

Fluoridation and “Forever Chemicals” (PFAS): Federal Hypocrisy Is Poisoning Americans with Toxic Synthetic Chemicals

Per- and polyfluoroalkyl substances (PFAS)

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For decades, we have been told a lie, a lie that has led to the deaths of hundreds of thousands of Americans and the weakening of the immune systems of tens of millions more.

This lie is called fluoridation.

A process we were led to believe was a safe and effective method of protecting teeth from decay is in fact a fraud. For decades it’s been shown that fluoridation is neither essential for good health nor protective of teeth. What it does is poison the body. Therefore we should all be asking how and why public health policy and the American media continue to perpetuate this scientific sham. Despite the growing consensus in the medical literature about fluoride’s dangers and decades of denial within the federal health establishment to take any notable action, this is not the case for another class of pervasive toxic substances commonly known as “forever chemicals.”

Per- and polyfluoroalkyl substances (PFAS), often referred to as “forever chemicals,” are synthetic chemicals that have increasingly raised alarming concerns due to their persistence in the environment and common everyday products and their adverse effects on human health. These chemicals are characterized by strong carbon-fluorine bonds, which are among the strongest bonds in organic chemistry. This unique chemical structure makes PFAS highly resistant to natural processes that typically break down other substances, such as microbial degradation, photolysis (breakdown by light), and hydrolysis (breakdown by water). The strong carbon-fluorine bonds make PFAS resistant to metabolic breakdown. The body’s natural detoxification processes, which can effectively eliminate other chemicals, are not as effective against PFAS. They can bind to serum albumin in the blood, which prevents

them from being easily filtered out by the kidneys and excreted in urine. Finally, PFAS bioaccumulate, meaning their concentration can increase over time in the tissues of living organisms. Continuous exposure through contaminated water, food, and consumer products thereby leads to higher concentrations in the body.

For this reason PFAS are referred to as “forever” because of their ability to persist in the environment for decades if not centuries. Moreover, due to their high solubility, forever chemicals can migrate long distances through water systems from their original source and ultimately contaminate drinking water supplies.



Forever chemicals can enter the body through various pathways and become widely distributed in bodily tissues and organs. They have been shown to readily disrupt key biological processes such as fat and amino acid metabolism. PFAS primarily enter the human body through ingestion, inhalation, and dermal absorption. Ingestion is the most common route of exposure. Contaminated drinking water, often resulting from industrial chemical discharges of toxins and pollutants and the use of firefighting foam are a significant source of PFAS. The presence of PFAS in soil and water contaminates much of our food produce, especially seafood. Food packaging materials, such as microwave popcorn bags and fast food wrappers coated with PFAS, further contribute to ingestion.

Inhalation is another route through which PFAS can enter the body.

Indoor dust particles in homes with PFAS-treated carpets, curtains, furniture, textiles, mattresses and bedding can contain these chemicals. Occupational exposure in industrial facilities manufacturing PFAS-containing products poses a very high risk. Although less significant compared to ingestion and inhalation, PFAS can be absorbed through the skin. Personal care products, including lotions, shampoos, and cosmetics, often contain PFAS. Handling materials coated with PFAS can also lead to dermal absorption. Outrageously, a government study through the National Toxicology program discovered that medical bandages, including 18 of 26 common brand band-aids purchased at major popular pharmacies were found to have dangerous levels of the forever chemical fluorine, which is used to make rocket fuel. The infamous Silent Spring Institute observed these chemicals even present in many assumed “eco-friendly” children’s products (with green certifications) such as bedding, clothing and water-resistant outer wear. Unbeknownst to the majority of consumers, PFAS are also found in shampoo and nail polish, dental floss, toilet paper, guitar strings, sticky notes, tampons and menstrual pads. Many consumer products containing high levels of these toxic chemicals are imported from China.

