

From: [Brenda Staudenmaier](#)
To: [Rummel, Marsha](#); [Water](#); [Deming, Amy](#); [Water Utility Board](#)
Subject: List of fluoride studies attached
Date: Saturday, August 22, 2020 8:06:11 AM
Attachments: [AnnotatedBiblioGen_August_2020.pdf](#)

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I promise you that the Dane County Public Health has been cherry picking the science on F and relying heavily on fluoride promoters like the American Dental Association, which is a trade group with the best interest of making money for dentists. I have attached a list of studies to this email that need to be looked at.

In section 4 of the *Dane County Fluoridation Policy* Reduction of IQ in children, "A number of systematic reviews of the literature and individual investigations does not support this association; including the recent study released in 2018 conducted by the National Toxicology Program (NTP)." They are referencing this 2018 study done on a species of rat that is highly resistant to fluoride toxicity, 29. McPherson, C.A., Zhange, G., Gilliam, R., Brar, S.S., Wilson, R., Brix, A., and Picut, C. (2018). *An evaluation of neurotoxicity following fluoride exposure from gestational through adult ages in longevans rats. Neurotoxicity Research*, 34(4), 781 – 798.

The National Toxicology Program's inclusive 2019 report (https://www.asdwa.org/wp-content/uploads/2019/10/draft_fluoride_monograph_20190906_5081.pdf) reviewed 149 human and 339 animal studies on neurotoxicity and concluded in its draft results that **"fluoride is presumed to be a cognitive neurodevelopmental hazard to humans."**

One more thing to note is that if you look on the CDC fluoridation pages and search for brain, neurotoxicity, or anything on the topic there is not one single source to a study on the brain. Yet they make a blanket statement that says, "Research evidence . . . does not demonstrate that community water fluoridation results in any unwanted health effects other than dental fluorosis." If you don't look at the science, or pretend that it doesn't exist, only then can you make this statement.

We know how CDC treated the lead crisis in Washington DC and Flint, MI. They falsified reports that lead to many children being poisoned by lead around the world. I believe that they are once again causing harm to children by ignoring the fluoride neurotoxicity research. Here are some details on the lead issue, <http://www.buffalo.edu/ubnow/stories/2016/10/edwards-renew-lecture.html>

Six Congressional investigations were held to look into this. But nothing came of it after the Centers for Disease Control and Prevention (CDC) wrote up a report that — I kid you not — found that no one in Washington, D.C., not a single man, woman or child, was hurt by these three years of unprecedented lead exposure."

Edwards said the CDC had not tested residents who drank the city's water every day.

"Instead, they tested the blood lead levels of individuals who had not consumed D.C. tap water for a year, then passed those results as the worst cases."

Edwards called the study scientific misconduct, but said the damage it caused went beyond misrepresenting data.

“The CDC falsified this report. Then, the lies from their study started to spread around the world and I began reading about this stuff not only in our country, but in cases in Europe and Canada — people and governments saying ‘We don’t have to worry about lead in water.’

I appreciate a fair look at this issue and I would like to see it go to the full council to vote it out. I believe that Doug from the Board of Health who has written the Dane County Fluoridation Policy Statements over the years is highly biased on this issue and he sits on the water board. There is no way that anyone can review the scientific literature and conclude that fluoridation has been proven safe, especially for pregnant women, their unborn children, and infants.

Thanks,
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Fluoridation Policy: *An Annotated Bibliography of Published Science*

A sampling of the scientific studies and reports relevant to water fluoridation published since the HHS 2015 recommendation to lower the fluoridation target to 0.7 ppm.

I suggest these items provide compelling evidence that 0.7 ppm is neither optimal nor safe and that any claims to the contrary are ill-founded. Moreover, protests that more study is required before banning fluoridation is a tacit endorsement of human experimentation without individual consent which is medical assault - *Karen Spencer*

2020

Blood: Canadian Health Measures Survey (CHMS) collects extensive biomonitoring data used to assess the exposure of Canadians to environmental chemicals finds higher fluoride in urine associated with significantly higher blood lead, urinary lead, etc. Also finds urinary selenium is significantly lower in fluoridated Canadian communities, “this is the first study where biomonitoring data from multiple cycles of CHMS were combined in order to generate robust estimates for subsets of the Canadian population. Such assessments can contribute to a regional-level prioritization of control measures to reduce the exposure of Canadians to chemicals in their environment.”

<https://www.ncbi.nlm.nih.gov/pubmed/31972364?dopt=Abstract>

- Valcke M, Karthikeyan S, Walker M, Gagné M, Copes R, St-Amand A. Regional variations in human chemical exposures in Canada: A case study using biomonitoring data from the Canadian Health Measures Survey for the provinces of Quebec and Ontario. *Int J Hyg Environ Health*. 2020 Jan 20;225:113451.

Thyroid & IQ: Concentrations of fluoride in drinking water considered optimal and safe in the US result in altered thyroid function and lowered IQ in Chinese children.

<https://www.sciencedirect.com/science/article/pii/S0160412019301370>

- Wang M, Liu L, Li H, et al. Thyroid function, intelligence, and low-moderate fluoride exposure among Chinese school-age children. *Environment International*. Volume 134, January 2020.

Canadian Babies: Canadian bottle-fed babies have lower IQ in optimally fluoridated communities while breast fed babies have extremely low F and significantly higher IQ. MIREC.

