

## Fluoride

### Why We Need It

Fluoride, a mineral, is important for healthy bones and teeth. It increases the amount of minerals in our teeth, helps harden developing tooth enamel and protects teeth from decay. Fluoride even can reverse the progression of dental cavities.

Fluoride increases the density of bones and strengthens them, offering some protection from the brittle bone disease, *osteoporosis*. It also can stimulate the growth of new bone.

### Recommended Daily Intakes of Fluoride

	Age	Fluoride (mg/day)
<b>Infants</b>	birth–6 months	0.01
	6 months–1 year	0.5
<b>Children</b>	1–3 years	0.7
	4–8 years	1
	9–13 years	2
	14–18 years	3
<b>Men</b>	19 years and over	4
<b>Women</b>	19 years and over	3
	pregnant	3
	breastfeeding	3

mg = milligrams

**Source:** adapted from the Dietary Reference Intakes series, National Academies Press. Copyright 1997, 1998, 2000, 2001, 2002, 2004, by the National Academies of Sciences.

### Sources

**Water:** Fluoridated (fluoride added) drinking water is the most important source of fluoride in the United States. You will get fluoride by drinking this tap water or beverages made with it, as well as by cooking with it.

A natural supply of fluoride is found in many municipal water systems. If the fluoride level is low, however, the water may be fluoridated to levels recommended by the U.S. Public Health Service. Optimally that level should be 0.7 to 1.2 parts fluoride per million parts water. Check with your local water department or public health department if you are not sure about the fluoride in your tap water. Wells should be tested for fluoride content, also.

In areas where the fluoride content of water is less than 0.3 mg/liter, children between the ages of six months and 16 years should take a multivitamin supplement with fluoride under a doctor's or dentist's supervision.

Unlike municipal water supplies, most brands of bottled water do not contain added fluoride. Therefore, people who drink mostly bottled water may not consume enough fluoride. The fluoride content varies from one brand to another, so read the label. Be aware that the Food and Drug Administration (FDA) only requires the label to include fluoride that was added in processing.

If you have a home water filtration system, check with the manufacturer about whether it removes fluoride from tap water.

**Food:** Fluoride is not widely available in food, and foods usually contribute only 0.3 to 0.6 milligrams of fluoride daily. Fish that are eaten with bones (e.g. canned sardines and canned salmon) are higher in fluoride than most other foods. A three-ounce serving of canned sardines has about 0.3 milligrams of fluoride. An eight-ounce glass of brewed tea may contain 0.2 to 1.4 milligrams of fluoride, depending on the source of water used.

### **Toothpastes and Mouthwashes With Fluoride:**

These products contribute to fluoride intake, also. Young children may get as much or more fluoride from these items than from the foods they eat.

**Cooking Utensils:** Some types of cooking utensils, such as Teflon with a fluoride-containing polymer, can increase the fluoride content of food.

### **If We Get Too Much**

Children's teeth will look "mottled," or marked with brown stains, if they get too much fluoride before their teeth erupt. However, these stains also may have other causes. This "mottled" look is only cosmetic and does not affect the health of the teeth.

Teach children to brush properly and **never** to swallow toothpaste, mouthwash, or fluoride rinses. This will reduce the chance of developing brown spots on their permanent teeth.

Very high intakes of fluoride for more than 10 years can cause pain and stiffness in joints. In addition, it can cause abnormal hardening of the bones, which can result in fractures.

The upper limit for fluoride, known as the Tolerable Upper Intake Level (UL), is 2.2 milligrams daily for children ages four through eight. For children ages nine through adulthood the UL for fluoride is 10 milligrams per day.

### **If We Don't Get Enough**

Tooth enamel may be weak if fluoride intake is low. People who don't get enough fluoride have much greater rates of dental decay and cavities than those who do.

Because fluoride is added to drinking water in the United States, nearly one-half of American children never have had a cavity in their permanent teeth.

This is especially important for children who do not have access to dental care. Due to its success, water fluoridation has been called one of the 10 greatest public health achievements of the twentieth century.

People with very low intakes of fluoride also may have low bone density. This can increase their risk for bone fractures due to osteoporosis later in life.

For fluoride to be incorporated into our teeth and bones, we also must get enough vitamin D and calcium. For information about these two important nutrients, see [HGIC 4018, \*Get Your Calcium-Rich Foods\*](#); [HGIC 4067, \*Calcium\*](#); and [HGIC 4081, \*Vitamin D\*](#).

### **For More Information**

The Family and Consumer Sciences (FCS) agent at your county Extension office may have more written information and nutrition classes for you to attend. Also, your doctor, health care provider, or a registered dietitian (RD) can provide reliable information.

Reliable nutrition information may be found on the Internet at the following sites:

<http://hgic.clemson.edu>

<http://virtual.clemson.edu/groups/NIRC/>

<http://www.eatright.org>

<http://www.nutrition.gov>

<http://www.nal.usda.gov/fnic>

<http://www.ada.org>

#### **Sources:**

1. Kendall, Anne. University of Florida Extension. *Facts About Fluoride*. FCS8798. July 2006.

<http://edis.ifas.ufl.edu/publications.html>

2. Duyff, Roberta Larson. American Dietetic Association *Complete Food and Nutrition Guide, 3rd Edition*. 2006.

3. National Academies of Sciences. National Academies Press. *Dietary Reference Intakes series*. 2004.

---

This information has been reviewed and adapted for use in South Carolina by Janis G. Hunter, HGIC Nutrition Specialist, and Katherine L. Cason, Professor, State Program Leader for Food Safety and Nutrition, Clemson University. (New 07/07.)

---

This information is supplied with the understanding that no discrimination is intended and no endorsement by the Clemson University Cooperative Extension Service is implied.