

# Osteoporosis

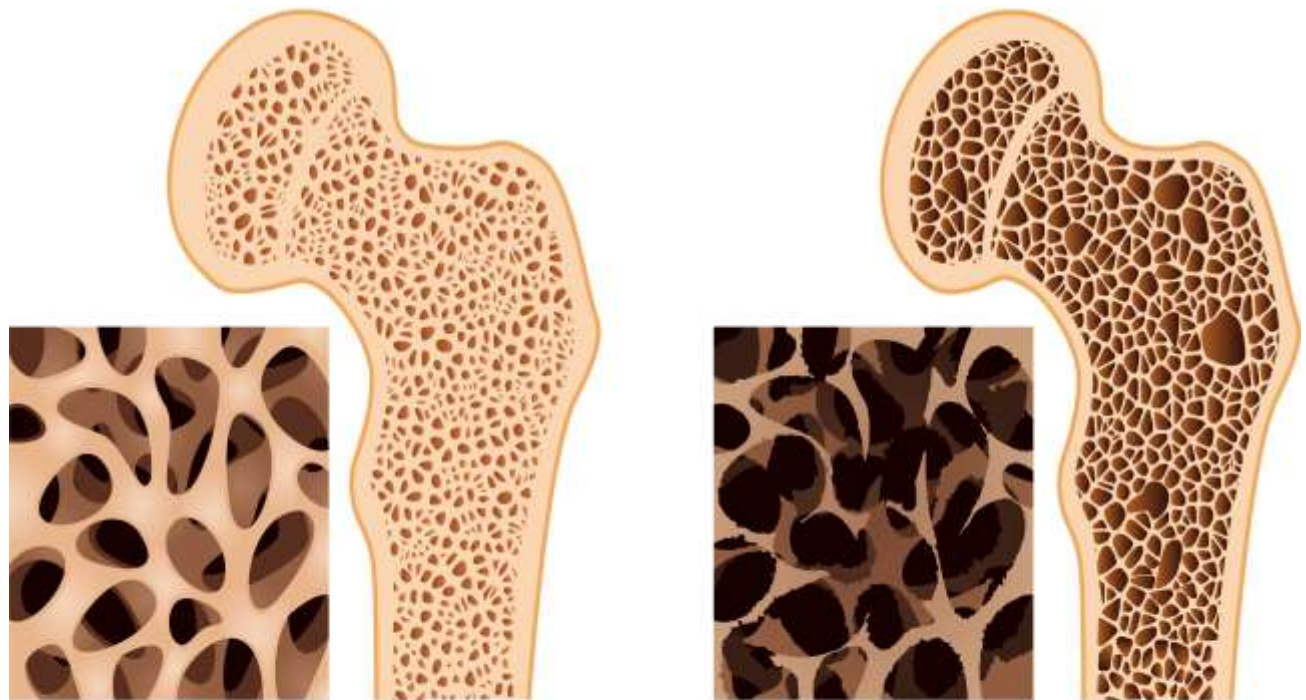
## Definition

Osteoporosis causes bones to become weak and brittle — so brittle that a fall or even mild stresses like bending over or coughing can cause a fracture. Osteoporosis-related fractures most commonly occur in the hip, wrist or spine.

Bone is living tissue that is constantly being broken down and replaced. Osteoporosis occurs when the creation of new bone doesn't keep up with the removal of old bone.

Osteoporosis affects men and women of all races. But white and Asian women — especially older women who are past menopause — are at highest risk. Medications, healthy diet and weight-bearing exercise can help prevent bone loss or strengthen already weak bones.

## Osteoporosis



Healthy bone

Osteoporosis

## Symptoms

There typically are no symptoms in the early stages of bone loss. But once bones have been weakened by osteoporosis, you may have signs and symptoms that include:

- Back pain, caused by a fractured or collapsed vertebra
- Loss of height over time
- A stooped posture
- A bone fracture that occurs much more easily than expected

## Causes

Your bones are in a constant state of renewal — new bone is made and old bone is broken down. When you're young, your body makes new bone faster than it breaks down old bone and your bone mass increases. Most people reach their peak bone mass by their early 20s. As people age, bone mass is lost faster than it's created.

How likely you are to develop osteoporosis depends partly on how much bone mass you attained in your youth. The higher your peak bone mass, the more bone you have "in the bank" and the less likely you are to develop osteoporosis as you age.

## Treatments and drugs

Treatment recommendations are based on an estimate of your risk of breaking a bone in the next 10 years using information such as the bone density test. If the risk is not high, treatment might not include medication and might focus instead on lifestyle, safety and modifying risk factors for bone loss.