<https://www.sciencedirect.com/science/article/pii/S0160412019326145>

- Till C, Green R, Flora D, Hornung R, Martinez-Miller EA, Blazer M, Farmus L, Ayotte P, Muckle G, Lanphear B. Fluoride exposure from infant formula and child IQ in a Canadian birth cohort. *Environment International*. 2020

Biased Narratives: Canadian researchers comment on “expert” attacks on the high quality studies that contradict the dental CWF narrative, i.e. political suppression of scientific facts.

<https://www.nature.com/articles/s41390-020-0973-8>

- Till, C., Green, R. Controversy: The evolving science of fluoride: when new evidence doesn't conform with existing beliefs. *Pediatr Res* (2020).

Bone Health: Low to moderate fluoride exposure weakens and damages bones in women.

<https://www.sciencedirect.com/science/article/abs/pii/S0147651320308708>

- Minghui Gao et al, Association between low-to-moderate fluoride exposure and bone mineral density in Chinese adults: Non-negligible role of RUNX2 promoter methylation. *Ecotoxicology and Environmental Safety*. Volume 203, 15 October 2020.

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Sex Hormones in Fluoridated US: “The data indicated gender- and age-specific inverse associations of fluoride in plasma and water with sex steroid hormones of total testosterone, estradiol and SHBG in U.S. children and adolescents.”

<https://www.sciencedirect.com/science/article/pii/S0269749119357963>

- Bai, R., Huang, Y., Wang, F., & Guo, J. (2020). Associations of fluoride exposure with sex steroid hormones among U.S. children and adolescents, NHANES 2013–2016. *Environmental Pollution*, 114003.

Nervous System: The enteric nervous system (ENS) is called the second brain and governs the gastrointestinal track. Includes dopamine & serotonin function. Study finds “fluoride exposure during pregnancy and lactation might induce ENS developmental defects.”

<https://link.springer.com/article/10.1007/s12011-020-02249-x>

- Sarwar, S., Quadri, J.A., Kumar, M. et al. Apoptotic and Degenerative Changes in the Enteric Nervous System Following Exposure to Fluoride During Pre- and Post-natal Periods. *Biol Trace Elem Res* (2020).

Endocrine System Review: The endocrine system include the pineal gland, hypothalamus, pituitary gland, thyroid with parathyroid glands, thymus, pancreas (partial endocrine function), adrenal glands, as well as male and female gonads (testes and ovaries) are adversely effected by exposure to fluoride.

<https://www.sciencedirect.com/science/article/abs/pii/S0045653520317604>

- Marta Skórka-Majewicz et al, Effect of fluoride on endocrine tissues and their secretory functions -- review. *Chemosphere*, Volume 260, December 2020, 127565.

WHO ignores Kidneys: WHO guidelines of safety below 1.5 ppm fluoride concentration is wrong. “The available guidelines for drinking water are solely based on healthy populations with normal renal function. But, it is evident that once the kidney function is impaired, patients enter a vicious cycle as fluoride gradually accumulates in the body, further damaging the kidney tissue.”

<https://www.sciencedirect.com/science/article/abs/pii/S0045653520313795>

- Shanika Nanayakkara, et al. The Influence of fluoride on chronic kidney disease of uncertain aetiology (CKDu) in Sri Lanka. *Chemosphere*. Volume 257, October 2020, 127186

Pediatric Bone Disease: Identifies fluoride concentrations in water above 1.2 ppm as “dangerously high” that can cause pediatric bone disease. Urine measurements of fluoride in those afflicted are below the fluoride concentrations in women living in optimally fluoridated communities per 2017 Canadian study by Green et al.

- Nipith Charoenngam, Muhammet B Cevik, Michael F Holick Diagnosis and management of pediatric metabolic bone diseases associated with skeletal fragility. *Curr Opin Pediatr*. 2020 Aug;32(4):560-573.

EPA on Environmental Stress: EPA authors find that exposure to fluoride has the greatest adverse impact on cognitive ability in children, even more than lead.

<https://www.mdpi.com/1660-4601/17/15/5451/htm>

- Frances M. Nilsen, Jazmin D.C. Ruiz and Nicolle S. Tolve. A Meta-Analysis of Stressors from the Total Environment Associated with Children’s General Cognitive Ability. *Int. J. Environ. Res. Public Health* 2020, 17(15), 5451.

Dental Fluorosis & CWF Cessation: Dental literature review by dentists finds “a significant decrease in the prevalence of fluorosis post cessation or reduction in the concentration of fluoride added to the water supply.”

<https://pubmed.ncbi.nlm.nih.gov/32598322/>

- Nor Azlida Mohd Nor, Kuala Lumpur, Barbara L. Chadwick, Damian JJ. Farnell, Ivor G. Chestnutt. The impact of stopping or reducing the level of fluoride in public water supplies on dental fluorosis: a systematic review. *Reviews on Environmental Health*. 2020.

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2019

Overdosed Infants: MIREC study documents Canadian bottle-fed babies have lower IQ with CWF. Breast fed babies have extremely low F exposure and significantly higher IQ.

