

More Studies Show Fluoride Affects Brain and Disrupts Sleep

Analysis by [Dr. Joseph Mercola](#)

✓ Fact Checked

February 09, 2023

STORY AT-A-GLANCE

- › More than 400 animal and human studies show fluoride is a neurotoxic substance, and many have found harm at, or precariously close to, the levels millions of American pregnant women and children receive
- › A 1 mg-per-day increase in the fluoride a mother gets from drinking water may lower the IQ of her child by 3.7 points
- › Infants fed baby formula made with fluoridated water have lower IQs than those fed formula made with unfluoridated water. An increase of 0.5 mg/L of fluoride corresponds with a 4.4 point lower IQ score at age 3 to 4
- › Fluoride may have an adverse impact on sleep by preferentially accumulating in the pineal gland, thereby inhibiting the production of melatonin

While water fluoridation was never adopted or has been eliminated in many areas around the world, including most of western Europe,¹ many U.S. water systems² still add fluoride chemicals such as fluorosilicic acid³ (also known as hydrofluorosilicic acid) to their municipal water supplies.

As detailed in Christopher Bryson's book, "The Fluoride Deception,"⁴ water fluoridation as a public health measure (ostensibly to improve dental health) was invented by brilliant schemers who needed a way to get rid of toxic industrial waste.

They duped politicians with fraudulent science and endorsements, and sold them on a “public health” idea in which humans are essentially used to filter this poison through their bodies, while the vast majority simply goes down the drain.

Since the inception of water fluoridation in 1945, fluorosilicic acid suppliers have been making hundreds of millions of dollars each year⁵ selling a hazardous industrial waste for use as a water additive rather than having to pay for toxic waste disposal.

“Toxic Treatment: Fluoride’s Transformation from Industrial Waste to Public Health Miracle” in the March 2018 issue of *Origins*,⁶ a joint publication by the history departments at The Ohio State University and Miami University, notes:

“Without the phosphate industry’s effluent, water fluoridation would be prohibitively expensive. And without fluoridation, the phosphate industry would be stuck with an expensive waste disposal problem.”

Fluoride Is a Neurotoxic Endocrine Disruptor

We now know fluoride – which serves no essential biological function⁷ – actually acts as an endocrine disruptor.⁸ Exposure has been linked to thyroid disease,⁹ which in turn can contribute to obesity, heart disease, depression and other health problems.

More disturbingly, fluoride has been identified as a developmental neurotoxin that impacts short-term and working memory, and contributes to rising rates of attention-deficit hyperactive disorder¹⁰ and lowered IQ in children.¹¹

In all, there are more than 400 animal and human studies showing fluoride is a neurotoxic substance.¹² Many of these studies have found harm at, or precariously close to, the levels millions of American pregnant women and children receive.

Government-Funded Research Confirms Fluoride Lowers IQ

One of the most recent studies highlighting these dangers was a U.S. and Canadian government-funded observational study published in the August 19, 2019, issue of JAMA Pediatrics,¹³ which found that drinking fluoridated water during pregnancy lowers children's IQ.

The research, led by a Canadian team of researchers at York University in Ontario, looked at 512 mother-child pairs living in six Canadian cities. Fluoride levels were measured through urine samples collected during pregnancy.

They also estimated the women's fluoride consumption based on the level of fluoride in the local water supply and how much water and tea each woman drank. The children's IQ scores were then assessed between the ages of 3 and 4. As reported by Fluoride Action Network (FAN):¹⁴

"They found that a 1 mg per liter increase in concentration of fluoride in mothers' urine was associated with a 4.5-point decrease in IQ among boys, though not girls.

When the researchers measured fluoride exposure by examining the women's fluid intake, they found lower IQ's in both boys and girls: A 1 mg increase per day was associated with a 3.7 point IQ deficit in both genders."

The findings were deemed so controversial, the study had to undergo additional peer-review and scrutiny before publication, making it one of the more important fluoride studies to date.

Its import is also demonstrated by the fact that it's accompanied by an editor's note¹⁵ explaining the journal's decision to publish the study, and a podcast¹⁶ featuring the chief editors of JAMA Pediatrics and JAMA Network Open, in which they discuss the study.

An additional editorial¹⁷ by David Bellinger, Ph.D., a world-renowned neurotoxicity expert, also points out that "The hypothesis that fluoride is a neurodevelopmental toxicant must now be given serious consideration." Few studies ever receive all of this added treatment.

Fluoride Exposure From Infant Formula Lowers IQ

In October 2019, a Canadian study¹⁸ concluded that infants fed baby formula made with fluoridated water have lower IQs than those fed formula made with unfluoridated water.

As explained by the authors:

“Consumption of infant formula reconstituted with fluoridated water can lead to excessive intake of fluoride in infants. We examined the association between water fluoride concentration and intellectual ability (IQ) among preschool children who lived in fluoridated or non-fluoridated cities in Canada and were either formula-fed or breastfed during the first six months after birth.”

