

# Fluoride

Fluoride exists naturally in water sources and is derived from fluorine, the thirteenth most common element in the earth's crust.

Since fluoride is present in most food and water, all humans ingest the mineral to some extent on a daily basis. In addition, Canadians (approximately 40 per cent) receive fluoride in their community water supply. Fluoride is also used by individuals in the form of consumer products such as toothpaste and rinses, and by dental professionals in the professional application of fluoride treatments.

More than 50 years of extensive research has consistently shown fluoride to be a safe, effective and economical means of preventing and even reversing the early stages of tooth decay (dental caries) in all age groups.

Health Canada, through a joint federal/provincial committee, is responsible for watching the level of fluoridation in water supplies. In recent years, this committee has recommended a decrease in optimal levels of fluoride. Because many Canadians receive fluoride from many sources, some communities have followed the committee's recommendations by lowering the level of fluoride in their water supply.

Optimal levels of water fluoridation means finding the right balance between putting enough fluoride in the water to maximize the benefits of fluoride exposure while minimizing potential to contribute to dental fluorosis – too much fluoride.

## THE IMPACT ON ORAL HEALTH

Provided that the total daily intake of fluoride is carefully monitored, fluoride is considered to be an important health measure in maintaining oral health for all Canadians.

Fluoride works by strengthening or remineralizing the outer layer of teeth (called tooth enamel) to prevent cavities from starting, to reduce the size and number of cavities, and to lessen tooth sensitivity.

Children need fluoride protection while their teeth are developing. Adults also need it since the possibility of root cavities (tooth decay in the roots of the teeth) increases with age.

### Sources of fluoride

- Natural or community fluoridated water
- Food prepared in fluoridated water
- Seafood due to the natural sodium fluoride found in the ocean
- Tea and gelatin
- Consumer products, e.g., toothpaste, rinses, gels and fluoride supplements in liquid or chewable tablets
- Professional applications of gels, foams and varnishes



## SYMPTOMS AND RISKS

**Underexposure to fluoride.** A person may require additional fluoride due to:

- Rampant cavities
- Dry mouth (xerostomia)
- Exposure to radiation therapy (head and neck radiation therapy)
- Root sensitivity

**Overexposure to fluoride.** Swallowing too much fluoride may result in dental fluorosis.

- This condition can cause teeth to erupt with white specks, small pits or brown stains.
- In most cases dental fluorosis is mild and barely visible; it is a cosmetic condition and is not health threatening.
- In more severe cases fluorosis may be treatable by a dental professional.
- Any damage in tooth development due to fluoride occurs between the ages 6 months to 5 years.

### Fluoride ingestion

Swallowing fluoride (e.g., excessive toothpaste) may cause nausea and/or vomiting. The calcium from drinking a glass of milk will help to neutralize the fluoride. Meanwhile, contact a dental professional, physician, emergency department or local poison control centre for advice.

## TREATMENT

An assessment of fluoride sources and a thorough clinical examination is required before embarking on a specific course of fluoride treatment. For instance, dental professionals should be aware of the water fluoride content in their area. This must be taken into account as well as the possible impact of fluoride reducing factors within the home such as the use of unfluoridated bottled water or some reverse osmosis devices.

If fluoride treatment is recommended, there are a number of options available. Following a fluoride procedure, there should be no eating, drinking or rinsing for 30 minutes.

### **Professional dental treatments include:**

- Rinses
- Trays using gel or foam
- Paint-on application (usually for small children)
- Varnishes

### **Home care treatments, as recommended by a dental professional, include:**

- Rinses – daily or weekly
- Custom trays using concentrated gels
- Fluoride supplements in liquid or chewable tablets
- Drops for individuals with special needs

## PREVENTION

Water fluoridation is the best way to provide fluoride protection to a large number of people at low cost. Where fluoride has been added to municipal water supplies, there has been a marked decline in tooth decay rates.

The public and parents of young children are encouraged to assess their circumstances and be aware of their own potential exposure to fluoride. Provincial health departments can help to inform the public concerning the fluoridation status of naturally fluoridated drinking water in various communities.

Parents should supervise the tooth brushing of young children under six years of age. Children under three years of age should have their teeth brushed by an adult using only a smear of non-fluoride toothpaste. When children are able to spit, they should use only a pea-size amount of fluoride toothpaste on a toothbrush and minimize swallowing. Fluoride mouth rinsing is not recommended for children under six years of age.

Dental professionals will review a client's fluoride sources whenever treatment includes an option for additional exposure.