<https://www.sciencedirect.com/science/article/pii/S0160412019326145>

- Till C, Green R, Flora D, Hornung R, Martinez-Miller EA, Blazer M, Farmus L, Ayotte P, Muckle G, Lanphear B. Fluoride exposure from infant formula and child IQ in a Canadian birth cohort. *Environment International*. Nov, 18, 2019.

Sleep & Pineal Gland: "Chronic low-level fluoride exposure may contribute to changes in sleep cycle regulation and sleep behaviors among older adolescents in the US."

<https://ehjournal.biomedcentral.com/articles/10.1186/s12940-019-0546-7>

- Malin, A.J., Bose, S., Busgang, S.A. et al. Fluoride exposure and sleep patterns among older adolescents in the United States: a cross-sectional study of NHANES 2015–2016. *Environ Health* 18, 106 (2019)

ADHD: Youth in optimally fluoridated Canadian communities are almost 3 times more likely to be diagnosed with ADHD and have significantly higher rates of other learning disabilities as compared to their counterparts in non-fluoridated communities on a dose-response trend line.

<https://www.sciencedirect.com/science/article/pii/S0160412019315971>

- Riddell JK, et al. Association of water fluoride and urinary fluoride concentrations with attention deficit hyperactivity disorder in Canadian youth. *Environment International*. Volume 133, Part B, December 2019, [online ahead of print]

ASD: Increased exposure to fluoride is associated with higher incidence of ASD in regions with fluoridated water or endemic fluorosis. Based on biological plausibility and incidence, authors hypothesize that increased fluoride exposure is an environmental risk factor for autism.

<https://www.mdpi.com/1660-4601/16/18/3431/htm>

- Strunecka A, Strunecky O. Chronic Fluoride Exposure and the Risk of Autism Spectrum Disorder. *Int. J. Environ. Res. Public Health* 2019, 16(18), 3431.

PRENATAL: Three measurements in high quality NIH sponsored prospective cohort study (MIREC) found significantly lowered IQ in offspring of mostly white, well-educated Canadian women living in 'optimally' fluoridated communities.

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

- Green R, Lanphear B, Hornung R, et al. (2019) Association Between Maternal Fluoride Exposure During Pregnancy and IQ Scores in Offspring in Canada. *JAMA Pediatrics*. 2019.

KIDNEY & LIVER: Researchers at Mt. Sinai Medical School find American teens in optimally fluoridated American towns have markers for altered kidney & liver parameters that puts them at higher risk for kidney & liver disease as adults.

<https://www.sciencedirect.com/science/article/pii/S0160412019309274>

- Malin AJ, Lesseur C, Busgang SA, Curtin P, Wright RO, Sanders AP. Fluoride exposure and kidney and liver function among adolescents in the United States: NHANES, 2013–2016. *Environment International*. August 8, 2019 [online ahead of print].

GUTS: Animal study on microbiome health and immunity documents fluoride causes serious damage to rectal structure and significantly inhibits proliferation of rectal epithelial cells.

<https://www.ncbi.nlm.nih.gov/pubmed/31885060>

- Wang H., Miao C., Liu J. et al. Fluoride-induced rectal barrier damage and microflora disorder in mice. *Environ Sci Pollut Res* (2019).

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TEETH: An analysis of the dental fluorosis data in three U.S. NHANES reports noted that more than half of American teens have fluoride damaged teeth as the result of too much fluoride consumption during childhood. This results in costly cosmetic dentistry in young adulthood for millions as well as increased decay in the more severely affected.

(20% very mild + 15% mild + 28% moderate + 3% severe = 65% afflicted per 2011-12 data)

<http://fluoridealert.org/wp-content/uploads/neurath.2019-1.pdf>

- Neurath C, Limeback H, Osmunson Bm et al. (2019) Dental Fluorosis Trends in US Oral Health Surveys: 1986 to 2012. JDR Clinical & Translational Research.

ALZHEIMER'S: Even low concentrations of fluoride in drinking water at or below concentrations deemed optimal or safe by the WHO result in a pattern of increased dementia.

<https://www.ncbi.nlm.nih.gov/pubmed/30868981>

- Russ TC, Killin LOJ, Hannah J, Batty GD. Aluminium and fluoride in drinking water in relation to later dementia risk. The British Journal of Psychology. March 2019.

DNA DAMAGE: Mitochondrial dysfunction associated with dental fluorosis observed in Chinese children with fluoride concentrations in water identified as optimal or safe per U.S. authorities. Gender differences to the fluoride induced oxidative stress also noted.

<https://www.sciencedirect.com/science/article/pii/S0160412018326291?via%3Dihub>

- Zhou G, Yang L, Luo C, et al. Low-to-moderate fluoride exposure, relative mitochondrial DNA levels, and dental fluorosis in Chinese children. Environment International. Volume 127, June 2019, Pages 70-77.

DEMENTIA: Describes mechanism by which the effectiveness of the two most popular drugs used to treat Alzheimer's & other neurodegenerative dementia disease is reduced or blocked by fluoride. <https://www.mdpi.com/1660-4601/16/1/10/htm>

- Marta Goschorska, Izabela Gutowska, Irena Baranowska-Bosiacka, Katarzyna Piotrowska, Emilia Metryka, Krzysztof Safranow, Dariusz Chublek. Influence of Acetylcholinesterase Inhibitors Used in Alzheimer's Disease Treatment on the Activity of Antioxidant Enzymes and the Concentration of Glutathione in THP-1 Macrophages under Fluoride-Induced Oxidative Stress. Int. J. Environ. Res. Public Health, 2019, 16(1), 10.

