

Factual Refutation to Fluoridation Opponents' "10 Facts About Fluoridation"

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1. "Most developed countries do not fluoridate their water."

According to the Pew Foundation:

"Anti-fluoride activists imply that European countries have rejected fluoridation, but this assertion is misleading because these nations use various means to provide fluoride to their citizens. For example, salt fluoridation is widely used in Europe. In fact, at least 70 million Europeans consume fluoridated salt, and this method of fluoridation reaches most of the population in Germany and Switzerland. These two countries have among the lowest rates of tooth decay in all of Europe. Fluoridated milk programs reach millions of additional Europeans. A number of areas in Italy have water supplies with natural fluoride levels that already reach the optimal level that prevents decay. This is a major reason why Italy does not have a national program for water fluoridation. Finally, some countries in Europe do elect to adjust fluoride levels in community water systems. Fluoridated water is provided to 12 million Europeans, mostly reaching residents of Great Britain, Ireland, and Spain."

----- <http://www.pewstates.org/research/analysis/water-fluoridation-frequently-askedquestions-85899379776>

2. "Fluoridated countries do not have less tooth decay than non-fluoridated ones."

The studies often used to support the claims are small scale studies conducted in foreign countries where alternative programs were implemented. However, these studies did not study the cost effectiveness. No other intervention is as cost effective as water fluoridation. The fact that fluoride works to prevent tooth decay has been shown in laboratory and human studies. When one examines the most cost effective and efficient way to deliver fluoride to bring about population impact, it becomes clear that water fluoridation is the choice.

Causation of dental decay is multifactorial. Attempting to assess the efficacy of one preventive measure, such as water fluoridation, from a snapshot of data, without controlling for other factors, is misleading and invalid. There are countless peer-reviewed scientific studies which clearly demonstrate the effectiveness of water fluoridation. The following are but a few:

1). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2925001/>

Results

Children from every age group had greater caries prevalence and more caries experience in areas with negligible fluoride concentrations in the water (<0.3 parts per million [ppm]) than in optimally fluoridated areas (≥0.7 ppm). Controlling for child age, residential location, and SES, deciduous and permanent caries experience was 28.7% and 31.6% higher, respectively, in low-fluoride areas compared with optimally fluoridated areas. The odds ratios for higher caries prevalence in areas with negligible fluoride compared with optimal fluoride were 1.34 (95% confidence interval [CI] 1.29, 1.39) and 1.24 (95% CI 1.21, 1.28) in the deciduous and permanent dentitions, respectively.

-----Community Effectiveness of Public Water Fluoridation in Reducing Children's Dental Disease Jason Mathew Armfield, PhD

2) <http://www.ncbi.nlm.nih.gov/pubmed/23550501>

CONCLUSIONS:

Children with severe dental caries had statistically significantly lower numbers of lesions if they lived in a fluoridated area. The lower treatment need in such high-risk children has important implications for publicly-funded dental care.

-----Community Dent Health. 2013 Mar;30(1):15-8.

Fluoridation and dental caries severity in young children treated under general anaesthesia: an analysis of treatment records in a 10-year case series.

Kamel MS, Thomson WM, Drummond BK.

Source

Department of Oral Sciences, Sir John Walsh Research Institute, School of Dentistry, The University of Otago, Dunedin, New Zealand.

3). <http://www.ncbi.nlm.nih.gov/pubmed/23488212>

CONCLUSIONS:

The survey provides further evidence of the effectiveness in reducing dental caries experience up to 16 years of age. The extra intricacies involved in using the Percentage Lifetime Exposure method did not provide much more information when compared to the simpler Estimated Fluoridation Status method.

-----Community Dent Health. 2012 Dec;29(4):293-6.

Caries status in 16 year-olds with varying exposure to water fluoridation in Ireland.

Mullen J, McGaffin J, Farvardin N, Brightman S, Haire C, Freeman R.

