



What Critics of Fluoride Say & What the *Facts* Say

Opponents of water fluoridation make a lot of claims that are at odds with the facts. This document provides examples of what critics say, followed up with what the facts say. For each topic, a “Learn more” link can provide you with more detailed information.

1. Critics Say: “The FDA has never approved fluoride’s use in drinking water.”

THE FACTS: The FDA does not have the authority to regulate fluoride in public drinking water. The Environmental Protection Agency (EPA) performs this role, and it sets firm guidelines for the amount of fluoride. The concentration of fluoride used for water fluoridation is far below the limit established by the EPA.

[Learn more.](#)

2. Critics Say: “A Harvard study showed that fluoride lowers IQ scores for children.”

THE FACTS: It wasn't a Harvard study. It was a group of studies from China and Iran, where water fluoridation isn't even practiced. These studies were seriously flawed for several reasons—mostly because they measured fluoride levels that were far higher than the levels we use for fluoridation in America. A far better study with a much larger sample was published in 2014 by the American Journal of Public Health, and this study showed there was no link at all between fluoride in water and IQ scores. [Learn more](#)

3. Critics Say: “We deserve natural water. Nothing should be added to our water supply in order to medicate us.”

THE FACTS: Fluoride is a mineral that exists naturally in water supplies. Many U.S. communities choose to add a little more fluoride to reach a level that has been proven to reduce the rate of cavities for children and adults. Fluoride isn’t a medication. Medications are typically designed to treat disease or its symptoms.

Fluoride is a mineral used to prevent dental disease from creating a cavity or even a more serious infection. [Learn more](#)

4. Critics Say: “The warning label on the back of toothpaste tubes proves that fluoride must be harmful.”

THE FACTS: You can find warning labels on many products, including some vitamins and minerals. Parents should consider this notice as a reminder that they should monitor their young children when they use fluoride toothpaste. The fluoride in toothpaste is roughly 1,000 times more concentrated than the fluoride in water, so health officials want to make it less likely that children will accidentally swallow toothpaste. PolitiFact, an independent fact-checking service, examined the claim made by critics and found that it was deceptive. [Learn more](#)

5. Critics Say: “The fluoride that is added by many communities to drinking water is not safe because it is not a pharmaceutical grade of fluoride.”

THE FACTS: Fluoride additives for water are subject to tough standards that include independent testing for quality and purity. These standards would be weakened by using pharmaceutical grading. In fact, the Centers for Disease Control and Prevention (CDC) has explained that using a pharmaceutical grade for fluoride could “exceed the amount of impurities” that are currently allowed. [Learn more](#)

6. Critics Say: “Europe is 97% fluoridation-free.”

THE FACTS: This is a very misleading statement because virtually all European nations have publicly funded programs that provide fluoride to their people. These methods include salt fluoridation, water fluoridation, milk fluoridation and fluoride-rinse programs in schools. For example, most of the population in Germany and Switzerland has access to fluoridated salt. The bottom line is that Europe uses a variety of ways to provide fluoride to children and adults. [Learn more](#)

7. Critics Say: “We can get fluoride from toothpaste, so there’s no reason why we need to add it to drinking water.”

THE FACTS: Once air bags were installed in cars, we didn’t remove the seatbelts. Each one works differently to protect drivers and passengers from injury. Likewise, fluoride in toothpaste and water work in different ways. As the CDC explains, “Water fluoridation prevents tooth decay by providing frequent and consistent contact with low levels of fluoride” over the course of a day. Research conducted over the past 10 years—at a time when most people regularly use fluoride toothpaste—continues to show that people living in fluoridated communities have significantly less tooth decay. [Learn more](#)

8. Critics Say: “The Cochrane review of fluoridation showed that there wasn’t enough recent research to prove that it reduces the rate of tooth decay.”

THE FACTS: In 2013, the U.S. Community Preventive Services Task Force—an independent panel of health experts—reviewed 161 studies before it recommended fluoridation “based on strong evidence of effectiveness” in reducing tooth decay. And 34 of the studies reviewed by the Task Force were from the period of 1999-2012. In other words, there is plenty of recent evidence supporting fluoridation. Cochrane’s review was no surprise because it uses narrow criteria that restrict the studies that it will consider. Cochrane prefers randomized controlled trials (RCTs) to assess the effectiveness of a specific health practice, but RCTs are virtually impossible to perform with a public health measure like fluoridation. [Learn more.](#)

9. Critics Say: “The National Research Council (NRC) produced a report in 2006 that identified several health concerns with fluoride in drinking water.”

