



Fluoride Facts:

Evidence-based answers for health educators

No one can feel healthy when their teeth are infected and causing pain. The bad news is that tooth decay is still very common. The good news is that cavities are easy to prevent. Fluoride is safe, effective, and an excellent way to help prevent decay before it begins!

This document contains answers to questions commonly asked by pregnant women and families of young children. Explanations and references for additional information are included as well as suggested responses for the consumer.

1. Do adults need fluoride? Should they be getting fluoride varnish?

Adult teeth can benefit from the use of fluoride, both topically (toothpaste, fluoride treatments) and systemically (water with fluoride). This is especially true if the adult is at higher risk for tooth decay. Here are some possible indicators for higher risk of cavities:

- New cavities in the past 2 years
- Dry mouth caused by medication or disease
- Frequent carbohydrate consumption between meals
- Gum recession exposing vulnerable tooth roots
- Poor oral hygiene

Fluoride varnish treatments are one of many ways an adult can use fluoride to strengthen their enamel. They should consult a dentist or dental hygienist for recommendations that are right for them.

Suggested response to clients: *Fluoride helps protect teeth in adults as well as children. It is available in several forms. Daily fluoride exposure for an adult is especially important if they have risk factors (such as history of cavities, frequent carbohydrate consumption, poor oral hygiene, dry mouth) for cavities. Adults should ask their dental professional if having a professional fluoride treatment is right for them.*

Reference:

American Dental Association

http://www.ada.org/~media/ADA/Member%20Center/Files/patient_72.ashx

2. What is best practice for the use of fluoride varnish?

Fluoride varnish treatment is very effective in making the teeth more resistant to decay. U.S. Preventive Services Task Force recommends that health professionals apply fluoride varnish to the primary teeth of all infants and children as soon as the first tooth appears.

Suggested response to clients: *Fluoride varnish is a dental treatment that can help prevent tooth decay, slow it down, or stop it from getting worse. Fluoride varnish is made with fluoride, a mineral that can strengthen tooth enamel (outer coating on teeth). Once your child has a tooth, your medical or dental professional may recommend that your child receive fluoride varnish treatments 2 to 4 times per year. The number of treatments depends on how likely it is that your child may get a cavity.*

Reference:

Douglass JM, Clark MB. 2015. Integrating oral health into overall health care to prevent early childhood caries: Need, evidence, and solutions. *Pediatric Dentistry* 37(3):266–274.
<https://www.sciencedirect.com/journal/journal-of-evidence-based-dental-practice>

3. What is the recommended dose of fluoride for infants and children?

Topical fluoride, like iron and calcium, is a mineral, not a medicine with a specific dosage. Here are the expert recommendations for each source of fluoride:

- Water- Water treatment plants make sure that they keep the fluoride levels to 0.7 ppm
- Toothpaste
 - Age birth to three- small smear on toothbrush twice a day
 - Ages three to six- small pea size on toothbrush twice per day
 - Ages seven through adulthood- pea size on toothbrush twice per day
- Mouth rinse- Should not be used by children under age six
- Fluoride varnish- Dental or medical professional's recommendation

In contrast, fluoride supplements (tablets, liquid) are by prescription and dosage is determined by the dentist or physician.

Suggested response to clients: *Topical fluoride, like iron and calcium, is a mineral, not a medicine with a specific dosage. Here are the expert recommendations for each source of fluoride:*

- *Water - Water treatment plants make sure they keep the fluoride levels to 0.7 ppm*
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- *Mouth rinse - should not be used by children under age six*
- *Fluoride varnish – Dental or medical provider's recommendation*

Reference:

Fluoride Dangers: How Much Is Too Much? 2020 Colgate-Palmolive Company
<https://www.colgate.com/en-us/oral-health/basics/fluoride/fluoride-dangers-how-much-is-too-much-->

4. Is there a fluoride supplement available for purchase over-the-counter? Or would they need a prescription?

All fluoride supplements (tablets, liquid) must be prescribed by a dentist or physician. Since fluoride supplements are intended to compensate for fluoride-deficient drinking water, the dosage schedule requires knowledge of the fluoride content of the child's primary drinking water; consideration should also be given to other sources of water (e.g., home, child care settings, school, or bottled water) and to other sources of fluoride (e.g., toothpaste or mouth rinse), which can complicate the prescribing decision.

Mouth rinses that contain fluoride should not be used by children under the age of 6. These rinses are available over the counter and by prescription, depending on their concentration. Older children and adults may benefit from the use of a daily fluoride mouth rinse, in consultation with a dental professional.

