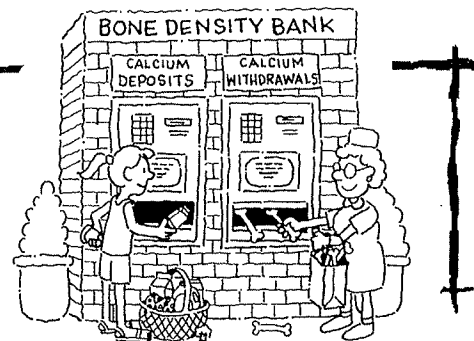


# Calcium and You

## Facts for Teens



As you grow, you need calcium to build a healthy body. It keeps you strong so you can do well at things like sports, dancing, and school activities.

Getting plenty of calcium while you are young also makes you strong and keeps you looking good for your entire lifetime.

In fact, your body's need for calcium is very high between the ages of 9 and 18 years. However, most young people in the United States do not get enough calcium in their diets.

### What is calcium?

Calcium is a mineral that many parts of your body require. Its main job is **to build strong bones and teeth**. About 99% of your body's calcium is in your bones and teeth. A very small amount of calcium is in body fluids such as blood. But this small amount performs vital functions, including the following:

- Keeping a strong heart beat
- Controlling blood pressure
- Making muscles move
- Helping blood clot
- Sending nerve messages

If you make the right choices, the food you eat will provide the calcium you need. If you do not get enough calcium, your body will take calcium from your bones to support other vital functions, weakening the bones.

### Why do my bones need calcium?

Bones provide the basic support structure (skeleton) for your body and protect vital organs such as your heart and lungs.

Although bones may appear lifeless, they are alive and growing. Existing bone constantly is being renewed through a process called remodeling. Your body needs a good supply of calcium to fuel this process.

### The "bone bank"

Bones serve as a "bank" for calcium. When you are young, your body can deposit calcium in your "bone bank" by increasing your **bone density**. Density means how closely packed together the materials in your bones are. Dense bones are strong bones.

As you get older, you lose the ability to bank calcium. By the time you reach about 30 years of age, your bones reach their **peak bone density**. That means your bones are as dense (or packed with calcium) as they will get — for life.

After that time, **you can no longer deposit extra calcium in your bone bank**. Instead your body withdraws calcium from your bone bank.

### Why should I bank calcium?

Having a good supply of calcium stored in your bones means that there will be plenty for growing, rebuilding bones, and performing the many body functions that require it. You are much less likely to break bones that are packed with calcium.

In addition, you are saving calcium that you will need to withdraw from the bone bank when you are older. People who do not store enough calcium when

they are young are at high risk for getting diseases such as osteoporosis later in life.

**Osteoporosis** is a disease of older people that can make bones so fragile that they can break from the stress of merely bending over. It can result in a hunched-over appearance. People with osteoporosis may not realize they have the disease until 1 or more bones fracture. By this time, it is usually too late to undo the bone damage.

### Is calcium all I need for strong bones?

Calcium does not work alone. After you eat or drink foods that contain calcium, your body must absorb the calcium through your intestines. You need a small amount of **vitamin D** for this to happen. Rickets, a disease that softens bones, can develop if your body does not absorb enough calcium.

Sources of vitamin D include the following:

- Sunlight. (Your body makes vitamin D when your skin is exposed to sunlight.)
- Milk fortified with vitamin D.

In addition, some juices or other products may be fortified with vitamin D. Check nutrition labels to learn which foods are fortified with vitamin D.

Exercise is important as well. Studies show that regular, weight-bearing exercise helps you build strong bones. Combined with a balanced diet, exercise does the following:

- Helps your body make hormones that protect bones
- Generates electrical activity that promotes bone growth and repair
- Boosts the flow of blood and nutrients to your bones

### How much calcium do I need?

The amount of calcium that your body needs varies according to age. The greatest need is during late childhood and the teenage years.

The American Academy of Pediatrics recommends the following daily intake of calcium:

TABLE 1. Daily calcium needs

Age	Calcium need (mg per day)	Servings of milk to meet need
4–8 years	800	3 servings
9–18 years	1,300	4 servings
19–50 years	1,000	3–4 servings

### How can I get calcium?

The best way to get the calcium that you need is by **eating and drinking foods that naturally contain calcium**. Many foods contain calcium.