THE FACTS: The NRC’s report focused on water supplies in some areas of the U.S. that have unusually high natural levels of fluoride—above 2.0 milligrams per liter, which is nearly three times higher than the level recommended for fluoridation. Members of the NRC committee wrote a summary of their findings and clearly stated that “the committee’s conclusions regarding the potential for adverse effects from fluoride at 2 to 4 mg/L in drinking water do not apply at the lower water fluoride levels commonly experienced by most U.S. citizens.” [Learn more](#)

10. Critics Say: “More than 95% of water is either used to wash dishes, take showers or water lawns. This means fluoridation is a waste of money.”

THE FACTS: Fluoridation saves money for families and taxpayers by reducing the need for fillings, crowns and other dental procedures to repair cavities. A study commissioned by the CDC found that every \$1 invested in fluoridation saved \$38. Preventing tooth decay is important because treatment costs can add up quickly. The typical filling eventually needs to be repaired or replaced with a crown. The lifetime cost of treating a single decayed molar can exceed \$6,000. Even families with dental insurance are likely to pay some money out of pocket for fillings or other treatments. [Learn more](#)

11. Critics Say: “Fluoridation causes fluorosis, which can make teeth brown and pitted. This is a toxic effect.”

THE FACTS: Fluorosis is not a disease, and it is not toxic. Fluorosis is a change in the appearance of tooth enamel that can occur when children receive an excessive amount of fluoride during the tooth-forming years (up to age 8). Typically, fluorosis in the U.S. is a mild, cosmetic effect that leaves faint white streaks on the surface of teeth. It doesn't cause pain or affect the health or function of teeth. Many Americans with fluorosis don't even know their teeth have fluorosis because it is so subtle that it often takes a dental professional to notice it. Parents can reduce their children's chance of fluorosis by monitoring their tooth-brushing so they are less likely to accidentally swallow toothpaste. [Learn more](#)

12. Critics Say: “The government recently lowered the recommended fluoride level for use in water fluoridation. This means people have been getting way too much fluoride for a long time.”

The FACTS: The previous range (0.7 to 1.2 milligrams per liter) was established because research showed that children consumed different amounts of water based on the regions where they lived. Those in warmer climates consumed more water, so a lower fluoride concentration made sense in these areas. However, recent research shows that water consumption levels are fairly similar from one region to the next—perhaps because air-conditioning is commonplace today. This is why federal officials replaced a range with a target level. The target was set at 0.7 mg/L, recognizing that fluoride is widely available through other

sources, including toothpaste and mouth rinses. It's not unusual for recommendations like this to be updated. Over the past five years, health experts have updated a variety of recommendations, including the appropriate daily intake for Vitamin D and calcium. [Learn more](#)

13. Critics Say: "Tooth decay is no longer a real problem in the United States, so why is fluoridation needed?"

THE FACTS: Although the overall U.S. rate of tooth decay has dropped significantly over the last 50 years, cavities are not a thing of the past. (Fluoridation has been a big reason for this progress.) Even with the progress we have made, tooth decay remains the most common chronic disease of childhood. Research shows that kids with poor dental health are nearly three times more likely to miss school, and they are roughly four times more likely to earn below-average grades. Adults who have unhealthy or missing teeth are at a disadvantage when seeking jobs. In recent years, NBC News has reported that employers "make instant judgments based on appearance, including someone's smile and teeth." [Learn more](#)

14. Critics Say: "Fluoridation causes cancer."

THE FACTS: A 2011 Harvard study found no link between fluoride and bone cancer, which is a type of cancer that opponents frequently try to link to fluoridation. This study's design was approved by the National Cancer Institute, and the study's findings were based on a review of hundreds of bone samples. Public Health England examined the rate for all types of cancer and issued a 2014 report showing "no evidence of a difference in the rate for all types of cancer between fluoridated and non-fluoridated areas." [Learn more](#)

