

Fluoride

McKenzie Pediatrics 2010

What is fluoride?

Fluoride is the salt-form of fluorine, a natural element and the 13th most common earth mineral, found in rocks and groundwater. In many places around the world, fluoride is in groundwater at sufficiently high concentrations to be protective against cavities. However, in the Willamette Valley, natural fluoride concentrations are minimal to absent.

How does fluoride help teeth?

Dental caries (cavities) result from the action of certain bacteria on the teeth. Bacteria, primarily mutans streptococci, coat the teeth in the form of plaque, and produce an acid that can dissolve the calcium-phosphate complex of the tooth enamel. If not reversed or halted, this results in a cavity.

Fluoride is an important defense against cavities, and can reverse or halt early decay. Fluoride enhances the formation of the protective mineral layer on teeth, and inhibits the acid-producing bacteria. Fluoride's benefit continues throughout your life, not just in childhood.

How did fluoride supplementation begin?

The protective effect of fluoride on tooth enamel was first discovered in the early 1900s, when researchers noted that residents from communities in which groundwater fluoride concentrations were high seemed more resistant to dental decay. Residents of cities having varying levels of naturally-occurring fluoride in the groundwater were noted to have one-half to one-quarter the number of cavities as residents of cities with no naturally occurring fluoride. By the mid-1940s, American cities lacking natural fluoride began water fluoridation programs, and by the 1950s, fluoride toothpastes were introduced.

Isn't fluoride in our water here?

No. The communities of Eugene and Springfield, as well as most surrounding towns (with the exception of Florence, and Sweet Home), do not have water fluoridation programs. Again, fluoride does not naturally exist in our area at a high enough concentration to help prevent tooth decay.

The Centers for Disease Control & Prevention (CDC) states that "although other fluoride-containing products are available, water fluoridation remains the most equitable and cost-effective method of delivering fluoride to all members of most communities, regardless of age, educational attainment, or income level." Research has found that \$38 in dental treatment costs are saved for every \$1 invested in water fluoridation.

About two-thirds of Americans live in communities with naturally fluoridated groundwater, or water fluoridation programs. The optimal concentration of fluoride is 0.7-1.2 parts per million; concentrations above 2 ppm should not be consumed by children under age 8 years due to the risk of enamel fluorosis, a brown staining of the dental enamel.

Isn't fluoride toxic?

At the low doses found naturally or provided by water fluoridation programs, no. However, some children can get too much fluoride, if they take a fluoride supplement IN ADDITION to regularly drinking bottled beverages produced using fluoridated water, or in addition to regularly ingesting (rather than spitting out) toothpaste. Even for such children, the "toxicity" comes in the form of fluorosis of the adult teeth.

Are there other sources of fluoride in our diets?

Yes. Bottled water and other bottled or boxed beverages (juice drinks, soft drinks, energy drinks, teas, and some fruit juices) usually contain variable amounts of fluoride, depending on

the water source. Most, however, do not contain enough fluoride to be the sole protection against cavities. Unfortunately, the Food & Drug Administration does not require that the labels of bottled beverages list the fluoride concentration, unless fluoride has been artificially added.

Some foods, such as some seafood products and tea leaves, are also naturally high in fluoride. For the most part, however, the only sources of additional fluoride a child might consume are in bottled beverages, and toothpaste. Parents whose children receive daily fluoride supplements need to take great care not to regularly allow them to consume bottled or boxed beverages.

What about toothpaste?

Fluoride toothpaste is one of the best methods of applying fluoride directly to the teeth. Brushing once daily until 18 months of age, and twice daily thereafter, offers the greatest benefit. Begin brushing when your baby's first teeth erupt - starting this good habit when they're young makes it more likely to be an accepted habit as they get older.

Of course, babies and young children cannot "rinse and spit". Therefore, to avoid the child swallowing too much fluoride, put no more than a BB-sized amount of toothpaste on the toothbrush of children younger than 18 months, and no more than a pea-sized amount for the child older than 18 months.

Some parents will read not to use fluoride toothpaste in children younger than age 2 years. This is true only for the majority of American children who lives in areas with fluoridated water. Not here. Not us.

It doesn't really matter whether you use adult or "children's" toothpaste, so long as you follow the recommendations for the amount used. Find a brand of toothpaste that your child likes most, so that he or she will enjoy having their teeth brushed. Parents should assist their child in tooth brushing until at least the age of 6 years.

What about fluoride supplements?

Fluoride supplements, in the forms of drops and chewable tablets, are recommended for every local child beginning at 6 months of age, and continuing until at least 8 years. Between 6 months to 3 years, the dosage is 0.25 milligrams (mg) per day, rising to 0.5mg between the ages of 3 and 6 years, and 1.0mg after age 6 years.

Giving a supplement does NOT replace the need for daily brushing, nor the need for using fluoride toothpaste. The amount of fluoride in the supplement is NOT the child's entire daily need...the dosage of the supplement is determined by taking into account that the child will swallow some toothpaste, and will be exposed to fluoride from dietary sources.

What about mouth rinse?

Regular use of fluoridated mouth rinse in children older than 8 years has been proven to help reduce tooth decay. However, it should not be used in younger children, who are more likely to swallow if instead of spitting it out, and thus ingest excessive amounts of fluoride.

When should my child see a dentist?

The first dental visit is generally around the age of 3 years, unless decay is noted prior.