Milk and other dairy products are good sources of calcium. They naturally offer the most calcium per serving. For example, 1 cup of milk has about the same amount of calcium as 4 cups of broccoli.

Most teenagers can get the calcium they need with 4 daily servings of dairy products, plus some green vegetables. Keep the following tips in mind:

- Low-fat and nonfat dairy products are super sources of calcium.
- Chocolate (or any flavor) milk has as much calcium as plain milk.
- Dark green, leafy vegetables such as kale and turnip greens are low in calories and are high in calcium.
- Tofu, broccoli, chickpeas, lentils, canned sardines, salmon, and other fish with bones also are good sources of calcium.
- Calcium-fortified foods such as juices and cereals can help boost the calcium in your diet. However, remember to limit the amount of juice that you drink each day to 8 to 12 ounces (1½ cups).

The tables at the end of this brochure show the amount of calcium in a variety of foods.

## Calcium supplements

Certain medical conditions, diets, or lifestyle choices can make it hard for you to get enough calcium by eating the right foods. In some cases, your pediatrician may recommend a calcium supplement, such as a daily dose of a calcium-containing antacid tablet or liquid.

## Lactose intolerance

A few young people have lactose intolerance, which means they have trouble digesting lactose (the sugar in milk). Milk with reduced lactose is available to help these teens. Nondairy foods that are rich in calcium, as well as calcium-fortified foods, also can be good choices for people who have lactose intolerance. In some cases, your pediatrician may recommend a calcium supplement.

However, most of the people who have lactose intolerance have only partial lactose intolerance. They can digest dairy products in small amounts with a meal. Aged cheeses and yogurts in which the lactose is broken down can provide good sources of calcium for them. Lactase preparations that make the lactose easier to digest also are available.

## Can I get too much calcium?

It is unlikely that you would get too much calcium through your diet. However, it is important to watch how much calcium you get if you take supplements and eat many calcium-fortified foods.

## Calcium boosters

### On the go

- Order milk or milk shakes instead of soda at restaurants or school cafeterias.
- Choose foods with cheese, such as pizza, tacos, cheeseburgers, or grilled cheese sandwiches.
- Top salads, chips, or soups with cheese.
- Select yogurt or ice cream.

### At home

- Choose easy, calcium-rich snacks such as cheese sticks, chocolate milk, yogurt, and pudding.
- Create special drinks with milk. Add flavorings. Make shakes.
- Use low-fat yogurt — on its own or with fresh fruit — as a topping for pancakes or waffles, and in shakes, salad dressings, dips, and sauces.
- Add milk to soups and hot cereals.
- Eat calcium-rich vegetables with cheese or yogurt-based dips.
- Sprinkle cheese on pastas, chili, and popcorn.
- Top sandwiches with a slice of cheese.
- Rely on favorites such as macaroni and cheese, pizza, and tacos.

## Calcium blockers

The amount of calcium that your body gets can be thrown out of balance by the following:

- **Drinking a lot of soda (pop or soft drinks)** — Studies show that this may make you more prone to bone fractures. That may be because of the high phosphorus content of sodas. (Phosphorus may make it difficult for your body to absorb calcium, even if you eat or drink enough.) It also may be because sodas are taking the place of calcium-rich drinks and foods in many teenagers' diets.
- **Fad diets** — Some diets do not provide enough calories or offer a variety of foods. This may keep your body from getting enough calcium as well as many other nutrients it needs.
- **Vegetarian diets** — Teens who choose vegetarian diets that exclude dairy products must be very careful to include enough calcium.
- **Excess alcohol** — This can reduce the absorption of calcium in your intestines. It also can damage your liver, decreasing your body's ability to use vitamin D.
- **Diseases of the pancreas, small intestine, or liver** — Diabetes is an example.
- **Certain medications** — Medications such as steroids, anticonvulsants, and antacids that contain aluminum can interfere with calcium absorption.
- **Excess protein, salt, or phosphorus in your diet** — These may block calcium absorption.

