A close-up photograph of a hand holding a clear glass filled with water. The background is blurred, showing a person's face and torso. The text is overlaid on the center of the image.

RETHINKING WATER FLUORIDATION: A CRITICAL LOOK AT ITS SAFETY AND EFFECTIVENESS

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As a dentist with more than 20 years of practice experience, I would like to weigh in on the issue of water fluoridation and clarify certain points. This is not a black and white issue and the complexity is important to understand if we want to make educated decisions that affect the entire population. Firstly, we must understand the substantial difference between fluoride applied topically to teeth versus systemic water fluoridation.

The history of fluoride as a public health issue dates back to the early 20th century when a Colorado dentist noted brown stain appearing on many of his young patients. Through collaboration with another well known dentist, they determined that excess natural fluoride in the water caused the damage to the enamel of children's teeth. They also noted that despite the brown and pitted appearance, these children appeared to suffer from fewer cavities. Fast forward to WWII. Fluoride was a necessary ingredient to create aluminum as well as to enrich uranium which was used to create the atomic bomb. At the end of the war, the government needed to dispose of this excess material and so leading scientists such as Dr Harold Hodge, helped to perpetuate the idea of the safety and efficacy of fluoride in water. In 1950 it became a common public health sentiment that fluoride prevented decay even though no scientific study has been done to this day to show the margin of safety for fluoride. According to author Christopher Bryson whose book *The Fluoride Deception* which was published in 2004, "Today the fluorides that goes in our drinking water is almost exclusively raw industrial pollution from the Florida Phosphate Industry". In addition, it is relevant to consider that 98% of western Europe does not add fluoride to their water supplies and they do not report increased caries rates compared to the U.S.

Articles consistently report that topical applications may show benefit for reducing caries. According to the *Journal Frontiers in Oral Health* 2022, "The principal mechanisms of reduced caries rates in many populations of the world have been largely attributed to the application of topical fluoride via oral healthcare products such as toothpastes". The problem with water fluoridation is multifold. As mentioned above, the substances added to public water supplies is not naturally occurring fluoride, but rather chemical runoff. Secondly, the dose in water can not be manipulated for varying body sizes, therefore an infant will receive a much higher, more toxic dose per body weight than an adult. Remember the adage, dose makes the poison. According to the same above article titled *Revisiting Fluoride in the Twenty-First Century: Safety and Efficacy Considerations*, "In order to examine the safety and efficacy of fluoride products, it is necessary to consider the body mass index (BMI) of the patient, together with the precise molecular nature of the fluoride agent applied, and where considered appropriate a full summation of human exposure to a combination of fluoride containing products."

Fluoride/fluorine is found in 20-30% of all prescription drugs according to thetruthaboutfluoride.com. Popular drugs like antidepressants, statins, antacids and anti-inflammatory drugs all contain amounts of fluoride. It can be found in tea, coffee and potentially in any product containing water, if that water source has fluoridation. So again, we must understand how the products we consume can add to a toxic burden over time.

