



Osteoporosis

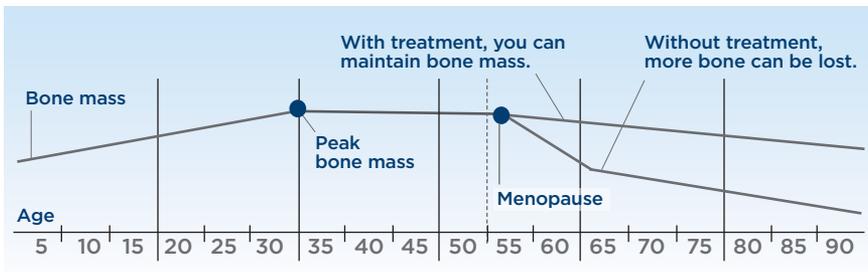
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ORTHOPEDICS
SPORTS MEDICINE

Bone Basics

Your bones are a vital part of the body. They:

- Give the body structure
- Support and protect our muscles and other body organs
- Store calcium for our muscles to use

Bone is living tissue. Like all living tissue, bone is being broken down and replaced all the time. Bones grow until the person is about age 30 when we reach “peak bone mass.” After this time, the bones are maintained. For some persons, bone growth cannot keep up with bone loss. This leads to thin and porous bone tissue (osteopenia and osteoporosis).



In osteoporosis, bones lose mass and strength. They become more fragile. Because you don't feel bones getting weaker, a broken bone is often the first sign of osteoporosis. For someone with osteoporosis, a simple action like sneezing can cause a bone to break. Sometimes a bone breaks without any known cause.

Any bone can be affected. The bones most likely to break are the hip, spine or wrist. A broken hip most often means a hospital stay and major surgery. This may cause the need for help when you walk, a life-long handicap or even death. Fractures of the spinal bones can cause you to shrink in height, have severe back pain or spinal deformities.

About 10 million Americans have osteoporosis – 8 million women and 2 million men. In the first 5-7 years after menopause, women can lose up to 20 percent of their bone mass. This raises their risk of having osteoporosis.

The most common risk factors for osteoporosis are:

- Being female
- Aging—there is more bone loss as you get older
- Family history of osteoporosis
- Being small and thin
- Being of Caucasian, Asian or Hispanic/Latino descent
- Personal history of broken bones or height loss
- Low hormone levels
- Menopause
- Not getting enough calcium and/or vitamin D
- Too much caffeine
- Not enough exercise
- Smoking
- Drinking too much alcohol
- Taking certain medications such as:
 - Steroids
 - Some anticonvulsants
 - Certain cancer treatments
 - Antacids that have aluminum if taken for a long time
- Long-term health issues of the kidneys, lungs, stomach or intestines and those that alter hormone levels

Osteoporosis can be prevented and treated. To keep your bones strong, follow these 5 steps:

1. Eat a Diet Rich in Calcium and Vitamin D

We need calcium for strong bones. It is found in:

- Low-fat dairy such as milk, yogurt and cheese
- Dark green, leafy vegetables such as broccoli
- Dried figs and dry roasted almonds
- Foods and drinks with extra calcium added (fortified) such as orange juice, cereals and breads

Some people take calcium supplements when calcium intake from food is low. The total amount of calcium intake should be 1000-1200 mg.

Vitamin D helps the body take in and use calcium. Vitamin D is made when the skin is exposed to sunlight. Many people get enough vitamin D by being in sunlight for about 15 minutes a day. Those who may need to take in extra vitamin D:

- Don't get outside much
- Have little sun exposure because of weather
- Use sun protection to prevent skin cancer
- Are older

To learn more about foods and their nutritional value, visit the USDA Food and Nutrition Center's Nutrient Data Laboratory at <https://www.nal.usda.gov/legacy/fnic/usda-nutrient-data-laboratory>

2. Exercise

Bone is living tissue, so exercise makes bone stronger. Weight-bearing exercise can help your bones stay strong. These exercises are:

- Walking
- Jogging
- Climbing stairs
- Weight training
- Dancing
- Racquet sports
- Low impact aerobics

Regular exercise can also help keep your joints able to bend and improve your balance. This makes it less likely that you will fall and break a bone.

These exercises will help you to balance better and lower your chance of falling.