For both men and women at increased risk of fracture, the most widely prescribed osteoporosis medications are bisphosphonates. Examples include:

- Alendronate (Fosamax)
- Risedronate (Actonel, Atelvia)
- Ibandronate (Boniva)
- Zoledronic acid (Reclast)

Side effects include nausea, abdominal pain, difficulty swallowing, and the risk of an inflamed esophagus or esophageal ulcers. These are less likely to occur if the medicine is taken properly. Intravenous forms of bisphosphonates don't cause stomach upset. And it may be easier to schedule a quarterly or yearly injection than to remember to take a weekly or monthly pill, but it can be more costly to do so.

Using bisphosphonate therapy for more than five years has been linked to a rare problem in which the middle of the thighbone cracks and might even break completely. Bisphosphonates also have the potential to affect the jawbone. Osteonecrosis of the jaw is a rare condition that can occur after a tooth extraction in which a section of jawbone dies and deteriorates. You should have a recent dental examination before starting bisphosphonates.

## Hormone-related therapy

Estrogen, especially when started soon after menopause, can help maintain bone density. However, estrogen therapy can increase a woman's risk of blood clots, endometrial cancer, breast cancer and possibly heart disease. Therefore, estrogen is typically used for bone health only if menopausal symptoms also require treatment.

Raloxifene (Evista) mimics estrogen's beneficial effects on bone density in postmenopausal women, without some of the risks associated with estrogen. Taking this drug may also reduce the risk of some types of breast cancer. Hot flashes are a common side effect. Raloxifene also may increase your risk of blood clots.

In men, osteoporosis may be linked with a gradual age-related decline in testosterone levels. Testosterone replacement therapy can help increase bone density, but osteoporosis medications have been better studied in men with osteoporosis and are recommended alone or in addition to testosterone.

## Other osteoporosis medications

If you can't tolerate the more common treatments for osteoporosis — or if they don't work well enough — your doctor might suggest trying:

- **Denosumab (Prolia).** Compared with bisphosphonates, denosumab produces similar or better bone density results and reduces the chance of all types of fractures. Denosumab is delivered via a shot under the skin every six months. The most common side effects are back and muscle pain.
- **Teriparatide (Forteo).** This powerful drug is similar to parathyroid hormone and stimulates new bone growth. It's given by injection under the skin. After two years of

treatment with teriparatide, another osteoporosis drug is taken to maintain the new bone growth. This drug is reserved for patients with severe osteoporosis.

## Prevention

Three factors essential for keeping your bones healthy throughout your life are:

- Adequate amounts of calcium
- Adequate amounts of vitamin D
- Regular exercise

## Calcium

Men and women between the ages of 18 and 50 need 1,000 milligrams of calcium a day. This daily amount increases to 1,200 milligrams when women turn 50 and men turn 70. Good sources of calcium include:

- Low-fat dairy products (200 to 300 milligrams per serving)
- Dark green leafy vegetables
- Canned salmon or sardines with bones
- Soy products, such as tofu
- Calcium-fortified cereals and orange juice

If you find it difficult to get enough calcium from your diet, consider taking calcium supplements. However, too much calcium has been linked to heart problems and kidney stones. The Institute of Medicine recommends that total calcium intake, from supplements and diet combined, should be no more than 2,000 milligrams daily for people older than 50.

## Vitamin D

Vitamin D improves your body's ability to absorb calcium. Many people get adequate amounts of vitamin D from sunlight, but this may not be a good source if you live in high latitudes, if you're housebound, or if you regularly use sunscreen or avoid the sun entirely because of the risk of skin cancer.

Scientists don't yet know the optimal daily dose of vitamin D. A good starting point for adults is 600 to 800 international units (IU) a day, through food or supplements. If your blood levels of vitamin D are low, your doctor may suggest higher doses. Teens and adults can safely take up to 4,000 international units (IU) a day.

## Exercise

Exercise can help you build strong bones and slow bone loss. Exercise will benefit your bones no matter when you start, but you'll gain the most benefits if you start exercising regularly when you're young and continue to exercise throughout your life.

Combine strength training exercises with weight-bearing exercises. Strength training helps strengthen muscles and bones in your arms and upper spine, and weight-bearing exercises — such as walking, jogging, running, stair climbing, skipping rope, skiing and impact-producing sports — affect mainly the bones in your legs, hips and lower spine.

Swimming, cycling and exercising on machines such as elliptical trainers can provide a good cardiovascular workout, but because such exercises are low impact, they're not as helpful for improving bone health as weight-bearing exercises are. There is evidence that competitive cyclists have reduced bone mineral density. They should combine strength training and weight-bearing exercises and consider a test for osteoporosis.