

Osteoporosis

Osteoporosis weakens the bones when there is a loss in bone mass. This makes them more likely to break (fracture). Osteopenia is the beginning of weakening of the bones. It precedes osteoporosis. Your body increases bone mass as you age, until around the age of 35. Building strong bones, especially before the age of 35, can be the best defense against developing osteoporosis. A healthy lifestyle is also important for keeping bones strong to prevent osteoporosis.

Osteoporosis is often called the “silent disease” because bone loss occurs without symptoms. People may not know they have osteoporosis until their bones become so weak that a sudden strain, bump, or fall causes a fracture. These are called fragility fractures.

Osteoporosis can affect any bone in the body, but fractures occur most often in the hip, wrist, and spine. A fracture in the spine may cause severe back pain, loss of height or spinal deformities such as stooped posture or dowager’s hump.

Who develops osteoporosis?

Some people are more likely to develop osteoporosis than others. Factors that increase the chance of developing osteoporosis are called “risk factors.”

Risk factors or causes of osteoporosis include:

- Being female
- Having a thin and/or small frame
- Getting older
- Having a family member with osteoporosis
- Leading an inactive lifestyle
- Eating a diet low in calcium and vitamin D
- Using alcohol on a regular basis
- Smoking tobacco
- Going through menopause
- Low testosterone levels (in men)



- Being of Caucasian or Asian ancestry, although African Americans and Hispanic Americans are at risk as well
- Using certain medicines, such as corticosteroids and anti-seizure medications
- Having a medical condition that impairs calcium absorption such as disorders of the stomach and intestines, liver or kidney disease.

How Is Osteoporosis Diagnosed?

The first step in diagnosing osteoporosis is a good evaluation. Your health care provider will complete a detailed medical history and physical exam. Your health care provider may ask questions to assess your risk of developing osteoporosis. This may include a history of fragility fractures. These are fractures that occur without a major trauma. Part of an evaluation may also include a specialized X-ray test called bone densitometry (DEXA), or bone density test, which can:

- Detect osteoporosis before a fracture occurs
- Predict your chances of fracturing in the future
- Determine your rate of bone loss and/or monitor the effects of treatment

A bone density test is a type of X-ray. During the test, images are taken of your lower back (spine), hip and forearm. A bone density test will show how dense these bones are. When a person has osteoporosis, the bone is not as dense, and therefore weaker than it should be. A bone density test can help determine a diagnosis early, before a person has a bone fracture and can help determine the effects of treatment.

During the bone density test you will lie on an imaging table. The bone density machine will scan your lower back, hip and forearm. You/your child will need to hold still during each scan.

Your doctor also may order a urine test to detect calcium loss or markers of bone resorption (the loss of bone through deterioration).

How Can You Prevent and Treat Osteoporosis?

Building strong bones, especially before the age of 35, can be the best defense against developing osteoporosis. A healthy lifestyle is also important for keeping bones strong to prevent osteoporosis.

Here are five tips to help prevent and treat osteoporosis:

Exercise.

Exercise that forces you to work against gravity — weight-bearing exercise such as brisk walking or jogging — helps prevent osteoporosis. It is important for the exercises performed to be gravity-dependent. Exercise in the water and bicycle exercise are beneficial for the cardiovascular (heart) system, but because they are gravity-lessened exercises, there will not be as much benefit to bone density. Land-based weight-bearing exercise provides the most benefit to preventing osteoporosis. Safe and effective weight-bearing exercises include walking, hiking and stair climbing. High-impact exercise such as running/jogging, high-impact aerobics and jumping rope can be very beneficial, however, it is important to discuss with your doctor or physical therapist if high-impact aerobics/exercise is safe for you. The benefits of exercise last only as long as you keep exercising.

Strength training using resistance (weights, machines, elastic bands) is also important for bone and

muscle health. Increased strength training can increase or maintain bone density due to the forces that act on the bone when a muscle is actively challenged with resistance. Types of exercises for resistance training include free weights, weight machines and resistance bands.

Posture is very important in prevention of spinal fractures and is important for maintaining function and improving back pain. It is important to maintain upright posture when performing strength exercises. Avoiding bending and twisting when accomplishing tasks such as picking items off the floor, tying shoes, doing laundry and transfer from one surface to another is very important in preventing fractures, falls and back pain. Speak to a physical therapist to assist in guiding correct form and posture during exercises and when completing activities of daily living.

Performing balance training is important to decrease fall risk. Your doctor or physical therapist may prescribe specific balance exercises for you that can safely be done at home to increase balance during standing, transfers and walking.

Talk with your health care provider or ask for a referral to a physical therapist to learn what type of exercise you can do safely, not only to preserve bone and prevent osteoporosis, but also to strengthen your back and hips, maintain flexibility and reduce the risk of falling.

Eat a balanced diet rich in calcium and vitamin D.

Calcium is important for all age groups to help build healthy, strong bones throughout life. To make sure that a lack of calcium is not weakening your bones, eat foods rich in calcium. These include dairy products and dark leafy and green vegetables. Adults need between 1,000 and 1,200 mg of calcium and 600 to 800IU of vitamin D each day. The average American diet, including dairy products, contains only 600 mg of calcium each day. A child's requirement for calcium and vitamin D varies with age. Check with your child's doctor for requirements.

Limit preformed vitamin A (retinol).

It's best to get vitamin A from food instead of dietary supplements. Retinol is a form of preformed vitamin A in supplements. High intakes of retinol may lead to decreased bone density and increased risk of bone fracture. Limit your intake of preformed vitamin A to less than 2,000 IU per day.

Limit alcohol intake.

The seriousness of alcohol's effect on osteoporosis depends on how much and how often you drink alcohol.

Stop smoking.

Smoking can lead to osteoporosis. There are multiple reasons to quit smoking, including increasing your risk of osteoporosis.

Use appropriate supplements.

Take calcium and vitamin D supplements as recommended by your health care provider.

Use of medications.

If you have been diagnosed with osteoporosis, your health care provider may recommend you take

calcium and vitamin D supplements and/or appropriate medications in addition to several lifestyle changes. If the osteoporosis is too severe to rely only on calcium supplements and/or diet changes, your doctor may prescribe one of the following medications:

- Bisphosphonates
 - Fosamax[®] (alendronate)
 - Actonel[®] (risedronate)
 - Didronel[®] (etidronate)
 - Aredia[®] (pamidronate)
 - Boniva[®] (ibandronate)
 - Reclast[®] (zoledronic acid)

- Forteo[®] (teriparatide)
- Prolia[®] (denosumab)

New medicines are continually being developed to treat osteoporosis.

Osteoporosis is a very treatable disease and your health care provider can make recommendations that will improve your bone mineral density and reduce risk of fractures.

The National Osteoporosis Foundation (NOF) is a leading resource for patients, health care professionals, and organizations seeking up-to-date, medically sound information on the causes, prevention, diagnosis, and treatment of osteoporosis. You may contact the NOF if you would like more information about osteoporosis.

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Visit our website for more information about support groups, clinical trials and lifestyle information.

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