Suggested response to clients: *Fluoride supplements are intended to compensate for fluoride-deficient drinking water. They are offered in tablet and liquid form. The appropriate dosage is dependent on a variety of factors, so they are only available by a prescription from your doctor or dentist.*

Reference:

2001. Morbidity and Mortality Weekly Report, Centers for Disease Control and Prevention
<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5014a1.htm>

5. When babies are exclusively breastfed, do they need fluoride supplementation?

Babies should not receive fluoride supplementation during the first six months of life, when they are being exclusively fed breast milk or formula. Once they begin drinking small amounts of water at 6 months old, both breastfed and formula-fed infants need appropriate fluoride supplementation if the water they are drinking contains less than 0.3 parts per million (ppm) of fluoride. Fluoride supplements (tablets and liquid) must be prescribed by a dentist or physician.

Suggested response to clients: *Babies should not receive fluoride supplementation during the first six months of life, when they are being exclusively fed breast milk or formula. Once they are drinking water, talk to your medical or dental provider to see if prescription fluoride is needed.*

Reference:

Where We Stand: Fluoride Supplements, 2020 American Academy of Pediatrics
<https://www.healthychildren.org/English/ages-stages/baby/feeding-nutrition/Pages/Fluoride-Supplements.aspx>

6. Can fluoridated tap water be used to mix infant formula?

Yes, you can use fluoridated water for preparing infant formula. However, if your child is only consuming infant formula mixed with fluoridated water, there may be an increased chance for mild dental fluorosis. To lessen this chance, parents can use low-fluoride bottled water some of the time to mix infant formula; these bottled waters are labeled as de-ionized, purified, demineralized, or distilled, and without any fluoride added after purification treatment. The U.S. Food and Drug Administration (FDA) requires the label to indicate when fluoride is added.

Suggested response to clients: *According to both the American Academy of Pediatrics and the American Dental Association, it is absolutely safe to mix infant formula with fluoridated water. Babies who are exclusively formula fed might have an increased risk for mild dental fluorosis (whiter looking areas on teeth), but it does not affect the health of your child or the health of your child's teeth. Parents and caregivers are encouraged to talk to their dentists about what's best for their child.*

Reference:

- Division of Oral Health, National Center for Chronic Disease Prevention and Health Promotion
<https://www.cdc.gov/fluoridation/faqs/infant-formula.html>
- American Dental Association
<https://www.ada.org/en/public-programs/advocating-for-the-public/fluoride-and-fluoridation/fluoridation-faq>

7. Families often tell us they do not like the taste of tap water. Any suggestions?

Many people add a slice of fruit, such as lemon or lime, or herbs like mint to make water tastier to drink. Research suggests that adding slightly sweeter fruits like slices of orange or strawberries can be fun for kids without adding much sugar or risk for cavities. Carbon filters also improve the taste of water while keeping any fluoride it contains. These often come in the form of a pitcher that allows you to conveniently pour your filtered tap water and to change the filter regularly.

Suggested response to clients:

- *Try using a carbon filter pitcher, such as Brita.*
- *Many people add a slice of fruit, such as lemon or lime, or herbs like mint to make water tastier to drink.*
- *Adding slightly sweeter fruits like slices of orange or strawberries can be fun for kids without adding much sugar.*
- *The internet has lots of great ideas to make drinking water fun.*

Reference:

- Campaign for Dental Health, 2020 American Academy of Pediatrics

<https://ilikemyteeth.org/wp-content/uploads/2016/04/DrinkingWaterFAQ2016.pdf>

- Sugar Restriction for Caries Prevention: Amount and Frequency. Which Is More Important?

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6425816/>

8. What are the oral health considerations when families are using mostly bottled water? Does this practice lead to more dental issues?

Very few bottled water manufacturers provide water with fluoride so families who drink bottled water could be missing its preventive benefits. Regulations require that labels indicate if the bottled water contains fluoride. If your families are ordering bottled water from a local bottle water retailer, they can inquire if the company has the option to add fluoride. If families are not drinking fluoridated water daily, they should be referred to a dental professional for advice on how to protect their teeth from tooth decay.

Suggested response to clients: *Most bottled water does not contain fluoride, losing an important level of protection from cavities. If you order water from a local company, ask them if they can add fluoride. If not, check with your dental professional on other ways to protect your family's teeth.*

Reference:

Campaign for Dental Health, 2020 American Academy of Pediatrics

<https://ilikemyteeth.org/wp-content/uploads/2016/04/DrinkingWaterFAQ2016.pdf>

9. Does boiling water remove fluoride from fluoridated tap water?

No, boiling water does not remove fluoride from water. You can also safely freeze water and use carbon filters (commonly found in Brita type pitchers and refrigerators) without removing fluoride.

