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HEALTH EFFECTS

Fluoride is a highly toxic substance that can cause a range of adverse health effects. Certain members of the public are at particularly high risk of harm.



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FLUORIDE & HEALTH

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<https://npo.networkforgood.org/Donate/Donate.aspx?npoSubscriptionId=2553>

<http://fluoridealert.myshopify.com/>

CURRENT PETITIONS

Together we can change policy. Sign our petitions to

help us change health standards:

http://salsa.democracynaction.org/o/2477/t/2782/campaign.jsp?campaign_KEY=21960

<http://salsa.democracynaction.org/o/2477/t/5221/signUp.jsp?key=2976>

DOWNLOAD OUR VOLUNTEER KIT

<http://fluoridealert.org/take-action/activist-tool-kit/>

FAN NEWSLETTER

Sign up for our free newsletter and get monthly updates about how fluoride is affecting all of us.

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QUICK FACTS

INTRODUCTORY COMMENTS

Fluoride is a highly toxic substance. Consider, for example, the poison warning that the FDA now requires on all fluoride [toothpastes](http://www.fluoridealert.org/issues/dental-products/toothpastes/) sold in the U.S. or the tens of millions of people throughout China and India who now suffer serious [crippling bone diseases](http://www.fluoridealert.org/articles/india-fluorosis/) from drinking water with elevated levels of fluoride.

In terms of [acute toxicity](http://www.fluoridealert.org/studies/acute01/) (i.e., the dose that can cause immediate toxic consequences), fluoride is more toxic than lead, but slightly less toxic than arsenic. This is why fluoride has long been used in rodenticides and pesticides to kill pests like rats and insects. It is also why accidents involving over-ingestion of fluoridated dental products—including [fluoride gels](http://www.fluoridealert.org/articles/kennerly/), [fluoride supplements](http://www.fluoridealert.org/studies/acute04/), and [fluoridated water](http://www.fluoridealert.org/articles/fluoridation-accidents/)—can cause serious poisoning incidents, including death.

The debate today, however, is not about fluoride's acute toxicity, but its chronic toxicity (i.e., the dose of fluoride that if regularly consumed over an extended period of time can cause adverse effects).

Although fluoride advocates have claimed for years that the safety of fluoride in dentistry is exhaustively documented and “beyond debate,” the Chairman of the National Research Council's (NRC) comprehensive fluoride review, Dr. John Doull, recently [stated](http://www.fluoridealert.org/researchers/nrc/panelists/) that: “when we looked at the studies that have been done, we found that many of these questions are unsettled and we have much less information than we should, considering how long this [fluoridation] has been going on. I think that's why fluoridation is still being challenged so many years

**MORE PEOPLE DRINK FLUORIDATED WATER
IN THE UNITED STATES THAN THE REST OF
THE WORLD COMBINED.**

**([HTTP://WWW.FLUORIDEALERT.ORG
/CONTENT/BFS-2012/](http://www.fluoridealert.org/content/bfs-2012/))**

**WINE AND GRAPE JUICE MADE IN THE U.S.
HAVE HIGH LEVELS OF FLUORIDE PESTICIDE.**

**([HTTP://WWW.FLUORIDEALERT.ORG
/ISSUES/SOURCES/F-PESTICIDES/](http://www.fluoridealert.org/issues/sources/f-pesticides/))**

**IN EUROPE, FLUORIDE WAS ONCE
PRESCRIBED AS A DRUG TO REDUCE
THYROID ACTIVITY.**

**([HTTP://WWW.FLUORIDEALERT.ORG
/ISSUES/HEALTH/THYROID/](http://www.fluoridealert.org/issues/health/thyroid/))**

**FLUORIDATION DISPROPORTIONATELY
HARMS BLACK CHILDREN.**

**([HTTP://WWW.FLUORIDEALERT.ORG
/STUDIES/DENTAL_FLUOROSIS02/](http://www.fluoridealert.org/studies/dental_fluorosis02/))**

(<http://fluoridealert.org/take-action>)

after it began.”

In this section of the website, we provide overviews of the scientific and medical research that implicates fluoride exposure as a cause or contributor to various chronic health ailments. In 2001, the union of scientists (<http://www.fluoridealert.org/articles/epa-union/>) at the Environmental Protection Agency’s Headquarters Office in Washington D.C. stated: “we hold that water fluoridation is an **unreasonable risk**.” The research in this section helps to demonstrate why EPA’s own scientists reached this conclusion, and why a growing number of health professionals (<http://www.fluoridealert.org/researchers/professionals-statement/>) do so as well.

