

Developing Concerns: Does Fluoride Exposure Lower Children's IQ?

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Water fluoridation has been an example of one of the great public health successes, credited with substantially reducing tooth decay. Water fluoridation was based upon the discovery in the 1930s by a dentist, **H. Trendley Dean DDS**, that 1 mg/L of fluoride in drinking water protects against dental caries while causing minimal dental fluorosis. In the 1950s, community water fluoridation was promoted as safe and effective in



the fight against dental caries. Since the 1970s, **the rates of tooth decay have plummeted in the US and other countries.** A 2015 Cochrane review found that community water fluoridation was associated with a 25% relative reduction in dental caries in children. Lately, however, US politicians have **questioned whether community water systems should remove fluoride as a public health measure.**

A newly published study, by **Taylor et al** (JAMA Pediatrics, published online 1-6-24, doi 10.1001) questions whether high fluoride exposure is linked to a lower IQ in children. This meta-analysis combined data from 10 countries consisting of 74 different studies, 45 of which were from China. These observational studies were of varied quality, and used different measures of fluoride exposure, including either drinking water samples or urine fluoride measures or both. For comparison purposes, the EPA's maximum allowable level is 4 mg/L for water fluoride, and the World Health Organization and many countries recommend 1.5 mg/L. More than 200 million people in the US are exposed to about 0.7 mg/L from a public water system although private wells may have higher levels.

Taylor et al found that of the 12 studies with low risk of bias, there was evidence of inverse association between high and low fluoride exposure and children's IQ scores, with a standardized mean difference of 2.8 IQ points lower with higher exposure (2 mg/L or less). In studies with fluoride concentrations of less than 1.5 mg/L, no statistically significant associations were reported. Two editorials in the same issue have noted "caution needed in interpreting the evidence base on fluoride and IQ" (Lamphear et al, and Levy both in the same issue). They note that there are other sources of fluoride, including fluoride varnish and fluoride containing toothpaste. They question the rigor of the scientific aspects of the report, and the lack of transparency of the data used. All three papers suggest that further research is needed related to low levels of fluoridation (less than 1.5 mg/L), although one can question whether establishing small differences in IQ within the normal range is worth further research efforts.

JOIN US!!

If you are interested, please join our team. Our next virtual Committee Meeting will be on Wednesday February 26 at 7 PM. We are planning a SUICIDE PREVENTION SUMMIT on March 29, 2025 starting at 8 AM, and would welcome your participation. Contact Dr. Renee Wachtel at info@aapca1.org



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