Suggested response to clients: *No, boiling water does not remove fluoride from water. You can also safely freeze water and use carbon filters (commonly found in Brita type pitchers and refrigerators) without removing fluoride.*

Reference:

Helmenstine, Anne Marie, Ph.D. "Can You Remove Fluoride by Boiling Water?" ThoughtCo, May. 28, 2019

10. Should young children use toothpaste with fluoride?

Current guidelines from the American Dental Association Council on Scientific Affairs on the appropriate use of toothpaste containing fluoride:

- For children younger than 3 years, caregivers should begin brushing children's teeth as soon as they appear. Use no more than a smear of toothpaste (or the size of a grain of rice) with fluoride. Brush teeth thoroughly twice per day (morning and before bed).
- For children 3 to 6 years of age, caregivers should dispense no more than a small pea-sized amount of fluoride toothpaste. Brush teeth thoroughly twice per day (morning and night) or as directed by a dentist or physician. Supervise children's brushing to minimize swallowing of toothpaste.
- It is especially critical that medical and dental professionals provide counseling to caregivers to make sure they understand the appropriate amount of toothpaste to be used.

Suggested response to clients: *All children who are at risk for cavities should use toothpaste with fluoride. It is very important to use the right amount of toothpaste on the toothbrush according to your child's age.*

- *For children younger than 3 years, caregivers should begin brushing children's teeth as soon as they appear. Use no more than a smear of toothpaste (or the size of a grain of rice) with fluoride. Brush teeth thoroughly twice per day (morning and before bed).*
- *For children 3 to 6 years of age, caregivers should dispense no more than a small pea-sized amount of fluoride toothpaste. Brush teeth thoroughly twice per day (morning and night) or as directed by a medical or dental professional. Supervise children's brushing to minimize swallowing of toothpaste*

Reference:

Fluoride toothpaste efficacy and safety in children younger than 6 years: a systematic review. Wright JT1, Hanson N, Ristic H, Whall CW, Estrich CG, Zentz RR.

<https://www.ncbi.nlm.nih.gov/pubmed/24487610>

11. Is it important to determine if families have access to fluoridated drinking water?

Fluoride is added to water for the same reasons that vitamin D is added to milk: it's a brilliantly simple way to provide many, many people with an important health benefit. Over 70 years of scientific research shows that drinking optimally fluoridated water prevents approximately 25 percent of cavities. This is in addition to fluoridated toothpaste, mouthwash and other sources of fluoride. Pediatricians, dentists and health professionals have seen a dramatic decline in the severity of tooth decay over the last seventy years. Determining if your families have access to fluoridated drinking water will help inform your recommendations for ongoing care and education.

Suggested response to clients: *Fluoride is added to water for the same reasons that vitamin D is added to milk: it's a simple easy way to provide many people with an important health benefit. Finding out how much fluoride is in the water your family drinks daily will help you know what other steps you should take to keep your family's teeth healthy.*

Reference:

Is Fluoride Safe? Campaign for Dental Health, 2020 American Academy of Pediatrics

<https://ilikemyteeth.org/fluoridation/dangers-of-fluoride/>

12. How do I learn fluoride content of local water supply?

Experts agree that water should be fluoridated at 0.7 ppm, and water departments know how to be sure they keep the fluoride at that level. To find if your municipal water supply has adequate amounts of fluoride you can go to the CDC website at https://nccd.cdc.gov/DOH_MWF/Default/Default.aspx or call your local water treatment plant.

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Reference:

US National Library of Medicine National Institutes of Health
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4547570/>

13. Is it possible to get too much fluoride?

While it is possible, it's extremely rare in the United States to be exposed to too much fluoride. Life is all about balance. Getting too much — or too little — of something can be an issue. Fluoride is an excellent example of the importance of balance. Fluoride is a mineral that has been proven safe and effective against cavities. The most likely sign of too much fluoride while a child is developing is a cosmetic issue called fluorosis that causes streaks, spots or pits to develop on the surfaces of the teeth. It won't have a negative impact on your child's dental health, although the streaks and spots are permanent. It is important to supervise children while they brush their teeth to ensure they don't use too much toothpaste or swallow it.

Well water- In some U.S. communities, the natural fluoride levels in well water or aquifers are unusually high, sometimes higher than the recommended amount in public water systems, according to the National Research Council. You can have your well water tested by going to this state program website: <http://www.kdheks.gov/waterwell/>.