Results revealed an increase of 0.5 milligrams of fluoride per liter (mg/L), which was the difference between the fluoridated and non-fluoridated regions, corresponded with a 4.4 point lower IQ score at age 3 to 4.

Not surprisingly, the researchers urge parents to avoid fluoridated water when reconstituting infant formula.

Fluoride Exposure Affects Sleep Patterns

Other recent fluoride research has discovered it can have an adverse impact on [sleep](#). The study,^{19,20} published in the Environmental Health journal in 2019, found that chronic low-level fluoride exposure altered the sleep patterns of adolescents aged 16 to 19.

The hypothesis used to explain this effect is that fluoride is known to preferentially accumulate in the pineal gland, which might inhibit or alter the production of melatonin, the hormone that regulates sleep and wakefulness.

The study used data from the 2015-2016 National Health and Nutrition Examination Survey (NHANES) that included plasma fluoride and water fluoride measurements. None of the included individuals were prescribed medication for sleep disorders.

Each 0.52 mg/L increase in water fluoride was associated with a 197% higher odds²¹ of symptoms suggestive of sleep apnea, as well as a 24-minute later bedtime and 26-minute later waking time. According to the authors:²²

“Fluoride exposure may contribute to changes in sleep cycle regulation and sleep behaviors among older adolescents in the U.S. ...

The high accumulation of fluoride in pineal gland hydroxyapatite (among those chronically exposed) points to a plausible mechanism by which fluoride may influence sleep patterns. In adults, pineal gland fluoride concentrations have been shown to strongly correlate with degree of pineal gland calcification.

Interestingly, greater degree of pineal calcification among older adolescents and/or adults is associated with decreased melatonin production, lower REM sleep percentage, decreased total sleep time, poorer sleep efficiency, greater sleep disturbances and greater daytime tiredness.

While there are no existing human studies on fluoride exposure and melatonin production or sleep behaviors, findings from a doctoral dissertation demonstrated that gerbils fed a high fluoride diet had lower nighttime melatonin production than those fed a low fluoride diet. Moreover, their melatonin production was lower than normal for their developmental stage ...

It is possible that excess fluoride exposure may contribute to increased pineal gland calcification and subsequent decreases in nighttime melatonin production that contribute to sleep disturbances. Additional animal and prospective human studies are needed to explore this hypothesis.”

Purify Your Water and Avoid Fluoride

Water is the only beverage you cannot live without. Unfortunately, pure water is hard to come by these days, as water pollution, inadequate water treatment and the addition of fluoride render most municipal water supplies untrustworthy.

To ensure purity, you really need to filter your own tap water. For guidance on selecting a suitable water filtration system for your home or apartment, see “How to Properly Filter Your Water.”

Water filtration is particularly important if your water is fluoridated and you are combating chronic disease (especially thyroid disease), have young children or are using your tap water to reconstitute infant formula.

Keep in mind that fluoride is very difficult to get out of the water once added. When shopping for a filtration system, make sure it's specifically rated to filter out fluoride.

According to the Water Quality Association²³ and others,²⁴ filters capable of removing fluoride include reverse osmosis, deionizers and activated alumina adsorption media such as Berkey filters. Distillation, while not a form of filtration, will also remove fluoride. Carbon filters such as PUR and Brita will not filter out fluoride, and neither will water softeners.

Sources and References

- [1 Fluoride Alert](#)
- [2 Fluoridealert.org March 22, 2016](#)
- [3 CDC.gov Water Fluoridation Additives](#)
- [4 Publishers Weekly, The Fluoride Deception](#)
- [5 Global Newswire September 22, 2022](#)
- [6 Origins March 2018; 11\(6\)](#)
- [7 Int. J. Environ. Res. Public Health 2019; 16\(18\): 3431, Introduction](#)
- [8, 9 National Research Council of the National Academies 2006, page 266](#)
- [10 Environmental Health 2015; 14:17](#)
- [11, 12 Fluoride Action Network, Effects of Fluoride on Brain](#)
- [13 JAMA Pediatrics August 19, 2019; 173\(10\): 940-948](#)
- [14 Fluoride Alert August 19, 2019](#)
- [15 JAMA Pediatrics Editor's Note August 19, 2019, Decision to Publish Study on Maternal Fluoride Exposure During Pregnancy](#)
- [16 JAMA Pediatrics October 7, 2019 Podcast, Association Between Maternal Fluoride Exposure During Pregnancy and IQ Scores in Offspring in Canada](#)
- [17 JAMA Pediatrics Editorial by David C. Bellinger August 19, 2019](#)
- [18 Environmental Epidemiology October 2019; 3: 395-396](#)

- ¹⁹ Environmental Health 2019; 18: 108
- ²⁰ AJMC.com January 1, 2020
- ²¹ Environmental Health 2019; 18: 108, Results page 10
- ²² Environmental Health 2019; 18: 108, Conclusions and Discussion
- ²³ WaterFilterGuru
- ²⁴ Fluoridealert.org August 2012