Source

Health Service Executive, Sligo, Republic of Ireland. joej.mullen@hse.ie

4) <http://www.ncbi.nlm.nih.gov/pubmed/8500120>

Abstract

The effectiveness of fluoridation has been documented by observational and interventional studies for over 50 years. Data are available from 113 studies in 23 countries. The modal reduction in DMFT values for primary teeth was 40-49% and 50-59% for permanent teeth. The pattern of caries now occurring in fluoride and low-fluoride areas in 15- to 16-year-old children illustrates the impact of water fluoridation on first and second molars.

----Caries Res. 1993;27 Suppl 1:2-8.

Efficacy of preventive agents for dental caries. Systemic fluorides: water fluoridation.

Murray JJ.

Source

Department of Child Dental Health, Dental School, University of Newcastle upon Tyne, UK.

5). <http://www.ncbi.nlm.nih.gov/pubmed/23252588>

CONCLUSIONS:

Data showed a significant decrease in dental caries across the entire country, with an average reduction of 25% occurring every 5 years. General trends indicated that a reduction in DMFT index values occurred over time, that a further reduction in DMFT index values occurred when a municipality fluoridated its water supply, and mean DMFT index values were lower in larger than in smaller municipalities.

---Int Dent J. 2012 Dec;62(6):308-14. doi: 10.1111/j.1875-595x.2012.00124.x.

Decline in dental caries among 12-year-old children in Brazil, 1980-2005.

Lauris JR, da Silva Bastos R, de Magalhaes Bastos JR.

Source

Department of Paediatric Dentistry, University of São Paulo, Bauru, São Paulo, Brazil. jrlauris@fob.usp.br

3. Fluoride affects many tissues in the body besides teeth".

As can be found on page 1 of the report of the 2006 NRC Committee on Fluoride, this Committee was charged with:

"On the basis of its review, the committee was asked to evaluate independently the scientific basis of EPA's MCLG of 4 mg/L and SMCL of 2 mg/L in drinking water and the adequacy of those guidelines to protect children and others from adverse health effects."

On pages 2-3 of this report is the final recommendation of this Committee:

"After reviewing the collective evidence, including studies conducted since the early 1990s, the committee concluded unanimously that the present MCLG of 4 mg/L for fluoride should be lowered. Exposure at the MCLG clearly puts children at risk of developing severe enamel fluorosis, a condition that is associated with enamel loss and pitting. In addition, the majority of the committee concluded that the MCLG is not likely to be protective against bone fractures. The basis for these conclusions is expanded upon below."

Thus, as can be clearly seen, the only recommendation of this Committee was to lower the EPA primary MCL of 4.0 ppm. The ONLY stated reason for this recommendation was the Committee's opinion that 4.0 ppm MCL was not adequately protective against increased risks of bone fractures and moderate/severe dental fluorosis. NO other concerns were stated as a reason to lower the primary. The Committee made NO recommendation on the secondary MCL of 2.0 ppm. Thus, the Committee deemed 2.0 ppm to be entirely protective of the public's safety. Water is fluoridated at 0.7 ppm, one third the 2.0 ppm level deemed safe by the 2006 NRC Committee on Fluoride.

In March of 2013, Dr. John Doull, Chair of the 2006 Committee on Fluoride, stated:

"I do not believe there is any valid, scientific reason for fearing adverse health conditions from the consumption of water fluoridated at the optimal level"

---John Doull, MD, PhD, Chair of the National Academy of Sciences, National Research Council 2006
Committee Report on Fluoride in Drinking Water

4. "Fluoridation is not a 'natural' process"

Hydrofluorosilic acid (HFA), the agent most utilized to transfer more fluoride ions into a water system, is immediately and completely hydrolyzed, dissociated at the pH of drinking water. Once dissociated, it no longer exists in that water. As it no longer exists, it does not reach the tap, and is thus not ingested. As it is not ingested, there is no requirement, or any need whatsoever, for "tox studies" of HFA. THIS is why the NSF has not done studies on this substance, and why it is not in violation of any rules, regulations, or laws for not doing so.

