

Fluoride

Fact Sheet for Consumers

What is fluoride and what does it do?

Fluoride is a mineral that helps prevent tooth decay and helps keep your bones strong.

How much fluoride do I need?

The amount of fluoride you need each day depends on your age and sex. Here are the average daily recommended amounts in milligrams (mg).

Life Stage	Recommended Amount
Birth to 6 months	0.01 mg
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
Adult men 19+ years	4 mg
Adult women 19+ years	3 mg
Pregnant teens and women	3 mg
Breastfeeding teens and women	3 mg

What are the sources of fluoride?

Foods and water do not naturally contain much fluoride. Fluoride is often added to public tap water—called fluoridated water—and some bottled waters. You can use this Centers for Disease Control and Prevention resource (https://nccd.cdc.gov/doh_mwf/Default/Default.aspx) to see if your tap water is fluoridated.

Most of the fluoride people get each day comes from drinking fluoridated water and from consuming foods and beverages made with fluoridated water, like tea and coffee.

Most toothpaste and some mouthwashes also contain fluoride. Even though you should not swallow these, they still add slightly to the amount of fluoride you get each day.

What kinds of fluoride dietary supplements are available?

A few [dietary supplements](#), including some multivitamin/mineral products, contain fluoride. Liquid fluoride drops for children are also available. Fluoride in dietary supplements is usually in the form of sodium fluoride.

Am I getting enough fluoride?

Most people in the United States get enough fluoride from what they eat and drink as well as from any dental products they use.

What are some effects of fluoride on health?

Scientists are studying fluoride to understand how it affects health. Here are a few examples of what they have learned.

Tooth decay

Fluoride helps protect your teeth by strengthening the outer enamel surface. If you get too little fluoride, your teeth might weaken and develop cavities. Cavities can lead to pain, tooth loss, [infections](#), and other health problems.

Surveys show that children and teenagers who drink fluoridated water have fewer cavities. Also, adults who drink fluoridated water have fewer decayed and filled teeth and lose fewer teeth.

Children who take dietary supplements that contain fluoride have a lower [risk](#) of tooth decay and tooth loss. Many dentists recommend fluoride supplements for children living in areas where the water supply is not fluoridated or contains too little natural fluoride. We don't know how fluoride supplements affect adults.

Studies suggest that giving a pregnant woman fluoride dietary supplements does not help prevent cavities in her child's teeth.

Bone fractures

Fluoride helps bones grow and stay strong. Some studies show that taking fluoride dietary supplements or drinking fluoridated water might lower the risk of broken bones. Other studies show no effect on bone strength or [fracture](#) risk.

More research is needed to better understand if fluoride dietary supplements and fluoridated water help improve bone health and prevent fractures.

Can fluoride be harmful?

[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. Severe dental fluorosis is rare, however, and is not caused by standard amounts of fluoride in public tap water.

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

Getting too much fluoride over a long period of time can lead to a condition called skeletal fluorosis. This very rare condition causes joint pain and stiffness, weak bones, muscle loss, and [nerve](#) problems. It is not caused by standard amounts of fluoride in public tap water.

The daily [upper limits](#) for fluoride are listed below.

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 9–13 years	10 mg
Teens 14–18 years	10 mg
Adults 19 years and older	10 mg
Pregnant and breastfeeding teens and women	10 mg

Does fluoride interact with medications or other dietary supplements?

Fluoride is not known to [interact](#) or interfere with any medicines or dietary supplements.

Tell your doctor, [pharmacist](#), and other health care providers about any dietary supplements and [prescription](#) or over-the-counter medicines you take. They can tell you if these dietary supplements might interact with your medicines. They can also explain whether the medicines you take might interfere with how your body [absorbs](#) or uses fluoride or other [nutrients](#).

Healthful eating

People should get most of their nutrients from food and beverages, according to the federal government's [Dietary Guidelines for Americans](#). Foods contain [vitamins](#), minerals, [dietary fiber](#), and other components that benefit health. In some cases, [fortified](#) foods and dietary supplements are useful when it is not possible to meet needs for one or more nutrients (for example, during specific life stages such as pregnancy). For more information about building a healthy dietary pattern, see the [Dietary Guidelines for Americans](#) (<https://www.dietaryguidelines.gov>) and the U.S. Department of Agriculture's (USDA's) [MyPlate](#). (<https://www.myplate.gov>).

Where can I find out more about fluoride?