- Experiment with calcium-rich foods that may be new to you and your family. Try sardines, tofu, slivered almonds, and salmon with bones.
- Try calcium-fortified juice and calcium-fortified waffles or cereal for breakfast.

## Making low-fat calcium choices

Watching how much fat you eat and drink is also important. While you need to include some fat in your diet, no more than 30% of your daily calorie intake should come from fat.

However, you can easily increase the calcium and lower the fat in your diet at the same time.

There are many good sources of calcium that are either low in fat or have no fat at all. The following are examples:

- Nonfat dairy products such as milk, yogurt, and cheese
- Low fat dairy products such as milk, yogurt, and cheese

## How to read food labels

Nutrition labels can help you choose foods that are high in calcium. These labels are on food packages.

The labels list the amount of calcium in a serving as “% Daily Value,” not as milligrams (mg).

100% of the Daily Value = 1,000 mg of calcium per day

The Daily Value is an amount that applies mainly to adults. Remember, if you are between the ages of 9 and 18 years, you need 1,300 mg of calcium per day.

To find out how many milligrams (mg) of calcium are in a serving, place a “0” at the end of the number listed for the Daily Value. For example, a serving of calcium-fortified orange juice might list the amount of calcium as 30% of the Daily Value.

30% Daily Value = 300 mg calcium

In general, a food that lists a Daily Value of 20% or more for calcium is high in calcium. Any food that contains less than 5% of the Daily Value is low in calcium.

- Calcium-rich vegetables
- Calcium-fortified foods such as orange juice

Removing fat from a food does not take away calcium.

Making trade-offs in your food choices is another option to keep in mind. For example, if you go for a thick, chocolate milk shake, skip the fatty French fries.

### Counting calcium

If you are between the ages of 9 years and 18 years, you need about **1,300 mg of calcium each day**. Keep track of what you eat for a few days to see if you are getting enough calcium.

If a medical condition or restricted diet may be keeping you from getting the calcium you need, talk to your pediatrician.

The following tables show the amount of calcium in a variety of foods from several food groups. Calcium amounts may vary. Check nutrition labels on products for exact amounts.

Milk Group	Calcium (mg)
* Milk, regular or low fat, 1 cup	300
Chocolate milk, 1 cup	300
Yogurt, 1 cup	300-415
American cheese, 2 oz	348
Cheddar cheese, 1½ oz	300
Cottage cheese, ½ cup	77
Mozzarella cheese, 1½ oz	275
Parmesan cheese, ¼ cup	338
Ricotta cheese, part skim, ½ cup	337
Swiss cheese, 1½ oz	408
Milk shake, 10 fl oz	319-344
Ice cream, ½ cup	88
Ice cream, soft-serve, ½ cup	113
Frozen yogurt, ½ cup	103
Pudding, instant, ½ cup	151
Soy milk, calcium-fortified, 1 cup	300
Rice milk, calcium-fortified, 1 cup	300

Prepared Foods	Calcium (mg) (Verify on label.)
Bean burrito	57
Cheese enchilada	324
Cheeseburger	182
Lasagna with meat, 2½" by 2½"	460
Macaroni & cheese, ½ cup	180
Pizza, cheese, 1 slice	220
Taco, 1 small	221

\*Low-fat milk has as much or more calcium than whole milk.

Protein Group	Calcium (mg)
Almonds, chopped, 1 oz	66
White beans, ½ cup	113
Salmon, canned with bones, 2 oz	110
Sardines, 2 oz	248
Tofu, calcium-fortified, 1 cup	260

Fruits	Calcium (mg)
Orange juice, calcium-fortified	300
Orange, 1 medium	50
Prunes, dried, ¼ cup	22
Raisins, ¼ cup	22

Vegetables	Calcium (mg)
Bok choy (Chinese cabbage) ½ cup	79
Broccoli, cooked, ½ cup	35
Broccoli, raw, 1 cup	35
Carrots, raw, 1 medium	27
Kale, cooked, ½ cup	45
Mustard greens, cooked, ½ cup	64
Sweet potatoes, mashed, ½ cup	44
Turnip greens, cooked, ½ cup	98

Grains	Calcium (mg) (Verify on label.)
Bread, whole wheat, 1 slice	25
Cereal, ready-to-eat, 1 oz	48
Farina, enriched, ½ cup	95
Tortilla, corn, 1 medium	60
Waffle, enriched, 4-inch	77

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend based on individual facts and circumstances.