Exercise A

1. Stand facing a counter or the back of a sturdy chair.
2. Hold on to the counter top or chair.
3. Stand on one leg for 1 minute.
4. Then stand on the other leg for 1 minute.
5. Repeat 10 times.

Exercise B

1. Stand facing a counter or the back of a sturdy chair.
2. Hold on to the counter top or chair.
3. Rock up onto your toes and count to 10.
4. Roll back onto your heels and count to 10.
5. Repeat 10 times.

As your balance gets better, try not using the counter or chair as much to help you balance.

Level 1: Hold on with both hands.

Level 2: Hold on with one hand only.

Level 3: Hold on with one fingertip only.

Level 4: Keep both hands 2 in. above a chair or table.

Level 5: Close your eyes and keep both hands 2 inches above a chair or table.

3. Have a Healthy Lifestyle

Smoking is bad for every organ in the body, including the bones. Women who smoke tend to go through menopause earlier than those who do not smoke. With menopause, the level of estrogen drops. Estrogen is a hormone that helps the body to keep bone. Smokers may also take in less calcium from their diets.

Drinking too much alcohol can also be bad for bone health. Keep alcohol to less than 3 drinks a day. People who drink heavily are more likely to have poor eating habits, which leads to bone loss. They are also at greater risk of falling and breaking a bone.

4. Talk to Your Doctor

Talk to your doctor about bone health. Ask if you should take extra calcium and vitamin D, or if you should do other things to treat osteoporosis.

If you have been told you have osteoporosis, talk to your doctor before starting any exercise program. You may need to avoid twisting motions and impact actions.

There are medications that can help treat osteoporosis. They either slow or stop bone loss, rebuild bone, or lessen your chances of breaking a bone. Talk to your doctor about treatment choices for thinning bones.

5. Get Tested

A bone mineral density (BMD) test measures the density of your bones. Knowing your bone strength can help your doctor suggest ways to stop more bone loss.

The best type of BMD is a DEXA. It measures the bone density in your hip, spine or total body. This test can tell if a person has low bone density, find out how likely the person is to break a bone in the future and help decide if treatment is needed.

Your doctor may suggest you have a BMD if you are:

- A woman age 65 or older, even without any risk factors
- A man age 70 or older, even without any risk factors
- A postmenopausal woman under age 65 with risk factors for osteoporosis
- A man age 50-69 with risk factors for osteoporosis
- A person over age 50 who has broken a bone as an adult

You may also need a BMD if you break a bone or have symptoms of loss of bone mass or have other risk factors for osteoporosis.

The result of your BMD test is called a T-score. Your T-score compares your bone mass with a group of normal young adults. The bigger the negative number, the lower your bone mass. A T-score of -1.0 is lower than a T-score of -0.5. A T-score of -3.5 is lower than a T-score of -3.0.

If your T-score is -1.0 or below, you may be offered treatment choices that help reverse bone loss. The National Osteoporosis Foundation suggests treatment if your T-score is:

- -1.0 or lower, you have other risk factors and your overall risk of fracture is high
- -2.5 or lower with or without risk factors

When BMD tests are done a year or more apart, the results can be compared to look for changes in bone density.



T-score

Normal: Higher than -1.0

Low Bone Density: Between -1 and -2.5

Osteoporosis: -2.5 and lower

Resources for More Information

Bone Health & Osteoporosis Foundation

251 18th Street S
Suite 630
Arlington, VA, 22202

1(800) 231-4222

Email: info@bonehealthandosteoporosis.org

Website: <https://www.bonehealthandosteoporosis.org>

NIH Osteoporosis and Related Bone Diseases ~ National Resource Center

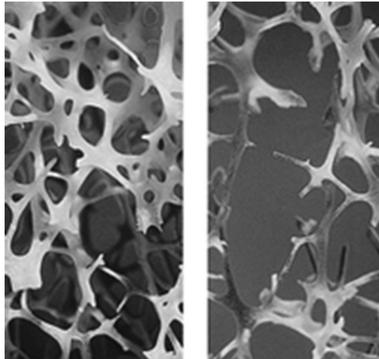
2 AMS Circle
Bethesda, MD 20892-3676

Toll Free: (800) 624-BONE (2663)

Email: NIHBoneInfo@mail.nih.gov

Website: bones.nih.gov

Normal Bone
Structure



Osteoporotic
Bone Structure

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