

**WHAT YOU SHOULD KNOW:**

Osteoporosis is the leading cause of fractures in older adults, particularly women over the age of 50. In the United States alone, an estimated 1.5 million fractures occur each year as a result of osteoporosis. Osteoporosis, or “porous bone,” is a decrease in bone mass and structure that makes your bones weaker and more likely to break.

Osteoporosis prevention is a lifelong project. You can take steps to keep your bones strong. These include eating a healthy diet with adequate calcium and vitamin D, as well as doing regular, weight-bearing exercises. If you smoke, take steps to quit. Use alcohol in moderation. These lifestyle changes can go a long way in keeping your bones strong and, in turn, decrease your risk of fracture.

This handout gives you information about osteoporosis, screening tests and some treatment options. Talk to your doctor if you have specific concerns or questions about osteoporosis.

BONE LOSS:

Bone loss is a normal part of aging. Scientists are not sure why some people lose more bone than others or lose bone at a faster rate. As women approach menopause, the drop in their estrogen levels increases the rate of bone loss.

RISK FACTORS:

Recognizing the risk factors for osteoporosis is important because you may be able to prevent it from occurring or slow down the loss of bone.

Risk factors that cannot be changed:

- *Being female*
- *Thin or small frame*
- *Advanced age*
- *Family (parent or sibling) history of fracture with minor trauma*

Risk factors that can be changed:

- *Diet low in calcium and vitamin D*
- *Use of certain medications, such as corticosteroids or some anticonvulsants*
- *Inactivity*
- *Cigarette smoking*
- *Excessive use of alcohol*
- *Low weight and body mass index (BMI)*
- *Weak thigh or hip muscles*



TESTING FOR OSTEOPOROSIS:

Osteoporosis can be diagnosed by having your bone mass measured. Bone mineral density (BMD) tests measure bone density mass in the spine, hip and wrist. The most common test is called dual energy X-ray absorptometry (DXA). It is safe and painless.

In addition to diagnosing osteoporosis, a BMD test can:

- detect low bone density before a fracture occurs
- estimate your chances of bone fracture in the future
- determine your rate of bone loss
- monitor the effects of medication

In some cases, a BMD test may not be necessary. For most women, BMD tests are not needed until after menopause. Insurance usually covers the cost. Talk to your doctor about whether the test is right for you.

PREVENTING OSTEOPOROSIS:**Calcium**

An adequate supply of calcium over your lifetime is thought to play an important role in preventing osteoporosis. Many scientific studies show that low intake of calcium over a lifetime is related to low bone mass, rapid bone loss and high fracture rates.

Good sources of calcium include dairy products (preferably low fat), such as milk, yogurt and cheese, and fish with bones, such as sardines or salmon. There are also many calcium-fortified foods to help provide the calcium you need.

If you cannot tolerate dairy products or get enough calcium from the foods you eat, you may need to take a calcium supplement. Many types of calcium supplements are available over the counter. They are all effective.

Recommended daily calcium intakes for males and females

Birth to 6 months	400 mg
6 months to 1 year	600 mg
1 to 10 years	800 to 1,200 mg
11 to 24 years	1,200 to 1,500 mg
25 to 50 years	1,000 mg
51 to 70 years	1,200 mg
71 or more years	1,500 mg

If you have been diagnosed with osteoporosis or are taking steroid medication, you should take 1,500 mg of calcium daily. Split the 1,500 mg into several doses throughout the day, as the body cannot absorb more than 500 mg of calcium at a time. Ask your doctor for the handout entitled, Getting the Calcium You Need. It offers additional information on how to obtain adequate daily calcium.

Vitamin D

Vitamin D plays an important role in how your body absorbs calcium. Your body can make vitamin D through exposure to sunlight.

Many people are able to get adequate vitamin D from the sunlight and by eating vitamin-rich foods. However, vitamin D production decreases in the elderly and in people who are housebound during winter months.

For these people, a supplement may be necessary to ensure an adequate supply of vitamin D. Usual requirements are 400 to 800 IU (the amount found in most multivitamins) daily; however, the elderly may need 1,000 to 2,000 IU. Doses higher than 2,000 IU are not recommended unless prescribed by your doctor.

Exercise

Exercise improves bone density. It also increases muscle strength, coordination and balance. Any type of activity is good, but weight-bearing activities will help strengthen your bones the most. Usually, clinicians recommend walking, jogging and aerobics.

Smoking

Smoking is bad for your bones, as well as your heart and lungs. Women who smoke have lower levels of estrogen, which may result in early menopause. People who smoke may absorb less calcium from their diets.

Alcohol

Drinking more than two to three alcoholic drinks daily may damage bones. People who drink heavily are more prone to bone loss and fractures because of poor nutrition and increased risk of falling.

TREATMENT OF OSTEOPOROSIS:

Healthy diet with adequate calcium and vitamin D

A balanced diet, based on the food guide developed by the U.S. Department of Agriculture called "My-Pyramid," provides a variety of foods important to your health. Make sure you get enough calcium and vitamin D, either from the food you eat or supplements.

Exercise

Exercise improves your bone health and increases muscle strength, coordination and balance. It also

improves your overall health. Talk to your doctor about specific exercises you can do.

Medications

A number of medications are approved by the U.S. Food and Drug Administration for treating osteoporosis. These medications increase bone mass or density. Talk to your doctor about which one is right for you.

- Alendronate (Fosamax®) and risedronate (Actonel®) and ibandronate (Boniva®). These medications are the most effective agents for reducing bone loss, increasing bone density in the hip and spine and decreasing the risk of fractures due to osteoporosis. They also are effective for preventing and treating osteoporosis — in both men and women — caused by taking cortisone-related medications. If you cannot tolerate oral alendronate, risedronate or ibandronate, your doctor may recommend intravenous (IV) pamidronate (Aredia®), IV ibandronate once every three months or IV zoledronate (Reclast®) once a year. IV pamidronate and ibandronate can increase bone density, but have not been proven to reduce fractures.
- Raloxifene (Evista®). Raloxifene is a modified estrogen. It can increase bone mass and reduce fractures of the spine.
- Calcitonin. Calcitonin is a naturally occurring hormone involved in calcium regulation and bone metabolism. It can be taken as a nasal spray or an injection. Calcitonin may reduce the risk of spinal fractures.
- Estrogen. Estrogen replacement therapy reduces bone loss, increases bone density in the hip and spine and reduces the risk of fractures in postmenopausal women. Estrogen may increase the risk of breast cancer and heart disease in some women.
- Teriparatide (Forteo®). Teriparatide is a hormone taken as a daily injection. It is very effective in building bone density and reducing spinal and other fractures. Because it is expensive, it generally is used for those who have severe osteoporosis or already have had a fragility fracture of the hip or spine.

ADDITIONAL RESOURCES:

- National Institutes of Health Osteoporosis and Related Bone Diseases National Resource Center www.osteoporosis.gov
- National Osteoporosis Foundation www.nof.org

This handout is based on guidelines developed by a team of health care experts at Park Nicollet Clinic and Methodist Hospital. It will be reviewed and updated regularly as scientific evidence changes. This material is for informational purposes only and is not intended to be a substitute for professional medical advice, diagnosis or treatment. Information courtesy of Park Nicollet Institute.