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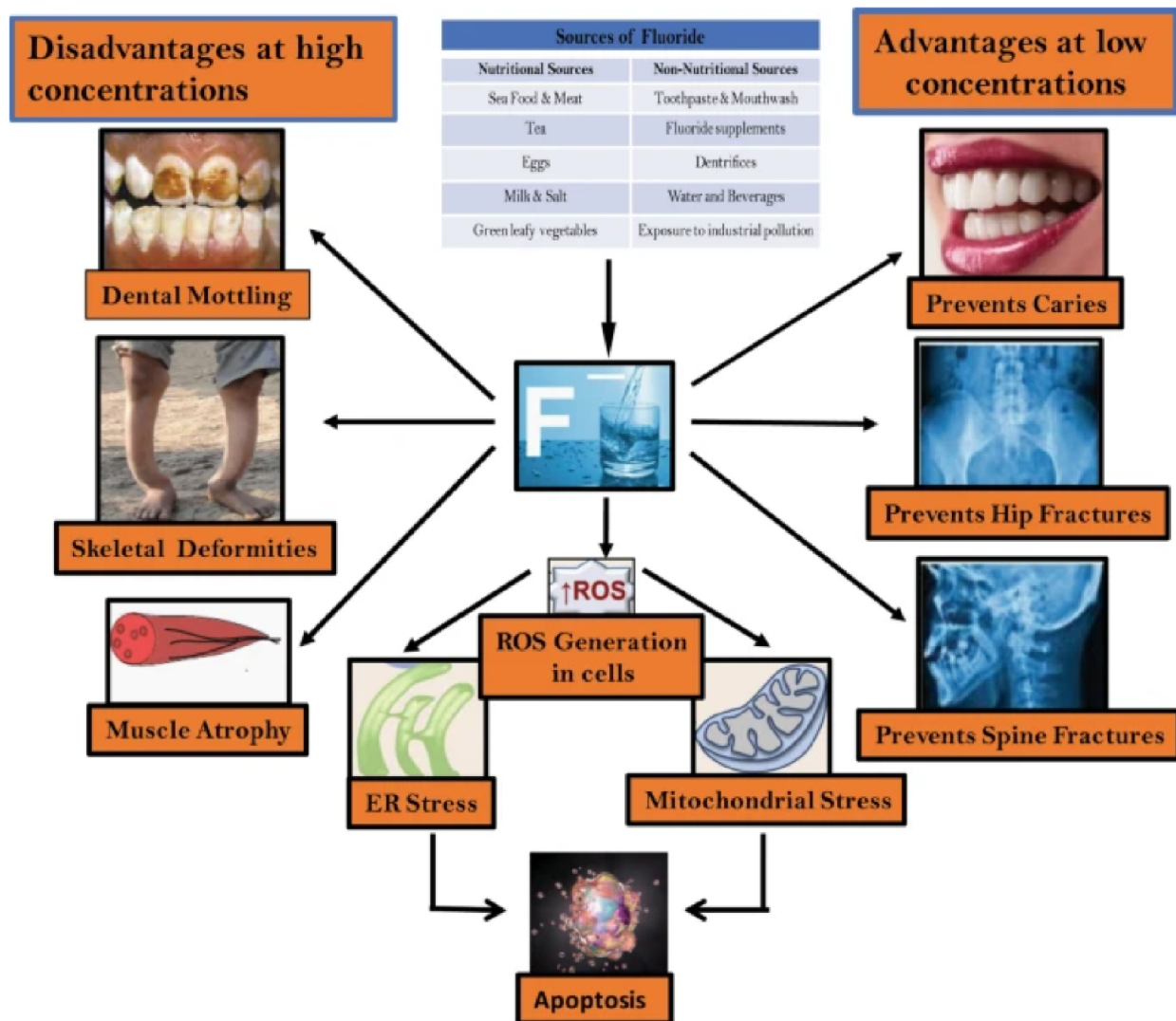
There is no debate that when fluoride is applied topically in an acidic environment it can reduce the bacteria concentration by disrupting metabolism and energy production in bacteria and can attach to the enamel reducing demineralization. However, in the absence of oral dysbiosis and a normal pH, excess fluoride in the system can be harmful.

In 2021 Nagendra et al delineates the toxic effects of fluoride. "At the tissue level, the effect of fluoride has been more pronounced in the musculoskeletal systems due to its ability to retain fluoride. Fluoride alters dentinogenesis, thereby affecting the tooth enamel formation. In bones, fluoride alters the osteogenesis by replacing calcium, thus resulting in bone deformities. In skeletal muscles, high concentration and long term exposure to fluoride causes loss of muscle proteins leading to atrophy. Although fluorosis is quite a familiar problem, the exact molecular pathway is not yet clear. Extensive research on the effects of fluoride on various organs and its toxicity was reported. Indeed, it is clear that high and chronic exposure to fluoride causes cellular apoptosis."

