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## Fluoridation Convert

### A Scientist Explains What Changed Her Mind

By Jane Nielson, Ph.D.

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(O.W.L.)

I was in the middle of my education as a scientist when I first encountered the fluoridation controversy. I was getting a Masters in Geochemistry from the University of Michigan, and I attended a heated City Council meeting in Flagstaff, Arizona. By the end of that meeting I was convinced opponents of water fluoridation were conspiracy-minded loonies.

For decades I never thought much about fluoridation. I believed the doctors who said fluoride prevented tooth decay, so I gave my two children fluoride drops when they were infants. It wasn't until the **Sonoma County Water Coalition** hosted a debate in 2009 that I became aware of different information about water fluoridation. Like that memorable Flagstaff meeting, I thought I'd hear "science" from supporters and "crazy stuff" from opponents. But neither side presented any science at all.

#### What the Studies Show

Exasperated, I started researching for myself. This was familiar terrain: I had published many papers, so I know what it takes to prove a point scientifically, and the data required to get a paper published. I had performed analyses, plotted data and defended my research and interpretations in public forums.

I quickly found **World Health Organization** data that stunned me:

- Tooth decay has plummeted in developed countries worldwide, regardless of fluoridation.
- Cavity rates are the same—or *even lower* – in many non-fluoridated countries compared to the U.S.
- The one clear correlation with water fluoridation is disfiguring "dental fluorosis" (*supposedly only a cosmetic problem.*)

I then proceeded to review a range of scientific papers, including all the most recent research on actual and potential effects of water fluoridation. In study after study I found that differences in tooth decay rates between areas that have fluoridated water supplies for decades, and those that either never fluoridated or stopped fluoridating, were *minimal to nonexistent*.

Key U.S. studies confirm that *ingesting fluoride does not prevent tooth decay*:

- 1990 National Institute of Dental Research Survey: One of the largest

U.S. surveys of tooth decay found no significant difference in tooth decay (*less than 1/2 of 1% of the 128 tooth surfaces in the mouth*) between fluoridated and non-fluoridated populations.

- Several modern U.S. Studies (1997-2001): Tooth decay did not go up when fluoridation was stopped.
- The 2009 National Institutes of Health-funded "Iowa Study": Cavity levels the same regardless of whether children ingested fluoride or not.

#### Apply It, or Swallow It?

In recent years the differentiation between *swallowing* fluoride and *coating teeth* with it has become lost in the discussion. But this differentiation is essential. The overwhelming consensus among scientists, including the Centers for Disease Control (CDC) and the National Research Council, is that fluoride works when it's applied to the tooth surface, NOT when it's swallowed.

#### Sonoma County Has Provided No Scientific Support for Fluoridation

In 2013, County Health officials provided the Sonoma County Water Coalition with a single study in support of fluoridation by Australian scientists who reviewed worldwide fluoridation studies written in English. But that study is flawed because it failed to compare fluoridated versus non-fluoridated populations, lacked a cavity prevention assessment, and showed an extremely weak correlation insufficient to prove cause-and-effect.

Thus far the County has not offered any more definitive data to support its campaign.

#### How Did the U. S. Get Sold on Public Water Fluoridation?

In analyzing early research, it's clear that the U.S. promoted the spread of water fluoridation before completing definitive studies. I've met with this practice of promoting innovations that later prove to have negative public health impacts over and over again in my scientific career.

After the debate, I realized that without solid science to back it up, fluoridation could well represent the same dynamic. And now, having examined the research myself, I've concluded that water fluoridation is indeed an echo of past mistakes.

Improving children's dental health is a worthy goal. But before Sonoma County considers water fluoridation, the public must demand the County *first* prove that it works.