No Bones About It

Many people think of bones as inert structures such as wood beams or steel girders. But bone is living tissue that is always "under construction." Old tissue is removed from bone and new bone tissue is laid down in a continually active remodeling process which occurs throughout one's life.

What Is the Function of Calcium in the Body?

Calcium, along with phosphorous, fluoride, vitamin D, and other nutrients, is essential to bone and tooth formation. About 99% of the calcium in your body is contained in the bones and teeth. Adequate amounts of calcium are also necessary for muscular activity, nerve transmission, and blood clotting. The bones serve as banks where calcium can be deposited and withdrawn as needed. When the blood level of calcium falls, calcium is obtained from the bones.

Why Do I Need Calcium?

If your diet lacks calcium, you may pay the price -- perhaps not today, but years from now -- in the weakening of your bones. This weakening is caused by the removal of calcium from your bones to meet your body's calcium demands. Between the ages of 20 to 50, you can lose up to a third of the total calcium in your skeleton if you do not consume enough calcium in your diet.

What Is Osteoporosis?

Osteoporosis, which literally means "porous bones", is a painful and crippling bone disease where bones become so thin that they break very easily. It is the underlying cause of most broken bones in older adults. Due to hormonal differences between men and women, women are eight times more likely to suffer from osteoporosis than men.

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Women have less bone mass than men and also lose bone at a faster rate, especially after menopause. Young women who stop menstruating due to low body weight or restrictive dieting also lose bone at an accelerated rate. By maintaining a healthy weight, eating an adequate amount of foods high in calcium, and exercising regularly, young women may be able to prevent this disease from developing later in life.

Osteoporosis and Exercise

Physical activity is vital for preserving healthy bone tissue. Not only is there some evidence that exercise may stimulate new bone growth, but it also appears that certain types of exercise may be better than others for preventing bone loss. The best exercises seem to be "weight-bearing" activities in which the limbs are mechanically stressed through active movement. Jogging, walking, rope jumping, and strength training are weight-bearing activities. To obtain the bone building effects of exercise, you must perform this type of activity and consume adequate amounts of calcium.

Am I Getting Enough Calcium?

The Recommended Dietary Allowance is 1300 mg./day for adolescents 11-18 years of age and 1000 mg/day for adults 19-50 years of age. Young women who are not menstruating need 1500 mg per day to help prevent significant bone loss. Young women who have stopped menstruating should also consult a physician immediately. You can get enough calcium by eating a balanced diet which incorporates dairy products, green leafy vegetables, and fortified foods. To avoid excess calories and fat, select 1% lowfat or fat-free dairy products whenever possible.

Approximate Amounts of Calcium (in mg) in Selected Foods

Fat-free Plain Yogurt (1 cup)	350-400
Canned Sardines (3 oz.)	330
Fat-free Milk (1 cup)	300
Calcium-fortified Orange Juice (1 cup)	300
Low-fat Cheese (1 oz.)	200-250
Calcium-fortified Breakfast Cereal (3/4 cup)	200-250
Tofu (3 oz.)	40-250
Low-fat Ice Cream or Frozen Yogurt (1 cup)	150-300
Low-fat Cottage Cheese (1 cup)	140
Broccoli (1 cup)	70

Please visit **www.snac.ucla.edu** to learn more about calcium and bone health.

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TIPS TO BUILD AND MAINTAIN STRONG BONES

- **Do weight-bearing exercises** such as jogging, brisk walking, aerobics, jump roping, and weight lifting. These activities help prevent bone loss by increasing the amount of calcium deposited in the bone. To obtain the bone-building effects of exercise, you must perform weight-bearing activity regularly and eat an adequate amount of calcium.
- **Consume the RDA for calcium every day.** Most people get around 200 mg. of calcium a day from miscellaneous foods like grains and fruits. To reach the 1000 mg. a day goal, you also need about three servings of low-fat dairy foods or healthy fortified foods per day. Choose fat-free or 1% low-fat milk, low-fat yogurt, and reduced-fat cheese to keep saturated fat intake low. Choose healthy, calcium-fortified products like whole grain breakfast cereals and 100% orange juice.

