



H A V E N G R E E N C L I N I C

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## The Fluoride Debate

The addition of fluoride to public water supplies, known as **fluoridation**, has proven benefits to dental health by increasing the resistance of dental enamel to decay. When one part per million of fluoride salts are added to water supplies, the fluoride ion in the ingested water is incorporated into the tooth enamel. The enamel's calcium hydroxy apatite crystals, become calcium hydroxy fluor-apatite, slightly larger crystals, reducing the spaces between, lowering porosity, thereby increasing the strength of the enamel and its susceptibility to dissolution by acids in the mouth .

The first country in the world to Fluoridate a public water supply was the U.S.A. when fluoride was added to the water in Grand Rapids in 1945. The second country was New Zealand but the first to conduct a controlled experiment. In the 1950s, two parts per million of fluoride salts were added to the water of Hastings which had worse teeth than nearby Napier a city of similar size. Napier acted as a useful control group for this ground-breaking experiment in public health. Hastings' population's teeth dramatically improved. They became better than Napier's until, like all cities in N.Z., Napier became fluoridated too. Mild staining of the teeth, known as mottling was observed in a small percentage of the young population. It has since been found that one part per million is enough to confer improvements in dental health.

**No adverse general health effects have ever been reported.**

Decades later, the debate rages in Southampton UK, where the council's aim to fluoridate has been legally tested in the high court. The objection is adding "medication" to water supplies, but the argument for the defence is that replacing trace elements naturally occurring in many water supplies is merely correcting deficiencies, a beneficial process like chlorination to kill germs.

In most of these legal contests waged against adding fluoride salts to water supplies, fluoridation has won, and millions around the world benefit from this process, which is on a parallel with vaccination as a proven preventive health measure. It is inexpensive.

Fluoride is added to most toothpastes, and fluoride varnishes can be applied to sensitive or demineralized surfaces. Fluoride mouthwashes also confer protection from sensitivity and decay. They should not be swallowed, so mouthwashes have a lower age limit.

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