

Fluoride in Drinking Water Poses Enough Risk to Merit New EPA Action, Judge Says

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STORY AT-A-GLANCE

- › A federal judge ruled that fluoride in drinking water poses unreasonable health risks, requiring EPA action. This decision was based on scientific evidence, including studies linking fluoride exposure to lower IQ in children
- › Research shows prenatal fluoride exposure is associated with increased neurobehavioral problems in young children, including symptoms of autism spectrum disorder and executive dysfunction
- › Studies indicate excess fluoride affects thyroid function, leading to larger thyroid glands, increased risk of nodules and disrupted hormone levels in children exposed to high fluoride concentrations
- › The court considered factors like harm severity, exposed population size and lack of safety margin between hazardous levels and actual exposure in determining fluoride's unreasonable risk
- › To reduce fluoride exposure, use certified water filters, choose fluoride-free dental products and be aware of fluoride content in foods and beverages like tea

A federal judge has made a landmark ruling that could significantly impact water fluoridation practices across the U.S.¹ After a thorough review of scientific evidence, Judge Edward Chen of the U.S. District Court for the Northern District of California concluded that fluoride in drinking water at current levels poses an unreasonable risk to human health.

This decision, based on a preponderance of evidence, requires the U.S. Environmental Protection Agency (EPA) to initiate a regulatory response. The case, brought by several advocacy groups and individuals, challenged the EPA's previous denial of a petition to regulate fluoride under the Toxic Substances Control Act (TSCA).

Judge Chen's ruling is particularly noteworthy because it marks the first time a court has independently evaluated the risks of water fluoridation without deferring to the EPA's judgment. This decision could lead to new regulations on fluoride in your drinking water, addressing long-standing concerns about its impact on public health.

The Science Behind the Ruling

Central to the court's decision was the National Toxicology Program's (NTP) systematic review of [fluoride's effects on neurodevelopment](#) and cognition.² This comprehensive analysis, which underwent multiple rounds of peer review, examined 72 human studies on fluoride exposure and IQ in children.

The NTP Monograph concluded that the majority of these studies, including 18 of 19 high-quality studies, found an association between higher fluoride exposure and lower IQ in children.³

"Although the NTP's systematic review was not intended to define a safe lower dose, the information it compiled provides strong evidence that water fluoridation as done in the US by adding fluoride to a concentration of 0.7 milligrams per liter (mg/L) is very likely to be lowering the IQ of at least some children," Chris Neurath, science director at Fluoride Action Network (FAN), said in a news release.⁴

Further, according to the NTP report, "This review finds, with moderate confidence, that higher estimated fluoride exposures (e.g., as in approximations of exposure such as drinking water fluoride concentrations that exceed the World Health Organization Guidelines for Drinking-water Quality of 1.5 mg/L of fluoride) are consistently associated with lower IQ in children."⁵

This scientific foundation played a crucial role in the judge's determination that fluoride poses an unreasonable risk to human health, especially to the cognitive development of children.

Prenatal Fluoride Exposure Linked to Neurobehavioral Problems

University of Florida researcher Ashley Malin described the NTP report as "the most rigorously conducted report of its kind."⁶ However, Malin and colleagues also revealed alarming connections between prenatal **fluoride exposure and neurobehavioral issues** in young children. Their research, the first of its kind in the U.S., focused on a cohort of predominantly Hispanic women and their children.⁷

The study found that higher maternal urinary fluoride levels during pregnancy were associated with increased risk of neurobehavioral problems in offspring by age 3. Specifically, for every 0.68 mg/L increase in maternal urinary fluoride, there was nearly double the odds of total neurobehavioral problems being in the borderline clinical or clinical range.

These findings are particularly concerning given that the fluoride levels observed in the study participants were typical of those living in fluoridated communities across North America. The study's results paint a troubling picture of how prenatal fluoride exposure affects children's development.

Women with higher fluoride exposure during pregnancy tended to rate their children higher on overall neurobehavioral problems and internalizing symptoms. This included increased emotional reactivity, anxiety and somatic complaints, such as pain, headaches and gastrointestinal issues, by age 3 years. Higher maternal urinary fluoride levels were also associated with increased symptoms of autism spectrum disorder.⁸

These findings align with research from Canada, which found that exposure to fluoridated drinking water throughout pregnancy was linked to symptoms of executive dysfunction in children aged 3 to 5 years, including poorer inhibitory control and decreased cognitive flexibility.⁹

Mechanisms Behind Fluoride's Neurotoxic Effects

Animal studies have shed light on the mechanisms underlying the association between prenatal fluoride exposure and neurobehavioral development. Research on rats exposed to low fluoride levels during gestation and early life revealed altered neurobiochemical markers of oxidative damage, glutamate metabolism and acetylcholinesterase activity. These changes have been implicated in the pathophysiology of neurodevelopmental disorders, including autism.

Additionally, prenatal fluoride exposure adversely affects neurodevelopment and cognition by causing mitochondrial dysfunction, blocking cellular repair processes and disrupting synaptic function. It's worth noting that even at low levels, prenatal fluoride exposure suppresses maternal thyroid gland activity, contributing to cognitive and neurobehavioral problems in offspring.¹⁰

Excess Fluoride Affects Thyroid Function

A study conducted in Tianjin, China also examined the effects of fluoride exposure on children's health.¹¹ The researchers measured fluoride levels in both drinking water and children's urine to assess exposure. Many areas add supplemental fluoride, leading to varying exposure levels across the population.

