

Osteoporosis

What is osteoporosis?

Osteoporosis is a condition in which bones become thin, brittle, and weak.

How do bones change throughout life?

Once made, bone is always changing. From childhood until age 30 years, bone is formed faster than it is broken down. The bones become larger and more dense. After age 30 years, bone is broken down faster than it is made. A small amount of bone loss after age 35 years is normal in all women and men. However, too much bone loss can result in osteoporosis.

How does osteoporosis cause bone to change?

In someone with osteoporosis, the bones are still the same size, but the outside walls of compact bone become thinner, and the holes in spongy bone become larger. These changes greatly weaken the bone.

What are some signs and symptoms of osteoporosis?

Symptoms are back pain or tenderness. Signs include a loss of height more than what is normal for your age group, and a slight curving of the upper back. As the spinal bones weaken, they slowly collapse under the weight of the upper body. This causes a curving of the spine—often called a "dowager's hump."

What factors increase the risk of osteoporosis?

The following factors can increase the risk of fractures caused by osteoporosis:

- Personal history of fracture
- Family history of osteoporosis
- Caucasian race
- Dementia
- Poor nutrition
- Low body weight
- Early **menopause** (younger than 45 years)
- Removal of **ovaries**
- Prolonged **amenorrhea** before menopause (more than 1 year)
- Diet low in **calcium** (lifelong)
- History of falls
- Lack of exercise
- Alcoholism

- Vision problems
- Certain medications

How can osteoporosis be prevented?

Exercise increases bone mass before menopause and slows bone loss after menopause. Just as muscles become stronger with regular exercise, so do bones. Bones are strengthened by having the muscles pull on them.

Calcium slows the rate of bone loss. If the amount of calcium in the bloodstream is too low, it will be taken from the bones to supply the rest of the body. Women aged 51 years and older need 1,200 mg of calcium per day. The National Institutes of Health recommends 1,500 mg of calcium per day for postmenopausal women who do not take *hormone therapy* and all women older than 65 years.

Good sources of calcium are dairy products, such as milk and yogurt. Other sources are leafy green vegetables, nuts, seafood, and juices and cereals that are fortified with calcium. You may need to take calcium supplements. Be aware, however, that your body can only absorb about 500 mg of calcium at one time. If you take more, try to divide it into two doses.

What is a bone mineral density test?

A bone mineral density test measures bone mass in the heel, spine, hip, hand, or wrist. Measuring one area can give your health care provider a sense of your bone density in other parts of your skeleton. A bone density test can help detect problems before a fracture occurs.

Who should have a bone mineral density test?

All women aged 65 years and older or younger women who have had a bone fracture should be tested for bone mineral density no more than every 2 years. Testing also may be suggested for postmenopausal women younger than 65 years who have one or more risk factors for osteoporosis.

How is a bone mineral density test performed?

The devices used for the tests vary, but all involve X-rays or beams from other energy sources. The tests can take as little as 1 minute or as much as 40 minutes.

What treatment is available for osteoporosis?

Bisphosphonates are used to slow bone breakdown. To treat osteoporosis, they are used to help increase bone density and reduce the risk of fractures. Although rare, side effects may include nausea, stomach pain, and digestive problems.

Raloxifene is a type of selective *estrogen* receptor modulator (SERM) that helps strengthen the tissues of the bones. Selective estrogen receptor modulators may be a good choice for women who need protection from osteoporosis but cannot or do not want to take hormone therapy. However, it only protects bones for as long as you use it.

Another medication used to slow the breaking down of bone is called calcitonin. It can be given by injection or nasal spray. Parathyroid hormone also may be used to increase bone density and reduce the risk of fractures.

Glossary

Amenorrhea: The absence of menstrual periods.

Calcium: A mineral stored in bone that gives it hardness.

Estrogen: A female hormone produced in the ovaries that stimulates the growth of the lining of the uterus.

Hormone Therapy: Treatment in which estrogen, and often progestin, is taken to relieve the symptoms and changes caused by the low levels of hormones produced by the body.

Menopause: The time in a woman's life when ovaries stop functioning and menstruation stops.

Ovaries: Two glands, located on either side of the uterus, that contain the eggs released at ovulation and produce hormones.

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