"Fluoridation of drinking water is recommended in some EU Member States, and hexafluorosilicic acid and hexafluorosilicates are the most commonly used agents in drinking water fluoridation. These compounds are rapidly and completely hydrolyzed to the fluoride ion. No residual fluorosilicate intermediates have been reported. Thus, the main substance of relevance to be evaluated is the fluoride ion (F⁻)."

-----Scientific Committee on Health and Environmental Risks SCHER Critical review of any new evidence on the hazard profile, health effects, and human exposure to fluoride and the fluoridating agents of drinking water. 16 May, 2011

The products of this dissociation which DO reach the tap, and which ARE ingested, are fluoride ions identical to those fluoride ions which already exist in water, which humans have been ingesting since the beginning of time, and trace contaminants in such miniscule concentration levels that they are barely detectable, and fall far short of EPA maximum safety levels. That's it.

Here is where you may find full information on the contents of fluoridated water at the tap:

----- <http://www.nsf.org/newsroom/nsf-fact-sheet-on-fluoridation-chemicals>

5. "40 % of American teenagers show visible signs of fluoride over-exposure"

This statistic as drawn from a recent CDC report on a study by Beltran-Aguilar, et al.

That "41% of all children" is composed of 37.1% with mild to very mild dental fluorosis, both of which are barely detectable, benign conditions requiring no treatment, and which have no effect on cosmetics, form, function, or health of teeth. The other 3.8% are those with moderate dental fluorosis, a condition which manifests as white areas on teeth. Whether or not these moderately fluorosed teeth require any restoration depends on the preferences of the patients and their parents. Some may be concerned enough with the cosmetics to desire treatment, others may not. There was not enough evidence of severe dental fluorosis to even be quantifiable.

The percentage of that 3.8% who may desire cosmetic treatment does not override the dental decay preventing benefit to the whole population. The cosmetics alone from dental decay are far worse than any from moderate dental fluorosis, and this not even take into account the amount of pain, debilitation, and life-threatening infection that is prevented by water fluoridation. The cost savings of

preventing the need for restoration of decayed teeth completely dwarfs any expenses involved in cosmetic treatment of the very few with moderate fluorosis who may desire to have it.

Prevalence and Severity of Dental Fluorosis in the United States, 1999-2004 Eugenio D. Beltrán-Aguilar, D.M.D., M.S., Dr.P.H.; Laurie Barker, M.S.P.H.; and Bruce A. Dye, D.D.S., M.P.H.

6. "For infants, fluoridated water provides no benefits, only risk"

First, in regard to the benefits.....

The U.S. Centers for Disease Control and Prevention states that the primary benefit of fluoride is topical. They do not state that it is the only route of benefit.

The CDC document also states that "In the earliest days of fluoride research, investigators hypothesized that fluoride affects enamel and inhibits dental caries only when incorporated into developing dental enamel (i.e., preeruptively, before the tooth erupts into the mouth). Evidence supports this hypothesis, but distinguishing a true preeruptive effect after teeth erupt into a mouth where topical fluoride exposure occurs regularly is difficult."

Singh et al in Australia have extensively studied the relative importance of pre and post eruptive fluoride exposure. These studies show that the strongest caries preventive effect is produced when there is both pre and post eruptive exposure to fluoride.

"Water fluoridation prevents tooth decay mainly by providing teeth with frequent contact with low levels of fluoride throughout each day and throughout life. Even today, with other available sources of fluoride, studies show that water fluoridation reduces tooth decay by about 25 percent over a person's lifetime. Community water fluoridation is not only safe and effective, but it is also cost-saving and the least expensive way to deliver the benefits of fluoride to all residents of a community. For larger communities of more than 20,000 people, it costs about 50 cents per person to fluoridate the water. It is also cost-effective because every \$1 invested in this preventive measure yields approximately \$38 savings in dental treatment costs... Fluoride from other sources prevents tooth decay as well, whether from toothpaste, mouth rinses, professionally applied fluoride treatments, or prescription fluoride supplements. These methods of delivering fluoride, however, are more costly than water fluoridation and require a conscious decision to use them."