Suggested response to clients: *It is highly unlikely that your family can get too much fluoride. Fluoride is a mineral that has been proven safe and effective against cavities. The most common result of over exposure to fluoride is cosmetic; some lighter areas that appear on the tooth surface that do not harm the teeth.*

References:

- Fluoride Dangers: How Much Is Too Much? 2020 Colgate-Palmolive Company
<https://www.colgate.com/en-us/oral-health/basics/fluoride/fluoride-dangers--how-much-is-too-much-->
- Skeletal Fluorosis Due to Excessive Tea Drinking, Naveen Kakumanu, M.D., and Sudhaker D. Rao, M.B., B.S.
March 21, 2013, N Engl J Med 2013; 368:1140, DOI: 10.1056/NEJMicm1200995
https://www.nejm.org/doi/full/10.1056/nejmicm1200995?_ga=2.37773859.1003371087.1579724880-1964465843.1577460048
- Is Fluoride Safe? Campaign for Dental Health, 2020 American Academy of Pediatrics
<https://ilikemyteeth.org/fluoridation/dangers-of-fluoride/>

14. Many clients won't use fluoride saying it is toxic. What do you recommend we say to those clients?

Is Fluoride Safe? YES! Here are interesting facts that will disprove a few myths you may have heard. Check out the Reference below to learn more.

- a. Fluoride is good for teeth, and to have good health, you need healthy teeth.
 - Fluoride is a mineral known to be safe and effective at preventing tooth decay. There is no scientifically valid evidence to show that fluoride causes cancer, kidney disease, or other disorders.
- b. Fluoride does not affect IQ.
 - You may hear clients say they have "heard" fluoride lowers IQ, but that is unproven. Between the 1940s and the 1990s, the average IQ scores of Americans actually improved 15 points. This took place at the same time that fluoridation expanded to serve millions of more Americans, demonstrating the association is unfounded.
- c. The fluoride in water does not typically cause fluorosis.
 - Dental fluorosis is a minor change in the appearance of the teeth, usually resulting in faint white marks on the enamel. People anywhere can have fluorosis, even in communities that do not add fluoride to the water.
- d. Fluoridated water is safe for babies and children.
 - Fluoride is an important mineral for everyone, especially children. We all have bacteria in our mouths. Bacteria produce acid that harms teeth. Fluoride protects teeth and helps reverse early signs of decay.
- e. Fluoride toothpaste has an excellent safety record.
 - Millions of Americans use fluoride toothpaste to prevent cavities and protect their teeth without any negative effect. Warning labels on toothpaste simply reflect the fact that toothpaste has a high concentration of fluoride to not use too much toothpaste or swallow it.
- f. The fluoride added to drinking water is regulated for safety.
 - Fluoride is a mineral that is mined from phosphate rock. In nature, fluoride dissolves into water and is found in water throughout the world. Much like iron and calcium, fluoride is also present in a wide variety of consumer products.
- g. Comparing fluoridated and non-fluoridated communities shows that fluoride is effective.
 - All over the world, comparisons show that people living in communities with fluoridated water have better oral health than those who don't.
- h. Fluoridated water is safe for plants, animals, and fish.
 - Fluoride occurs naturally in streams, rivers, and lakes all over the world. The average fluoride level in ocean water is much higher than public water systems.

Reference:

Is Fluoride Safe? Campaign for Dental Health, 2020 American Academy of Pediatrics

<https://ilikemyteeth.org/fluoridation/dangers-of-fluoride/>

Fluoride F.A.Q.



ORAL HEALTH KANSAS

(NOTE: This document is a guide with suggested responses for health educators and not meant to be distributed to consumers)

No one can feel healthy when their teeth are infected and causing pain. The bad news is that tooth decay is still very common. The good news is that cavities are easy to prevent. Fluoride is safe, effective, and an excellent way to help prevent decay before it begins!

1. Do adults need fluoride? Should they be getting fluoride varnish?

Suggested Response: *Fluoride helps protect teeth in adults as well as children. It is available in several forms. Daily fluoride exposure for an adult is especially important if they have risk factors (such as history of cavities, frequent carbohydrate consumption, poor oral hygiene, dry mouth) for cavities. Adults should ask their dental professional if having a professional fluoride treatment is right for them.*

2. What is best practice for the use of fluoride varnish?

Suggested Response: *Fluoride varnish is a dental treatment that can help prevent tooth decay, slow it down, or stop it from getting worse. Fluoride varnish is made with fluoride, a mineral that strengthens tooth enamel (outer coating on teeth). Once your child has a tooth, your medical or dental professional may recommend your child receive fluoride varnish treatments 2 to 4 times per year. The number of treatments depends on how likely it is your child may get a cavity.*

