

Our bodies are exposed to a wide variety of chemicals in everyday personal care products. Unfortunately, some of these ingredients are commonly found in products used for oral health such as toothpastes and mouthwashes. This is of particular concern, as the mouth and gums are particularly susceptible to absorbing and transporting substances quickly into the bloodstream. Some of the ingredients in oral health products can act locally to disrupt the natural balance of “good” and “bad” bacteria in our mouths that aid in maintaining our oral health.

WHICH PRODUCTS OR INGREDIENTS SHOULD I AVOID?

- **Triclosan:** Triclosan is an antibacterial/antifungal agent. It is considered an endocrine (hormone) disrupting chemical and can contribute to making bacteria resistant to antibiotics. In 2017, the Food and Drug administration issued a final rule banning triclosan in over-the-counter soaps and hand sanitizers. Most companies that manufacture toothpaste and oral care products have removed triclosan from their products. Triclosan is still widely used in other products such as humidifiers, vacuum filters, bacterial resistant cutting boards, and more.
- **Sodium lauryl (laureth) sulfate (SLS, SLES):** SLS/SLES is used as a surfactant or foaming agent in toothpaste. It can cause chronic oral lesions (canker sores), and cracking at the corners of the mouth. It is often very irritating to oral tissues, triggers inflammation, and also has the potential to trigger hypersensitivity to certain metals.
- **Artificial sweeteners:** Chemical sugar substitutes are often added to improve flavor in toothpastes. Common sweetening ingredients in oral care products are saccharine and aspartame. These sweeteners have been shown to alter the functioning of the “good” bacteria in our digestive tracts, which can negatively affect health.
- **Propylene Glycol:** Propylene glycol, polyethylene, and similar plastic chemicals are added to many toothpastes and oral care products. In 2015, the Microbead Free Waters Act was signed into law, which no longer allows plastic particles called “microbeads” in body care products. However, some oral care products still contain propylene glycol and other synthetic plastic compounds. These additives may disrupt hormonal balance, may cross the blood-brain barrier, and irritate gums and other tissues.
- **Titanium dioxide:** Titanium dioxide’s sole function is to make toothpaste look white. This ingredient is particularly worrisome if in nanoparticle form (making it more easily absorbed), and may be carcinogenic, neurotoxic, and genotoxic.
- **Alcohol-based mouthwashes:** Alcohol-based mouthwashes disrupt the oral microbiome and dry out the oral tissues. This drying can increase the risk of oral cancers. Many commercial alcohol-based mouthwashes also contain other toxic ingredients, including artificial dyes and parabens (known endocrine disruptors).
- **Teflon-coated dental floss:** Some dental flosses (e.g., Glide) are slippery because they are coated with Teflon (polytetrafluoroethylene or PTFE) during the manufacturing process. Teflon has been linked, among other things, to certain cancers and endocrine disruption.



WHICH PRODUCTS OR INGREDIENTS SHOULD I AVOID? (cont.)

- **Fluoride:** Fluoride use in dental products is a controversial topic. The chemical may accumulate in tissues, leading to displacement of iodine, an essential nutrient. Too much fluoride can be particularly harmful for children and their developing teeth; they tend to swallow a lot of the toothpaste they use, which can lead to fluorosis (showing up as a mottling of teeth). Fluoride-containing products should be used discriminately. Fluoride should only be used topically and rinsed out afterwards, and should not be ingested. Dental professionals should opt for topically applied silver diamine fluoride to minimize side effects, as this form of fluoride is the best choice to immediately arrest tooth decay.

WHICH PRODUCTS SHOULD I USE?

- **Toothpastes or Tooth Powders:** The gentle but mechanical action of toothbrushing plays the biggest role in breaking up the bacterial biofilms that lead to tooth decay. Toothpastes or powders should not be too abrasive, as they can damage the enamel. Tooth powders made from baking soda (even homemade with salt) can be too abrasive if individuals brush too hard or have gum recession, where the soft and vulnerable root is exposed.

Numerous “natural” toothpastes and powders are available, and some contain antiseptic herbal ingredients as well as essential oils to break up biofilm. Some of these products can actually stain teeth and create surfaces for plaque to stick, so those particular brands should be avoided. Tooth powders and pastes, if made from calcium carbonate (natural chalk) or clay are typically gentle and safe for tooth enamel. Products made with amorphous calcium phosphate are also manufactured to enhance remineralization of teeth and aid in preventing decay.



- **Mouthwashes:** Avoid mouthwashes containing alcohol and chemical additives such as artificial colorings and flavorings. Available natural products contain no alcohol, essential oils, and may contain additional ingredients such as safe sweeteners (e.g., xylitol, stevia) or minerals for remineralization of enamel surfaces. Numerous DIY mouthwash recipes are also available online.
- **Dental Floss:** Most waxed dental flosses are made with just wax, which helps safely and effectively clean between the teeth. Avoid floss made with Teflon (e.g., Glide). Manufacturers are not required to disclose ingredients in dental floss, so you may need to contact the manufacturer if there is a question regarding ingredients. Generally speaking, thicker flosses are preferable, especially those labeled as “woven” or “expanding,” which expand when they get wet.
- **Bleaching Products:** Most over-the-counter bleaching products contain preservatives and other chemical additives. Those designed to minimize sensitivity contain potassium nitrate, and keeping these products in the mouth for long periods (i.e., overnight) often leads to swallowing much of the peroxide, nitrate, preservatives, and other additives. The best choice is to have bleaching performed in the dentist’s office. If you opt for an over-the-counter product, choose one in which the bleaching tray is kept in the mouth for short periods of time (i.e., 30 minutes or less).

References

1. Department of Health and Human Services, Food and Drug Administration. 5 Things to Know About Triclosan. <https://www.fda.gov/consumers/consumer-updates/5-things-know-about-triclosan>. Updated May 16, 2019. Accessed April 3, 2020.
2. Potential hazards due to food additives in oral hygiene products. *Journal of Istanbul University Faculty of Dentistry*. 2016;50(2):61-69. doi:10.17096/jiufd.72103.
3. Alli BY, Erinoso OA, Olawuyi AB. Effect of sodium lauryl sulfate on recurrent aphthous stomatitis: A systematic review. *J Oral Pathol Med*. 2019;48(5):358-364. doi:10.1111/jop.12845
4. Department of Health and Human Services, Food and Drug Administration. The Microbead Free Waters Act. <https://www.fda.gov/cosmetics/cosmetics-laws-regulations/microbead-free-waters-act-faqs>. Updated November 2017. Accessed April 6, 2020.
5. Department of Health and Human Services, Food and Drug Administration. Safety and Effectiveness of Health Care Antiseptics; Topical Antimicrobial Drug Products for Over-the-Counter Human Use. <https://www.federalregister.gov/documents/2017/12/20/2017-27317/safety-and-effectiveness-of-health-care-antiseptics-topical-antimicrobial-drug-products-for>. Accessed April 6, 2020.
6. Suez J, Korem T, Zilberman-Schapira G, Segal E, Elinav E. Non-caloric artificial sweeteners and the microbiome: findings and challenges. *Gut Microbes*. 2015;6(2):149-155. doi:10.1080/19490976.2015.10177006.