

FACT SHEET

Fluoride

What is Fluoride?

Fluoride is a component of naturally-occurring salts and minerals found in the earth's crust, derived from the chemical element fluorine. Fluoride is commonly used in medical, agricultural, and industrial applications.

What is its role in dental health?

Fluoride has been known to prevent tooth decay since about 1940. Grand Rapids, Michigan was the first American city to fluoridate its drinking water supply, and saw tooth decay diminish by over 50% in the first 10 years. About 60% of Americans currently have access to fluoridated water.

Oral bacteria in plaque convert sugars to acids, which eat away at tooth enamel. Fluoride counteracts this process in two important ways:

- Encourages remineralization of the teeth and improves the quality of the replaced enamel.
- Reduces the ability of bacteria to produce acid.

Fluoride has become increasingly important as the amount of sugar in people's diets increased during the 20th century. Fluoride also is important to elderly people as their gums recede with age, leaving teeth more susceptible to decay. Good teeth can help lengthen a person's lifespan and ensure robust health in later years.

Are there side effects to fluoride?

Excess amounts of fluoride can be harmful to teeth and bones. Many people of the early American West had brown-stained teeth because they were consuming spring and mineral water with extremely high amounts of fluoride. It is also thought that infants should not consume fluoride in amounts greater than that found in breast milk. For this reason, the American Dental Association recommends that infant formula be prepared with unfluoridated water.

Is there controversy about fluoridation?

There has been some minor controversy about the fluoridation of municipal drinking water since the practice became widespread 50 years ago, and some controversy remains today. But fluoridation is widely- supported by the American Dental Association, the American Medical Association, the American Academy of Pediatrics, and the US Surgeon General. The Centers for Disease Control (CDC) lists fluoridation of drinking water one of the top ten public health advances of the 20th century.

Fluoride in DMWW water

Des Moines Water Works' water has contained added fluoride since 1959. Some fluoride is naturally-present in the source water. The amount is carefully monitored every day so that the optimum concentration of 0.7 parts per million (ppm) is maintained. Several mechanical systems are in place that prevent an over-feed of fluoride to the water. The maximum allowed level in drinking water is 4 ppm. According to CDC estimates, fluoridation of DMWW drinking water saves the Des Moines area over \$3.6 million a year in dental costs.

What if I'm expecting or have an infant?

The American Dental Association makes these recommendations regarding infants and fluoride:

- Breast milk is the most complete form of nutrition for infants. The American Academy of Pediatrics recommends human milk for all infants (except for the few for whom breastfeeding is determined to be harmful).
- For infants who get most of their nutrition from formula during their first 12 months, ready-to-feed formula is preferred over formula mixed with water containing fluoride to help ensure that infants do not get more fluoride than they need.
- Powdered or liquid concentrate infant formula can be mixed with water that is fluoride free or contains low levels of fluoride. These types of water are labeled as purified, demineralized, deionized, distilled or reverse osmosis filtered water. Many stores sell these types of drinking water for approximately \$1.00 per gallon.
- Occasional use of fluoridated water should not greatly increase the chance of over-exposure to fluoride for the infant.
- After their first birthday, children can drink fluoridated water because they've grown and they weigh more.
- Children under the age of two should not use fluoride toothpaste.

Breast milk is very low in fluoride. Nursing mothers or pregnant women who drink fluoridated water do not pass on significant amounts of fluoride to their child. Avoiding fluoridated water during pregnancy is not necessary. Use of fluoride supplements by the expectant or nursing mother does not benefit the baby. Parents should consult with their dentist or physician if questions or concerns about fluoride exist.

Should I be concerned about Fluoride?

If you have concerns about fluoride, you should discuss this topic with your dentist and doctor. If you wish to eliminate fluoride from your drinking water, home treatment devices are available – primarily reverse osmosis systems. Before buying, make sure the system you are purchasing can remove fluoride.

For additional information, visit www.epa.gov/safewater