

# FLUORIDATION: New evidence of harm to young teeth and old bones

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## SUMMARY:

A relationship between water fluoride and the incidence of women's bone fractures has been reported in two recent studies, suggesting that fluoridated water along with other factors may contribute to the risk of fractures. In New Zealand hip fractures have increased more than threefold since the 1950s and are still increasing.

Clinical and morphometric studies - of hip and other fractures following fluoride treatment for osteoporosis, of endemic fluorosis, and of bones of old people living in a fluoridated city - when considered together also suggest a causal link between water fluoride and bone fragility.

About a half of the fluoride ingested by adults is accumulated in their

bones throughout life. Children, and adults with impaired kidney function, excrete less and accumulate more. The prevalence and severity of dental fluorosis, a sign of excess fluoride intake by children, has increased.

The contribution of fluoride to the fracture epidemic could increase when adults spend greater proportions of their lives drinking fluoridated water, and when today's children reach old age.

The benefits of fluoridation were exaggerated and the adverse effects underestimated. We should not wait until the evidence is overwhelming before acting with the caution and responsibility expected of health professionals.

Many adverse effects of fluoride have been debated. But there are two tissues of the human body which no one denies are affected by fluoride: bones and teeth. We hear a lot about the benefit to teeth and little about the harm, and even less about the harm to bones, which is the main subject of this article.

## 1. Effect on bones of the elderly

Last year it was reported in the *Journal of the American Medical Association* that fluoridated water along with some other factors appears to increase the risk of hip fractures in women over 65 (Jacobsen *et al* 1990) - a mishap common among sufferers from osteoporosis, and often fatal to the women so afflicted. In New Zealand such fractures have increased more than threefold since the 1950s and are still increasing (Rockwood *et al* 1990).

The American study was well designed "with the entire US population aged 65 years and older serving as the standard." It recorded all USA hip fractures (over half a million) for 4 years. The weak relationship between hip fractures and fluoridated water was strengthened following statistical adjustments for other risk factors. So, after some 30 or so years of fluoridation a large scale study has provided information suggesting a

long term adverse effect on bones, which the early studies claiming safety, being based on small populations in naturally fluoridated areas, could not do.

Further evidence has since been published in the *American Journal of Epidemiology* (Sowers *et al* 1991). Women in an area with 4 parts per million water fluoride (the claimed "maximum safe level") had twice the fracture rate of women in an area with 1 part per million water fluoride (the claimed "optimal" level). There was also more bone loss in the higher water fluoride area. The margin of safety of low water fluoride levels is apparently less than claimed.

It has been argued that only an association has been shown, and that further evidence is required before a causal connection between water fluoridation and hip fractures could be assumed (Williams 1990, Brown 1991). But there is