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The National Women's Health Information Center

A project of the U.S. Department of Health and Human Services, Office on Women's Health



Frequently Asked Questions about What Parents Need to Know about Children's Bone Health

What is osteoporosis?

Osteoporosis is a disease that thins and weakens bones to the point where they break easily – especially bones in the hip, spine (backbone) and wrist. It is called a “silent disease” because bone loss occurs without symptoms. Having a bone break easily or losing height is often the first sign of this disease. While osteoporosis can strike at any age, over half of all women over age 65 have it. Women are four times more likely than men to develop the disease because women have lower bone mineral density to begin with. Estrogen loss at *menopause* (when a woman's periods stop for good) may add to this.

There are certain things that are linked to whether or not a woman will develop osteoporosis. These things are called *risk factors*. Some risk factors cannot be changed, while others can be changed.

Risk factors that cannot be changed include:

- Sex – women are more likely to develop the disease than men are. This is because women have lighter, thinner bones and lose bone strength and density rapidly after menopause.
- Age – the longer you live, the greater your chances are of getting the disease. Know that rates of bone loss vary among women and that not all women get osteoporosis.
- Family history – this disease runs in families, which increases your risk if it is in your family.
- Body size – women who are small-boned and thin have a higher risk than women who are larger-boned and weigh more. But, being heavy does not mean that you will get this disease.
- Ethnicity – White and Asian women are more at risk for this disease than are Black women. Black and Hispanic women, though, do get osteoporosis.

Risk factors that CAN be changed include:

- Diet – getting enough calcium and vitamin D in your diet will help you to build and keep strong, healthy bones.
- Physical activity – helps keep bones strong and healthy over your lifetime.
- Smoking – lowers estrogen levels in your body and can cause you to go through menopause earlier, increasing your chances for getting osteoporosis.
- Alcohol – having 1 or 2 drinks a day can damage bone density and strength, even in young women.

I thought osteoporosis affects older women. Why should girls and teenage girls be concerned about bone health?

It is never too early to start being concerned about bone health. Childhood – the peak bone producing years – is the time to start teaching your children about bone health. You can work with them to develop good diet and exercise habits, which will help them to have strong, healthy bones throughout their lives. And, a poor diet and not enough physical activity during the adolescent years (age 9 to 18) can result in weaker bones in adulthood. This increases the risk for osteoporosis, and can affect the body's ability to heal properly after an injury. By making sure they get enough calcium, as well as weight bearing physical activity, girls can develop strong bones and reduce their risk for osteoporosis later in life.

What is “weight bearing” physical activity?

Weight bearing physical activity is any activity in which your body works against gravity, so your feet and legs are supporting or carrying your weight. Examples of weight bearing physical activities that young girls like include walking, running, tennis, dancing, tae kwon do, hiking, hopscotch, and basketball.

Activities that are not weight bearing include riding a bike or a scooter, swimming, and skateboarding. But, these activities do benefit overall health and can be mixed with weight bearing activities.

How do calcium and physical activity make bones stronger?

To make bones strong and to keep them strong, the body needs both calcium and weight bearing physical activity. It's not enough to do one or the other to make bones strong, it takes two!

- Calcium – helps bones to develop properly. When the body makes new bone tissue, it first lays down a framework of a protein called *collagen*. Then, calcium from the blood spreads throughout the collagen framework. The hard crystals of calcium fill in all the nooks and crannies of the framework. Calcium and collagen work together to make bones strong and flexible.

Calcium is also needed for many other activities within the body such as *neural communication* (the way your nerves and brain send signals to each other) and heart and lung functions. If the body doesn't get enough calcium from foods and drinks, it can take it from bones, which can make bones weaker.

- Physical activity – just as a muscle gets stronger and bigger the more you use it, a bone becomes stronger and denser when you exercise. Bones are living tissue. Weight bearing physical activity causes new bone tissue to form, making bones even stronger. It also makes muscles stronger, and muscles push and tug against bones, making bones even stronger. And, it improves coordination, which makes falls less likely, keeping bones safer from breaks.

How much calcium do adolescents need?

The recommended intake for girls aged 9-18 is 1300 milligrams of calcium per day. But, many girls in this age group do not get enough calcium. Some studies have shown that a typical girl gets only about 800 mg of calcium a day.

For recommended calcium intake for adults, go to:

<http://www.4woman.gov/faq/calcium.htm> and <http://www.4woman.gov/faq/osteopor.htm>.

The chart below lists the calcium content of foods and drinks that many young girls like.