  NOTE: If milk products seem to cause bloating, cramping, or diarrhea, you may be intolerant to the milk sugar, lactose. In this case, try lactose-reduced milk products, like *Lactaid*, or calcium-fortified soy or rice milks. Alternatively, try drinking/eating smaller quantities of milk products at a time.
- **Eat more leafy green vegetables** (broccoli, kale, collard greens) **and beans** (garbanzo, kidney, soy). Not only are these foods good alternative sources of calcium, but they are also high in fiber and delicious!
- **Don't smoke.** The latest research indicates that smokers are at a higher risk for developing osteoporosis.
- **Go easy on caffeinated beverages,** like coffee, tea, and colas, **and high-sodium processed foods.** High levels of caffeine and sodium in the diet have been associated with a greater loss of calcium in the urine, especially when dietary calcium intake is low.
- **Get enough vitamin D**. Vitamin D enhances calcium absorption. Sources of vitamin D such as eggs, vitamin D-fortified milk, and sunlight, will help you utilize calcium in your diet.
- **If you are unable to meet your calcium needs through food sources alone, consider taking a supplement.** Use these guidelines when choosing a supplement:

- Avoid supplements made from bone meal, dolomite, or oyster shell. These may be contaminated with toxic substances such as lead, mercury, and arsenic.
- Look for a supplement made with calcium carbonate or calcium citrate. These are usually cheapest.
- Look for "USP" designation on the label. This signals that the supplement has met certain standards set forth by the US Pharmacopoeia.
- In calculating your supplement needs, don't forget to allow for the calcium in your food. A supplement providing 500-1000 mg. of calcium should be adequate. To avoid toxicity, do NOT exceed 2500 mg. per day.
- To enhance its absorption, take the supplement with meals, and never take more than 500 mg. at one time.

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RECOMMENDED DIETARY ALLOWANCE (RDA) FOR CALCIUM

Adolescents (11-18 years of age)	1300 mg./day
Adults (19-50 years of age)	1000 mg./day
Older adults (>50 years of age)	1200 mg./day
Women who are not menstruating	1500 mg./day

APPROXIMATE CALCIUM CONTENT OF SELECTED FOODS

(in milligrams)

Milk and Milk Products

Calcium-fortified Milk (1 cup)	500
Yogurt, fat-free plain (1 cup)	350-400
Yogurt, low-fat fruit flavored (1 cup)	250-350
Milk, fat-free or 1% low-fat (1 cup)	300
Ice Cream or Frozen Yogurt, fat-free or low-fat (1 cup)	150-300
Ricotta Cheese, fat-free (1/4 cup)	100-320
Cheese, Cheddar or Swiss (1 oz.)	205-270
Cottage Cheese, low-fat (1 cup)	140
Parmesan Cheese, grated (1 Tbsp.)	70

Meat and Other Protein-rich Foods

Canned Salmon or Sardines (with bones, 3 oz.)	330
Tofu (made with calcium sulfate or calcium chloride, 3 oz.)	40-250
Soy Beans (cooked, 1/2 cup)	90
Nuts (1/2 cup)	2-50
Fish or Shellfish (3 oz.)	50
Eggs (2)	50
Meat or Poultry (3 oz.)	15-25

Fruits and Vegetables

Calcium-fortified Orange Juice (1 cup)	300-350
Collard Greens (cooked, 1/2 cup)	180
Kale or Bok Choy (cooked, 1/2 cup)	80-90
Broccoli (cooked, 1/2 cup)	35
Orange (1 medium)	50
Other Fruits (1 serving)	0-25

Grains

Calcium-fortified Breakfast Cereal (3/4 cup)	200-250
Bread, Whole Grain (2 slices)	45
Rice, Pasta, Other Grains (cooked, 1/2 cup)	5-15