From your doctor

American Academy  
of Pediatrics



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The American Academy of Pediatrics is an organization of 57,000 primary care pediatricians, pediatric medical subspecialists, and pediatric surgical specialists dedicated to the health, safety, and well-being of infants, children, adolescents, and young adults.

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## GUIDES FOR PATIENTS

### Foods that contain iron

The recommended daily intake of iron is 15 to 18 milligrams (mg) for girls and women 11 to 24 years of age, 12 mg for boys 11 to 18 years of age, and 10 mg for young men 19 to 24 years of age. The best way to get iron is from foods such as those listed below (along with the amount of iron they contain). If you have anemia, you may need more iron, and your doctor may prescribe a supplement. Do not take an iron supplement unless your doctor advises you to do so.

Liver, 4 oz cooked	9 mg
Beef, 4 oz	3 mg
Turkey, 4 oz dark meat	2 mg
Pork, 4 oz	1 mg
Shrimp, 12 large	2 mg
Chicken breast, 4 oz	1 mg
Fish/tuna, 4 oz	1 mg
Egg, 1 large	1 mg
Prune juice, 8 oz	3 mg
Apricots, 5 halves dried	0.8 mg
Dates, 10 dried	1 mg
Raisins, 1/3 cup	1 mg
Refried beans, 1 cup	4.5 mg
Spinach, 2 cups cooked	3 mg
Peas, 2 cups	1 mg
Broccoli, 2 cups	1 mg
Milk, 1 cup skim	0.1 mg
Cheddar cheese, 1 oz	0.2 mg
Total cereal, 1 cup	18 mg
Raisin Bran, 3/4 cup	18 mg
Cream of Wheat, 1 cup	9 mg
Cheerios, 1 cup	4.5 mg*
Quaker flavored instant oatmeal, 1 serving	2 mg
Pasta, 1 cup cooked, enriched	1 mg
Bread, 1 slice enriched	1 mg
Brown rice, 1 cup cooked	1 mg
Brewer's yeast, 1 oz (homemade bread)	5 mg
Molasses, 1 tablespoon blackstrap (found in some dark breads and can be used to sweeten oatmeal)	3.5 mg
Wheat germ, 1/4 cup (can be mixed into a smoothie)	2 mg

\*Most cereals are fortified with 4 to 5 mg iron/serving

### Foods that contain calcium

The recommended daily calcium intake for adolescents and young adults (11 to 24 years of age) is 1,200 to 1,500 milligrams (mg). The recommended daily intake for children 6 to 10 years of age is 800 to 1,200 mg. A good way to get calcium is from foods such as those listed below (along with the amounts of calcium they contain). If you do not eat any of the foods below, talk to your doctor about a calcium supplement.

Factors that can interfere with your body's ability to absorb calcium and use it to build strong bones include:

- a high-phosphorus diet (large amounts of meat and soda)
- caffeine (more than two cups of coffee or soda a day)
- alcohol
- cigarette smoking
- a low estrogen level (irregular or absent menstrual periods) in adolescent girls

Milk	
Whole, 8 oz	291 mg
Skim, 8 oz	302 mg
Yogurt	
Low fat plain, 8 oz	415 mg
Low fat with fruit, 8 oz	343 mg
Frozen (fruit), 8 oz	240 mg
Ice cream, soft serve, 1 cup	274 mg
Cheese	
Muenster, 1 oz	203 mg
Cheddar, 1 oz	204 mg
Ricotta, part skim, 1 cup	167 mg
Mozzarella, part skim, 1 oz	207 mg
Cottage, 1/2 cup	100 mg
Fortified orange juice, 8 oz	300 mg
Salmon, 3 oz	167 mg
Shrimp, 3 oz	100 mg
Collards, cooked from raw, 1 cup	252 mg
Broccoli, cooked, 1 cup	100-136 mg
Spinach, cooked, 1/2 cup	122 mg
Tofu in oriental foods (stir fry and soups), 4 oz	150-250 mg