FOOD	PORTION SIZE	CALCIUM (Milligrams)*
Plain, fat-free yogurt	1 cup	450
Grilled cheese sandwich**	1 sandwich	371
American cheese	2 ounces	348
Ricotta cheese, part skim	1/2 cup	337
Fruit yogurt	1 cup	315
Cheddar cheese	1-1/2 ounces	305
Milk (fat-free or low-fat)	1 cup	300
Orange juice with added calcium	1 cup	300
Soy beverage with added calcium	1 cup	250-300
Tofu (made with calcium)	1/2 cup (about five 1-inch cubes)	204
Macaroni and cheese	1/2 cup	204
Cheese pizza	1 slice	111-147
Frozen yogurt (fat-free or low-fat)	1/2 cup	105
Broccoli, cooked or fresh	1 cup	90
Ice cream	1/2 cup	84
Bok choy, cooked or fresh	1/2 cup	80
Almonds, dry roasted	1 ounce (About 20-25 almonds)	71
White bread	2 slices	70

* Calcium content varies depending on the ingredients of many foods.

**Using 2 slices of white bread, 1-1/2 ounces of cheese, and nonstick cooking spray.

It seems pretty hard to get 1300 milligrams of calcium from food alone. Should girls take a calcium supplement to make sure they get enough calcium? And, is it possible to get too much calcium?

Girls can get plenty of calcium from food. It's found in a variety of good tasting foods like milk, yogurt, broccoli, and low-fat cheese. Many foods also have (extra) calcium added to them like orange juice, milk, breakfast cereals, cereal and other bars, and soy drinks. Be sure to check food package labels to see if they have added calcium. While not common, some girls might have allergies or other dietary restrictions, and can ask their health care provider about supplements. But, most girls can get enough calcium by eating the right types of foods.

While it is possible to get too much calcium, it is not likely for most girls. Even with all the products that have added calcium, girls consume far less calcium each day than the recommended 1300 mg.

Can you get enough calcium if you are lactose intolerant?

Yes. Lactose intolerance means some girls don't feel well (stomachache, gas) after they have milk or other dairy products. The good news is that there is milk and other dairy products that are specially made for people with lactose intolerance. Look for milks, cheeses, cottage cheese and other products that have the enzyme *lactase*, which helps a person to digest dairy. You can also buy Lactaid pills to chew or swallow with the first bite of dairy, which contain lactase. There are also other foods that have calcium like broccoli, almonds, and foods fortified with calcium like orange juice and cereals. Remember to look for "calcium" on food labels.

I've heard that milk and other dairy products can be fattening, or aren't good for you in other ways. Why are dairy products recommended for adolescents who want to build strong bones?

Milk and other dairy products do not have to be fattening. It is easy to get low-fat or non-fat milk. Dairy products are a very important part of an adolescent's diet. They provide calcium, vitamin D and other nutrients that help prevent osteoporosis.

There are good non-dairy sources of calcium. But, dairy products offer the greatest amounts of calcium per serving. For instance, one cup of fat-free or low-fat milk contains about 300 milligrams of calcium. One cup of broccoli (cooked or fresh) contains about 90 milligrams of calcium.

How does caffeine affect bone health?

Caffeine itself does not appear to have harmful effects on bone health. But, young girls often choose soft drinks with caffeine over milk drinks.

What else can adolescents do to improve and promote their bone health?

It is important for girls to not drink alcohol or smoke, and to have a healthy overall diet. Smoking, drinking alcohol, and having eating disorders such as *anorexia nervosa* or *bulimia* can increase a girl's risk for developing weaker bones.

My neighborhood is not very safe. How can girls take part in weight bearing physical activity while staying indoors?

There are plenty of indoor weight bearing exercises that girls can do to help them develop strong, healthy bones. Dancing, lifting hand-held weights (or soup cans), jogging in-place, and push-ups can be done indoors, as well as outdoors.

What kinds of weight bearing exercises can girls with physical disabilities do to keep their bones strong?

There are a number of weight bearing exercises available to girls with physical disabilities:

- Wheelchair aerobics – combines upper body movements and stretches to increase flexibility. They are done in a seated position, often to music.
- Arm cycling (ergometry) – this is like bicycling, only it is done with the arms instead of the legs. A girl can use a stationary (non-moving) bike or arm-driven cycles designed for outdoor use. Be sure your girl always wears a helmet when cycling outdoors.
- Wheeling – this involves moving a wheelchair forward, using the arms or legs, over an extended distance. This can be done inside or outside, using a regular wheelchair or a specialized sport wheelchair.
- Resistance training – wide elastic bands used for resistance training and stretching. One end is attached to a non-moving object, such as a doorknob or the leg of a bed or a heavy table, while the other end is held and stretched to exercise one part of the body at a time. Hand weights can also be used for this type of training.
- Some sports can be adapted for girls with physical disabilities, like wheelchair tennis and wheelchair basketball.

For more information...

You can learn more about bone health and osteoporosis by contacting the National Women's Health Information Center at (800) 994-WOMAN (9662) or the following organizations:

The National Bone Health Campaign: Powerful Bones. Powerful Girls.

Centers for Disease Control and Prevention

Phone Number(s): (770) 488-5820

Internet Address: <http://www.cdc.gov/powerfulbones>

National Institutes of Health

Osteoporosis and Related Bone Disease National Resource Center

Phone Number(s): (800) 624-2663

Internet Address: <http://www.osteoporosis.org>

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