-----<http://www.cdc.gov/fluoridation/basics/index.htm>

In regard to the "risks".....,,

ADA:

"The proper amount of fluoride from infancy through old age helps prevent and control tooth decay. Community water fluoridation is a widely accepted practice for preventing and controlling tooth decay by adjusting the concentration of fluoride in the public water supply.

Fluoride intake from water and other fluoride sources, such as toothpaste and mouthrinses, during the ages when teeth are forming (from birth through age 8) also can result in changes in the appearance of the tooth's surface called dental fluorosis. In the United States, the majority of dental fluorosis is mild and appears as white spots that are barely noticeable and difficult for anyone except a dental health care professional to see.

Recent evidence suggests that mixing powdered or liquid infant formula concentrate with fluoridated water on a regular basis may increase the chance of a child developing the faint, white markings of very mild or mild enamel fluorosis.

You can use fluoridated water for preparing infant formula. However, if your child is exclusively consuming infant formula reconstituted with fluoridated water, there may be an increased chance for mild dental fluorosis. To lessen this chance, parents can use low-fluoride bottled water."

----<http://www.ada.org/4052.aspx>

As Kumar, et al have demonstrated mildly fluorosed teeth to be more decay resistant, many do not even consider this effect to be undesirable, much less adverse.

-----<http://jada.ada.org/content/140/7/855.long>

The Association Between Enamel Fluorosis and Dental Caries in U.S. Schoolchildren Hiroko Iida, DDS, MPH and Jayanth V. Kumar, DDS, MPH

The Harvard study referenced was actually a review of 27 Chinese studies found in obscure Chinese scientific journals, of the effects of high levels of naturally occurring fluoride in the well water of various Chinese, Mongolian, and Iranian village. The concentration of fluoride in these studies was as high as 11.5 ppm. By the admission of the Harvard researchers, these studies had key information missing, used questionable methodologies, and had inadequate controls for confounding factors. These studies were so seriously flawed that the lead researchers, Anna Choi, and Phillippe Grandjean, were led to issue the following statement in September of 2012:

"--These results do not allow us to make any judgment regarding possible levels of risk at levels of exposure typical for water fluoridation in the U.S. On the other hand, neither can it be concluded that no risk is present. We therefore recommend further research to clarify what role fluoride exposure levels may play in possible adverse effects on brain development, so that future risk assessments can properly take into regard this possible hazard."

--Anna Choi, research scientist in the Department of Environmental Health at HSPH, lead author, and Phillippe Grandjean, adjunct professor of environmental health at HSPH, senior author

As it seems there have been no translations of these studies into English by any reliable, objective source, it is unclear as to whether they had even been peer-reviewed, a basic for credibility of any scientific study. These studies were flawed that NOTHING could be "concluded" from them.

7. "Fluoride supplements have never been approved by the FDA"

Fluoride supplements are prescribed mainly for children whose primary source of drinking water is not fluoridated. The reason that a prescription is required for such a minute amount of fluoride is to ensure that the patient's primary drinking water source is evaluated for existing level of fluoride prior to dispensation of supplements. This is simply to ensure that the existing level of fluoride is taken into account such that the optimal level is not exceeded between existing level and supplements. Were fluoride supplements available over the counter, there would be no way to ensure that the optimal level was not being exceeded. The same safeguard exists for fluoridated water systems. Prior to adding any additional fluoride through fluoridation, the existing level must be verified in order to ensure that only that amount is added which will raise the level of fluoride in that water to the optimal level.

Contrary to claims by antifuoridationists, fluoride at the optimal level is not a drug, and it is not "forced" upon anyone. Fluoride is a mineral which the FDA must classify as a drug for the sole reason of its stated use in water as a therapeutic rather than as a disinfectant. No other reason. As the EPA regulates all mineral additives to water, it is the EPA, not the FDA, which controls and regulates fluoride in water. Fluoridated water meets all NSF Standard 60 certification requirements as mandated by the EPA. There are no dosage requirements for fluoride, nor is there any need for such, any more than is there any need of dosage requirements of chlorine in water.