ADULT BRAINS: First long term NaF animal study (10 weeks) using moderate levels of fluoride finds a number of histological changes including in parts of the brain associated with memory and learning. <https://www.sciencedirect.com/science/article/pii/S0045653518317508>

- Pei Jiang, Gongying Li, Xueyuan Zhou, Changshui Wang, Yi Qiao, Dehua Liao, Dongmei Shi. Chronic fluoride exposure induces neuronal apoptosis and impairs neurogenesis and synaptic plasticity: Role of GSK-3b/b-catenin pathway. Chemosphere. Volume 214, January 2019, Pages 430-435.

DELAYED MALE PUBERTY: This 4th study from the NIH sponsored ELEMENT investigation of the prenatal impact of low-dose prenatal exposure found a significant pattern of delayed puberty for boys associated with maternal fluoride as measured in urine samples. Female data showed non-significant trend towards earlier menarche. More study needed to determine the impact on sexual development. <https://www.ncbi.nlm.nih.gov/pubmed/30922319>

- Liu Y, Téllez-Rojo M, Hu H, et al. Fluoride exposure and pubertal development in children living in Mexico City. Environ Health. 2019 Mar 29;18(1):26.

ANXIETY & DEPRESSION: Both rats and children experience changes in brain chemistry from extended exposure to fluoride which affects mood. Serotonin and the prefrontal cortex are impacted. Studies that only examine short-term exposure are inadequate to detect these changes which are more pronounced in females.

<https://www.sciencedirect.com/science/article/abs/pii/S0031938418309375>

- Lu F, Zhang Y, Trevedi A, et al. (2019) Fluoride related changes in behavioral outcomes may relate to increased serotonin. Physiology & Behavior.

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EYE DISEASE: Fluoride is a poison that has biological impact on consumers in any dose, contributing to the development of cataracts, glaucoma and macular degeneration.

<https://www.mdpi.com/1660-4601/16/5/856>

- Waugh DT. The Contribution of Fluoride to the Pathogenesis of Eye Diseases: Molecular Mechanisms and Implications for Public Health. *Int. J. Environ. Res. Public Health*. 2019, 16(5), 856.

BONES & GENES: This 30 day animal study at 8 mg/L fluoride documents DNA & RNA damage that inhibits gene expression which can be passed on through generations affecting bone development and contributing to weak bones, blood & bone cancers and skeletal fluorosis.

<https://www.sciencedirect.com/science/article/pii/S0147651318311734?via%3Dihub>

- Atule P. Daiwile, Prashant Tarale, Saravanadevi Sivanesan, et al. Role of fluoride induced epigenetic alterations in the development of skeletal fluorosis. *Ecotoxicology and Environmental Safety*. Volume 169, March 2019, Pages 410-417.

BRAIN INJURY: Fluoride interferes with calcium metabolism which impacts brain chemistry and poisons the hippocampus. "The imbalance of calcium metabolism caused by fluorosis may be a pathogenesis of brain injury induced by fluoride."

<https://www.sciencedirect.com/science/article/pii/S0045653518324007>

- Qiuli Yu, Dandan Shao, Rui Zhang, Wei Ouyang, Zigui Zhang. Effects of drinking water fluorosis on L-type calcium channel of hippocampal neurons in mice. *Chemosphere*. Volume 220, April 2019, Pages 169-175. [Online Ahead of Print]

BRAIN DAMAGE: Prenatal & postnatal animal experiment using 10, 50 and 100 mg/L to simulate human experience documents mitochondrial damage and neuronal death as mechanism that result in learning and memory impairments.

<https://www.ncbi.nlm.nih.gov/pubmed/30659323>

- Zhao, Q., Niu, Q., Chen, J. et al. Roles of mitochondrial fission inhibition in developmental fluoride neurotoxicity: mechanisms of action in vitro and associations with cognition in rats and children. *Arch Toxicol* (2019).

IODINE: Identifies and discusses the biochemical and hormonal impact of fluoride and fluoridation policy on iodine metabolism with consideration of related neurodevelopmental and pathological disorders. <https://www.mdpi.com/1660-4601/16/6/1086>

- Waugh DT. Fluoride Exposure Induces Inhibition of Sodium/Iodide Symporter (NIS) Contributing to Impaired Iodine Absorption and Iodine Deficiency: Molecular Mechanisms of Inhibition and Implications for Public Health. *Int. J. Environ. Res. Public Health* 2019, 16, 1086.

BIOLOGY OF POISON: Deep dive into the biological impact of fluoride that affects metabolism, hormones, immune function, etc. "Moreover, the findings of this study further suggest that there are windows of susceptibility over the life course where chronic F exposure in pregnancy and early infancy may impair Na⁺, K⁺-ATPase activity with both short- and long-term implications for disease and inequalities in health." <https://www.mdpi.com/1660-4601/16/8/1427>

- Waugh DT. Fluoride Exposure Induces Inhibition of Sodium-and Potassium-Activated Adenosine Triphosphatase (Na⁺, K⁺-ATPase) Enzyme Activity: Molecular Mechanisms and Implications for Public Health. *Int. J. Environ. Res. Public Health* 2019, 16(8), 1427

DOSE RESPONSE: Three month study on adult rats found "fluoride can impair the learning ability of rats, which may be related to the induction of autophagy in rat hippocampal neurons."

