

Fluoride

Facts:

- ◆ In 1972, fluoride was recognized as an essential mineral, most notably because of its role in reducing the incidence of dental caries.
- ◆ Fluoride is best known for its role as a catalyst for the mineralization of developing tooth enamel prior to emergence and for its remineralization of surface enamel.
- ◆ The average human male's bones contain 2.6 grams of fluoride.
- ◆ According to *Prescription for Nutritional Healing*, more than half of the cities in the U.S. fluoridate their water supply.¹

Functions:

- ◆ The primary function of fluoride is that it strengthens tooth enamel. Ingestion of fluoride decreases the incidence of dental caries or tooth decay.¹
- ◆ Fluorine also increases the deposition of calcium, which strengthens bones.²

Requirements:

No RDA or Daily Value has been established for fluoride. Fluoridated water supplies approximately 1 ppm, which provide an adult with 1.5-4.0 mg daily. The average intake of fluoride is between 0.2 - 4.4 mg. The Adequate Intake ranges for fluoride, though, are as follows:³

Age:	AI (milligrams):
Infants: birth-6 mos.	0.1-0.5 mg
6 mos.-1 yr.	0.2-1 mg
1-3 yrs.	0.5-1.5 mg
4-6 yr.	1-2.5 mg
7 +	1.5- 2.5 mg
Adults	1.5-4 mg

Signs of Deficiency:

A high incidence of dental caries is present in areas of the U.S. where the water is not fluoridated and /or fluoride consumption is low.³

Signs of Toxicity:

An excess of fluoride (2 to 8 ppm) can result in dental fluorosis, which is characterized by dull, mottled, or pitted teeth.² Fluorosis of the bones occurs in 8 ppm can cause arthritic-like symptoms.² Chronic toxicity occurs at intakes between 20 mg to 80 mg or for extended periods of time. Groups at risk for fluorosis include: formula-fed infants, heavy exercisers, individuals who consume high quantities of water-based beverages, people with malfunctioning kidneys and the elderly. Persons with cardiovascular problems are

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also at risk for fluoride toxicity. In addition, "People with renal insufficiency would have impaired renal clearance of fluoride. People with diabetes mellitus and heart insufficiency have also been found to have impaired renal clearance of fluoride."⁴

Note: The issue of fluoridation of community water supplies is controversial. Supporters of fluoridation assert that fluoride reduces the incidence of dental caries and osteoporosis in the population; opponents counter that harmful levels of fluoride can accumulate in the body leading to fluoride toxicity. A report issued by the U.S. Department of Health, Agency for Toxic Substances and Disease Registry, Division of Toxicology reported in 1991 that certain population groups including the elderly, people who have a magnesium deficiency, and persons with cardiovascular and kidney problems "may be unusually susceptible to the toxic effects of fluoride and its compounds."⁴ Fluoride is contained in ConcenSeaTM (CMD), however, it is a naturally-occurring form of fluoride. In addition, both in-house and independent lab test results show the amount of fluoride in CMD to be in very minute, trace amounts. However, it is important to point out that magnesium plays a significant role in its interaction with fluoride in the body. Magnesium is the activator of more than 300 enzymes while fluorine is known as their inhibitor, although some enzymes' activity is increased by the presence of fluorine.⁵ In plants, supplementation of magnesium protects against the toxic effects of fluoride.⁵ One researcher concludes that "In intoxication with fluorine compounds, magnesium plays a protective role by countering and reduce the toxic effects of F-."⁵

Current Research:

Bones: The research of fluoride in preventing osteoporosis is mixed. Some studies show a protective effect while other studies report that high intakes of fluoride increase the risk of hairline bone fractures.^{6,7} In addition, according to the American Society for Nutrition's web site, "Under controlled experimental conditions, slow release administration of fluoride (23 mg/day) plus calcium has been shown to stimulate new bone formation in some individuals."³

Tooth decay: In an animal study, the administration of both fluoride and magnesium jointly influenced enamel hardening and significantly reduced the incidence of dental caries.⁵

References:

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