The primary concerns with fluoride’s impact on human health can be summarized as follows:

Current safety standards only protect against the most obvious forms of harm: Current safety standards for fluoride are based on the premise that severe dental fluorosis (<http://www.fluoridealert.org/researchers/epa/timeline/>) and crippling skeletal fluorosis (http://www.fluoridealert.org/studies/skeletal_fluorosis04/) are the first adverse effects that fluoride can have on the body. These effects represent the crudest, most obvious harm caused by fluoride. In the words of American University chemistry professor, Dr. William Hirzy, it would be a “biological miracle” if fluoride did not cause other harm prior to producing these end-stage forms of toxicity. Research already shows, in fact, that fluoride can cause arthritic symptoms (http://www.fluoridealert.org/studies/skeletal_fluorosis07/) and bone fracture (<http://www.fluoridealert.org/studies/bone07/>) well before the onset of crippling fluorosis, and can affect many other tissues besides bone and teeth, including the brain (<http://www.fluoridealert.org/issues/health/brain/>) and thyroid gland (<http://www.fluoridealert.org/issues/health/thyroid/>).

The current “safe” daily dose for fluoride fails to withstand scrutiny: The Institute of Medicine (IOM) states that anyone over 8 years of age — irrespective of their health condition (<http://www.fluoridealert.org/studies/vulnerable-populations/>) — can safely ingest 10 milligrams of fluoride each day for their entire life without developing symptomatic bone damage. Ten milligrams, however, is the same dose that the IOM concedes (http://www.fluoridealert.org/studies/skeletal_fluorosis04/) can cause

clinical signs of skeletal fluorosis within just 10 to 20 years of exposure. People with clinical signs of fluorosis can suffer significant symptoms, including chronic [joint pain](http://www.fluoridealert.org/issues/health/arthritis/) (<http://www.fluoridealert.org/issues/health/arthritis/>) and overt [osteoarthritis](http://www.fluoridealert.org/studies/arthritis02/) (<http://www.fluoridealert.org/studies/arthritis02/>). The IOM's safety standard instills little confidence in the medical understanding that currently underlies fluoride policies in the U.S.

Some people are particularly susceptible to fluoride toxicity: It is well known that individual susceptibility to fluoride varies greatly across the population, and yet, the [National Research Council](http://www.fluoridealert.org/researchers/nrc/) (<http://www.fluoridealert.org/researchers/nrc/>) has recently found that breathtakingly large gaps still exist in the safety literature on the effects these populations may be experiencing as a result of current fluoride exposures. The [bewildering degree of uncertainties](http://www.fluoridealert.org/researchers/nrc/recommendations/) (<http://www.fluoridealert.org/researchers/nrc/recommendations/>) identified by the NRC stands in stark contrast to the IOM's conclusion that 10 mg/day is so definitively safe that no “uncertainty factor” needs to be applied to protect vulnerable members of the population.

The margin between the toxic and therapeutic dose is very narrow: The NRC concluded that the allegedly “[safe](http://www.fluoridealert.org/researchers/epa/) (<http://www.fluoridealert.org/researchers/epa/>)” upper limit of fluoride in water (4 mg/l) is [toxic](http://www.fluoridealert.org/researchers/nrc/) (<http://www.fluoridealert.org/researchers/nrc/>) to human health. While the NRC did not determine the safe level, their conclusion means that the safe level is less than 4 times the level added to water (0.7-1.2 mg/l) in community fluoridation programs. This is far too slim a margin to protect vulnerable members of the population, including those who consume high amounts of water.

SEE ALSO:

[FAN's Health Database](http://www.fluoridealert.org/researchers/health_database/) (http://www.fluoridealert.org/researchers/health_database/)

[Fluoride & Dental Fluorosis](http://www.fluoridealert.org/issues/fluorosis/) (<http://www.fluoridealert.org/issues/fluorosis/>)

[Fluoride & Tooth Decay](http://www.fluoridealert.org/issues/caries/) (<http://www.fluoridealert.org/issues/caries/>)

[Fluoride & Environmental Justice](http://www.fluoridealert.org/issues/ej/) (<http://www.fluoridealert.org/issues/ej/>)

[Sources of Fluoride Exposure](http://www.fluoridealert.org/issues/sources/) (<http://www.fluoridealert.org/issues/sources/>)

[↑ \(#main\)](#)

RELATED VIDEOS:



Announcing the "FAN Study Tracker" -- To be released this

Wednesday, March 12th

[\(http://fluoridealert.org/fan-tv/studytracker/\)](http://fluoridealert.org/fan-tv/studytracker/)



Ed Begley Jr: Many Studies Link Fluoride to Reduced IQ

[\(http://fluoridealert.org/fan-tv/begley/\)](http://fluoridealert.org/fan-tv/begley/)



Fluorosis Bends Rural Gujurat at the Knees

[\(http://fluoridealert.org/fan-tv/fluorosis-gujurat/\)](http://fluoridealert.org/fan-tv/fluorosis-gujurat/)

