

UW HEALTH - ONLINE HEALTH FACT

Calcium

Calcium is important for people of all ages for good health. This handout explains how to meet your daily calcium needs.

Calcium is a mineral that helps form and maintain healthy bones and teeth. It is also needed for normal blood clotting, heart function and muscle contractions.

Calcium Needs

Calcium needs are based on the amount of bone and tissue growth during phases of the life cycle. The calcium needs recommended by the NAS (U.S. National Academy of Sciences) and NIH (National Institutes of Health) are listed below.

Life Stage	Age	Optimal Daily Intake Of Calcium (milligrams)
Infants	0 – 6 months	210
	6 – 12 months	270
Children	1 – 3 years	500
	4 – 8 years	800
Adolescents and Young Women	9 – 24 years	1200 – 1500
Women	25 – 50 years	1000
Pregnant and Nursing Women		1200 – 1500
Postmenopausal Women using Estrogen		1000
Postmenopausal Women not using Estrogen		1500
Women	Over 65	1500

Food Sources of Calcium

Milk and milk products are the best sources of calcium in our diets. The vitamin D and lactose in dairy products help increase calcium absorption. Foods that are good calcium sources are.

250-300 mg of Calcium

- 3 oz. sardines, canned, drained (including bones)
- 1 cup oyster stew—homemade with milk
- 1 cup milk; whole, 2%, 1%, skim, chocolate or dry milk
- 1 cup macaroni and cheese, homemade
- 1 cup cocoa made with milk
- 1 oz. Swiss cheese
- 1/6 of 9" quiche
- 1/3 cup non-fat dry milk
- 1 cup malted milk
- 8 oz. milk shake
- 5 oz. tofu (soybean curd), processed with calcium sulfate
- 1 cup plain or flavored yogurt*
- 8 oz. calcium-fortified juice/drink*
- 8 oz. calcium fortified soy milk

200-250 mg of Calcium

- 1 oz. cheddar or brick cheese
- 1 cup cheese soufflé
- Cheese pizza (1/8 of 15" pie)

150-200 mg of Calcium

- 1 oz. Mozzarella cheese, part skim
- 1 cup cottage cheese, 2%
- ½ cup bread pudding made with milk
- ¾ cup creamed chipped beef
- ½ cup au gratin potatoes
- 1 cup macaroni and cheese, from box*
- 1 taco with beef and cheese
- 1 cup cream soup made with milk
- 3 oz. salmon, canned with bones

100-150 mg of Calcium

- ½ cup bokchoy, cooked
- ½ cup turnip greens, cooked
- 1 cup broccoli
- ¾ cup mustard greens, cooked
- 1 cup kale, cooked

*Calcium content varies by brand. Check labels carefully.

100-150 mg of Calcium (cont'd)

- 3 oz. herring, canned
- ½ cup oysters
- ¾ cup soybeans, cooked
- 2 oz. (25-30) almonds, whole
- 2 tbsp. grated Parmesan cheese
- ½ cup ice cream or ice milk
- ½ cup custard
- ½ cup pudding, made with milk
- 1 cup sherbet
- ½ cup frozen yogurt
- 2 pancakes (4" diameter)
- 1 waffle (7" diameter)
- 1 tbsp. blackstrap molasses
- ½ cup rice pudding made with milk
- 1 piece cornbread (2-1/2 x 2-1/2 x 1-1/2")

Suggested Intake of Milk and Milk Products

Since milk and milk products are an important source of calcium, try to include enough servings each day. The list below outlines how much you need.

<i>Age</i>	<i>Servings per Day</i>
Infants, Children, Adolescents	
1-3 years	1-2
4-8 years	3-4
9-18 years	4-5
Adults	
19-50 years	3-4
51-70 years	4-5
> 70 years	5
Pregnant and nursing women	4-5

Alternatives to Drinking Milk

If milk is not your choice as a beverage, you may wish to find other ways to include dairy products in your diet. Here are some ideas:

- One or more teaspoons of dry milk powder can be added to scrambled eggs, soups, gravies, casseroles, milkshakes, meatloaf, muffins, cookies or bars, hot cereals, mashed potatoes, and puddings. The milk powder will not change to taste of the food, but it will add calcium and protein to your diet.
- Add grated cheese to sauces, vegetables, salads, dips, soups, rice, muffins, mashed potatoes, casseroles, meatloaf, and noodles.

- Serve sweet or plain yogurt with fruits and desserts. Use yogurt to top cereal, pancakes, waffles, and to fill crepes.
- Add ricotta cheese to casseroles, sauces, dips and scrambled eggs.
- Stir-fry tofu with vegetables. Tofu can be used instead of meat or used with meats in casseroles, spaghetti sauce, or lasagna.
- Drink calcium fortified orange juice or soymilk. Be sure to check the nutrition label, because calcium content varies by brand.
- Other foods may also be fortified with calcium. The nutrition facts label lists the percentage of calcium in the product (based on 1000 mg of calcium).

Lactose Intolerance and Calcium Intake

Some people are unable to eat the suggested amounts of milk and milk products because their bodies do not produce enough **lactase**, the enzyme that digests the milk sugar **lactose**. If these people drink too much milk, they may have stomach cramping, gas, and diarrhea. Lactose intolerance can occur in varying degrees. Some people can tolerate small amounts of milk. Some cannot tolerate any milk or milk products. Some tips to help with this problem:

- Do not eat a dairy product alone. Include it with other foods in a meal or snack.
- Yogurt and cheese generally have less lactose and may be better tolerated.
- Know how much milk and milk products you can handle in a day and stay within that limit.

