Visalia
PEDIATRIC DENTISTRY
Taylor H. Rawson, DDS, MNS

Fluoride

Facts and Recommendations from the AAPD, ADA and NIH

What is fluoride and what does it do?

Fluoride is a naturally occurring mineral that inhibits or even reverses the progression of dental caries (tooth decay) and stimulates new bone formation. When consumed as part of the diet (in food or water) fluoride is absorbed in the gastrointestinal tract, and most of it that is retained is stored in the bones and teeth.

Fluoride can be delivered topically and systemically. Topical fluorides (toothpaste, mouthwash, applications in dental office) strengthen teeth already present in the mouth, making them more decay resistant, while sources of systemic fluorides (prescription fluoride drops/tabs, some foods and fluoridated water) are those that are ingested and become incorporated into forming tooth structures. Systemic fluorides also provide topical protection because fluoride is present in saliva, which continually bathes the teeth.

How much fluoride do I need?

The amount of fluoride you need each day depends on your age. The adequate daily intake shown below are quantities sufficient to minimize the incidence of dental caries while avoiding unwanted side effects of overexposure to fluoride (i.e. fluorosis).

Life Stage	**Recommended Daily Amount**
Birth to 6 months	0.01mg
Infants 7-12 months	0.5 mg
Children 1-3 years	0.7 mg
Children 4-8 years	1 mg
Children 9-13 years	2 mg
Teens 14-18 years	3 mg

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Fluoride Intakes and Status

Most people in the United States consume adequate amounts of fluoride through foods containing naturally occurring fluoride, fluoridated tap water, and food products made with fluoridated tap water. ***Unfortunately, Tulare County does not fluoridate its tap water***.

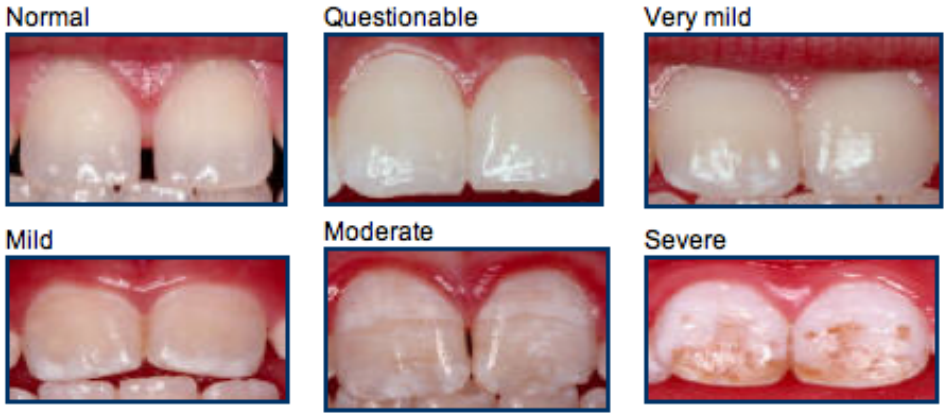
According to the EPA, typical daily fluoride intakes in the United States from foods and beverages (including fluoridated drinking water) are:

- 1.2 to 1.6 mg for infants and toddlers younger than 4 years
- 2.0 to 2.2 mg for children aged 4–11 years
- 2.4 mg for those aged 11–14 years
- 2.9 mg for adults.

Can fluoride be harmful?

Yes!

Infants and children who get too much fluoride while their teeth are forming can develop a condition called dental fluorosis. This can cause white lines or dots, stains, or small dents on the teeth. Fluorosis is a condition that usually affects all of the teeth in the mouth.



Swallowing extremely large amounts of fluoride from dental products or dietary supplements can be toxic and can cause nausea, vomiting, abdominal pain, diarrhea, bone pain, and even death in rare cases.

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The daily upper limits for fluoride consumption (over these limits you would have an increased likelihood to develop negative consequences of too much fluoride):

Life Stage	Upper Limit
Birth to 6 months	0.7 mg
Infants 7-12 months	0.9 mg
Children 1-3 years	1.3 mg
Children 4-8 years	2.2 mg
Children 9-18 years	10 mg

Fluoride in at-home Dental products

Most toothpaste sold in the United States contains fluoride most commonly at a level of 1,000 to 1,100 mg/L (about 1.3 mg in a quarter teaspoon, which is a typical amount of toothpaste used by an adult for one brushing). Estimated typical amounts of fluoride ingested daily from toothpaste are:

- 0.1 mg to 0.25 mg for infants and children aged 0 to 5 years
- 0.2 to 0.3 mg for children aged 6–12 years
- 0.1 mg for adults.

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Should My Child Take Fluoride Supplementation?

Great question. Considering the recommended daily dose in the table above, because we live in an area where the water is not publicly fluoridated, the answer is…***maybe***. It really comes down to a not-so-easy to calculate halo effect. The halo effect refers to all of the sources (food, water, dental products) of fluoride ingested daily in one's diet. Assuming your child consumes 0.3 mg of fluoride per day brushing teeth with a fluoridated toothpaste, along with another 0.2 mg of daily fluoride in the food that your child eats, we are still a bit shy of that recommended daily dose.

The American Academy of Pediatric Dentistry along with the American Dental Association supports the following recommended daily fluoride supplementation schedule (Tulare County water Fluoride content is considerably less than 0.3 ppm):

Table – Prescription of fluoride supplementation[a]

Age of patient	Daily fluoride dose
Birth to 6 mo	Not recommended at any FWC
6 mo to 3 y	0.25 mg only if FWC < 0.3 ppm
3 y to 6 y	0.50 mg only if FWC < 0.3 ppm
	0.25 mg only if FWC 0.3 - 0.6 ppm
	Not recommended if FWC > 0.6 ppm
6 y - 16 y +	1 mg only if FWC < 0.3 ppm
	0.50 mg only if FWC is 0.3 - 0.6 ppm
	Not recommended if FWC > 0.6 ppm

FWC, fluoride water content; ppm, parts per million.

[a]All other potential sources of fluoride should be considered before prescribing supplementation to avoid the development of fluorosis.

Adapted from American Academy of Pediatric Dentistry Council on Clinical Affairs. *Pediatr Dent.* 2005-2006.[3]