Once PFAS enter the body, they are absorbed into the bloodstream and transported to various organs and tissues. PFAS are known for their persistence due to their long half-lives,

which can range from several years to decades. The liver is a primary target for PFAS accumulation, leading to liver damage, increased liver enzymes, and altered lipid metabolism. A 2023 Yale study noted that two PFAS enable cancer cells to migrate, an indication that these chemicals are contributing to metastasis. The thyroid gland is another critical organ affected by PFAS, as these chemicals can interfere with thyroid hormone production and regulation, potentially leading to thyroid disease. Researchers at Mount Sinai Hospital observed that one particular PFAS, perfluorooctanesulfonic acid (PFOS), might be contributing to the recent dramatic increase in thyroid cancer diagnoses. PFAS also impact reproductive organs, affecting fertility and causing developmental issues in fetuses.

Briefly, PFAS induce cellular toxicity by disrupting cell membrane integrity, inducing oxidative stress, and altering cell signaling pathways thereby affecting cell growth. PFAS exposure has been linked to genotoxic effects, including DNA strand breaks, chromosomal aberrations, and epigenetic modifications, potentially leading to cancer and other diseases. The impact of PFAS on reproductive health is particularly concerning. Studies have demonstrated that PFAS exposure can reduce fertility in both males and females, cause developmental toxicity including low birth weight and developmental delays in offspring, and disrupt hormone levels, affecting reproductive health and development. A 2019 study showed that PFAS exposure induces DNA damage in human liver cells. An earlier Danish study found that higher PFAS levels were associated with lower sperm quality and reduced fertility in men. And UCLA scientists demonstrated that PFAS exposure during pregnancy was linked to lower birth weights and developmental delays in children.

It should also be noted that the adverse effects of PFAS are not limited to human health but extend to wildlife and the environment. These chemicals have been found in all our water resources, soil, and air, leading to bioaccumulation in fish, animals and plant life. This bioaccumulation is disrupting normal reproductive and developmental cycles in animals and other wildlife, further contributing to the breakdown of our nation's ecosystems.

The widespread presence of PFAS in the human body is alarming.

Scientific studies have detected these chemicals in the blood of nearly all Americans tested, as well as in breast milk and umbilical cord blood, indicating that exposure begins even before birth. In 2020 the Centers for Disease Control and Prevention (CDC) found PFAS in the blood of 97% of Americans. The Environmental Protection Agency (EPA) has set health advisories for PFOA and PFOS in drinking water at 70 parts per trillion (ppt). However, many experts and environmental groups argue that this level is not stringent enough to protect public health. These advisories are also non-enforceable and simply serve as guidelines for individual states. On the other hand, almost nothing is being done to remove these chemicals from their ubiquitous use in common consumer products aside from food packaging.

Early in the Biden administration, the EPA signaled its commitment to deal with widespread forever-chemical contamination; but it was only in April of this year, as the presidential election approaches, that the administration finally made any concerted effort. However, the new rule is limited to environmental PFOA and PFOS contamination from industrial and manufacturing facilities and Superfund clean up projects. The bill does nothing towards the banning of their use in cleaning products, nonstick cookware, paints, carpeting, outdoor gear and personal care products. The Trump-run EPA likewise did nothing to limit PFAS until 2019 and again near election time when a PFAS Action Plan was announced. But the plan was limited to research and monitoring and has been criticized for its lack of enforceable

regulations and comprehensive bans. The FDA also failed dismally to deal with PFAS in food packaging; several food manufacturers have voluntarily taken it upon themselves to remove these chemicals. Only a handful of states, notably California, Michigan, New Jersey and New York, have taken proactive measures to regulate and strengthen PFAS usage, especially in drinking water standards.

While there is increasing awareness at both federal and state levels, concerted efforts to reduce PFAS usage and proliferation are fragmented and less stringent than in some other developed nations. The European Union, on the other hand, has already proposed a comprehensive ban on all PFAS by 2030. Denmark, Germany and Sweden have begun phasing out of forever chemicals. In general, American legislative efforts and regulatory actions for a PFAS-free future are dismal given the widespread acknowledgement within the medical and scientific communities about their toxic threats to human health and the environment.

