

Fluoride Myths & Facts

Fact 1

Fluoride is a natural element in all the earth's water.

- Fluoride is a simple mineral that exists naturally in all water supplies: lakes, rivers, and groundwater.
- Some U.S. communities, such as El Paso, Texas and Jacksonville, Florida, have enough natural fluoride in their water to prevent tooth decay, but the natural level in most water supplies is too low to protect teeth. Most communities must add a small amount of fluoride to reach the recommended level. This process is called water fluoridation.
- There are proven benefits to our health from having the right amount of fluoride — just enough to protect our teeth — in drinking water.

Fact 2

Fluoride is a mineral, not a medication.

- Fluoride has been recognized as an important nutrient for healthy teeth.
- The [National Institutes of Health](#) identifies fluoride as a mineral, not a medication. In the right amount, fluoride in drinking water makes teeth more resistant to tooth decay.
- Fluoride added to water is one of several examples of everyday products fortified to improve our health. For example, iodine is added to salt, folic acid is added to breads and cereals, and Vitamin D is added to milk.
- U.S. court decisions have rejected the argument that fluoride is a medication.

Fact 3

Fluoridation is an investment in our future health.

- By preventing decay, community water fluoridation is an investment in children's health and success.
- Tooth decay is the most common health problem in U.S. children, even more common than asthma. Tooth decay affects a child's ability to sleep, speak, learn and grow.
- Research shows that children with recent dental pain are nearly 3 times [more likely to be absent](#) from school than their healthier peers.
- Research reveals that students with recent toothaches are about 4 times [more likely to earn lower grades](#) in elementary school or high school.

Fact 4

Fluoridation serves people equitably.

- Community water fluoridation is the most cost-effective way to protect oral health and advance health equity.
- Fluoridation is the least expensive way to provide everyone in the same community with a proven form of cavity prevention.
- A [2021 report](#) by the National Institutes of Health praised water fluoridation “for its effects in reducing socioeconomic disparities” in tooth decay.



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- [A 2021 report](#) by Public Health England focused on closing oral health disparities. The report cited four studies that “consistently found that inequalities . . . were less pronounced in fluoridated areas.”

Fact 5

Fluoridation saves money by preventing tooth decay.

- It is estimated that across the U.S. people in [fluoridated communities save an average of \\$32 \(in 2013 dollars\)](#) per person every year in reduced need for dental treatment.
- In Texas, the state saved \$24 per child per year in Medicaid expenditures because of the cavities that were prevented by drinking fluoridated water.
- Water fluoridation saves the state of Colorado nearly \$150 million each year by avoiding unnecessary dental treatment.

Fact 6

Claims that fluoride in drinking water affects IQ are based on poorly designed studies that gathered unreliable data or tested fluoride levels that far exceed those in the U.S.

- Most of the studies that link fluoride to lower IQ scores in children were conducted in China, India or Iran. In many areas of these countries, the natural fluoride levels in water are many times the level used to fluoridate drinking water in the U.S.
- The questions about fluoride’s safety usually cite a 2024 report and meta-analysis by the National Toxicology Program (NTP). Yet the studies which NTP examined suffer from several weaknesses.
- Numerous factors can influence a child’s IQ score, and it isn’t clear that the studies that NTP presented considered all these factors.
- The NTP itself said that 70% of the fluoride-IQ studies in its meta-analysis had a [high risk of bias](#). This suggests serious concerns about whether these studies are reliable.
- The NTP also noted that its report “[was not designed](#)” to draw any conclusions about the health effects of tap water that is fluoridated in the U.S.
- The National Academies of Sciences reviewed drafts of the NTP report and said that [NTP’s conclusions were not backed up with “clear and convincing” evidence](#). The National Academies is considered the gold standard for scientific review.

Fact 7

People of all ages benefit from drinking fluoridated water.

- Fluoridated water benefits both children and adults.
- Fluoridated water + toothpaste = less tooth decay! The benefits of water fluoridation build on those from [fluoride toothpaste](#). Alone, fluoride toothpaste is not enough, which is why in non-fluoridated areas pediatricians and dentists often prescribe fluoride tablets to protect children’s teeth.
- After looking at all the ways we get fluoride — including fluoride toothpaste — the U.S. Public Health Service recommended that communities fluoridate water at 0.7 parts per million. Any less than that puts the health of our teeth at risk.

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Fact 8

If children are exposed to too much fluoride during the tooth-forming years (up to age 8) their teeth may develop fluorosis.

- Nearly all dental fluorosis in the U.S. is mild, revealing faint, white specks on the enamel of teeth. This condition does not cause pain and does not affect the health or function of the teeth. Higher levels of fluoride occur naturally in water serving some U.S. communities and can cause more noticeable forms of fluorosis. This can be avoided by providing an alternative source of drinking water until the age when teeth are fully formed.
- [A 2023 study](#) shows that as a child approaches adulthood, the fluorosis on their teeth lessens in severity — meaning it becomes even less noticeable than before.
- In 2015, the U.S. Public Health Service [updated its recommended level](#) for fluoridation — 0.7 parts per million — to reduce the likelihood of fluorosis while continuing to protect teeth from decay.

Fact 9

Getting enough fluoride in childhood is critical to strengthening teeth over an entire lifetime.

