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## Can infants/toddlers get enough fluoride through brushing?

### Evidence-based answer

Yes. Brushing twice daily with topical fluoride toothpaste decreases the incidence of dental caries in infants and toddlers (strength of recommendation [SOR]: **A**, based on meta-analyses of randomized controlled trials [RCTs]). High-concentration fluoride toothpaste delivers superior

caries protection, but causes more dental fluorosis.

Use of high-concentration fluoride toothpaste should be targeted towards children at highest risk of dental caries, such as those living in areas without fluoridated water (SOR: **B**).

### Clinical commentary

#### Brushing, yes, but what about fluoride supplementation?

In medical school, we were taught that infants who are breastfed should start supplemental fluoride at 6 months. Pediatric dentists generally only use supplemental fluoride if the baby's home has well water that has been tested and found deficient. The worst outcome from a lack of fluoride supplementation is caries, which usually can be managed. However,

too much fluoride also has a significant downside, fluorosis, which permanently stains the teeth.

Start fluoride toothpaste in minute amounts at 1 year of age. Don't use fluoride supplementation—even in breastfed infants—unless they are on well water proven to be low in fluoride.

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### FAST TRACK

**Brushing twice a day with fluoride toothpaste decreases dental caries in infants and toddlers**

### Evidence summary Toothpaste as effective as rinse or gel

A large Cochrane review evaluated topical fluoride therapy in the form of toothpaste, mouth rinse, varnish, or gel. Based on 133 randomized or quasi-randomized controlled trials (n=65,169), the meta-analysis indicated a 26% (95% confidence interval [CI], 24%–29%) reduction in decayed, missing, and filled tooth surfaces in children.<sup>1</sup> Another Cochrane review found 17 random-

ized controlled trials comparing different methods of topical fluoride application in children. The limited data suggested that fluoride toothpaste is as effective as mouth rinse or gel.<sup>2</sup> Depending on the prevalence of caries in the population, between 1.6 and 3.7 children need to use a fluoride toothpaste to prevent 1 decayed, missing, or filled tooth.<sup>3</sup>

#### The risk of fluorosis

Topical fluoride use has been associated with dental fluorosis, which causes stain-

TABLE

### Oral fluoride dosing: Recommendations from the American Academy of Pediatric Dentistry<sup>8</sup>

AGE	DRINKING WATER FLUORIDE LEVEL		
	<0.3 PPM F	0.3–0.6 PPM F	>0.6 PPM F
0–6 months	0	0	0
6 months – 3 years	0.25 mg daily	0	0
3–6 years	0.5 mg daily	0.25 mg daily	0
6–16 years	1 mg daily	0.5 mg daily	0

ppm F, parts per million fluoride

ing or pitting of the enamel tooth surface. The incidence of significant dental fluorosis varies in children—from 5% to 7% with 1450 ppm fluoride toothpaste to 2% to 4% with 440 ppm fluoride toothpaste (number needed to harm [NNH]=20–100).<sup>4,5</sup>

#### High-fluoride concentrations

High-fluoride-concentration toothpastes (1000 ppm F) prevent 14% more caries than low-fluoride-concentration toothpastes (250 ppm F).<sup>6</sup> Another randomized controlled trial, carried out in an area without fluoridated water, found the high-fluoride-concentration toothpaste (1450 ppm F) resulted in 16% fewer caries in children, while the low-fluoride-concentration toothpaste (440 ppm F) was no different than placebo.<sup>7</sup>

#### When there's fluoridated water

A meta-analysis found that the effect of topical fluoride was independent of water fluoridation, suggesting that topical fluoride toothpaste has a beneficial effect even in communities with fluoridated water.<sup>3</sup> No relevant studies comparing topical fluoride toothpaste with oral fluoride supplementation were found.

#### Recommendations from others

Both the American Academy of Pediatric Dentistry (AAPD) and the Centers for Disease Control and Prevention (CDC) recommend topical fluoride toothpaste

for children as an adjunct to oral fluoride intake. The AAPD<sup>8</sup> recommends a “pea-sized” amount of toothpaste for children under 6 years of age. The CDC<sup>9</sup> recommends that you weigh the risks and possible other sources of fluoride in children under age 2, and using a pea-sized amount of toothpaste with supervised brushing for children 2 to 6 years of age.

The **TABLE** shows the AAPD's recommended daily dose of fluoride supplementation based on the fluoride concentration in the local water. ■

#### References

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#### FAST TRACK

**One meta-analysis found that the effect of topical fluoride was independent of water fluoridation**