial in common toothpaste doesn't impact gut, oral microbiome (2016, May 18) retrieved 20 March 2024 from <https://medicalxpress.com/news/2016-05-antimicrobial-common-toothpaste-doesnt-impact.html>

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