- Babies and children need fluoride to strengthen their growing teeth. Fluoridated water benefits developing teeth even before they are fully visible in the mouth.
- The use of fluoridated water to prevent and control cavities is both effective and safe.
- Children who drink fluoridated water as their teeth form will have stronger teeth that resist decay better over their lifetime. [A 2010 study](#) confirmed that the fluoridated water consumed as a young child makes the loss of teeth due to decay less likely 40 or 50 years later.

Fact 10

Children who swallow toothpaste are at increased risk of mild fluorosis.

- Fluoride toothpaste is recommended by the [American Academy of Pediatrics](#), the [American Academy of Pediatric Dentistry](#), and the [American Dental Association](#) for babies and toddlers as soon as the first teeth come in.
- The only risk to children of too much fluoride is [dental fluorosis](#), which does not harm the teeth or a child's health. That is why it is important to follow the [guidelines](#) on the proper amount of toothpaste to use, to supervise children when they brush, and to teach them to spit rather than swallow the excess.
- The warning label on toothpaste reflects the fact that it contains a higher concentration (roughly 1,500 times as much fluoride) per milligram than fluoridated water.

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Fact 11

Fluoridated water is safe for babies and young children.

- Questions about possible cognitive effects were raised by a 2024 report by the National Toxicology Program (NTP). But most of the studies that NTP compiled had a high risk of bias.
- The National Academies of Sciences, Engineering and Medicine (NASEM) reviewed the NTP's report about fluoride's effects on the cognitive ability of preschool-age children. [NASEM found](#) this report fell "short of providing a clear and convincing argument."
- Several studies have explored the possible link between fluoride and negative cognitive effects, but the findings are not consistent. Studies conducted in Canada and Mexico have reported associations between the two. However, studies from Australia, Denmark, New Zealand and Sweden have found no such link. And a study from Spain actually found a link between fluoride and a positive effect on boys' cognitive performance.
- The American Dental Association states that doctors "can suggest the continued use of powdered or liquid concentrate infant formulas reconstituted with optimally fluoridated drinking water." Parents should discuss any questions they may have with their health care providers.

Fact 12

Children who grow up with missing or unhealthy teeth can face obstacles in the job market.

- Poor dental health can damage job prospects. In a [2015 national survey](#), nearly 3 in 10 low-income adults said the appearance of their mouth and teeth "affects my ability to interview for a job."
- Health economists found that growing up in a fluoridated community [increased women's earnings](#) by 4%.
- Untreated decay can delay a soldier's deployment overseas. This led the U.S. Department of Defense to adopt a rule requiring fluoridation on military bases, recognizing that this practice "[improves and sustains the military readiness](#)" of soldiers.

Fact 13

Leading health and medical organizations agree: fluoridated water is both safe and effective.

- Leading health and medical authorities [support water fluoridation as safe](#). [Panels of experts](#) from different health and scientific fields have provided strong evidence that water fluoridation is safe and effective.
- More than [7,000 studies or reports](#) have been published on the subject of water fluoridation, making this one of the most researched topics in public health.

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Fact 14

Dozens of studies and 75+ years of experience have consistently shown that fluoridation reduces tooth decay.

- The CDC recognizes fluoridation's effectiveness in preventing tooth decay and cited it as one of the "10 great public health achievements of the 20th century."
- Research has shown that tooth decay increased significantly in cities that ceased fluoridation.
- [A 2021 study](#) showed that before Calgary ceased fluoridation, the tooth decay rate of its 2nd graders was lower than the rate in Edmonton, a city situated 180 miles to the north. But after fluoridation ended, the study revealed that Calgary's rate increased significantly, well surpassing the rate in Edmonton, where fluoridation continued.
- [A 2022 study](#) compared dental health in two Alaska cities – Anchorage and Juneau. Five years after Juneau ceased fluoridation, the cost of Medicaid dental treatments for children had jumped by 47%. By contrast, these costs rose only by 5% in fluoridated Anchorage.
- Adults benefit from fluoride, too. A 2007 review of studies found that fluoride prevents caries (tooth decay) among adults of all ages, and that fluoridated water prevents decay by about 27%.

Fact 15

Millions of people living in Europe are receiving the benefits of fluoride.

- [Fluoridated water reaches over 13 million Europeans](#), mostly residents of Great Britain, Ireland and Spain. Fluoridated milk programs reach millions more people, mostly in Eastern Europe.
- Salt fluoridation is the most widely used approach in Europe. In fact, at least 70 million [Europeans consume fluoridated salt](#), and this method of fluoridation reaches a large portion of the population in Germany and Switzerland.
- Technical challenges are a major reason why fluoridated water is not widespread in Europe. In France and Switzerland, for example, water fluoridation is logistically difficult because of the terrain and because there are tens of thousands of separate sources for drinking water. This is why Western Europe relies more on salt fluoridation, fluoride rinse programs and other means to get fluoride to the public.

Fact 16

Fluoridation is a public health measure, a modest community-wide investment that benefits everyone.

- [Fluoride exists naturally in water supplies](#), so it isn't a question of choosing fluoride or not, but of assuring that people receive the *right* amount to prevent tooth decay.
- Public health decisions are made based on what benefits the *entire community* and on sound scientific evidence. Taxpayers pay for both their own family dental care and, through tax dollars, also help pay to fix preventable dental problems for others. How? A good example comes from New York, where Medicaid [enrollees needed 33% more](#) fillings, root canals, and extractions (pulled teeth) than those in counties where there was fluoridated water.