Because milk products are the major source of calcium in our diets, it's hard for a person with lactose intolerance to get enough calcium. In this case, a calcium and vitamin D supplement may be needed. This is mainly true for people with higher calcium needs (children, pregnant and breast-feeding women).

Lact-Aid, a product available in drug stores without a prescription, can be added to milk before drinking to digest the lactose in the milk. This can prevent the unpleasant symptoms from lactose intolerance. This product makes it possible to have dairy products in spite of lactose intolerance.

Calcium Supplements

If you're not meeting your daily calcium needs through your diet, you should consider adding calcium tablets. Calcium tablets are available as calcium carbonate, calcium citrate, calcium gluconate, or calcium lactate; only part of each tablet is calcium that your body can use.

There are two main types of calcium supplements: calcium citrate and calcium carbonate. The following table shows the differences between these supplements and the best time to take them. *Note:* if you are taking a prescription to decrease stomach acid or use antacids on a daily basis, *calcium citrate* is recommended (instead of calcium carbonate).

Calcium Citrate (Citracal)	Calcium Carbonate (Tums, Oscal, Caltrate, Viactiv, CalBurst)
Can be taken any time during the day.	Must to taken with meals or snacks for best absorption.
Does not require stomach acid for absorption.	Requires stomach acid for absorption. Do not take with antacids.
Gentle on stomach.	May cause gas, constipation, bloating
	Look for "USP" on label or box (confirms pill will dissolve in normal stomach acidity.)

Read product labels or ask your pharmacist to find out the calcium content found in that brand.

Calcium is best absorbed when taken with meals. Do not take more than 600 mg of calcium at one time. A calcium intake greater than 1500 mg is not recommended. High amounts of calcium may cause urinary tract stones in some people.

There has been some controversy about the amount of lead found in various calcium tablets, particularly the ones containing dolomite or bone meal. However, lead has been found in some calcium tablets without these compounds. Does this mean you need to stop taking calcium supplements? For most people meeting calcium needs through adding tablets to their diet, lead toxicity should not be a problem.

Calcium supplements commonly available:

Supplement	Calcium (mg)	Vitamin D (IU)	Comment
Caltrate 600	600	0	
Caltrate Plus	600	200	
Caltrate Chewable	600	200	Soft chewable
Citracal	400	0	in 2 tablets
Citracal with D	630	400	in 2 tablets
One a Day Women's Multivitamin	450	400	
Os-Cal 500	500	0	
Os-Cal 500 +D	500	200	
Tums	400	0	in 2 tablets
Tums Extra	600	0	in 2 tablets
Tums Ultra	800	0	in 2 tablets
Viactiv	500	100	Soft chewable
Cal Burst	500		Soft chewable
Walgreen's Calcium	250 to 600	125 to 200	

Vitamin D

The body does not use calcium well if you don't get enough Vitamin D. We get vitamin D from certain foods (fortified milk, fish oils, egg yolks, liver) and from sunlight. Many calcium tablets and multivitamins also contain vitamin D. The recommended daily intake of vitamin D is 400 to 800 IU (International units). Many calcium tablets also have vitamin D. Be sure to check this before taking more vitamin D. Do not take more than 800 U per day unless your doctor prescribes it, since too much vitamin D may be harmful.

Calcium Deficiency: Osteoporosis

Osteoporosis is a disorder in which bones become weak and brittle and the chance of breaking bones becomes greater. One factor that leads to osteoporosis is a shortage of calcium in the diet. When dietary calcium intake is less than the body's need for calcium, calcium is taken from the bones. This weakens bones.

This disorder is most common in women over age 35, especially if they are no longer menstruating. White men and women are at greater risk than black men and women. Women who are underweight develop osteoporosis more often than women who are overweight. Other risk factors include cigarette smoking and an inactive lifestyle. Signs of osteoporosis include bone pain, fractures, loss of height, and shrinking of the jawbone. Osteoporosis isn't just a concern for women. After age 65 women and men tend to lose bone mass at the same rate.

Although there is no cure for osteoporosis, there are steps you can take to prevent it or to slow its progress:

- Eat a balanced diet rich in calcium and vitamin D
- Participate in weight bearing exercise. Before starting any exercise program, consult with your healthcare provider.
- Maintain a healthy lifestyle without smoking or drinking too much alcohol.
- Get bone density testing and medicines when needed.

Snacks High in Calcium

Yogurt Popsicles

Mix one 8 oz. carton of plain yogurt, one 6 oz. container of unsweetened fruit juice concentrate (orange or grape are good) and a dash of vanilla or honey, if desired. Freeze in commercial molds or in 3 oz. paper cups, using wooden sticks or spoons as handles. Makes 5 popsicles.

*Contains 60 mg calcium each.

Fruit Smoothie

Mix in blender until smooth:

1 cup milk

Fresh or canned fruit (1 peach, 1 banana,
½ to ¾ cup strawberries or combination)

or 1 cup fruit juice (orange, apricot, prune, etc.)

¼ tsp. vanilla

1-2 ice cubes

Sprinkle with nutmeg or cinnamon, if desired

*Contains 280 mg of calcium.

Fruit Nog

1 (8 oz.) carton flavored yogurt	¼ tsp. vanilla or almost any extract
1 cup milk	2 tsp. sugar (optional)
1 cup fresh strawberries or orange sections	2-3 ice cubes

Place all ingredients except ice in blender. Blend at high speed until mixture is frothy. Add ice cubes one at a time and blend.

*Recipe yields 560 mg calcium

If you have any questions about calcium, please contact:

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