



Calcium and Vitamin D: Important at Every Age

**National Institutes of Health
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Bone Diseases
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The foods we eat contain a variety of vitamins, minerals, and other important nutrients that help keep our bodies healthy. Two nutrients in particular, calcium and vitamin D, are needed for strong bones.

The role of calcium

Calcium is needed for our heart, muscles, and nerves to function properly and for blood to clot. Inadequate calcium significantly contributes to the development of osteoporosis. Many published studies show that low calcium intake throughout life is associated with low bone mass and high fracture rates. National nutrition surveys have shown that most people are not getting the calcium they need to grow and maintain healthy bones. To find out how much calcium you need, see the "Recommended calcium intakes" chart on the right.

To learn how easily you can include more calcium in your diet without adding much fat, see the "Selected calcium-rich foods" list on the next page.

Calcium culprits

Although a balanced diet aids calcium absorption, high levels of protein and sodium (salt) in the diet are thought to increase calcium excretion through the kidneys. Excessive amounts of these substances should be avoided, especially in those with low calcium intake.

Recommended calcium intakes

Life-stage group	mg/day
Infants 0 to 6 months	200
Infants 6 to 12 months	260
1 to 3 years old	700
4 to 8 years old	1,000
9 to 13 years old	1,300
14 to 18 years old	1,300
19 to 30 years old	1,000
31 to 50 years old	1,000
51- to 70-year-old males	1,000
51- to 70-year-old females	1,200
>70 years old	1,200
14 to 18 years old, pregnant/lactating	1,300
19 to 50 years old, pregnant/lactating	1,000

Source: Food and Nutrition Board, Institute of Medicine, National Academy of Sciences, 2010.

Lactose intolerance also can lead to inadequate calcium intake. Those who are lactose intolerant have insufficient amounts of the enzyme lactase, which is needed to break down the lactose found in dairy products. To include dairy products in the diet, dairy

foods can be taken in small quantities or treated with lactase drops, or lactase can be taken as a pill. Some milk products on the market already have been treated with lactase.

Calcium supplements

If you have trouble getting enough calcium in your diet, you may need to take a calcium supplement. The amount of calcium you will need from a supplement depends on how much calcium you obtain from food sources. There are several different calcium compounds from which to choose, such as calcium carbonate and calcium citrate, among others. Except in people with gastrointestinal disease, all major forms of calcium supplements are absorbed equally well when taken with food.

Calcium supplements are better absorbed when taken in small doses (500 mg or less) several times throughout the day. In many individuals, calcium supplements are better absorbed when taken with food. It is important to check supplement labels to ensure that the product meets United States Pharmacopeia (USP) standards.

Vitamin D

The body needs vitamin D to absorb calcium. Without enough vitamin D, one can't form enough of the hormone calcitriol (known as the "active vitamin D"). This in turn leads to insufficient calcium absorption from the diet. In this situation, the body must take calcium from its stores in the skeleton, which weakens existing bone and prevents the formation of strong, new bone.

You can get vitamin D in three ways: through the skin from sunlight, from the diet, and from supplements. Experts recommend a daily intake of 600 IU (International Units) of vitamin D up to age 70. Men and women over age 70 should increase their uptake to 800 IU daily, which also can be obtained from supplements or vitamin D-rich foods such as egg yolks, saltwater fish, liver, and fortified milk. The Institute of Medicine recommends no more than 4,000 IU per day for adults. However, sometimes doctors prescribe higher doses for people who are deficient in vitamin D.

Selected calcium-rich foods

Food	Calcium (mg)
Fortified oatmeal, 1 packet	350
Sardines, canned in oil, with edible bones, 3 oz.	324
Cheddar cheese, 1½ oz. shredded	306
Milk, nonfat, 1 cup	302
Milkshake, 1 cup	300
Yogurt, plain, low fat, 1 cup	300
Soybeans, cooked, 1 cup	261
Tofu, firm, with calcium, ½ cup	204
Orange juice, fortified with calcium, 6 oz.	200–260 (varies)
Salmon, canned, with edible bones, 3 oz.	181
Pudding, instant (chocolate, banana, etc.) made with 2% milk, ½ cup	153
Baked beans, 1 cup	142
Cottage cheese, 1% milk fat, 1 cup	138
Spaghetti, lasagna, 1 cup	125
Frozen yogurt, vanilla, soft serve, ½ cup	103
Ready-to-eat cereal, fortified with calcium, 1 cup	100–1,000 (varies)
Cheese pizza, 1 slice	100
Fortified waffles, 2	100
Turnip greens, boiled, ½ cup	99
Broccoli, raw, 1 cup	90
Ice cream, vanilla, ½ cup	85
Soy or rice milk, fortified with calcium, 1 cup	80–500 (varies)

Source: *The 2004 Surgeon General's Report on Bone Health and Osteoporosis: What It Means to You*. U.S. Department of Health and Human Services, Office of the Surgeon General, 2004, pages 12-13.

A complete osteoporosis program

Remember, a balanced diet rich in calcium and vitamin D is only one part of an osteoporosis prevention or treatment program. Like exercise, getting enough calcium is a strategy that helps strengthen bones at any age. But these strategies may not be enough to stop bone loss caused by lifestyle, medications, or menopause. Your doctor can determine the need for an osteoporosis medication in addition to diet and exercise.

Resource

For more information on osteoporosis, contact the:
**NIH Osteoporosis and Related Bone Diseases
National Resource Center**

Website: <https://www.bones.nih.gov>

If you need more information about available resources in your language or another language, please visit our website or contact the NIH Osteoporosis and Related Bone Diseases ~ National Resource Center.

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For your information

This publication contains information about medications used to treat the health condition discussed here. When this publication sheet was developed, we included the most up-to-date (accurate) information available. Occasionally, new information on medication is released.

For updates and for any questions about any medications you are taking, please contact the U.S. Food and Drug Administration (FDA) toll free at 888-INFO-FDA (463-6332) or visit its website at <https://www.fda.gov>. For additional information on specific medications, visit Drugs@FDA at <https://www.accessdata.fda.gov/scripts/cder/daf>. Drugs@FDA is a searchable catalog of FDA-approved drug products.

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