



'FLUORIDE: BENEFITS FAR OUTWEIGH THE RISKS'

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Media reports have raised concerns about the health effects of excessive fluoride intake in young children, particularly if they swallow adult toothpaste containing fluoride. While this toothpaste may pose a health hazard if used incorrectly, the NSW Health Department strongly supports the continued use of fluoride additives to toothpaste and domestic water supplies to maintain high levels of dental health.

To avoid problems associated with excessive fluoride intake the Department advises parents to:

- supervise teeth cleaning of children aged up to 10 years and encourage them to "spit and rinse";
- use junior toothpaste (with half as much fluoride) in children 2-8 years old;
- use a very small smear of toothpaste for children under 2 years of age; and
- encourage all children to use small amounts (a pea-sized amount).

The dramatic reduction in rates of dental caries in the whole population following the fluoridation of domestic water supplies is well established. Fluoride in toothpaste can further reduce levels of caries by its direct action on tooth enamel. However, if children swallow excessive amounts of fluoridated toothpaste they may develop some staining of the tooth enamel. In this article we review briefly some of the adverse health effects which have been attributed to fluoride and present a summary of some recent findings which strongly support the continued use of fluoride in our drinking water.

DENTAL FLUOROSIS

Dental fluorosis occurs when excessive amounts of fluoride are taken up by the teeth, resulting in staining or, in severe cases, pitting and mottling of the dental enamel. With water fluoridation levels in NSW at one part per million, dental fluorosis occurs rarely; less than 3 per cent of the population^{1,2}. Most of this will be mild and detectable only by trained observers.

There are other sources of fluoride which may contribute to the development of dental fluorosis. The most important for children is fluoride toothpaste, which contains 1,000 parts per million of fluoride and contributes up to 50 per cent of their total intake³. This can be controlled by the methods listed above.

BONE FRACTURES

There is no clear evidence that water fluoridation causes bone fractures. While some studies in areas using fluoridated water have shown increased fracture rates^{3,4,5,6}, at least one study showed a reduced rate in areas with fluoridated water⁷ and others showed no association^{8,9,10}. These studies have methodological problems, including failure to account for other risk factors such as physical activity, sedative medication use, and hormone replacement therapy in post-menopausal women, which influence the number of fractures. Differences in the prevalence of these factors, rather than any differences in fluoride intake, may explain the different rates of fractures observed.

Large doses of fluoride may increase the risks of bone fractures, but these doses are 30 times the amount obtained from drinking two litres of fluoridated water a day¹¹.

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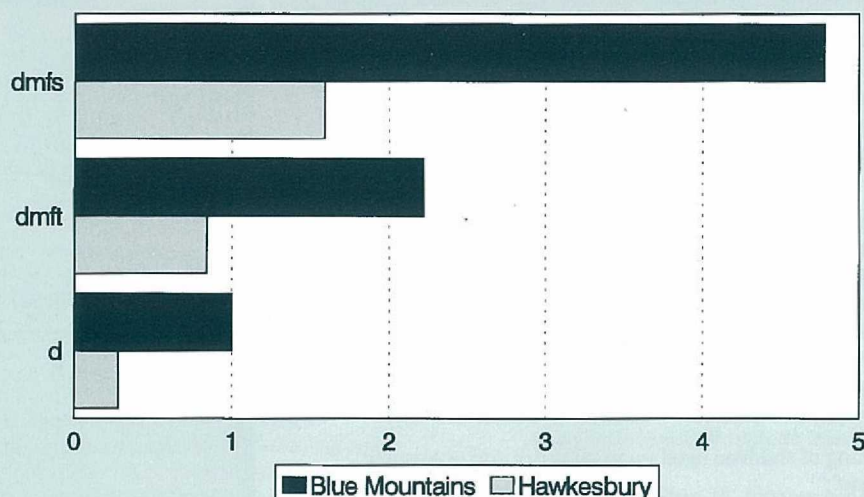
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FIGURE 1

MEAN DENTAL CARIES PER CHILD – CONTINUOUS RESIDENTS



Three measures were used to compare the number of caries in children. These were:

Dental caries experience – the number of teeth that are decayed or missing or filled because of decay. This is abbreviated as **dmft** for the primary teeth.

Dental caries extent – the number of tooth surfaces that are decayed or missing or filled because of decay. This is abbreviated as **dmfs** for the primary teeth; each tooth has five surfaces.

Active dental caries – the number of teeth that have active or untreated dental decay. This is abbreviated as **d** for primary teeth.

BONE CANCER

Fluoride does not cause cancer¹². This issue has been extensively studied in the United States, where trends have been examined comparing cancer rates in people living in areas with fluoridation to those without fluoridation. No differences were found.

WHY DO WE ADD FLUORIDE TO OUR WATER?

Fluoridation substantially reduces dental caries in adults and children². This is important for our health as dental caries, especially untreated, leads to poor dental hygiene and ultimately poor nutrition and associated disfigurement and pain.

A survey by the NSW Health Department provides further evidence of the continued benefit to our community of adding fluoride to public water supplies¹³. In this survey, rates of dental caries in 1,100 primary school children with a lifelong exposure to fluoridated water living in the Hawkesbury Local Government Area (LGA) were compared to rates in 1,106 children in the Blue Mountains LGA, where the water was fluoridated only recently.

All children had a clinical examination and their parents provided details of their complete residential history, preventive dental behaviour and socio-demographic data.

Children in the Blue Mountains LGA had 1.7 times the amount of tooth decay compared with children from the Hawkesbury LGA. This difference is even more marked if we focus on children who had been lifelong residents in the two areas (Figure 1). The children from the unfluoridated Blue Mountains LGA experienced 2.5 times more decay than the fluoridated Hawkesbury LGA. However, there

were also significant differences between Hawkesbury and Blue Mountains children in non-continuous residents.

These differences persisted even after taking into account other factors related to dental caries such as socio-economic status.

The substantial and proven benefits of water fluoridation on dental health in the community outweigh the potential health risks. Furthermore, these health problems can be avoided by reducing discretionary intake of fluoride, particularly from fluoridated toothpaste.

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