3. What is the recommended dose of fluoride for infants and children?

Suggested Response: *Topical fluoride, like iron and calcium, is a mineral, not a medicine with a specific dosage. Here are the expert recommendations for each source of fluoride:*

- *Water - Water treatment plants make sure they keep the fluoride levels to 0.7 ppm*
- *Toothpaste*
 - *Age birth to three- small smear on toothbrush twice a day*
 - *Ages three to six- small pea size on toothbrush twice per day*
 - *Ages seven through adulthood- pea size on toothbrush twice per day*
- *Mouth rinse - Should not be used by children under age six*
- *Fluoride varnish – Dental or medical provider's recommendation*

4. Are fluoride supplements available to purchase over the counter or by prescription only?

Suggested Response: *Fluoride supplements are intended to compensate for fluoride-deficient drinking water. They are offered in tablet and liquid form. The appropriate dosage is dependent on a variety of factors, so they are only available by a prescription from your doctor or dentist.*

5. When babies are exclusively breastfed, do they need fluoride supplementation?

Suggested Response: *Babies do not need fluoride supplementation during the first six months of life, when they are being exclusively fed breast milk or formula. Once they are drinking water, talk to your medical or dental provider to see if prescription fluoride is needed.*

6. Can fluoridated tap water be used to mix infant formula?

Suggested Response: *According to both the American Academy of Pediatrics and the American Dental Association, it is absolutely safe to mix infant formula with fluoridated water. Babies who are exclusively formula fed might have an increased risk for mild dental fluorosis (whiter looking areas on teeth), but it does not affect the health of your child or the health of your child's teeth. Parents and caregivers are encouraged to talk to their dentists about what's best for their child.*

7. Families often tell us they don't like the taste of tap water. Any suggestions?

Suggested Response:

- *Try using a carbon filter pitcher, such as Brita.*
- *Many people add a slice of fruit, such as lemon or lime, or herbs like mint to make water tastier to drink.*
- *Adding slightly sweeter fruits like slices of orange or strawberries can be fun for kids without adding much sugar.*
- *The internet has many great ideas to make drinking water fun.*

8. What are the oral health considerations when families are using mostly bottled water? Does this practice lead to more dental issues?

Suggested Response: *Most bottled water does not contain fluoride, losing an important level of protection against cavities. If you order water from a local company, ask them if they can add fluoride. If not, check with your dental professional on other ways to protect your family's teeth.*

9. Does boiling water remove fluoride from fluoridated tap water?

Suggested Response: *No, boiling water does not remove fluoride from water. You can also safely freeze water and use carbon filters (commonly found in Brita type pitchers and refrigerators) without removing fluoride.*

10. Should young children use toothpaste with fluoride?

Suggested Response: *All children should use toothpaste with fluoride. It is very important to use the right amount of toothpaste on the toothbrush according to your child's age.*

- *For children younger than 3 years, caregivers should begin brushing children's teeth as soon as they appear. Use no more than a smear of toothpaste (or the size of a grain of rice) with fluoride. Brush teeth thoroughly twice per day (morning and before bed).*
- *For children 3 to 6 years of age, caregivers should dispense no more than a small pea-sized amount of fluoride toothpaste. Brush teeth thoroughly twice per day (morning and night) or as directed by a medical or dental professional. Supervise children's brushing to minimize swallowing of toothpaste.*

11. Is it important to determine if families have access to fluoridated drinking water?

Suggested Response: *Fluoride is added to water for the same reasons that vitamin D is added to milk: it's a simple and easy way to provide many people with an important health benefit. Finding out the fluoride content in the water your family drinks will help you know what other steps you should take to keep your family's teeth healthy.*

12. How do I learn the fluoride content of our local water supply?

Suggested Response: *To find if your municipal water supply has adequate amounts of fluoride you can go to the CDC website at https://nccd.cdc.gov/DOH_MWF/Default/Default.aspx or call your local water treatment plant.*

13. Is it possible to get too much fluoride?

Suggested Response: *It is highly unlikely your family can get too much fluoride. Fluoride is a mineral that has been proven safe and effective against cavities. The most common result of over exposure to fluoride is cosmetic; some lighter areas can appear on the tooth surface that do not harm the teeth.*

14. Many clients won't use fluoride saying it is toxic. What do you recommend we say to those clients?

People who are hesitant to use fluoride to keep their family's teeth healthy have many and varied reasons for that hesitance. To keep from overwhelming them with facts, it is important to first determine the specific concern so you can focus on what is most relevant to them. Once you know the concerns, you can provide them with evidence-based answers and reliable websites, if appropriate.

Suggested Response: *I'm curious to know what concerns you have about fluoride?*