

What is Osteoporosis?

Osteoporosis means “porus bone” or is also known as a bone disease that is a mesh-like structure inside the bone that becomes damaged. The bone structure may be thin if either too much bone tissue has been lost or if not enough bone tissue has been made. When the internal strands become too thin (lose density), the bones become weak and can fracture easily.

Bone Quality + Bone Density = Bone Strength

When a bone with **osteoporosis** is broken, it is called a “**fragility fracture**.” Though fragility fractures can occur anywhere in the body, the most common occurrences are:

- Wrist fractures
- Hip fractures
- Spine fractures



Normal Bone

Osteoporotic bone
(Risk for fractures)

Your Bones

BONES ARE CONTINUALLY CHANGING:

Your bones are not like the dry white bones you see in skeletons at Halloween, they are more complex. Bones are made up of living tissue; every cell in your bones is alive, and they are continually changing. Old dead cells are carried away and replaced by new healthy cells. The cells that carry old bone away are called osteoclasts. The cells that replace old bone with new are called osteoblasts.

HOW AGING AFFECTS CHANGE:

Throughout life, bones constantly change through a process of absorption and formation changes, resulting in a loss of bone tissue. When you were a child, your bones grew rapidly. In fact, children only need about two years to completely replace their bone cells. Bones continue to grow in density through your late 20s. At that time, the amount of old cells removed and new healthy cells replacing them

were about the same. This keeps a healthy “bone bank account.” In your mid-30s, however, the removal and replacement of cells can begin to get out of balance. Unlike children, the adult body can take seven to ten years to replace all bone cells. As you continue to age, your body becomes less capable of replacing the cells that were lost, and thus the bones become thinner. Bone loss is normal, and not everyone will develop osteoporosis. If you have osteoporosis, you have a negative bone balance in your bone bank account.

DID YOU KNOW?

The interior of your bones are made up of bone fibers that crisscross each other in layers. The fibers are precisely aligned to carry the forces of tension and compression. This allows your bones to be both lightweight and strong. When architect Gustave Eiffel was looking for a way to make his famous tower both strong and lightweight, he modeled it after the structure of the human femur (thigh bone).



Long-term Effects of Osteoporosis

Have you lost height since your 20s?



Fragility Fractures:

The most common result of having osteoporosis is a fragility fracture. More than 1.5 million people suffer a fragility fracture each year. The severity of the fracture depends on where it is located, the most common locations being the wrist, spine, and hip.

Spinal Curvature:

Even if a fracture does not occur, the spinal bones (vertebrae) may become weak and crush together. As this happens, the spine curves, which can result in back pain, height loss and difficulty breathing because there is less space under the ribs.

Loss of Mobility:

Osteoporotic bones take longer time to heal than healthy bones. Fragility fractures can have a dramatic effect on your quality of life. With time, medication and physical therapy, patients can often regain bone strength.

Factors Affecting Osteoporosis

The following can increase your risk of developing osteoporosis:

Age:

The older you get, the greater the risk. Your bone density peaks around age 30. After that you begin to lose bone mass. So it is important to do strength training and weight-bearing exercises and make sure you get enough calcium and vitamin D in your diet, to keep your bones as strong as possible as you get older.

Gender:

Women over the age of 50 are the most likely to develop osteoporosis. The condition is 4 times more likely in women than men. One out of two women and one out of four men are likely to develop osteoporosis. In women, estrogen loss occurs primarily during and after menopause; in men, testosterone loss occurs gradually, another reason a diet rich in calcium and vitamin D becomes particularly important during these years.

Ethnicity:

Research has showed that Caucasian and Asian women are more likely to develop osteoporosis.

Family History:

Your parents or grandparents had osteoporosis or have had a hip fracture.

Lifestyle:

You have an inactive lifestyle.

Frame Size:

Petite and thin women have a greater chance in developing osteoporosis, because they have less bone to lose than women with more body weight and larger frames. Similarly, small-boned, thin men are at greater risk than men with larger frames and more body weight.

Diet:

When not consuming enough calcium and vitamin D.

Certain diseases or medical conditions:

Some diseases such as rheumatoid arthritis, type 1 diabetes, and inflammatory bowel disease raise the odds that you'll get osteoporosis. If you develop a eating disorder such as: Anorexia or bulimia. If you take prednisone a long time it can increase your odds.

Smoking:

Research has shown a direct relationship between tobacco use and decreased bone density.

In addition, most studies on the effects of smoking suggest that smoking increases the risk of having fracture.

Smoking and Osteoporosis:

- The longer you smoke and the more cigarettes you consume, the greater your risk of fracture in old age.
- Smokers who fracture may take longer to heal than nonsmokers and may experience more complications during the healing process.
- At least one study suggests that exposure to secondhand smoke during youth and early adulthood may increase the risk of developing low bone mass.
- Significant bone loss has been found in older women and men who smoke.
- Compared with non-smokers, women who smoke often produce less estrogen and tend to experience menopause earlier, which may lead to increased bone loss.
- Quitting smoking appears to reduce the risk of low bone mass and fractures. However, it may take several years to reduce a former smoker's risk.

Prevention

With Osteoporosis, the best defense is a strong offense:
Healthy Diet and Exercise!!

Diet and Nutrition

Nutrition and osteoporosis are closely linked. Two key nutrients in preventing osteoporosis are calcium and vitamin D. Calcium is a key building block for your bones, while vitamin D allows your bones to absorb the calcium.