Although the growing medical and environmental concerns over the toxicity of “forever chemicals” have led to increased public awareness and initial steps toward regulatory actions, a significant inconsistency exists in how government health officials and authorities address another well-documented toxic chemical: fluoride. This discrepancy is particularly concerning given the long-term health risks fluoride poses, especially to children. While PFAS have been the focus of substantial scientific and regulatory analysis, in contrast, fluoride, which is widely used in drinking water and dental products, continues to be endorsed by industry-compromised public health authorities throughout the federal and state governments despite mounting evidence of its toxicity and serious debilitating health risks. This highlights our nation’s scientific and medical hypocrisy: while one toxic chemical (PFAS) is increasingly alarming federal health officials, another (fluoride) continues to be used extensively without any urgent scrutiny.

In 2022, the National Institute of Dental and Craniofacial Research released a comprehensive report showing that oral health in the U.S. has not improved in 22 years. In fact, it has declined and 70 percent of children and adolescents are now fluoride-overdosed.

Studies have shown that excessive fluoride exposure can lead to dental and skeletal fluorosis, neurological damage, and endocrine disruption. Children are particularly vulnerable, with research indicating that high fluoride levels can negatively impact cognitive development.

Several factors contribute to the failure of federal health officials and the medical establishment to take the health risks of fluoride seriously. Of course, historical precedent and public health policy play a significant role. Fluoride has been added to public water supplies for over 70 years as a measure to prevent tooth decay. This long-standing practice has ingrained fluoride’s image as a safe and beneficial public health intervention.

The fluoride industry

Corporate and political pressure also plays a crucial role. The fluoride industry, which includes manufacturers of dental products and private companies involved in water fluoridation chemicals, has a vested interest in maintaining the status quo. It is no longer a secret that political lobbying and corporate pressure significantly influence public health policies. For instance, the American Dental Association (ADA) has been a strong advocate

for water fluoridation and intentionally downplays or dismisses fluoride's health risks. Economic interests further complicate the issue. Fluoride is a byproduct of industrial aluminum and phosphate fertilizer production. Utilizing fluoride in water fluoridation and dental products provides an economic benefit to these industries by reducing waste disposal costs.

The primary beneficiaries of continued fluoride use in drinking water and dental products are industrial producers and dental product manufacturers.

Manufacturers of toothpaste, mouthwash, dental gels and foams, fluoride varnishes and dental floss also benefit from the widespread belief in fluoride's dental health benefits. The pharmaceutical industry's mouthpiece Wikipedia, for example, claims there have been only three reported cases of fluoride toxicity associated with toothpaste ingestion, when in fact there are over 23,000 reports of toothpaste-related fluoride poisoning annually. This represents hundreds of emergency room visits for fluoride poisoning at substantial and unnecessary medical cost. But our exposure to fluoride is not limited to our water utilities and dental products. In regions where the water supply is not fluoridated, children may be prescribed fluoride tablets or drops. Some popular children's multivitamins include fluoride.

Canadian studies, for example, indicate that children under three should have no fluoride whatsoever. The *Journal of the Canadian Dental Association* states that "Fluoride supplements should not be recommended for children less than 3 years old." Since these supplements contain the same amount of fluoride as water does, they are basically saying that children under the age of three shouldn't be drinking fluoridated water at all, under any circumstances.

Beverages made with fluoridated water

Beverages made with fluoridated water, including sodas, juices, and teas, may contain fluoride, and foods prepared with fluoridated water contain trace amounts of fluoride. Researchers writing in the *Journal of Clinical Pediatric Dentistry* found that fruit juices, in particular, contain significant amounts of fluoride. In one study, a variety of popular juices and juice blends were analyzed and it was discovered that 42% of the samples examined had more than 1 ppm of fluoride, with some brands of grape juice containing up to 6.8 ppm. The authors cite the common practice of using fluoride-containing insecticide in growing grapes as a factor in these high levels, and they suggest that the fluoride content of beverages be printed on their labels, as is other nutritional information.

Even some medications, including certain antibiotics and antifungal drugs, contain fluoride. And here's a little-publicized fact: Cooking can greatly increase a food's fluoride content. Peas, for example, contain 12 micrograms of fluoride when raw and 1500 micrograms after they are cooked in fluoridated water.