<https://www.ncbi.nlm.nih.gov/pubmed/31111310>

- Zhang C, Huo S, Fan Y, Gao Y, Yang Y, Sun D. Autophagy May Be Involved in Fluoride-Induced Learning Impairment in Rats. *Biol Trace Elem Res*. 2019 May 20.

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GENETIC SUSCEPTIBILITY: Review of recent scientific literature on biological impact. Same exposure in same population affect individuals differently, suggesting genetic vulnerability.
<https://onlinelibrary.wiley.com/doi/full/10.1111/jcmm.14185>

- Wei, W, Pang, S, Sun, D. The pathogenesis of endemic fluorosis: Research progress in the last 5 years. *J Cell Mol Med.* 2019; 23: 2333– 2342.

MITOCHONDRIA: Prenatal and postnatal exposure to fluoride results in mitochondrial abnormalities, autophagy and apoptosis contributing to neuronal death.

<https://www.ncbi.nlm.nih.gov/pubmed/30659323>

- Zhao, Q., Niu, Q., Chen, J. et al. Roles of mitochondrial fission inhibition in developmental fluoride neurotoxicity: mechanisms of action in vitro and associations with cognition in rats and children. *Arch Toxicol* (2019).

NUTRITION: The f-ion is a poison but the bioavailability of CaF is different than NaF as calcium is the antidote to fluoride poisoning. In addition to being in water and dental products 20% of pharma and 40% of agricultural chemicals have a fluoride base. Consequently, people are exposed to excessive amounts of fluoride which contributes to chronic disease.

<https://journals.matheo.si/index.php/ACSi/article/view/4932/2095>

- Stepec D, Ponikvar-Svet M. Fluoride in Human Health & Nutrition. *Acta Chim Slov.* 2019, 66.

2018

THYROID: 18% of people drinking 'optimally' fluoridated water in Canadian communities have a heightened risk of low thyroid function because fluoride interferes with iodine metabolism. Many of them will be sub-clinical and not know they are mildly hypothyroid, which nevertheless increases their risk for diabetes, high cholesterol, and other problems. Study excluded those already diagnosed with thyroid disease. (CHMS)

<https://www.sciencedirect.com/science/article/pii/S016041201830833X>

- Ashley J. Malin, Julia Riddell, Hugh McCague, Christine Till. Fluoride exposure and thyroid function among adults living in Canada: Effect modification by iodine status. *Environment International.* Volume 121, Part 1, December 2018, Pages 667-674.

THYROID: Even 0.5 ppm fluoride in water has an adverse impact on thyroid hormones.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5805681/>

- Z. Kheradpisheh et al. (2018) Impact of Drinking Water Fluoride on Human Thyroid Hormones: A Case-Control Study. *Scientific Reports.* volume 8.

OVERDOSED BABIES: Over one third of babies (37%) in fluoridated American communities consume amounts of fluoride in excess of the upper limits of fluoride considered safe per government regulations. Even 4% of babies in non-fluoridated communities are overdosed on fluoride due to consumption of products made with fluoridated water. At the very least, this puts these children at high risk for developing dental fluorosis. Dental fluorosis is associated with increased incidence of learning disabilities, broken bones and kidney disease.

<http://jocpd.org/doi/10.17796/1053-4625-43.1.7>

- Claudia X Harriehausen, Fehmida Z Dosani, Brett T Chiquet, Michelle S Barratt, and Ryan L Quock. Fluoride Intake of Infants from Formula. *Journal of Clinical Pediatric Dentistry.* 2018.

GOVERNMENT BIAS: A National Toxicology Program animal experiment studying the impact of fluoride consumption used the wrong rats, the wrong dose, and the wrong study design in order to manufacture a finding of no prenatal or postnatal effect.

<https://www.sciencedirect.com/science/article/pii/S0306987718308600>

- Karen Favazza Spencer, Hardy Limeback. Blood is Thicker Than Water: Flaws in a National Toxicology Program Study. *Medical Hypotheses.* Volume 121. December 2018. Pages 160-163.

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PREGNANT WOMEN: Pregnant Canadian women drinking 'optimally' fluoridated water had twice the fluoride exposure per individual testing as compared to pregnant women in non-fluoridated Canadian communities - and consistent with the range in the Mexican women in the ELEMENT cohort whose children had up to 6 points lowered IQ based on prenatal exposure to fluoride (from salt). The Canadian study excluded those with health conditions such as kidney disease as well as considered confounding factors such as tea consumption.

<https://ehp.niehs.nih.gov/doi/pdf/10.1289/EHP3546>

- Christine Till, Rivka Green, John G. Grundy, Richard Hornung, Raichel Neufeld, E. Angeles Martinez-Mier, Pierre Ayotte, Gina Muckle, and Bruce Lanphear. Community Water Fluoridation and Urinary Fluoride Concentrations in a National Sample of Pregnant Women in Canada. *Environmental Health Perspectives*. October 2018.