- For more information on fluoride

- [Office of Dietary Supplements](#) (ODS) Health Professional Fact Sheet on [Fluoride](#)
- MedlinePlus, [Fluoride in Diet](https://medlineplus.gov/ency/article/002420.htm) (<https://medlineplus.gov/ency/article/002420.htm>).
- For more information on food sources of fluoride
 - [USDA National Fluoride Database of Selected Beverages and Foods](#) (<https://data.nal.usda.gov/dataset/usda-national-fluoride-database-selected-beverages-and-foods-release-2-2005>).
- For more advice on choosing dietary supplements
 - ODS [Frequently Asked Questions: Which brand\(s\) of dietary supplements should I purchase?](#)
- For information about building a healthy dietary pattern
 - [MyPlate](https://www.choosemyplate.gov/) (<https://www.choosemyplate.gov/>).
 - [Dietary Guidelines for Americans](https://www.dietaryguidelines.gov/) (<https://www.dietaryguidelines.gov/>).

Disclaimer

This fact sheet by the National Institutes of Health (NIH) Office of Dietary Supplements (ODS) provides information that should not take the place of medical advice. We encourage you to talk to your health care providers (doctor, registered dietitian, pharmacist, etc.) about your interest in, questions about, or use of dietary supplements and what may be best for your overall health. Any mention in this publication of a specific product or service, or recommendation from an organization or professional society, does not represent an endorsement by ODS of that product, service, or expert advice.

Glossary

absorption

In nutrition, the process of moving protein, carbohydrates, fats, and other nutrients from the digestive system into the bloodstream. Most absorption occurs in the small intestine.

diarrhea

Loose, watery stools.

dietary fiber

A substance in plants that you cannot digest. It adds bulk to your diet to make you feel full, helps prevent constipation, and may help lower the risk of heart disease and diabetes. Good sources of dietary fiber include whole grains (such as brown rice, oats, quinoa, bulgur, and popcorn), legumes (such as black beans, garbanzo beans, split peas, and lentils), nuts, seeds, fruit, and vegetables.

Dietary Guidelines for Americans

Advice from the federal government to promote health and reduce the chance (risk) of long-lasting (chronic) diseases through nutrition and physical activity. The Guidelines are updated and published every 5 years by the US Department of Health and Human Services and the US Department of Agriculture.

dietary supplement

A product that is intended to supplement the diet. A dietary supplement contains one or more dietary ingredients (including vitamins, minerals, herbs or other botanicals, amino acids, and other substances) or their components; is intended to be taken by mouth as a pill, capsule, tablet, or liquid; and is identified on the front label of the product as being a dietary supplement.

fortified

When nutrients (such as vitamins and minerals) are added to a food product. For example, when calcium is added to orange juice, the orange juice is said to be “fortified with calcium”. Similarly, many breakfast cereals are “fortified” with several vitamins and minerals.

fracture

A break, for example, a bone fracture.

infant

A child younger than 12 months old.

infection

The invasion and spread of germs in the body. The germs may be bacteria, viruses, yeast, or fungi.

interaction

A change in the way a dietary supplement acts in the body when taken with certain other supplements, medicines, or foods, or when taken with certain medical conditions. Interactions may cause the dietary supplement to be more or less effective, or cause effects on the body that are not expected.

milligram

mg. A measure of weight. It is a metric unit of mass equal to 0.001 gram (it weighs 28,000 times less than an ounce).

mineral

In nutrition, an inorganic substance found in the earth that is required to maintain health.

nausea

The uneasy feeling of having an urge to throw up (vomit).

neuron

A nerve cell. Neurons send chemical and electrical messages throughout the nervous system that direct the body to function, move, think, and have emotions.

nutrient

A chemical compound in food that is used by the body to function and maintain health. Examples of nutrients include proteins, fats, carbohydrates, vitamins, and minerals.

Office of Dietary Supplements

ODS, Office of Disease Prevention, Office of Director, National Institutes of Health, Department of Health and Human Services. ODS strengthens knowledge and understanding of dietary supplements by evaluating scientific information, stimulating and supporting research, disseminating research results, and educating the public to foster an enhanced quality of life and health for the US population.

pharmacist

A person licensed to make and dispense (give out) prescription drugs and who has been taught how they work, how to use them, and their side effects.

prescription

A written order from a health care provider for medicine, therapy, or tests.

prevent

To stop from happening.

risk

The chance or probability that a harmful event will occur. In health, for example, the chance that someone will develop a disease or condition.

tea

A drink made by adding boiling water to fresh or dried herbs and steeping (soaking) them. It may be drunk either hot or cold. Also called an infusion.

upper limit

UL. The largest daily intake of a nutrient considered safe for most people. Taking more than the UL is not recommended and may be harmful. The UL for each nutrient is set by the Food and Nutrition Board at the National Academies of Sciences, Engineering, and Medicine. For example, the UL for vitamin A is 3,000 micrograms/day. Women who consume more than this amount every day shortly before or during pregnancy have an increased chance (risk) of having a baby with a birth defect. Also called the tolerable upper intake level.

vitamin

A nutrient that the body needs in small amounts to function and maintain health. Examples are vitamins A, C, and E.

Updated: June 17, 2024 [History of changes to this fact sheet](#)