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Fluoridated Municipal Water: Dental Hero or Toxic Dump?

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INTRODUCTION

I've had a few tooth cavities filled. It's likely most of us older than 35 have. It's certainly not an enjoyable experience. So if there is science out there that will promise me that at it can reduce the number of cavities I get by more than half, and do so completely painlessly and for next to nothing financially... well, I'd have to be a fool to say 'no thank you', wouldn't I? Absolutely! And that is exactly how the story went back in the 1950's. A wonderful new chemical could be put in the tap water that would reduce tooth decay by 12.5 - 60%, depending on which study one reads. Not bad... really very good, even!

However.. I have always been more than a bit leery of chemical additives. I was raised during the DDT scare, and am well-versed in PCBs, dioxins, zinc poisoning. Like all of you, I've read about asbestos, Agent Orange, ect, ect, ect. 21st century western civilization may be a technological marvel, but that has come at a high ecological price, a price we all pay daily. I'm in the water business largely because I have an awareness of these matters, after all, and because I wanted to make sure my family was at least partially shielded from the poisons out there.

So I did some research of my own. I was not prepared for what I found, let me assure you. At it's worst, I guessed that the numbers on cavity-reduction would be inflated. They are, by current standards. Or that there would be the usual cancer-scare statistics along the lines of "soak 1000 rats in fluoride for a month, and 6 will develop cancer of the spleen" or some such as we read in the paper every few days. And yes, those I found as well. I even found a number of communist/ elitist conspiracy theories on the whole municipal fluoridation issue. So naturally, I had to do some sifting. Any time one does research online, one has to be careful. But even so, what I found out ended up being quite frightening.

The first thing I researched was the historical precedent: who's idea was it to fluoridate tap water, where did this science actually come from, and how good is it actually? Well... I have to tell you that where the whole fluoridated-water came from isn't going to give much comfort: the original source was the "Manhattan Project" of WWII, which created the first A-bomb. One of the waste by-products of the manufacture of weapons-grade plutonium and uranium is, yes... fluoride, a highly toxic compound. And as it turns out, a number of people who worked on and lived around that project indeed got poisoned, and were in the process of suing the US federal government. It was decided to create evidence proving that fluoride was a safe product, and as a consequence atomic scientists helped design and implement 'science' that is still being quoted as normative to this day [1]

FLUORIDE: WHAT IS IT?

What exactly is fluoride? Well, for starters, it's root element is fluorine, described as:

"Fluorine is a Group 17 element. Fluorine is the most electronegative and reactive of all elements. It is a pale yellow, corrosive gas, which reacts with practically all organic and inorganic substances. Finely divided metals, glass, ceramics, carbon, and even water burn in fluorine with a bright flame. Until World War 2, there was no commercial production of elemental fluorine. Atom bomb projects and nuclear energy applications made it necessary to produce large quantities of fluorine since isotopes of uranium can be separated through the gas diffusion of UF₆. Reasonably safe handling techniques for fluorine are now available and one can transport liquid fluorine by the ton. Compounds of fluorine with noble gases such as xenon, radon, and krypton are known. Elemental fluorine and the fluoride ion (in quantity) are highly toxic." [2]

"A fluoride ion is the ionic form of fluorine. Fluorides are organic and inorganic compounds containing the element fluorine. Examples of common fluoride compounds include hydrofluoric acid (HF), and sodium fluoride (NaF)."

"Fluoride containing compounds are added to toothpaste, drinking water, prescribed treatments, and other commercially available oral hygiene products because fluoride proponents believe they help strengthen the tooth enamel. Sodium fluoride and sodium monofluorophosphate (MFP, SMFP) are common additives."

"Many local water municipalities fluoridate their water supplies by adding fluoride in concentrations of less than 4 ppm. Originally, sodium fluoride was used to fluoridate water; however, hexafluorosilicic acid (H₂SiF₆) and its salt (Na₂SiF₆) are more commonly used, especially in the United States." [3]

There are many different forms of fluoride, as it turns out. Some are naturally occurring compounds that can be found in 'natural' waters all over the world. Indeed, our oceans have roughly 1-1.5 ppm fluoride. Sodium Fluoride is considered 'pharmaceutical grade', and is these have been tested at various times by various agencies, with various relatively consistent results. There are a number of other varieties, and it is in fact one of these that are getting pumped into the water supply: fluorosilicic acid.

SO WHAT'S THE PROBLEM?