LEARNING DISABILITIES: Over 200 children were individually tested. Study found attention deficit disorder apparently caused by their prenatal exposure to fluoride specific to dose. This is the 3rd report out of the NIH sponsored 12 year ELEMENT project that has confirmed low dose prenatal exposure to fluoride consistent with exposure in 'optimally' fluoridated communities causes subtle but permanent brain damage for many consumers. Excluded those with history of mental illness or conditions such as diabetes and renal disease.

<https://www.sciencedirect.com/science/article/pii/S0160412018311814>

- Morteza Bashash, Maelle Marchand, Howard Hu, Christine Till, Angeles Martinez-Mier, Brisa N. Sanchez, Niladri Basu, Karen Peterson, Rivka Green, Lourdes Schnaas, Adriana Mercado-García, Mauricio Hernández-Avila, Martha María Téllez-Rojo. Prenatal fluoride exposure and attention deficit hyperactivity disorder (ADHD) symptoms in children at 6–12 years of age in Mexico City. *Environment International*. Volume 121, Part 1, December 2018, Pages 658-666.

ALZHEIMER'S DISEASE: Describes impact of fluoride-induced stress and inflammation in the development of Alzheimer's disease and demonstrates the mechanism for cell death in its worsening over time. <https://www.mdpi.com/1422-0067/19/12/3965>

- Goschorska M, et al. Potential Role of Fluoride in the Etiopathogenesis of Alzheimer's Disease. *Int. J. Mol. Sci.* 2018, 19 (12), 3965.

CANCER: Researchers who include an IARC scientist find esophageal cancer is 9.4 times more prevalent among those with dental fluorosis in the endemic fluorosis regions of Kenya. Provides biological plausibility that inflammatory fluoride affects microbiome and other biological mechanisms. Recommends more study. <https://www.ncbi.nlm.nih.gov/pubmed/30582155/>

- Menya D, Maina SK, Kibosia C, Kigen N, Oduor M, Some F, Chumba D3, Ayuo P, Middleton DR, Osano O, Abedi-Ardekani B, Schüz J, McCormack V. Dental fluorosis and oral health in the African Esophageal Cancer Corridor: Findings from the Kenya ESCCAPE case-control study and a pan-African perspective. *Int J Cancer*. 2018 Dec 23.

KIDNEYS: Fluoride is a common exposure that is selectively toxic to the kidneys.

<https://www.sciencedirect.com/science/article/pii/S0270929518301827>

- Lash LH. Environmental and Genetic Factors Influencing Kidney Toxicity. *Seminars in Nephrology*. Volume 39, Issue 2, March 2019, Pages 132-140.

IQ & DF: Between 0.5 and 3.9 mg/L, found every 0.1 mg/L increased dental fluorosis by 2.24% and every 0.5 mg/L decreases IQ by 2.67 points. Also found half as many kids with high IQ children with higher F- dose. <https://www.NCBI.nlm.nih.gov/pubmed/29870912>

- Yu X et al. Threshold effects of moderately excessive fluoride exposure on children's health: A potential association between dental fluorosis and loss of excellent intelligence. *Environ Int.* 2018 Jun 2;118:116-124.

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2017

REVIEW: Concludes that fluoridation schemes whether from water, food or salt programs “pose risks of various diseases in the asthmatic-skeletal, neurological, endocrine and skin systems. Dental and skeletal fluorosis are signs of chronic and excessive ingestion of fluoride.”

<https://www.NCBI.nlm.nih.gov/pubmed/28453591>

- Verena Romero, Frances J. Norris, Juvenal A. Ríos, Isel Cortés, Andrea González, Leonardo Gaete, Andrei N. Tchernitchin. The impact of tap water fluoridation on human health. *Rev. méd. Chile* vol.145 no.2 Santiago Feb. 2017.

DOSE-RESPONSE: Validated that IQs of children are lowered on a dose-response trend line correlated with the amount of fluoride exposure as measured via urine tests of their mothers during pregnancy and individualized IQ tests of offspring. In the range consistent with doses in optimally fluoridated communities, there was up to a 6 point difference in IQ. This NIH sponsored 12 year longitudinal study conducted by researchers at world class American & Canadian universities excluded diabetics as well as those with kidney disease or pregnancy complications and allowed for many confounders.

<https://www.sciencedirect.com/science/article/pii/S016041201830833X>

- Morteza Bashash, Deena Thomas, Howard Hu, et al. *Prenatal Fluoride Exposure and Cognitive Outcomes in Children at 4 and 6–12 Years of Age in Mexico. Environ Health Perspect.* Sept 2017. Vol 125, Issue 9.

IQ & DF: Every 0.1 mg/L increased dental fluorosis by 2.24% and Every 0.5 mg/L decreases IQ by 2.67 points. There are half as many high IQ children in higher fluoride dose group.

<https://www.NCBI.nlm.nih.gov/pubmed/29870912>

- Yu X et al. Threshold effects of moderately excessive fluoride exposure on children's health: A potential association between dental fluorosis and loss of excellent intelligence. *Environ Int.* 2018 Jun 2;118:116-124.

GENES & BONES: “This study provides evidence that chronic oxidative and inflammatory stress may be associated with the fluoride-induced impediment in osteoblast differentiation and bone development.” <http://link.springer.com/article/10.1007/s12011-016-0756-6>

- Gandhi, D., Naoghare, P.K., Bafana, A. et al. Fluoride-Induced Oxidative and Inflammatory Stress in Osteosarcoma Cells: Does It Affect Bone Development Pathway? *Biol Trace Elem Res* (2017) 175: 103.

