



# Daily fluoride exposure

Why add a cautionary note for fluoride risks to the annual water quality report?

*“...careful review of all dietary sources of fluoride will help establish the child’s true exposure to fluoride... The AAPD encourages the U.S. Food and Drug Administration to require food and beverage nutrition labels to include fluoride content.”*

*American Academy of Pediatric Dentistry  
Reference Manual of Pediatric Dentistry, Policy on Use of Fluoride*

The American Academy of Pediatric Dentistry (AAPD) advises careful review of all dietary sources of fluoride, and the Academy supports voluntary fluoride content labeling on product nutrition labels.(1)

*Chronic, excess intakes of fluoride, over several years, are associated with skeletal fluorosis. Its effects can range from occasional joint pain or stiffness to osteoporosis, muscle wasting, and neurological defects.*(2) New research suggests that short-term overexposure in some may also impact health. Dietary Reference Intakes set maximum-level guidelines to reduce the risk of adverse effects from excessive consumption of nutrients.(3)

## Potential fluoride harms

The testimony of the Nebraska Dental Association past president, Dr. Scott Morrison, echos the concerns expressed by some doctors in the 1940’s, when drinking water treatment was first implemented(4). Dr. Morrison testified in 2025, *“We do agree there is the potential for harm if fluoride is consumed at extremely high levels.”* However, Dr. Morrison adds, “such high levels are not consumed anywhere in the United States.”(5) *What exactly is considered an extremely high level?*

## Determining safe daily fluoride exposure

Of all fluoride sources, the CDC estimates that 75% of our total daily intake, or “dose”, of fluoride comes from optimally fluoridated drinking water.(2) In addition to all other sources of fluoride, including highly concentrated teas, individual differences in physiology, such as age, weight, metabolism, etc., can significantly increase or decrease the body’s fluoride absorption and retention leading to different responses.(12) Also, substances can interact with fluoride altering its toxicity, like calcium, in milk, iodine, or medications.(13) Due to the risk of overuse or ingestion, the AAP recommends age-adjusted toothpaste amounts and strongly advises supervision of children under 8 while brushing and storing fluoridated toothpaste out-of-reach to young children.(6)

Table 4: Daily Tolerable Upper Intake Levels for Fluoride [1] (2)

Age	Male	Female	Pregnancy	Lactation
Birth to 6 months	0.7 mg	0.7 mg		
7–12 months	0.9 mg	0.9 mg		
1–3 years	1.3 mg	1.3 mg		
4–8 years	2.2 mg	2.2 mg		
9–13 years	10 mg	10 mg		
14–18 years	10 mg	10 mg	10 mg	10 mg
19–51 years	10 mg	10 mg	10 mg	10 mg
51+ years	10 mg	10 mg		

## Daily estimated fluoride maximum dose and “tolerable upper limit”

Age	AAPD Fluoride Supplementation Table 2, mg/L (6)	Daily adequate fluoride intake? (2)	Recommended Daily Water Intake (oz./day)	Max. daily dose, not including other sources (*)	Tolerable Upper Limit (2)
Birth to 6 months (breastfed)	0	0			
Birth to 6 months (formula)	0	0.01 mg	24 to 32 (9)(10)	<b>0.88</b>	<b>0.7</b>
7-12 months (formula+water)	None > 0.3	0.5 mg	20 to 28 (9)	0.62**	0.9
1-3 years	None > 0.3	0.7 mg	8 to 32 (9)	0.64**	1.3
4-8 years	None > 0.6	1 mg	16 to 40 (7)(8)	0.8**	2.2
9-13 years	None > 0.6	2 mg	22-61 (7)(8)	1.39**	10
14-18 years	None > 0.6	3 mg	29-88 (7)(8)	1.79**	10
Adult woman 19 and over		3 mg	9 cups (11)	1.44**	10
Adult man 19 and over		3 mg	13 cups (11)	2.08**	10

