

How Can Dental Floss Be Dangerous?

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✓ Fact Checked

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STORY AT-A-GLANCE

- › Flossing, which reduces your risk of periodontal disease, may increase your exposure to toxic per- and polyfluoroalkyl substances (PFAS) chemicals, used to make the floss glide easily between your teeth
- › PFAS are a group of industrial, man-made persistent chemicals found in food packaging, household products and cosmetics, and are associated with some cancers, thyroid disease and ulcerative colitis to name just a few
- › The fight against PFAS has included a legal settlement against one manufacturing company, an EPA PFAS summit during which they threw out some members of the press, and an attempt by the Trump Administration to suppress data believing it would cause a “public relations nightmare”
- › To reduce your exposure to these toxic chemicals, use dental floss covered in wax and not toxic chemicals; drink pure water; eliminate nonstick cookware; and avoid eating at fast food restaurants

It is unfortunate how many fail to fully appreciate the impact your oral health has on your overall health. The delicate balance of bacteria in your mouth may be as important to your health as your gut microbiome. For example, periodontal disease affecting the soft tissues and bone is triggered by an increase in a gram-negative oral anaerobes bacteria, *Porphyromonas gingivalis*.

This bacterium impairs your immune response, while dental cavities are linked to *Streptococcus mutans*.¹ Research has connected periodontal disease to Type 2

diabetes² and finds failing to brush twice a day increases your risk of dementia by as much as 65%. Good oral hygiene may also lower your risk of pneumonia by 40%.³ Antibacterial mouthwashes and rinses also adversely affect your oral microbiome.

In a 2022 statement⁴ from the American Dental Association (ADA), they reaffirm the importance of flossing to oral hygiene and the reduction of tooth decay and gum disease, which develops when plaque builds up on the teeth and along the gum line. According to the ADA, these interdental devices, such as floss, are essential to taking care of your teeth and gums.

However, researchers have now discovered⁵ use of dental floss may actually increase your exposure to per- and polyfluoroalkyl substances (PFAS), a group of man-made, persistent chemicals manufactured for use in food packaging, household products and in the workplace.⁶

Dental Floss Use Linked to Higher PFAS Levels

According to a study led by Silent Spring Institute in collaboration with the Public Health Institute in Berkeley California, results suggest certain types of behavior, including flossing, may contribute to elevated levels of PFAS chemicals.⁷

Researchers believe this is the first study to show an association between Oral-B Glide dental floss and higher exposure to PFAS – water- and grease-proof substances linked with numerous health problems. The study was published in the Journal of Exposure Science and Environmental Epidemiology as a special issue dedicated to PFAS.

Past research has demonstrated exposure increases directly from products being used and foods wrapped in PFAS-containing packaging. Since the chemicals are persistent in the environment, you may also be exposed through indoor air and dust or contaminated drinking water.⁸

Although scientists have known PFAS compounds are used in Oral-B Glide floss, Courtney Carignan, associate professor of food science and toxicology at Michigan State University, who was not a part of the study, states this finding suggests it may be

more important than expected.⁹ In a response to BuzzFeed, Proctor & Gamble, owner of the Oral B and Crest brands, said it stands by the safety of all its products.¹⁰

In addition to blood levels, the researchers analyzed the chemical makeup of dental floss finding six brands tested positive for fluorine, an element indicating the presence of PFAS compounds. The products testing positive were:¹¹

CVS Health Ease Between Super Slip Dental Floss Waxed	Safeway Signature Care Mint Waxed Comfort Floss
Crest Glide Deep Clean Cool Mint Floss	Colgate Total Dental Floss Mint
Oral-B Glide Pro-Health Mint	Glide Pro-Health Original

Another expert not involved in the study pointed out fluoride, which also contains fluorine, is sometimes added to dental products. However, study author Katie Boronow from Silent Spring Institute, said none of the products were advertised to contain fluoride for dental health.¹²

Boronow stressed the goal of the study was to get a clearer idea of how chemicals are absorbed, aside from contaminated drinking water or PFAS chemical contamination at work.¹³

'Forever Chemicals' Are Found in Multiple Products

Until recently, most PFAS chemicals were commonly referred to as PFC, or perfluorinated compounds. PFAS is now used by the scientific community and decision-makers in order to include the entire class of chemicals characterized by a chain of fluorine carbon bonds, among the strongest in chemistry.

