



Fluoride Supplementation

Systemic or topical fluoride supplementation is one of the most effective measures for reducing dental caries. Ingested fluoride is incorporated into the dentin and enamel of unerupted teeth. As a result, the teeth are more resistant to acid demineralization. Furthermore, systemic fluoride is secreted in saliva and is bacteriostatic. It accumulates in plaque, where it decreases microbial acid production and enhances enamel remineralization. Topical fluoride therapy is also highly effective, especially in children. It increases the fluoride content of the enamel of newly erupted teeth, thereby increasing the resistance of these teeth to caries.

Although appropriate fluoride ingestion is beneficial for tooth development, fluoride supplements should be prescribed only when the fluoride concentration of the drinking water supply has been tested and determined to be suboptimal.²¹ The American Academy of Pediatric Dentistry recommendations for fluoride supplementation are provided in Table on your right.

Fluorosis is a condition caused by the ingestion of excessive amounts of fluoride. During the past 10 years, the incidence of fluorosis has increased somewhat in the pediatric population. In children, this condition has been associated with fluoride supplements, formulas containing fluoride and fluoride dentrifices.²² Because enamel formation in primary dentition is complete by the time an infant is 11 months of age and begins at birth for permanent dentition, parents should receive early supervision and counseling regarding the use of fluoride (i.e., prenatally to before the infant is 12 months old).

TABLE
American Academy of Pediatric Dentistry
Recommendations on Fluoride
Supplementation*

Age of the child	Supplementation based on fluoride concentration of water supply		
	<0.3 ppm	0.3 to 0.6 ppm	>0.6 ppm
Birth to six months	0	0	0
Six months to three years	0.25 mg	0	0
Three to six years	0.5 mg	0.25 mg	0
Six to at least 16 years	1 mg	0.5 mg	0

ppm = parts per million.

*--Fluoride supplementation should be considered for any child whose drinking water is deficient in fluoride (i.e., water that contains less than 0.6 ppm of fluoride). Thus, before fluoride supplementation is prescribed, it is essential to know the fluoride concentration of the child's drinking water. Once the fluoride level has been determined, by contacting public health officials or by water analysis (as well as evaluation of other sources of fluoride and/or its removal through use of in-house filtration systems), a daily dosage schedule can be recommended.

Adapted with permission from Oral health policies. American Academy of Pediatric Dentistry. *Pediatr Dent* 1999;21:18-37.

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