15. Critics Say: "Fluoridation causes a lot of health harms to the human body."

THE FACTS: Leading health and medical authorities endorse water fluoridation's safety. The CDC reports that "panels of experts from different

health and scientific fields have provided strong evidence that water fluoridation is safe and effective.” Within the past several years, health experts in various countries have issued reports or studies showing no link between water fluoridation and adverse health conditions. Public Health England examined research on eight categories of adverse health conditions—including kidney stones and bladder cancer—and found no link between them and fluoridation. The Royal Society of New Zealand issued a report that looked for any connection between fluoridation and an increased risk of cancer, hormonal disorders and other diseases. The Royal Society found no links whatsoever. New Zealand’s chief science advisor said the report shows that “implementation of [fluoridation] poses no risk of adverse health effects.” [Learn more](#)

16. Critics Say: “Fluoride interferes with the function of the thyroid gland.”

THE FACTS: Critics have voiced concerns about fluoride’s effect on the thyroid gland for more than 50 years. Yet the weight of the evidence does not show any link between fluoridated water and health conditions of this kind. For example, a World Health Organization report in the 1970s found no evidence backing the claim that fluoridated water inhibits a person’s “hormonal or enzymatic activity.” Fluoridation opponents have cited a study about hypothyroidism released in 2015, but this study has been viewed with skepticism. First, the study’s lead author (Stephen Peckham) has been described by BBC News as an “anti-fluoridation campaigner”—raising the issue of confirmation bias. Second, the study failed to point out that the areas with fluoridation that were examined also happen to have high levels of iodine deficiency, which is linked to hypothyroidism. Third, a well-known British expert on toxicity examined the Peckham study and called it “about as weak as it gets” in terms of evidence. [Learn more](#)

17. Critics Say: “Water fluoridation is a bad approach because once you add fluoride to water, you can’t control the dose.”

THE FACTS: The same thing could be said about Vitamin D, which is added to milk, and about iodine, which is added to salt. People consume different

amounts of water, just as they consume different amounts of milk and salt. It is possible for Vitamin D, iodine and fluoride to have negative health effects at very high concentrations, but there is no evidence that Americans are chronically exposed to levels of these vitamins or minerals that harm their health. [Learn more](#)

18. Critics Say: “Water fluoridation should not be allowed unless health officials can provide proof that it is 100% safe.”

THE FACTS: Nothing can be proven to be “100% safe.” Even crossing a street in a quiet suburban neighborhood isn’t always safe. Residues of snow or ice could cause a pedestrian to slip, fall and suffer a bone fracture. Someone driving under the influence of alcohol could swerve into the pedestrian’s path without warning. The death of a runner during the 2002 Boston Marathon reminds us that even water can be toxic if consumed in extraordinary amounts within a short period of time. But should we fear water? Of course not. The clear weight of the evidence shows that fluoride is safe and effective when consumed at the levels used for fluoridated water. [Learn more](#)

19. Critics Say: “There are other ways to reduce tooth decay than fluoridation. If people ate fewer sweets, there would be fewer cavities.”

THE FACTS: This argument presents a false choice. Communities should not choose between fluoridation and eating healthier. Both of these approaches are important. Fluoridation is an excellent approach because it benefits everyone—regardless of their age, gender, race or family income. The annual per-person cost of fluoridation is far less than the cost of filling a single cavity. [Learn more](#)

20. Critics Say: Numerous human and animal studies prove fluoride to be neurotoxic at levels used in fluoridation.

The Facts:

The studies to which critics refer either do not apply to fluoride at fluoridation levels, are of such poor quality that they have no merit, or do not conclude what critics claim they do. This was affirmed in the 2016 EPA rejection of a petition filed by fluoridation opponents which sought the ban of fluoridation due to claims of neurotoxicity. These same human and animal studies were presented

by petitioners as support for their claims. In its 40 page rejection document, EPA reviewers concluded that:

“the petition has not set forth a scientifically defensible basis to conclude that any persons have suffered neurotoxic harm as a result of exposure to fluoride in the U.S. through the purposeful addition of fluoridation chemicals to drinking water or otherwise from fluoride exposure in the U.S. In judging the sufficiency of the petition, EPA considered whether the petition set forth facts that would enable EPA to complete a risk evaluation under TSCA section 6(b).”

Included in this document were detailed explanations as to the irrelevance, invalidity, and misrepresentation by petitioners, of the studies presented.

The full EPA rejection document may be viewed on the Federal Register. [Learn more.](#)

For accurate information about fluoride, visit americanfluoridationsociety.org

This document was researched and written by the Children’s Dental Health Project, an independent nonprofit based in Washington D.C. Learn more about us at www.cdhp.org