Fluorosilicic acid is a substance most commonly derived from the pollution scrubbing devices of the superphosphate fertilizer industry. It is a classified hazardous waste, is highly toxic, and oddly enough is also the substance used in 90% of the water fluoridation programs in the United States (and presumably elsewhere as well)

This fact has raised concern amongst health risk assessment scientists at the EPA who have helped draw attention to the fact that the only other place this fluorosilicic acid can legally be disposed of is in

a hazardous waste facility. As Dr. William Hirzy, Senior Vice President of the EPA's Professionals Headquarters Union, put it,

"If this stuff gets out into the air, it's a pollutant; if it gets into the river, it's a pollutant; if it gets into the lake, it's a pollutant; but if it goes right straight into your drinking water system, it's not a pollutant. That's amazing!" [4]

Note also that this union, comprising mostly scientists and engineers at the EPA, is strongly against fluoridating water supplies... and who would know better than them regarding this issue?

Wow. That sounds bad. Too much so to be truly believable, frankly. So I did some more study, now on fluorosilicic acid, which is what seems to be in most of the fluoridated water.

One of the very first things I discovered was that there has been virtually no testing done with regards to the toxicity of fluorosilicic acid in municipal water. I came across a "Sodium Hexafluorosilicate and Fluorosilicic Acid: Review of Toxicological Literature" dated 2001, and in the opening statements I found this:

"Sodium hexafluorosilicate and fluorosilicic acid were nominated for toxicological testing based on their widespread use in water fluoridation and concerns that if they are not completely dissociated to silica and fluoride in water that persons drinking fluoridated water may be exposed to compounds that have not been thoroughly tested for toxicity."

The article goes on to list the uses of this waste product as follows:

"The major use of sodium hexafluorosilicate and fluorosilicic acid is as fluoridation agents for drinking water. Sodium hexafluorosilicate has also been used for caries control as part of a silicophosphate cement, an acidic gel in combination with monocalcium phosphate monohydrate, and a two-solution fluoride mouth rinse."

"Both chemicals are also used as a chemical intermediate (raw material) for aluminum trifluoride, cryolite (Na_3AlF_6), silicon tetrafluoride, and other fluorosilicates and have found applications in commercial laundry. Other applications for sodium hexafluorosilicate include its use in enamels/enamel frits for china and porcelain, in opalescent glass, metallurgy (aluminum and beryllium), glue, ore flotation, leather and wood preservatives, and in insecticides and rodenticides. It has been used in the manufacture of pure silicon, as a gelling agent in the production of molded latex foam, and as a fluorinating agent in organic synthesis to convert organodichlorophosphorus compounds to the corresponding organodifluorophosphorus compound."

"In veterinary practice, external application of sodium hexafluorosilicate combats lice and mosquitoes on cattle, sheep, swine, and poultry, and oral administration combats roundworms and possibly whipworms in swine and prevents dental caries in rats. Apparently, all pesticidal products had their registrations cancelled or they were discontinued by the early 1990s."

"Fluorosilicic acid is used in the tanning of animal hides and skins, in ceramics and glass, in technical paints, in oil well acidizing, in the manufacture of hydrogen fluoride, for the sterilization of equipment (e.g., in brewing and bottling establishments and for copper and brass

vehicles), and in electroplating. It is also employed as an impregnating ingredient to preserve wood and harden masonry and for the removal of mold as well as rust and stain in textiles." [5]

The article goes in far greater detail on various issues... it's worth reading if you want an objective overview of a request for toxicological screening (which, as far as I am aware, has still not happened.)

So there you have it: It's mostly for you and me to drink, but also useful for killing bugs and rodents, tanning hides, and general usefulness in industrial applications... AND YET IT HAS NEVER BEEN SERIOUSLY TESTED FOR HUMAN CONSUMPTION/TOXICOLOGY!!

SUMMARY

What do we know so far, for sure?

- 1: Fluoridation of municipal water first came into being both/either due to a need to deal with a waste product from the Manhattan A-bomb project, and/or as a way to prove for legal reasons that fluoride was not a noxious poison (the Manhattan Project was facing lawsuits over people having been poisoned)
- 2: Fluoride chemicals are currently almost exclusively sourced for inclusion into tap water as a highly toxic waste byproduct of superphosphate fertilizer production
- 3: No significant studies have been done on the human toxicology of this particular chemical. However, in the '90's those products that used these chemicals for pesticide/rodenticide purposes had their American licences revoked (and I have not been able to ascertain why, though I have read anecdotal materials indicating 'colateral damage' issues when these products were not used correctly... perhaps indicating a relatively unsafe product?)
- 4: Fluoridation does historically seem to have a positive effect on dental health, insofar as there is a reduction of anywhere from 10-60% in cavity formation. However, those statistics are mostly based on very dated studies (1940's - 50's). Newer information seems to indicate a significantly lower positive effect to the point of being negligible (see more on that below)
- 5: there is a very small dosage window between fluoride being useful to our teeth, and it being toxic. There is a benchmark of 0.6 - 1.2 ppm for inclusion in tapwater... but that benchmark was established in the 1950's, and does not in any way reflect the potential dosage potential (which is based on milligrams dosage per kilogram of body weight, rather than ppm in tap water) of a typical individual, as there is no 'typical' available at this time for proper dosage analysis