Researchers found that children living in areas with high fluoride concentrations in drinking water had significantly larger thyroid glands and an increased risk of thyroid nodules and abnormalities.¹² For every unit increase in water fluoride, thyroid volume increased markedly. Children exposed to high levels had about twice the thyroid volume compared to those in low exposure areas.

The study also found that **excessive fluoride intake** disrupted normal thyroid hormone levels, particularly reducing levels of free T3. These findings suggest that fluoride exposure may interfere with children's thyroid function through multiple mechanisms, including altering iodine storage and release in the thyroid gland.

This disruption of thyroid hormones during critical developmental periods could have lasting impacts. The researchers noted that fluoride affects the activity of thyroid-stimulating hormone (TSH) by inhibiting thyroid acid cyclase, explaining some of these effects.

Exposure to high levels of fluoride was also associated with lower IQ scores in school-age children. Compared to children in low exposure areas, those living in regions with high fluoride in drinking water scored significantly lower on IQ tests. The researchers found a negative correlation between urinary fluoride levels and intelligence scores. Children exposed to higher levels were more likely to have average IQ scores, with fewer scoring in the higher IQ ranges.¹³

The study suggests fluoride may cross the blood-brain barrier and accumulate in the brain, causing learning and memory deficits. Accumulated fluoride may also result in nerve damage in the central nervous system and alter cognition, behavior and neuropsychiatric function.

Assessing Fluoride's Risk to Your Health

The court's analysis focused on several key factors to determine the risk posed by fluoride. First, the severity of the harm — reduced IQ in children — was deemed significant. Even small decrements in IQ have substantial impacts on educational attainment, employment status, productivity and earned wages.¹⁴

Second, the court considered the size of the exposed population, which includes over 2 million pregnant women and their babies in the U.S. annually. Overall, about 200 million Americans drink fluoridated water.¹⁵ The frequency and duration of exposure were also noted, as fluoride ingestion occurs daily through drinking water and food prepared with fluoridated water.

Importantly, the court found there is an insufficient margin of safety between the levels at which fluoride is considered hazardous and the actual exposure levels in U.S. drinking

water. This lack of a safety margin was another important factor in the judge's decision that fluoride's risk is unreasonable and requires regulatory action.¹⁶

This ruling has significant implications for your and your family's health, particularly if you live in an area with fluoridated water. The court's decision highlights the risks of long-term, low-level fluoride exposure, especially for pregnant women and young children. While the ruling doesn't immediately change water fluoridation practices, it does require the EPA to take action to address these risks.

This could lead to changes in fluoridation levels, additional warnings or the phasing out of water fluoridation. As a consumer, it's important to be aware of fluoride exposure from various sources, including drinking water, dental products and foods prepared with fluoridated water.

Practical Steps to Reduce Your Fluoride Exposure

While the court has ordered the EPA to initiate a rulemaking process, the specific actions the agency will take remain to be seen. The EPA has several options, ranging from requiring warning labels to banning the addition of fluoride to drinking water. As this process unfolds, you can take steps to reduce your fluoride exposure.

If you live in an area with fluoridated water, using a high-quality water filter certified to remove fluoride is one option to consider. Also opt for fluoride-free dental products, and be aware that certain foods and beverages like black and green teas may also contain significant fluoride. For infants, breastfeeding is the best option, as breastmilk contains little, if any, fluoride.

If this isn't possible, using filtered, fluoride-free water to reconstitute formula is important to reduce early-life exposure.

Choosing the Right Water Filtration System

When considering water filtration options to remove fluoride, you have several choices. Reverse osmosis,¹⁷ deionizers and activated alumina absorption media are effective at reducing fluoride levels. Distillation, though not technically filtration, also removes fluoride. However, common carbon filters like PUR and Brita, as well as water softeners, do not filter out fluoride.

For comprehensive protection, consider installing a high-quality, whole-house water filtration system. Ideally, filter water both at the point of entry and at exit points like showers and kitchen sinks. This approach is particularly important when preparing infant formula. Each filtration method has its pros and cons:

Reverse osmosis (RO) removes about 80% of fluoride along with other contaminants, but requires regular maintenance to prevent bacterial growth. A tankless RO system with a compressor may be your best option, though professional installation might be needed.

Ion exchange filters remove dissolved salts and soften water but may have issues with bacterial contamination. They're often combined with carbon filters for better results. Granular-activated carbon filters are common in countertop and undercounter systems. They effectively remove organic contaminants and chemicals like chlorine and pesticides. However, they may not be as effective against hydrogen sulfide and require regular replacement.

For optimal fluoride removal, consider combining a granular-activated carbon filter with bone char,¹⁸ which has shown excellent results in studies. Whatever system you choose, ensure it fits your needs and budget while providing effective fluoride reduction. Keep in mind, too, that achieving optimal oral health and cavity prevention shouldn't involve drinking fluoridated water or using toothpaste containing fluoride.

Natural Approaches to Dental Health

While your toothbrush and fluoride-free toothpaste are essential tools, they're far from the sole options for dental care. Various natural substances, including the foods you

consume, play a significant role in enhancing not only your **dental health** but also your overall well-being.

Focus on a nutrient-dense diet rich in vitamins and minerals that support tooth and gum health. Consider natural antimicrobial agents like coconut oil pulling or herbal rinses to promote oral hygiene without the risks associated with fluoride exposure.

By taking these steps to reduce fluoride exposure and embracing natural dental care practices, you protect your health while still maintaining strong, healthy teeth. Stay informed, make conscious choices about your water and dental products, and remember that overall health begins with what you put into your body – including the water you drink and the products you use daily.

Sources and References

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- ¹⁷ [FAN, Top 10 Ways to Reduce Fluoride Exposure](#)
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