

Calcium, Vitamin D and Healthy Bones

What is osteoporosis?

Osteoporosis is a condition of weak, brittle and porous bones. The hip, pelvis, wrist, arm, and spine are most susceptible to osteoporosis. Bones become so fragile that they could break, from a slight knock or a fall. A person with osteoporosis may have a humped back because the bones of the spine have shrunk. Osteoporosis is a painful disease with no cure. Although it is often thought of as a women's disease, osteoporosis affects men, too.

Why are calcium and Vitamin D important?

Calcium and Vitamin D play an important role in building stronger bones and teeth early in life and keeping bones and teeth strong and healthy later in life.

Each day our bodies lose calcium. This calcium needs to be replaced through the foods we eat. Osteoporosis can develop from a long history of poor calcium intake.

What else affects bone health?

In addition to adequate calcium and vitamin D:

- ◆ Engage in regular weight-bearing and muscle strengthening exercise.
- ◆ Avoid smoking.
- ◆ Limit alcohol (less than 1 drink daily for women)
- ◆ Include soy foods, such as soy milk, tofu, tempeh, edamame, and soy nuts.
- ◆ Limit caffeine to 2-3 servings daily.
- ◆ When appropriate, take bone density tests.

Where can you get calcium?

Dairy products, particularly milk, yogurt and cheese provide the best sources of calcium. Dairy products also offer protein, vitamin D and phosphorus, all of which help your body to use calcium.

Non-dairy foods, such as almonds, tofu, legumes, and green leafy vegetables contain small amounts of calcium. Calcium-fortified foods are becoming more widely available. These include juices, cereal, soymilk, pasta, bottled water and more.

Vitamin D works together with calcium.

Adequate vitamin D is necessary for absorption of calcium. Vitamin D is made in the skin after exposure to sunlight. Estimates include 5-16 minutes of sun exposure 3 times a week on the face, hands, and arms will meet vitamin D needs. This is a challenge in northern Michigan in the winter! Sunscreens will decrease the formation of vitamin D in the skin. Good dietary sources of vitamin D are fortified milk and saltwater fish.

How much calcium and Vitamin D do you need each day?

Age/condition	Calcium (mg)	Vitamin D (IU)
1-3 years	700	600
4-8 years	1000	600
9-18 years	1300	600
Adults to age 19-50	1000	600
Men 51-70	1000	600
Women 51-70	1000	600
70 years and older	1200	800
Pregnant or breastfeeding (up to 18 years)	1300	600
Pregnant or breastfeeding (19-50 years)	1000	600

Source: Institute of Medicine, 2010

How much calcium and Vitamin D is in food?

Food	Serving Size	Calcium (mg)*	Vitamin D (IU)*
Total [®] Cereal	1 cup	1000	130
Skim Milk	1 cup	300	100
Soy milk, calcium fortified	1 cup	300	100
Lowfat yogurt	1 cup	300	80
Cheddar cheese	1 oz.	350	--
Calcium-fortified orange juice	1 cup.	204	100
Canned sardines with bones	3 oz.	265	--
Firm tofu, set with calcium sulfate	1 cup	200	120
Calcium-fortified bread	1 slice	200	--
Blackstrap Molasses	1 tbsp.	170	--
Pudding, made with milk	½ cup	150	50
Spinach, cooked	½ cup	120	--
Turnip greens, cooked	½ cup	100	--
Almonds	¼ cup	90	--
Sesame seeds	1 tbsp.	90	--
Ice Cream	½ cup	85	--
Lowfat cottage cheese (1% milkfat)	½ cup	80	--
Parmesan cheese	1 tbsp.	70	--
Pinto beans, cooked	½ cup	50	--
Okra, cooked	½ cup	50	--
Corn tortillas, made with lime-processed corn	2 tortillas	40	--
Broccoli, cooked	½ cup	35	--
Egg yolk	1 egg	25	25
Light tuna	3 oz.	12	154
Cod	3 oz.	18	40
Sockeye Salmon	3 oz.	6	794
Shiitake mushrooms, cooked	1 cup	4	45

*Actual amounts of calcium and vitamin D can vary quite a bit among brands, especially for foods such as tofu, yogurt, and other processed foods. Read the labels to determine calcium levels in various brands.

Source: USDA Nutrient Database for Standard Reference, plus product labels.
www.ars.usda.gov/Services/docs.htm?docid+18877

A simple way to add calcium to many foods is to add non-fat powdered milk (each tablespoon adds 50 mg of calcium and 20 IU of Vitamin D). Try adding 2-4 tablespoons to most recipes for puddings, casseroles, homemade cookies, breads, muffins, soups, gravy, scrambled eggs, mashed potatoes, cooked cereal, soups, smoothies and even milk itself!

Reading Food Labels for Calcium

To determine how much calcium is in a food, check the “Nutrition Facts” panel of the food label for the “Daily Value (DV) of calcium. Food labels list calcium as a percentage of DV. This amount is based on 1000 mg calcium per day. For example:

- ◆ 30% = 300 mg of calcium
- ◆ 4% = 40 mg of calcium

What about calcium and Vitamin D Supplements?

If you get the recommended amount of calcium from foods, you do not need to take a calcium supplement. You may still need to take a vitamin D supplement. According to most experts, the safe upper limit for total daily calcium intake from all sources is 2,000 – 2,500 mg. Limit vitamin D supplements to less than 2000 IU daily.

Purchasing Calcium Supplements

- ◆ Look for labels with USP (United States Pharmacopeia) to ensure purity and quality.
- ◆ Look for supplements that contain “calcium citrate” or calcium carbonate”
- ◆ Read labels for “elemental” calcium so you can determine how much to take. Note the “amount per serving” and “serving size.”
- ◆ Look for supplements that contain vitamin D (both vitamin D₂ and D₃ are effective for bone health.)
- ◆ Avoid calcium supplements prepared from unrefined oyster shell, bone meal or dolomite since these may contain lead or other toxic chemicals.