The stability of PFAS means they are persistent in the environment and in your body, thus becoming known colloquially as "forever chemicals." Additionally, science is now

beginning to understand the wide range of potential health effects, including several types of cancers, elevated cholesterol and a negative impact on liver function.

PFAS have caused quite a commotion in recent times. During this past year alone, the state of Minnesota settled a lawsuit against 3M,¹⁴ the EPA held a PFAS summit during which they threw out some members of the press,¹⁵ and the Trump Administration attempted to suppress data on the effect PFAS have on public health, believing it would cause a "public relations nightmare."¹⁶

This class of industrially produced chemicals are found in many products, including fire retardant foam, food packaging and cosmetics. Water sources supplying more than 30 communities across the U.S. are contaminated with dangerously high levels of PFAS chemicals,¹⁷ stain resistant chemicals with an interesting relationship to water.

The chemicals may be both attracted to and repelled by water, making them a unique class that remains intact in water, air and bodies for thousands of years.¹⁸

Manufacturers may have found them useful in camping gear, carpeting and nonstick cookware – that is until you consider the health trade-off.

Perfluoroalkyl Chemicals Pollute Water Supply for Millions

In the report¹⁹ the Trump administration tried to suppress, data detailed widespread PFOA contamination and suggested the chemicals are dangerous at levels at least seven to 10 times lower than the EPA's current safety threshold.

The current advisory level for PFOA and PFOS in drinking water is 70 parts per trillion (ppt), but environmental groups have long said this is still far too high. The report from the Agency for Toxic Substances and Disease Registry (ATSDR) recommends the levels should be dropped to 7 ppt and 11 ppt for PFOA and PFOS respectively.

A study by Harvard University²⁰ found 16.5 million Americans have detectable levels of at least one form of PFAS in their drinking water and nearly 6 million are drinking water containing PFAS at or above the current EPA safety levels.

Should the EPA drop their safety level according to a ASTDR's recommendations, it would drastically increase the number of Americans who are legitimately at risk. The highest concentration levels of PFASs were found in watersheds near industrial sites, military fire training areas and wastewater treatment plants, but private wells were also found to be contaminated.

Testing in Sioux Falls, South Dakota, revealed 19 municipal wells, representing 28% of the city's water, have high levels of PFAS as a result of liberal use of firefighting foam by the South Dakota Air National Guard and Sioux Falls fire department decades ago. This toxic legacy persists since PFAS doesn't break down in the environment.

The wells were originally tested in 2011 but results were not released to the residents until 2016, when further testing led to more wells being shut down. At least 12 wells have been found contaminated at levels above 200 to 3,500 times the EPA's advisory level of 70 ppt.²¹

The U.S. Department of Defense report at least 126 water systems near military bases are contaminated due to their use of firefighting foam. While other countries are now using foam without these toxic chemicals, the U.S. military continues to use those manufactured with PFAS. Sharon Lerner, a reporting fellow at The Investigative Fund and an investigative journalist for The Intercept and other major media outlets reports:²²

"[E]ven as the Army, Navy and Air Force have begun the slow process of addressing the contamination, which is expected to cost upwards of \$2 billion, the Department of Defense isn't abandoning this line of chemicals.

While some of the precise formulations that caused the contamination are off the table, the U.S. military is in the midst of an expensive effort to replace older foam with a newer formulation that contains only slightly tweaked versions of the same problematic compounds ...

Some of the studies showing the dangers of these persistent chemicals came from the manufacturers themselves ... The new foam contains no PFOS and

'little or no PFOA,' according to an Air Force press release.²³ Instead, it uses the closely related molecules that pose many of the same dangers ..."