Calcium

Dairy products, such as milk, yogurt and cheese, are all good choices for adding calcium to your diet, but other foods are rich in calcium as well.

- Fortified juices, cereals and oatmeal
- Salmon and Sardines with bones
- Beans and legumes
- Certain nuts, such as almonds
- Dark leafy greens such as broccoli and bok choy

Exercise

The amount of exercise your bones can handle will vary from person to person. Check with your health care provider before beginning any exercise regimen! Please read the attached “Moving Safely” guidelines from the National Osteoporosis Foundation.

Dental Care

It is imperative that you let your dentist know if you are on any osteoporosis medications. Some medications that prevent bone loss may negatively affect healing after certain dental procedures. You and your dentist will want to discuss options based on your medications.



Vitamin D

- Fish, such as salmon, tuna and herring
- Milk and yogurt—regardless of whether it’s whole, nonfat, or reduced fat/fortified with Vitamin D.



Advice and Safety Tips

When your loved one or friend has osteoporosis, you can help.

- By becoming more knowledgeable about osteoporosis, you may actually be helping yourself. Heredity is one of the risk factors of the disease, and by accompanying your family member or loved one, may give you important information about how to avoid fragility fractures in your future.

Fall Prevention Indoors

- Keep walkways clear of cords, clutter, etc.
- Place items within easy reach.
- For items out of reach, use a long-handled grabber.
- For items in high place, use a step stool with hand rails.
- Use non-skid rubber backing on area rugs, bathroom rugs and shower mats.
- Place hand rails or grab bars in the shower and by the toilet.

Fall Prevention Outdoors

- Use handrails when going up and down stairs
- Walk on grass if walkways look slippery.
- Wear boots in the winter and low-heeled shoes. Shoes with rubber soles provide better traction.
- Use an assistive device like a walker or cane, as needed.
- If possible, come to the initial appointment. This will help

you better understand osteoporosis, the different treatment options and how you can help.

- Help your family member or friends by providing accountability regarding medication, exercise, and diet.
- Help your family member or friends avoid falls
- Place and use hand rails on both sides of all stairways
- On hardwood or uncarpeted floors, avoid using slippery wax.
- Wear only shoes with non-skid soles.
- Use only shower/tub seats with non-skid legs.
- At night, turn on the lights. Place a night light between your bed and the light switch
- Keep your phone with you at all times in case you need help.
- Keep your hands free by wearing shoulder bag, fanny pack or backpack.
- Keep walkways, porches and driveways free of leaves, snow, trash and clutter.
- In public, watch out for polished marble or tile floors may be slippery
- **More tips, visit National Osteoporosis Foundation website www.nof.org**

Physical Exam, Lab Work and Bone Screening

To understand your current bone health, your provider will use combination of the following methods:

Medical History

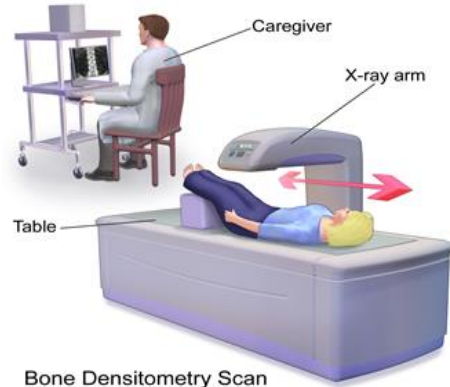
Your provider will ask you questions in order to obtain a thorough and accurate medical history. In particular, you will be asked questions relating to any personal history of fracture, family history of fracture and other risk factors for osteoporosis. It is important to let your provider know the medications you have been taking during the last 10 years because some are known to increase an individual's risk for low bone mass and fractures.

Physical Exam

Your provider will give you a limited physical exam with emphasis on the spine. Many fragility fractures go unnoticed by patients. Loss of height is sometimes an excellent marker for the presence of vertebral fragility fractures.

Laboratory Tests

Some lab tests are specific to bone health. We will check your medical records to see if any of these have been performed in the last six months. If so, we will not repeat the tests. If not, we will need to perform the lab work. The lab tests can include a blood calcium, vitamin D levels, parathyroid hormone, and thyroid tests.



Bone Densitometry Scan

X-ray

An x-ray can help the provider determine if you have any fragility fractures of the spine.

Bone Density

The bone mineral density test is the primary test used to identify osteoporosis and low bone mass. If the above tests indicate loss of bone density, we will make arrangements for you to have this done if one has not been done in the past year. This helps the provider confirm diagnosis of osteoporosis and documents the severity of bone loss.

With most types of bone density test, a person remains fully dressed. The test usually takes less than 15 minutes. Bone density tests are non-invasive and painless. A central DXA uses very little radiation. You are actually exposed to 10 to 15 times more radiation when you fly roundtrip between New York and San Francisco.

Key Points for Forteo

- Forteo must be refrigerated.
- This is a simple Sub Q injection with preloaded pen that delivers a controlled dose.
- Treatment is 24months long.
- One pen has 28 doses.
- There are few side effects some people reported light headedness after giving injection for first few doses. (none of our patients have reported this)
- We keep track of missed doses more than 2 or 3 missed days, so that we can add these days to the end of treatment. So that the patient receives a full 24 months of treatment.
- There are no adverse reactions for missed doses.
- When giving the injection it is normal to have a drop at the end of the needle after removing from tissue.