

From: Melissa Braga

Sent: Thursday, November 7, 2024 10:40 AM

To: Lisa Hadge <LHadge@tewksbury-ma.gov>; Shannon Gillis <sgillis@tewksbury-ma.gov>

Subject: Fluoride Studies and Findings

In preparation for the upcoming discussion on fluoride, please share these recent research and regulatory updates highlighting fluorides potential neurotoxicity effects, particularly on children's cognitive development.

1. National Toxicology Program (NTP) Findings on Fluoride and IQ

- The NTP has conducted a comprehensive review of fluoride’s effects on neurodevelopment, concluding with “moderate confidence” that fluoride exposure, even at levels found in public water supplies, is associated with developmental neurotoxicity. The NTP’s 2022 and 2023 analyses found a **consistent association between higher fluoride exposure and lower IQ scores in children**, particularly those exposed in utero or early childhood .

- Across 55 studies reviewed, 52 indicated a negative impact on IQ with fluoride exposure, even at levels considered “optimal” (0.7 mg/L) for water fluoridation. The findings suggest no clear “safe” threshold for fluoride exposure, raising concerns about cumulative effects from water and other sources like toothpaste .

<https://ntp.niehs.nih.gov/whatwestudy/assessments/noncancer/completed/fluoride>

2. Recent Peer-Reviewed Studies on Fluoride and Cognitive Impact

- **Bashash et al. (2017, 2018):** This series of studies highlighted that higher prenatal fluoride exposure was linked to lower IQ scores in children at age 4 and between ages 6-12. These studies, conducted in Mexico where fluoride levels in drinking water are similar to those in the U.S., indicated that even relatively low levels of fluoride may have neurotoxic effects during fetal development .

<https://ehp.niehs.nih.gov/doi/10.1289/EHP655>

- **Green et al. (2019):** This Canadian study supported similar findings, associating maternal fluoride exposure during pregnancy with lower IQ in offspring. Notably, this study suggested that increased maternal urinary fluoride levels—an indicator of total fluoride exposure—were associated with IQ reductions in their children .

<https://jamanetwork.com/journals/jamapediatrics/fullarticle/2748634>

- **Till et al. (2020):** A study investigating the impact of fluoridated water consumption found that children who consumed higher levels of fluoridated water during early childhood showed reduced IQ scores compared to those in non-fluoridated areas. This reinforces findings that early exposure to fluoride could be particularly harmful to brain development .

Although the study was recently retracted due to methodological concerns, it may still be valuable for our review and discussion. The study initially contributed to the broader body of research linking fluoride exposure with potential cognitive impacts, particularly lower IQ scores in children exposed to fluoridated water. While the retraction calls for careful interpretation, the study aligns with other recent findings on fluoride and neurodevelopment, supporting a more thorough examination of this issue.

<https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-020-09765-4>

3. Comparisons with Known Neurotoxicants

- The NTP and supporting studies position fluoride alongside other well-recognized neurotoxicants, such as lead and methylmercury, due to its potential to interfere with brain development at low exposure levels. This classification places fluoride in the same category as substances known to reduce cognitive function across populations .

4. Calls for Reassessment and Policy Implications

- In light of these findings, several health advocacy groups and researchers are urging federal and local governments to reassess water fluoridation policies. The International Academy of Biological Dentistry and Medicine, for example, has publicly called for an end to mandatory fluoridation, citing the new evidence on fluoride’s neurotoxic potential as a major public health concern .

- Legal and political pressure has also emerged, with advocates arguing that current fluoridation policies may no longer align with updated scientific insights. Efforts are being made to propose further research, policy amendments, and increased public education on fluoride sources and risks .

5. Additional Risks and Vulnerable Populations

- Research suggests that **infants, young children, and pregnant women** are particularly vulnerable to the effects of fluoride. Studies indicate that fluoride crosses the placenta, directly impacting fetal brain development, and young children may be more affected by fluoride exposure due to their lower body mass and developmental stage.
- The cumulative exposure from multiple sources—such as drinking water, food, and dental products—may increase the risk of adverse effects, which is significant given that many individuals consume fluoride from several sources daily .

In health,

Melissa Braga, BSN, RN

Tewksbury Board of Health, Chair

Phone: 978-973-0093