Toxic Cookware Has Been Polluting Water for Decades

The perception has been that what is on dental floss or your cookware likely stays in place. However, multiple studies demonstrate toxic chemicals have been leaching from your household products and contaminating your body and the environment.

One of the PFAS chemicals, perfluorooctanoic acid (PFOA, also known as C8), has been found to be more dangerous than previously thought. DuPont manufactured PFOA to make Teflon cookware for nearly 50 years.

Throughout that time, the company defended the safety of the chemical despite overwhelming evidence to the contrary. To this day, DuPont continues to resist accountability for any health problems resulting from exposure.

These battles continue to play out in the court system as DuPont fights allegations C8 has triggered multiple health problems. The legal battles uncovered internal documents demonstrating DuPont was fully aware of the danger to the public and employees and yet continue using it.

After seven years of research, the results of which are detailed in more than three dozen peer-reviewed papers, the C8 science panel has linked PFOA to:²⁴

- Ulcerative colitis
- High cholesterol
- Pregnancy-induced hypertension
- Thyroid disease
- Testicular and kidney cancer

Serious Health Risks Associated With PFAS

The list of health risks associated with PFAS continues to grow. The ASTDR's report notes evidence of negative liver, cardiovascular, endocrine, immune, reproductive and developmental effects. Other studies have revealed subtle effects, such as an increased risk of obesity in children, when exposure occurred in utero.²⁵

In May 2015, more than 200 scientists from 40 countries signed the Madrid statement warning about the harms of PFAS chemicals and documenting the following potential effects from exposure:²⁶

Disruption of lipid metabolism, and the immune and endocrine systems	Reduced hormone levels and delayed puberty
Decreased immune response to vaccines	Tumors in multiple organ systems
Testicular and kidney cancers	Adverse neurobehavioral effects
Neonatal toxicity and death	Liver toxicity
Liver malfunction	Hypothyroidism
High cholesterol	Reduced birth weight and size
Ulcerative colitis	Obesity

Take Steps to Reduce Your Exposure

Since governmental agencies are exceptionally slow at regulating the toxins you may be exposed to in the products you purchase, it is up to you to limit your exposure making safer lifestyle choices. Consider the following to limit how much PFAS chemicals you come into contact with each day.

Oral care — You may easily eliminate your exposure by choosing dental floss, and

other interdental devices, manufactured by a trusted company without toxic chemicals. Seek out products using vegan vegetable waxes that are smoother and glide between your teeth easily, as well as those without added fluoride, using nylon instead of chemically treated silk.

Oil pulling – Incorporate oil pulling into your daily regimen to reduce your risk of periodontitis and protect your gums.

Drinking water – Unfortunately, the military is only attempting to clean up PFOA and PFOS contamination from drinking water and is not providing clean drinking water to residents in affected areas unless their water contains more than the EPA's threshold of 70 ppt of PFOA and/or PFOS specifically.

Further, there are more than 4,000 different PFASs, and scientists are only beginning to unravel their disturbing effects.²⁷ The full extent of contamination is unknown, but there is a good chance your water is affected.

For this reason, and others, I highly recommend filtering your water at the point of entry and use in your home.

Cookware – Get rid of all nonstick cookware from your home, including waffle irons and sandwich makers. Instead, seek out a healthy line of nonstick ceramic cookware made without dangerous PFAS chemicals, and is made without other heavy metals, such as iron, lead, aluminum or cadmium.

Food packaging – In recent years, researchers and scientists have raised warnings about mounting toxic exposures, leading to efforts to rein in the use of chemicals known to be hazardous to human health, including PFAS commonly found in packaging from fast food and pizza restaurants and packaging in your grocery store.

Cosmetics – Certain cosmetics, particularly eye shadow, foundation, powder, bronzer and blush, have a higher risk of containing PFAS chemicals. An Environmental Working Group (EWG) report²⁸ found 13 PFAS chemicals in close to

200 products spanning 28 brands, including makeup, sunscreen, shampoo and shaving cream. Consider searching the EWG Skin Deep Cosmetic database²⁹ before your next purchase.

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