During the past four years, several studies further warrant national attention because they are directly associated with other rising health epidemics. A study out of the University of Southern California's School of Medicine analyzed fluoride levels in mother-child pairs at pregnancy and later evaluated the children's behavior after three years. Children exposed to increases in fluoride in the womb were twice as likely to develop neurobehavioral problems including emotional reactivity, anxiety and somatic complaints. A similar finding was confirmed earlier by Canadian researchers at York University that discovered higher rates of medically-diagnosed ADHD in American children with higher levels of fluoridated

water. A 2019 study published in *JAMA Pediatrics* found that higher fluoride exposure during pregnancy was associated with lower IQ scores in children. A Kenyan study published in the *American Journal of Medicine and Medical Sciences* reported that auditory working memory significantly declined as fluoride concentration in drinking water increased, confirming the results of an earlier systematic review showing lower IQ in children in high-fluoride areas. These effects were observed at concentrations as low as 0.5 mg/L – the low end of the scale recommended by the World Health Organization, which recommends fluoridation at concentrations as high as 1.5 mg/L.

British researchers at the University of Kent observed a 30 percent increase of hypothyroidism in areas where fluoridation of the public water supply was highest (above 0.3 mg per liter). This is especially alarming for Americans, which sets the recommended fluoride level in water at 0.7 mg/L, twice that of England. With heart disease as the major killer of Americans, a 2022 Spanish study now demonstrates that fluoridated water calcifies and hardens arteries. People with chronic renal disease were observed to be especially at high risk

Reproductive Health

Data suggest that the damaging effects of fluoride extend to reproductive health as well. A 2013 study published in the journal *Archives of Toxicology* showed a link between fluoride exposure and male infertility in mice. The study's findings suggest that sodium fluoride impairs the ability of sperm cells to normally fertilize the egg through a process known as chemotaxis.

When fluoride is ingested, approximately 93% of it is absorbed into the bloodstream. A good proportion of the chemical is excreted, but the rest is deposited in the bones and teeth, and is capable of causing a crippling skeletal fluorosis. This condition damages the musculoskeletal and nervous systems and results in muscle wasting, limited joint motion, spine deformities, and calcification of the ligaments, as well as neurological deficits. Large numbers of people in Japan, China, India, the Middle East, and Africa have been diagnosed with skeletal fluorosis from drinking naturally fluoridated water. In India alone, nearly a million people suffer from the affliction.

Although the American Dental Association and the government consider dental fluorosis only a cosmetic problem, the *American Journal of Public Health* says that "...brittleness of moderately and severely mottled teeth may be associated with elevated caries levels." In other words, in these cases the fluoride is causing the exact problem that it's supposed to prevent. Yiamouyiannis adds, "In highly naturally-fluoridated areas, the teeth actually crumble as a result. These are the first visible symptoms of fluoride poisoning." In addition, the pro-fluoride camp repeats the faulty wisdom that fluoride enhances the formation of fluorapatite, a component of tooth enamel. On the other hand, they refuse to mention that studies show that this fluorapatite layer is just six nanometers thick, less than 1/10000th the width of a strand of hair and therefore unlikely to have much of an impact on strengthening or re-mineralizing teeth.

At one time, fluoride therapy was recommended for building denser bones and preventing fractures associated with osteoporosis. Now the peer-reviewed medical literature confirms that fluoride is associated with bone breakage. Three studies reported in *The Journal of the American Medical Association* showed links between hip fractures and fluoride. One study published in the *New England Journal of Medicine* reports that people given fluoride to cure

their osteoporosis actually wound up with an increased nonvertebral fracture rate.