CONCLUSION

Current information seems to indicate that, due to the presence of fluoride compounds in a great many products, we are regularly exceeding dosage that some consider healthy. Toothpaste as well as processed foods and beverages all contribute to the overall dose, which was not an issue several

decades ago. This fact contributes in two ways. First, it means that we now have more fluoride coming into our bodies than was the case a few decades ago... so much more so that even the old research would indicate that we are poisoning ourselves. Secondly, all these non-tap-water sources are making tap-water fluoridation redundant... as is being shown by the steadily decreasing difference in dental decay between populations having vs not having fluoride-treated municipal water. At the very least, the argument for usefulness of treated water is much less today than it was two generations ago, and the more likely reality is that it is no longer a realistic benefit at all, especially when considering the rather significant body of data on the risks inherent.

Fluoride is a highly toxic and noxious poison as well as a powerful carcinogen... it literally has no place in water meant for human consumption. There are too many issues being attributed to fluoridation for it to be left alone: scientists, doctors, and entire advocacy groups are sounding the alarm regarding myriad health issues related to fluoridated water. One of the most compelling (and one I suggest you spend some time at if this issue is one you wish to learn more about) is the Fluoride Action Network, which has an extensive website dedicated to the matter. [6]

I'll let Dr. Hardy Limeback, BSc, PhD, DDS, Associate Professor and Head, Preventive Dentistry, University of Toronto have the second-to-last word on this:

"A lifetime of excessive fluoride ingestion will undoubtedly have detrimental effects on a number of biological systems in the body and it is illogical to assume that tooth enamel is the only tissue affected by low daily doses of fluoride ingestion. Fluoride activates G-protein and a number of cascade reactions in the cell. At high concentrations it is both mitogenic and genotoxic. Some published studies point to fluoride's interference with the reproductive system, the pineal gland and thyroid function. Fluoride is a proven carcinogen in humans exposed to high industrial levels. No study has yet been conducted to determine the level of fluoride that bone cells are exposed to when fluoride-rich bone is turned over. Thus, the issue of fluoride causing bone cancer cannot be dismissed as being a non-issue since carefully conducted animal and human cancer studies using the exact same chemicals added to our drinking water have not been carried out."

"The issue of mass medication of an unapproved drug without the expressed informed consent of each individual must also be addressed. The dose of fluoride cannot be controlled. Fluoride as a drug has contaminated most processed foods and beverages throughout North America. Individuals who are susceptible to fluoride's harmful effects cannot avoid ingesting this drug. This presents a medico-legal and ethical dilemma and sets water fluoridation apart from vaccination as a public health measure where doses and distribution can be controlled. The rights of individuals to enjoy the freedom from involuntary fluoride medication certainly outweigh the right of society to enforce this public health measure, especially when the evidence of benefit is marginal at best."

"Based on the points outlined briefly above, the evidence has convinced me that the benefits of water fluoridation no longer outweigh the risks. The money saved from halting water fluoridation programs can be more wisely spent on concentrated public health efforts to reduce dental decay in the populations that are still at risk and this will, at the same time, lower the incidence of the harmful side effects that a large segment of the general population is currently experiencing because of this outdated public health measure. " [7]

Finally: if you want to be certain you are giving your body the best you can, if you want to at least give yourself a fighting chance, if you want to be certain that your water is just that... water and nothing else: drink H2Only's reverse-osmosis purified drinking water... without a trace of fluoride in it! [8]

REFERENCES

In-line References:

- [1] <http://www.fluoridation.com/atomicbomb.htm> ,
http://www.opposingdigits.com/ebooks/NEXUS_Fluoride.&.Manhattan.Project.pdf#search=%22%22manhattan%20project%22%20fluoride%22
- [2] <http://www.webelements.com/webelements/elements/text/F/key.html>
- [3] <http://en.wikipedia.org/wiki/Fluoride>
- [4] http://www.npwa.freeserve.co.uk/fluorosilicic_acid.htm
- [5] Fluorosilicates.pdf, p.14
http://ntpserver.niehs.nih.gov/ntp/htdocs/Chem_Background/ExSumPDF/Fluorosilicates.pdf#search=%22%22fluorosilicic%20acid%22%22
- [6] <http://www.fluoridealert.org/>
- [7] <http://www.fluoridealert.org/limeback.htm>
- [8] <http://www.h2only.ca/delivery/>

Background references (not cited in this article but worth reading):

- <http://www.actionpa.org/fluoride/hirzy.html>
- <http://100777.com/node/291>

The following Web sites offer further sources of information about fluoridatio, with an advocacy position:

- American Dental Association: www.ada.org/public/topics/fluoride/index.asp
- Centers for Disease Control and Prevention: www.cdc.gov/OralHealth/topics/fluoridation.htm
- American Water Works Association: <http://awwa.org/Advocacy/pressroom/fluoride.cfm>