Another article published just last year describes how studies link excessive fluoride to oxidative stress (Increased reactive oxygen species), inflammation, and programmed cell death (apoptosis). Interestingly increased ROS actually cause and increase caries development by reversing fluid flow within the dentinal tubules allowing for demineralization of the outer enamel tooth surfaces. (2) Furthermore, the authors continue stating that "prolonged exposure to elevated fluoride levels... poses significant health risks, affecting various bodily systems and cellular processes including disrupted hormone levels causing reduced sperm count and infertility, liver effects such as necrosis and damage to DNA and IQ. Changes in the brain have been noted as structure changes, memory issues and neuronal death. Changes in DNA cause alterations in bone metabolism, hormone signaling and immune function. (3) Fluoride also competes with iodine for thyroid hormone production and may contribute to the rampant hypothyroidism present in our society today.

A landmark federal court case was finally adjudicated in September 2024 and that landed another blow for water fluoridation. Judge Edward Chen ruled that the current fluoride levels in U.S. drinking water, endorsed by the Environmental Protection Agency (EPA), poses an unreasonable risk of reduced IQ in children. The ruling underscores the need for immediate regulatory action to ban water fluoridation, as it challenges decades of government promotion of fluoridated water as safe and beneficial. I was privy to the depositions of multiple governmental officials from the EPA and FDA in which these officials admit they have known about the risks associated with high levels of fluoride for decades. It was appalling to watch them admit their wrongdoing while shrugging off the decades of malfeasance as if it was all in a day's work. Not a single health agency including the EPA, FDA, and WHO could cite a single scientific study showing the safety of exposure to fluoride at any amount.

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If we truly want to curb the increase in dental cavities, we must understand the root cause of this disease. Childhood caries is the #1 chronic disease of childhood. Because it is so common, we don't think of it as major dysfunction in the body's homeostatic mechanisms. We go to the dentist, they put in a filling and that's the end of it. My concern as a biologic and naturopathic dentist, is that we are removing tooth structure and placing in composite resins which are not naturally occurring substances. Today we are facing over 80,000 chemicals in our environment, a massive number which overwhelms our natural detox systems in our kidneys and livers. Our food contains 50% fewer nutrients than just a generation ago. The added high fructose corn syrup and seed oils like canola oil, corn oil, safflower, soybean oil etc are creating toxic byproducts and destroying our healthy gut bacteria that are necessary for proper digestion and immunity. Chronic disease numbers continue to rise, including dental decay. Adding fluoride will not address the nutrient poor diet and toxin exposures that cause and increase oxidative stress and an overall acidification of the body.

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Our prehistoric ancestors did not exhibit decay or even crooked teeth. These early humans did not use toothbrushes or mouthwash. Their diet was rich in minerals and fat soluble vitamins including A, D, E, and K. These are the vital ingredients to have healthy teeth, gums and bones. Weston A Price was a dentist in the 1930s who tracked the diets of native populations around the world and noted that these communities all had high abundance of the aforementioned nutrients and enjoyed robust health into old age. His work and additional resources can be found at westonaprice.org and price-pottenger.org.

If we want to reduce decay in ourselves and our children we need to first and foremost think about what we are consuming, both food and skin products, how balanced is our nervous system, what is our sleep quality and how well are we breathing. Mouth breathing, as opposed to nasal breathing, is a major risk factor for heart disease and increased acidity of the oral cavity which leads to decay and gum disease. Can we get back to eating whole foods, getting plenty of exercise, exposing ourselves to natural light and sleeping 7-8 hours per night? These may sound like simple solutions but they are the systems in which the human body evolved. Our modern living on artificial foods and light has disrupted our circadian rhythms and is the leading driver of chronic disease in my opinion.

To conclude the discussion on fluoride, it must be noted that topical fluoride and added fluoride to water supplies create vastly different outcomes. There is not one study which proves the safety of consumed fluoride. In fact, all toothpastes have a poison control warning on their packages to call if product is ingested. Efficacy of preventing cavities with fluoride is dependent on route of administration, dose, weight and additional sources for person consuming fluoride. Dosage can not be easily controlled in water and is often not accounted for when additionally prescribing topical fluoride or accounting for other sources in the diet. This is the important information we must understand when making sweeping decisions that affect entire communities.

Sincerely,

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IAOMT.org

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