Finally, we might take a very brief look at some evidence supporting a fluoride-cancer association. Numerous studies demonstrate links between fluoridation and cancer; however, agencies promoting fluoride consistently refute or cover up these findings. Almost a half-century ago, Drs. John Yiamouyiannis and Dean Burk, former chief chemist at the National Cancer Institute (NCI), released a study that linked fluoridation to 10,000 cancer deaths per year in the U.S. Their inquiry, which compared cancer deaths in the ten largest fluoridated American cities to those in the ten largest unfluoridated cities between 1940 and 1950, discovered a 5% greater cancer rate in the fluoridated areas. Unsurprisingly, the NCI refuted its own findings. To settle the matter, a Congressional subcommittee instructed the National Toxicology Program (NTP) to perform another investigation. That study, due in 1980, was not released until 1990. In the meantime, the EPA raised the standard fluoride level in drinking water from 2.4 to 4 ppm. Critics of the EPA decision charged it with being politically motivated without any concern for public health.

And what were the NTP study results? Out of 130 male rats that ingested 45 to 79 ppm of fluoride, 5 developed osteosarcoma, a rare bone cancer. There were cases, in both males and females at those doses, of squamous cell carcinoma in the mouth. Both rats and mice had dose-related fluorosis of the teeth, and female rats suffered osteosclerosis of the long bones. When Yiamouyiannis analyzed the same data, he found a particularly rare form of liver cancer, known as hepatocholangiocarcinoma. This cancer is so rare, according to Yiamouyiannis, that the odds of its appearance in the study by chance are 1 in 2 million in male mice and 1 in 100,000 in female mice. He also found precancerous changes in oral squamous cells, an increase in squamous cell tumors and cancers, and thyroid follicular cell tumors as a result of increasing levels of fluoride in drinking water.

Water fluoridation and fluoride-enhanced dental products

Aside from the health risks, water fluoridation and fluoride-enhanced dental products are unnecessary. Many countries do not fluoridate water supplies or have ceased fluoridation altogether. In 2013, Israel's Ministry of Health committed to a nationwide phase-out of fluoridation. The decision came after Israel's Supreme Court deemed the existing health regulations requiring fluoridation to be based on science that is "outdated" and "no longer widely accepted. European countries such as Austria, Belgium, Denmark, Finland, Germany, Netherlands, Norway and Switzerland, as well as Japan, do not fluoridate their drinking water.

There are safer and equally effective alternatives to fluoride for dental health and water treatment. Xylitol, a natural sugar alcohol found in many fruits and vegetables, has been shown to reduce tooth decay by inhibiting the growth of *Streptococcus mutans*, a primary bacterium responsible for cavities. Hydroxyapatite, a naturally occurring mineral form of calcium apatite, is an effective alternative in toothpaste; hydroxyapatite promotes remineralization and strengthens tooth enamel without the toxicity associated with fluoride. Silver diamine fluoride (SDF), although it contains fluoride, if used in very minute amounts has been proven effective in arresting dental caries with a lower risk of systemic exposure compared to water fluoridation. For water treatment, technologies such as reverse osmosis and activated alumina can effectively remove contaminants, including fluoride, providing safe drinking water without the need for chemical additives.

The stark contrast in how PFAS and fluoride are addressed by health officials underscores a

significant inconsistency in public health policy. While PFAS have rightfully garnered attention due to their harmful effects, the continued endorsement of fluoride, despite clear evidence of its toxicity, reveals an underlying issue influenced by historical precedent, corporate interests, and political lobbying. Ever since Harvard University researcher Philippe Grandjean first added fluoride to a list of developmental neurotoxins considered especially harmful to the developing brain in a 2014 paper published in *The Lancet*, our health officials have suffered from institutionalized cognitive dissonance by categorically denying fluoride-induced illness. Fortunately, the pushback against decades of lies, misinformation and media propaganda to seduce the American public into accepting corporate and government sponsored junk research supporting fluoridation continues to reach a tipping point towards public safety. In 2021, an alliance of public health organizations and watch groups, led by Robert F. Kennedy Jr. and Michael Connett, filed suit against the EPA in a federal court trial to bring an end to fluoridation once and for all.

To truly protect public health, it is crucial to re-evaluate the use of fluoride in drinking water and dental products and consider safer, scientifically proven alternatives. This shift would ensure that public health policies are based on current scientific evidence rather than outdated practices and economic interests.

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