

Fluoride Action Network



Fluoride & Health

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introductory comments

Fluoride is a highly toxic substance. Consider, for example, the poison warning that the FDA now requires on all fluoride toothpastes sold in the U.S. or the tens of millions of people throughout China and India who now suffer serious crippling bone diseases from drinking water with elevated levels of fluoride.

In terms of acute toxicity (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, fluoride supplements, and fluoridated water—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 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 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 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 union of scientists concluded that fluoridation is an unreasonable risk, and why a growing number of health professionals do as well.

A discussion about the specific health risks (e.g., risks to the brain and thyroid) can be accessed by clicking on the links at the top of this page. The following are reasons why we believe current fluoride policies in the U.S. are unsafe:

- **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 and crippling skeletal fluorosis 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 and bone fracture well before the onset of crippling fluorosis, and can affect many other tissues besides bone and teeth, including the brain and thyroid gland.
- **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 — 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 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 and overt osteoarthritis. 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 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 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” upper limit of fluoride in water (4 mg/l) is toxic 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
- Fluoride & Dental Fluorosis
- Fluoride & Tooth Decay
- Fluoride & Environmental Justice
- Sources of Fluoride Exposure