PRESCHOOL DIET: Diet of two year olds contain unsafe levels of fluoride.

<http://onlinelibrary.wiley.com/doi/10.1111/cdoe.12283/full>

- Martinez-Mier EA, Spencer KL, Sanders BJ, Jones JE, Soto-Rojas AE, Tomlin AM, Vinson LA, Weddell JA, and Eckert GJ. Fluoride in the diet of 2-years-old children. *Community Dent Oral Epidemiol.* 2017;00:1–7.

APOPTOSIS: “Enamel fluorosis is a developmental disturbance caused by intake of supraoptimal levels of fluoride during early childhood. The enamel defects consist of horizontal thin white lines, opacities (subsurface porosities), discolorations, and pits of various sizes. The molecular mechanism underlying enamel fluorosis is still unknown..... We can hypothesize that fluorosis is due to a combination of direct cytotoxic effects causing cell death, the delayed development of tight junctions, which are necessary to form a sealed barrier between apical and basolateral surfaces, and a direct inhibitory effect of fluoride on vectorial calcium and/or bicarbonate transport.” <https://www.NCBI.nlm.nih.gov/pmc/articles/PMC5770627/>

- Rácz, Róbert et al. “No Change in Bicarbonate Transport but Tight-Junction Formation Is Delayed by Fluoride in a Novel Ameloblast Model.” *Frontiers in Physiology.* 2017; 8: 940.

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DNA: Finds that “prolonged fluoride intake at chosen concentrations caused imbalance of the cellular oxidative state, affected DNA and disrupted cellular homeostasis... It is recommended that fluoride supplementation requires a fresh consideration in light of the current study.”

<https://www.ncbi.nlm.nih.gov/pubmed/28089781>

- F.D. Campos-Pereira, L. Lopes-Aguiar, F.L. Renosto, et al. Genotoxic effect and rat hepatocyte death occurred after oxidative stress induction and antioxidant gene downregulation caused by long term fluoride exposure. *Chem Biol Interact.* 2017 Feb 25;264:25-33.

PRENATAL POISON: “F can pass through the cord blood and breast milk and may have deleterious impact on learning and memory of the mouse pups.”

<http://journals.sagepub.com/doi/abs/10.1177/0960327117693067>

- Y Zhang, X Xue, R Niu, J Wang. Maternal fluoride exposure during gestation and lactation decreased learning and memory ability, and glutamate receptor mRNA expressions of mouse pups. *Z Sun, Human & Experimental Toxicology.* February 13, 2017.

IMMUNITY: Prenatal and early postnatal exposure to fluoride impairs spleen function and development which damages spleen and lifelong immunity.

<https://www.ncbi.nlm.nih.gov/pubmed/28846973/>

- Yanqin Ma, Kankan Zhang, Fengjun Ren, Jundong Wang, Developmental fluoride exposure influenced rat's splenic development and cell cycle via disruption of the ERK signal pathway, In *Chemosphere*, Volume 187, 2017, Pages 173-180

NEUROINFLAMMATION: Toxic effects of fluoride on the central nervous system and immunity.

<https://link.springer.com/article/10.1007/s10753-017-0556-y>

- Chen R, Zhao LD, Liu H. et al. Fluoride Induces Neuroinflammation and Alters Wnt Signaling Pathway in BV2 Microglial Cells. *Inflammation.* 2017;40: 1123. M

2016

CRITIQUE HHS RECOMMENDATION: Pro-fluoridation team of dental researchers determined that the Department of Health and Human Services reduction of the optimal fluoride concentration to a single 0.7 ppm target is lacking in sound science, i.e. that “policy need to be cognizant of the balancing of risk and protective exposures across the entire population and potentially all ages and to be based on recent data that are purposefully collected, critically analyzed and carefully interpreted... (the recommendation seems) premature in terms of its rationale and its use and interpretation of sometimes dated data.” These authors’ bias is to maintain 1 ppm; nevertheless, their rationale against the HHS document is appropriate. The HHS document is political, not scientific.

<https://www.ncbi.nlm.nih.gov/pubmed/26710669>

- Spencer AJ, Do LG. Caution needed in altering the 'optimum' fluoride concentration in drinking water. *Community Dent Oral Epidemiol.* 2016 Apr;44(2):101-8.

OSTEOPOROSIS: “Consequently, although the World Health Organization continues to support F schemes for caries prevention despite a lack of scientific proof, the F schemes are not able to improve the crystal quality but rather contribute adversely to affect tooth development and increases the risk of developing postmenopausal osteoporosis.”

<http://dx.doi.org/10.4172/2379-1764.1000170>

- Mitsuo Kakei, Masayoshi Yoshikawa and Hiroyuki Mishima. Fluoride Exposure May Accelerate the Osteoporotic Change in Postmenopausal Women: Animal Model of Fluoride-induced Osteoporosis. *Adv Tech Biol Med* 2016, 4:1

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DIABETES: Fluoridation policy significantly increases incidence of age related type 2 diabetes. <https://www.NCBI.nlm.nih.gov/pubmed/27740551>

- K. Fluegge. Community water fluoridation predicts increase in age-adjusted incidence and prevalence of diabetes in 22 states from 2005 and 2010. *Journal of Water and Health*, 2016.