RELATED ARTICLES:

Ed Begley Jr, Film Star & Environmental Advocate, Calls for End to Fluoridation

In FAN's continuing effort to provide new educational tools about the hazards of water fluoridation, we are excited to announce two public service announcements (PSAs) we have made with film and TV star Ed Begley Jr. Ed has long been known for both his acting skills and commitment to a healthy

[\(http://fluoridealert.org/articles/ed_begley/\)](http://fluoridealert.org/articles/ed_begley/)

10 Facts About Fluoride

Watch FAN's New Video discussing these facts Download the Flyer! Fact #1: Most Developed Countries Do Not Fluoridate Their Water In the United States, health authorities call fluoridation "one of the top 10 public health achievements of the 20th century." Few other countries share this view. In fact, more people drink artificially

[\(http://fluoridealert.org/articles/fluoride-facts/\)](http://fluoridealert.org/articles/fluoride-facts/)

Harvard Scientist Criticizes Wichita Paper's Whitewash of Fluoride/IQ

Study

Dr. Philippe Grandjean, the senior scientist on the Harvard team, has criticized the Wichita Eagle for deceptively attributing its own conclusions on fluoridation to the Harvard scientists. Fluoridation's potential to produce "chemical brain drain," Grandjean writes, is an issue that "definitely deserves concern."

[\(http://fluoridealert.org/articles/wichita_eagle/\)](http://fluoridealert.org/articles/wichita_eagle/)

RELATED STUDIES:

NRC (2006): Fluoride's Effect on Glucose Metabolism

The following discussion is from pages 258-260 of the NRC's report's "Fluoride in Drinking Water: A Scientific Review of EPA's Standards." Animal Studies (Normal Animals) Turner et al. (1997) reported a 17% increase in serum glucose in female rabbits given fluoride in drinking water at 100 mg/L for 6 months. IGF-1 was also

[\(http://fluoridealert.org/studies/diabetes04/\)](http://fluoridealert.org/studies/diabetes04/)

Populations Vulnerable to Fluoride Toxicity

One of the key problems with water fluoridation is that water is for everybody, but fluoride is not. Like virtually all other drugs, a given dose of fluoride can be safe for one person but harmful to another. Indeed, a vast body of fluoride research clearly demonstrates that certain subgroups

[\(http://fluoridealert.org/studies/vulnerable-populations/\)](http://fluoridealert.org/studies/vulnerable-populations/)

Fluoride Enhances Toxicity of Beryllium

Occupational exposure to beryllium is well-documented to put workers' health at risk. The two principal targets of beryllium poisoning are the respiratory system and the skin. Of all beryllium compounds, beryllium fluoride complexes (including beryllium fluoride and beryllium oxyfluoride) appear to be the most toxic. As shown below, studies dating back

[\(http://fluoridealert.org/studies/beryllium/\)](http://fluoridealert.org/studies/beryllium/)

RELATED MISCELLANEOUS CONTENT:**[Relationship between municipal water fluoridation and preterm birth in Upstate New York](#)**

[Monday, November 9, 2009 Abstract #: 197468 TITLE: Relationship between municipal water fluoridation and preterm birth in Upstate New York AUTHORS: Rachel Hart, MPH, Division of HIV Health Care, NY State Department of Health AIDS Institute, Albany, NY Jonathan Feelemyer, MS, The Baron Edmond de Rothschild Chemical Dependency Institute, Beth Israel Medical Center, NY, NY Christina](#)

[\(http://fluoridealert.org/content/relationship-between-municipal-water-fluoridation-and-preterm-birth-in-upstate-new-york/\)](http://fluoridealert.org/content/relationship-between-municipal-water-fluoridation-and-preterm-birth-in-upstate-new-york/)

[Top 10 Ways to Reduce Fluoride Exposure](#)

[The following 10 tips will allow you to significantly reduce your daily exposure to fluoride. 1\) Stop Drinking Fluoridated Water: Tap water consumption is, on average, the largest daily source of fluoride exposure for people who live in areas that add fluoride to the water. Avoiding consumption of fluoridated water is especially](#)

[\(http://fluoridealert.org/content/top_ten/\)](http://fluoridealert.org/content/top_ten/)

[A Second Look at Fluoride Exposure and Hip Fractures](#)

[In critiquing the York Review I spent a considerable time reading the literature on Hip Fractures and exposure to fluoride. I thought readers would find it helpful to have an up-to-date list of the studies published since 1990. While the evidence from these human epidemiological studies is mixed, when the issue is](#)

[\(http://fluoridealert.org/content/ifin-138/\)](http://fluoridealert.org/content/ifin-138/)

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