

FLUORIDE

Nutrient or Toxin?

Fluoride has a positive health image in the USA. Most people think that fluoride is beneficial for their teeth and don't hesitate to use fluoridated products. However, most people who take an honest look at the benefits and risks of using fluoride come away with a negative view.

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Next to chlorination, fluoridation of the public water supply has been hailed as one of the top 10 greatest public health victories of the last century. But there is a lot of controversy about water fluoridation. No study has demonstrated that fluoride is an essential nutrient for people. Above very trace levels, research is accumulating that fluoride has a very toxic effect on many systems of the body.

Teeth and Bone Effects

Added fluoride compounds have been disproven as necessary for healthy bones and teeth. Data from the World Health Organization shows that in Europe, where fluoridation is uncommon, the rates of cavities among children has decreased as much in recent years as in areas where fluoridation is practiced. So, the claim that fluoride in the water is beneficial has really not held up to independent scientific scrutiny.

Furthermore, there are adverse effects of ingesting too much fluoride. First, systemic fluoridation leads to more brittle, fragile bones. Eighteen studies are cited on the Fluoride Action Networks website showing that fluoride increases bone mass density but reduces strength of the bone at the same time, due to fluoride-caused defects in the bone structure.

Neurotoxic Effects

Fluoride combines readily with low levels of aluminum in drinking water and tends to accumulate in the brain. Rats drinking distilled water with sodium fluoride added had twice the amount of aluminum in their brains as control rats, and rats drinking water laced with aluminum fluoride had even higher levels.³ Neurotoxic, morphological changes were seen in brain tissue of the rats in both the sodium fluoride and aluminum fluoride groups compared to the control rats, including changes similar to what is seen in Alzheimer's disease. The level of fluoride used in this study was 0.95 ppm fluoride, the same level recommended by public health officials to "protect teeth."

Intelligence

Second, fluoride and iodine (both halogens) compete for uptake by the thyroid gland. This results in hypothyroidism in some cases. In China, "high" fluoride intake (0.88 mg/L drinking water, slightly lower than the public health level of 1 mg/L here in the USA) exacerbated low iodine intakes, resulting in lower IQs among school aged children.⁴ Lower IQ was found in children with normal levels of iodine and "high" levels of fluoride, but it was much worse when "high" fluoride levels were combined with low iodine levels. In another Chinese study, a doseresponse relationship was shown between levels of fluoride in the drinking water (mostly below the current EPA limit of 4 mg/L) and IQ of school age children. These studies indicate that even accepted levels of fluoride in the water may affect children's intelligence, and that fluoride has a direct effect on

the central nervous system's development.

Pineal Gland, Thyroid, Diabetes

Fluoride accumulates in the pineal gland in the brain, causing lowered melatonin secretion in prepubescent gerbils and earlier onset of sexual maturation in female gerbils.⁶ Whether this effect occurs in people is unknown. Fluoride may be a contributing factor to a very rare bone cancer called osteosarcoma. Research results in this area have not been consistent. Fluoride can cause an elevation in blood sugar levels, which exacerbates diabetes in rats. Young adults with dental fluorosis were found to have a significant correlation between plasma fluoride levels and impaired glucose tolerance. When water without excess fluoride was provided, the impaired glucose tolerance was normalized. Interestingly, iodine has been reported to have the opposing effect of decreasing blood sugar levels.

What Level is Safe?

In spring 2006, the National Research Council issued a report on their review of the EPA's safe limit of 4 mg/L fluoride. Their conclusion was that the current limit is too high, but they were not commissioned to determine a new, lower, safe level. One of the committee persons was Dr. Kathleen M. Thiessen, a senior scientist at SENES Oak Ridge, Inc., Center for Risk Analysis. She made this comment in an interview: "The concentration of fluoride that's used for supposed benefits is also in the range where adverse health effects are seen or are beginning to be seen. There's an overlap of the so-called beneficial range and the so-called adverse health effect range. And that's no margin of safety".

Both the CDC and EPA disagree and declare that the dangerous levels of fluoride were only above 2 mg/L, so fluoridation at 0.7 to 1.2 mg/L is still acceptable.¹⁰ However, the American Dental Association, based on this 2006 NRC report, recommended that infant formula only be made from "water that is labeled purified, demineralized, deionized, distilled, or reverse osmosis filtered water."

Furthermore, young children and people drinking moderate or large amounts of fluoridated water could easily reach fluoride intakes that are associated with the negative health affects found in the NRC report. Many of the negative effects cited in this article are from fluoride levels near or even below 1 mg/L, so this stance by the CDC doesn't make sense. It appears that politics still play a role in fluoride regulations.

Removing Fluoride from Water

The best ways to remove fluoride from water are with a reverse osmosis system or a water distiller. There are a few specialized filters available that are designed to remove fluoride, but generally filters do not remove fluoride from the water supply. The resin that removes fluoride and arsenic works best at acidic pH, which is not commonly found in the public water supply as it is corrosive to the piping. So, a reverse osmosis system or a water distiller is your best option for getting fluoride out of your water.

Other Sources of Fluoride

Along with municipal water, fluoride can sneak into your body in a number of other ways. Toothpaste and dental treatments are another obvious source, which you can easily control. Many options are available for cleaning teeth without fluoride.

Surprisingly, tea is naturally high in fluoride. Both black and green tea have high levels of fluoride. One cup of caffeinated, traditional-brew tea would give you as much fluoride as a whole liter of fluoridated water. Herbal

teas that don't contain any tea leaves are the exception and are acceptable for drinking.

Reconstituted juices and sodas made with fluoridated water are hidden sources of fluoride. The pesticide cryolite, about 50% fluoride, contributes to exposure of fluoride. Cryolite is used mainly on wine and table grapes. This is why California wines and raisins are high in fluoride.

Zero Tolerance

Fluoride is not a benign additive to our water. It is a highly reactive element. It acts as a neurotoxin causing increased accumulation of aluminum in the brain, brittle bones leading to increased rates of hip fractures, decreased intelligence in developing infants, and interference with thyroid function. Subpopulations at higher risk include infants, people with impaired kidney function, and people with diabetes. It is no more a required element in the human body than lead. In fact, both lead and fluoride should be seen in the same light — toxic elements whose exposure should be reduced to zero.