

Safe use of fluoride at home

Fluoride products when handled appropriately pose very little risk of adverse effects. However, it is important to be aware of the appropriate use and storage of fluoride-containing products to ensure their safety.

The guidelines are simple. All fluoride-containing products, including toothpaste, should be kept out of reach of children. To reduce the risk of dental fluorosis parents should supervise toothbrushing for children under the age of six, apply the toothpaste for the child (only a smear), and discourage the child from swallowing or eating it. It is also recommended that children under six years of age should use an age appropriate fluoride toothpaste. Further guidelines for appropriate toothpaste use by children are included in Fluoride Information Pamphlet No. 3 *Fluoride and Dental Fluorosis*.

Summary

There is no evidence of adverse health effects attributable to fluoride in communities exposed to an appropriate combination of water fluoridation and other contemporary sources of fluoride. "There is no basis for altering current policy [on water fluoridation]."

(National Health and Medical Research Council, 1991)

References

- Hoskin GW, Spencer AJ. Personal perceptions of dental fluorosis in South Australian children. Adelaide: AIHW Dental Statistics and Research Unit, 1993.
- Kaminsky LS, Mahoney MC, Leach J, *et al*. Fluoride: benefits and risks of exposure. *Crit Rev Oral Biol Med* 1990;1:261-81.
- National Health and Medical Research Council. *The effectiveness of water fluoridation*. Canberra: AGPS, 1991.
- National Research Council. Drinking water fluoridation concerns unwarranted. Washington DC: National Research Council, 1993.
- Riordan PJ. Perceptions of dental fluorosis. *J Dent Res* 1993;72:1268-74.

Prepared (1996) Revised (1997)

Further information
can be obtained from

Dental Practice Education Research Unit
Department of Dentistry
The University of Adelaide
AUSTRALIA 5005

Telephone: +61 8 8303 4235
Enquiries: dperu@adelaide.edu.au
Web: adelaide.edu.au/arcph/dperu

Fluoride Safety

*Summary pamphlet for
use as a guide for
discussion with patients*



THE UNIVERSITY OF ADELAIDE

Fluoride

“Currently allowed fluoride levels in drinking water do not pose a risk of health problems such as cancer, kidney failure or bone disease.”

(National Research Council, August 1993)

Fluoride is present naturally

Fluoride as an element ranks 17th in abundance, occurring principally in rocks, soils and the sea. Owing to the universal presence of fluorides in the earth's crust, all water contains fluoride in varying concentrations. Small amounts are also present in almost all foods.

Fluoride and the human body

Fluoride is normally present in the human body. Approximately 75–90% of the fluoride ingested each day is absorbed from the alimentary tract. About half of that fluoride (more in growing children) becomes associated with teeth and bones within 24 hours of ingestion. The remaining fluoride is eliminated almost exclusively by the kidneys.

Dental fluorosis

Dental fluorosis (enamel mottling) results when excessive amounts of fluoride are ingested during the years of tooth formation. It is characterised by enamel defects ranging from barely noticeable opaque or white flecks to surface pitting and brittleness. Secondary brown staining may be associated with more severe fluorosis.

The milder forms of dental fluorosis do not compromise oral health and function, however, more severe forms may be perceived as an aesthetic problem by children, parents and other observers (Riordan, 1993; Hoskin and Spencer, 1993). It is for this reason that fluoride intake of children under six year of age should be controlled.

Skeletal fluorosis

Skeletal fluorosis is a chronic metabolic bone and joint disease caused by long term exposure to high doses of fluoride. Studies conducted in the United States have not detected radiographic changes in bone density in persons drinking water containing less than 4mg fluoride per litre (Kaminsky *et al*, 1990).

Cancer

More than 50 epidemiological studies have investigated the possibility of a relationship between fluoride concentration and human cancer, and have found no evidence for an association between fluoride in drinking water and risk of cancer.

A National Health and Medical Research Council Working Group (1991) stated that:

“there is no evidence that fluoride is a risk factor for cancer in humans. None of the properly conducted epidemiological studies support such a contention, either in relation to all cancers combined or in relation to cancer at specific sites, including bone.”

Renal effects

Several human epidemiological studies have evaluated the effect of long-term exposure on kidney disease and function and have found no evidence of an increased frequency of kidney disease or renal dysfunction with fluoride at concentrations of up to 8ppm in drinking water (Kaminsky *et al*, 1990).

Total renal failure (where people receive dialysis regularly to stay alive) is the only health consideration where people should not drink water with 1.0ppm fluoride. Less severe renal conditions do not present problems.

Hip fractures

The existing literature is varied in the evidence available linking fluoride to hip fractures. Two recent unpublished studies have indicated no risk at optimal fluoride concentration in water.

Allergy and hypersensitivity

“...no evidence of allergy or intolerance to fluorides as used in the fluoridation of community water supplies.”

(NHMRC, 1991)

Reproduction and congenital malformations

The available epidemiological studies do not support an association between consumption of fluoridated water and congenital malformations such as Down's Syndrome (Kaminsky *et al*, 1990).