\* Current water fluoride content of 0.75 mg/L fluoride divided by 33.8 oz./liter multiplied by maximum daily intake

\*\* Other sources including beverages, foods, toothpaste, etc. 1 cup of black tea = 1 to 1.5 mg, 1 cup hibiscus tea = 12.5 mg

## References

- 1) American Academy of Pediatric Dentistry. *Policy on use of fluoride*. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2024:101-3.
- 2) National Institutes of Health. Office of Dietary Supplements. *Fluoride Fact Sheet for Health Professionals*. Archived 2024 version, accessed Jan. 2026 [ods.od.nih.gov/factsheets/Fluoride-HealthProfessional/](https://ods.od.nih.gov/factsheets/Fluoride-HealthProfessional/)
- 3) American Dental Association. *Fluoridation Facts*. 2025. Accessed Feb. 2026 [ada.org/resources/community-initiatives/fluoride-in-water/fluoridation-facts](https://ada.org/resources/community-initiatives/fluoride-in-water/fluoridation-facts)
- 4) Waldbott, G. L. "The Preskeletal Phase of Chronic Fluoride Intoxication." *Fluoride*, vol. 31, no. 1, 1998, pp. 13-20.
- 5) Nebraska HHS Legislative Committee Hearing. Testimony. LB147. March 2025. [nebraskalegislature.gov/FloorDocs/109/PDF/Transcripts/Health/2025-03-12.pdf](https://nebraskalegislature.gov/FloorDocs/109/PDF/Transcripts/Health/2025-03-12.pdf)
- 6) Clark MB, Slayton RL, AAP Section on Oral Health. *Fluoride Use in Caries Prevention in the Primary Care Setting*. *Pediatrics*. 2020;146(6):e2020034637
- 7) Centers for Disease Control and Prevention. *Fast Facts: Data on Water Consumption*. 2024. Accessed Feb. 2026. [cdc.gov/nutrition/php/data-research/fast-facts-water-consumption.html](https://cdc.gov/nutrition/php/data-research/fast-facts-water-consumption.html)
- 8) AAP News. *How much water should children drink?* 2025. Accessed Feb. 2026. [aap2.silverchair-cdn.com/aap2/content\\_public/autogen-pdf/cms/32874/32874.pdf](https://aap2.silverchair-cdn.com/aap2/content_public/autogen-pdf/cms/32874/32874.pdf)
- 9) AAP HealthyChildren.org. *Recommended Drinks for Children Age 5 & Younger*. Accessed Feb. 2026. [healthychildren.org/English/healthy-living/nutrition/Pages/Recommended-Drinks-for-Young-Children-Ages-0-5.aspx](https://healthychildren.org/English/healthy-living/nutrition/Pages/Recommended-Drinks-for-Young-Children-Ages-0-5.aspx)
- 10) AAP HealthyChildren.org. *Amount and Schedule of Baby Formula Feedings*. Accessed Feb. 2026. [healthychildren.org/english/ages-stages/baby/formula-feeding/pages/amount-and-schedule-of-formula-feedings.aspx](https://healthychildren.org/english/ages-stages/baby/formula-feeding/pages/amount-and-schedule-of-formula-feedings.aspx)
- 11) Academy of Nutrition and Dietetics. *How Much Water Do You Need?* 2024. Accessed Feb. 2026. [eatright.org/health/essential-nutrients/water/how-much-water-do-you-need](https://eatright.org/health/essential-nutrients/water/how-much-water-do-you-need)
- 12) Anita T. Layton. *We are all different: Modeling key individual differences in physiological systems*. *Mathematical Biosciences*. Volume 378, 2024, 109338, ISSN 0025-5564, [doi.org/10.1016/j.mbs.2024.109338](https://doi.org/10.1016/j.mbs.2024.109338).
- 13) Institute of Medicine, Food and Nutrition Board. *Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, DC: National Academies Press; 1997.