IBD: Crohn's disease and ulcerative colitis increases after fluoridation begins in multiple countries. <http://www.NCBI.nlm.nih.gov/pubmed/27199224>

- Follin-Arbelet B, Moum B. Fluoride: a risk factor for inflammatory bowel disease? *Scand J Gastroenterol*. 2016 May 19:1-6.

PROPAGANDA: Assisted by the media, fluoridationists misrepresent historical and scientific fact in order to achieve a political end. <https://www.researchgate.net/publication/305985332>

- Anat Gesser-Edelsburg and Yaffa Shir-Raz. Communicating risk for issues that involve 'uncertainty bias': what can the Israeli case of water fluoridation teach us? *Journal of Risk Research*. August 2016.

2015

COCHRANE CWF REVIEW: Estimates that 12% of the children living in fluoridated communities with 0.7 ppm fluoridation have aesthetically objectionable dental fluorosis with a total dental fluorosis effect of 40%. The effects were 47% & 15% for 1 ppm, only a minor impact on incidence of dental fluorosis and consistent with the findings of the 2000 York Review.

http://www.cochrane.org/CD010856/ORAL_water-fluoridation-to-prevent-tooth-decay

- Iheozor-Ejirofor Z, Worthington HV, Walsh T, O'Malley L, Clarkson JE, Macey R, Alam R, Tugwell P, Welch V, Glenny A. Water fluoridation for the prevention of dental caries. *Cochrane Database of Systematic Reviews* 2015, Issue 6.

THYROID: Diagnoses of low thyroid significantly higher in 'optimally' fluoridated regions.

<https://www.NCBI.nlm.nih.gov/pubmed/25714098>

- S Peckham, D Lowery, S Spencer. Are fluoride levels in drinking water associated with hypothyroidism prevalence in England? A large observational study of GP practice data and fluoride levels in drinking water. *J Epidemiol Community Health*. 24 February 2015.

ADHD: Researchers found there are between 67k and 131k more 11 year olds with ADHD in fluoridated regions of the U.S.

<http://www.ehjournal.net/content/pdf/s12940-015-0003-1.pdf>

- A Malin and C Till. Exposure to fluoridated water and attention deficit hyperactivity disorder prevalence. *Environmental Health* 2015, 14:17

CWF INFLAMMATIONS: Found that "even in small concentrations fluoride changes the amounts and activity of COX-1 and COX-2 enzymes taking part in the initiating and development of inflammatory process."

<http://www.sciencedirect.com/science/article/pii/S0887233315001605>

- I. Gutowska, et al. Fluoride as a factor initiating and potentiating inflammation in THP1 differentiated monocytes/macrophages. *Toxicology in Vitro*. Volume 29, Issue 7, October 2015, Pages 1661–1668.

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NEUROTOXICANT: EPA scientists classify fluoride as a ‘gold standard’ developmental neurotoxicant with substantial evidence of harm.

<http://www.sciencedirect.com/science/article/pii/S0892036215300362>

- William R. Mundy, Stephanie Padilla, Joseph M. Breier, et al. Expanding the test set: Chemicals with potential to disrupt mammalian brain development. *Neurotoxicology and Teratology*. Volume 52, Part A, November–December 2015, Pages 25–35.

NOT COST EFFECTIVE: Reveals errors in CBA used by CDC. Best case scenario after corrections is a \$3 benefit which is more than wiped out by any consideration of dental fluorosis. Fluoridated drinking water results in an economic loss to communities.

<http://www.ncbi.nlm.nih.gov/pubmed/25471729>

- Lee Ko & Kathleen M. Thiessen (2015) A critique of recent economic evaluations of community water fluoridation, *International Journal of Occupational and Environmental Health*, 21:2, 91-120

Additional items of note:

2017 IAOMT Position Paper: <https://iaomt.org/iaomt-fluoride-position-paper-2/>

2018 Open Letter: <http://www.multibriefs.com/briefs/icim/nutrition.pdf>

2019 Children’s Health Defense Statement: <https://childrenshealthdefense.org/news/u-s-water-fluoridation-a-forced-experiment-that-needs-to-end/>

”...fluoride is presumed to be a cognitive neurodevelopmental hazard to humans...”
- *Draft Monograph from National Toxicology Program, “Systemic Review of Fluoride Exposure and Neurodevelopmental and Cognitive Health Effects” (Sept 6, 2019)*

Fluoridation policy poses a hazard to an unsuspecting public

ENDORSEMENT: April 2015 HHS statement recommending 0.7 ppm fluoride concentration in drinking water for ‘safe & effective’ prevention of tooth decay

Authoritative statement: An opinion that interprets a rule, law or policy for the purpose of guiding or mandating action. Authoritative statements are not inherently reliable, but they are inherently manipulative. “Testimonial propaganda” utilizes authoritative statements in marketing and in politics. The slogan “question authority” was intended to encourage critical thinking in order to combat the blind acceptance of authoritative statements that endorse policy and/or sanctioned narratives. (*See Logical Fallacies: Appeal to Authority*)

vs.

EXPERT OPINION: June 2015 Cochrane report finds no reliable evidence of dental benefit to adults or low income children, but documents substantially higher rates of dental fluorosis some of which will likely result in costly cosmetic dentistry.