The FDA has neither the jurisdiction, nor the need to "approve" fluoride additives to water.

8. "Fluoride is the only medicine added to public water"

Fluoride is not a "medicine", and it is not "forced" upon anyone. Fluoride is a mineral which the FDA must classify as a drug for the sole reason of its stated use in water as a therapeutic rather than as a disinfectant. No other reason. As the EPA regulates all mineral additives to water, it is the EPA, not the FDA, which controls and regulates fluoride in water. Fluoridated water meets all NSF Standard 60 certification requirements as mandated by the EPA. There are no dosage requirements for fluoride, nor is there any need for such, any more than is there any need of dosage requirements of chlorine in water.

Antifuoridationists have repeatedly attempted to make the "forced medication" in U.S. Courts. They have been rejected each and every time, for the reasons just stated. Were fluoride at 0.7 ppm a "medicine", it would be under the full control and regulatory authority of the FDA, not the EPA.

9. "Swallowing fluoride provides little benefit to teeth"

The U.S. Centers for Disease Control and Prevention states that the primary benefit of fluoride is topical. They do not state that it is the only route of benefit.

The CDC document also states that "In the earliest days of fluoride research, investigators hypothesized that fluoride affects enamel and inhibits dental caries only when incorporated into developing dental enamel (i.e., preeruptively, before the tooth erupts into the mouth). Evidence supports this hypothesis, but distinguishing a true preeruptive effect after teeth erupt into a mouth where topical fluoride exposure occurs regularly is difficult."

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“Water fluoridation prevents tooth decay mainly by providing teeth with frequent contact with low levels of fluoride throughout each day and throughout life. Even today, with other available sources of fluoride, studies show that water fluoridation reduces tooth decay by about 25 percent over a person's lifetime. Community water fluoridation is not only safe and effective, but it is also cost-saving and the least expensive way to deliver the benefits of fluoride to all residents of a community. For larger communities of more than 20,000 people, it costs about 50 cents per person to fluoridate the water. It is also cost-effective because every \$1 invested in this preventive measure yields approximately \$38 savings in dental treatment costs... Fluoride from other sources prevents tooth decay as well, whether from toothpaste, mouth rinses, professionally applied fluoride treatments, or prescription fluoride supplements. These methods of delivering fluoride, however, are more costly than water fluoridation and require a conscious decision to use them.”

----- <http://www.cdc.gov/fluoridation/basics/index.htm>

10. "Disadvantaged communities are the most disadvantaged by fluoride"

The dental community has never promoted fluoridation as a "replacement" for proper dental care and treatment. It is simply a very valuable preventive measure utilized in conjunction with other measures and proper dental care and treatment. Yes, a dental care crisis exists in all areas of our country. Yes, underserved population need far better access to affordable dental care. This is not in dispute. However, the problem of rampant, untreated dental disease is so overwhelming that it requires ALL of the effective measures we have available to combat it. The overwhelming degree of untreated dental disease is a major reason FOR water fluoridation, not an argument against it. Our society and the dental profession certainly have a long way to go in upholding our responsibilities to better meet the dental need of all of our citizens. Eliminating one of the few, proven effective dental decay preventive measures available to our underserved populations is certainly not an answer. That some politicians have succumbed to the unsubstantiated, misleading claims of antifuoridation is meaningless. Italy has water supplies with natural fluoride levels that already reach the optimal level that prevents decay. This is a major reason why Italy does not have a national program for water fluoridation. Finally, some countries in Europe do elect to adjust fluoride levels in community water systems. Fluoridated water is provided to 12 million Europeans, mostly reaching residents of Great Britain, Ireland, and Spain."

----- <http://www.pewstates.org/research/analysis/water-fluoridation-frequently-askedquestions-85899379776>

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