



Once Is Enough: A Guide to Preventing Future Fractures

So, you've broken a bone. Only those who have experienced a fracture can truly understand how painful and debilitating it can be. Recovering from the fracture should be your first priority. However, you and your doctor will also want to determine whether this fracture is a symptom of an underlying disorder, osteoporosis, that puts you at greater risk for future fractures. ***If you are over age 50, there is a very good chance your fracture is related to osteoporosis.*** This fact sheet will help you better understand the relationship between fracture and osteoporosis, so you can take action **now** to strengthen and protect your bones.

Many people are unaware of the link between a broken bone and osteoporosis. Osteoporosis, or "porous bone," is a disease characterized by low bone mass that makes bones fragile and more prone to fractures, especially of the hip, spine and wrist. Osteoporosis is called a "silent disease" because bone loss occurs without symptoms. People typically do not know that they have osteoporosis until their bones become so weak that a sudden strain, twist or fall results in a fracture.

Osteoporosis is a major public health threat for an estimated 44 million Americans. In the U.S. today, approximately 10 million people already have the disease and almost 34 million more are believed to have low bone mass, which leaves them at increased risk for osteoporosis. Of the 10 million Americans estimated to have osteoporosis, eight million are women and two million are men.

One in two women and one in four men will have an osteoporosis-related fracture in their lifetime. The National Osteoporosis Foundation estimates that at least 90 percent of all hip and spine fractures among older white women can be attributed to osteoporosis. Moreover, women

near or past menopause who have sustained a fracture in the past are ***twice as likely*** to experience another fracture. Unfortunately, only 5 percent of patients with osteoporotic fractures are referred for an osteoporosis evaluation and medical treatment.

The Osteoporosis Evaluation

I've already had a fracture. Is it too late to talk to my doctor about osteoporosis?

It is never too late. Ideally, you should talk to your doctor during your recovery about whether you might be a candidate for an osteoporosis evaluation. But even if your fracture has healed, you can be evaluated and begin taking steps to protect your bones now.

What kind of doctor should I see about getting an osteoporosis evaluation?

There are many different kinds of physicians who can evaluate and treat osteoporosis. Start with your primary care physician or the doctor treating your fracture. He or she will likely be able to conduct the evaluation and may then refer you to a specialist — such as an endocrinologist or rheumatologist — if you require treatment.

What does an osteoporosis evaluation involve?

One thing your doctor will do is ask about your medical history and lifestyle to determine whether you have risk factors for osteoporosis. Some of the factors that increase the risk of developing osteoporosis include: personal or family history of fractures; low estrogen or testosterone levels, because hormones play a role in bone health; and the use of certain medications, such as glucocorticoids or anti-seizure medications, that may contribute to bone fragility. Your doctor also may want to test your blood or urine, and may suggest that you have a bone mineral density (BMD) test.

What is a bone mineral density test? Is it painful?

A BMD test is a painless way to measure the density of your bones in various parts of your body. Several different types of BMD tests are available. The most widely used is **dual energy x-ray absorptiometry (DXA)**. The DXA test is popular because it can be used to measure bone density at multiple sites – the spine, hip and wrist, which are the most common sites for osteoporotic fractures. The test is safe and easy, taking only 15 minutes or less to complete. For a DXA test, you will be asked to lie on a table while a machine above you measures your bone density.

Some private insurance plans will cover BMD tests ordered by your physician. Medicare also may pay for a BMD test under certain circumstances for women and men aged 65 or older. Your physician and his or her office staff can help you determine if Medicare will cover a BMD test for you.

Strategies to Reduce Your Risk of Fractures

If I am diagnosed with osteoporosis, what should I do next?

You may feel concerned — or even frightened — after being diagnosed with osteoporosis. However, the good news is that, armed with information and the support of your physician, you **can** significantly improve your bone health and reduce your risk of future fractures with a combination of medication, diet, exercise and lifestyle modifications.

Some of my friends take medication for osteoporosis. Should I consider this?

Yes. Several medications are available to prevent and treat osteoporosis. These products have been proven effective at minimizing additional bone loss and/or reducing fracture risk. Your doctor can help you understand the benefits and risks of each of the following medications and select one that is right for you.

- Bisphosphonates
 - Alendronate (brand name Fosamax®)
 - Risedronate (brand name Actonel®)
- Calcitonin
- Hormone Therapy
 - Estrogens (brand names include Climara®, Estrace®, Estraderm®, Estratab®, Ogen®, Ortho-Est®, Vivelle®, Premarin®, and others)
 - Estrogens and Progestins (brand names include Activella™, FemHrt®, Premphase®, Prempro®, and others)
- Selective Estrogen Receptor Modulators (SERMS) Raloxifene (brand name Evista®)
- Teriparatide (brand name Forteo®)

In men, reduced levels of testosterone may be linked to the development of osteoporosis. Men with abnormally low levels of testosterone may be prescribed testosterone replacement therapy to help prevent or slow bone loss.

What else can I do to protect my bones?

In addition to medication, two of the most important things you can do are to follow a diet rich in calcium and vitamin D and get plenty of exercise.

Calcium is needed to maintain healthy, strong bones throughout your life. After age 50, both men and women need to increase their calcium intake from 1000mg to 1500mg per day. Unfortunately, most Americans do not get enough calcium from their diets. Dairy products like milk, cheese and yogurt are an excellent source of calcium, and some non-dairy foods like broccoli, almonds and sardines, to name a few, can provide smaller amounts. In addition, many foods that you may already enjoy — juices, breads, cereals — can now be found fortified with calcium.

Although food is the best source of calcium because it also provides other essential nutrients, calcium supplements can fill the gap if you're not getting enough from your diet.

Calcium supplements are available without a prescription in a wide range of preparations and strengths. Many people ask which calcium supplement they should take. The “best” supplement is the one that meets your needs based on tolerance, convenience, cost and availability. In general, you should choose calcium supplements that are known brand names with proven reliability. Also, you will absorb calcium better if you take it several times a day in smaller amounts of 500 mg or less each time.

Vitamin D plays a significant role in helping your body absorb calcium. The relationship between calcium and vitamin D is similar to that of a locked door and a key. Vitamin D is the key that unlocks the door, allowing calcium to enter your bloodstream. As we age, our bodies become less able to absorb calcium, which makes getting enough vitamin D even more important. The recommended daily intake for vitamin D is 400-800 international units (IU), an amount many people get through natural exposure to sunlight, which our bodies use to make vitamin D, and by consuming vitamin D-fortified foods like milk. In addition, many calcium supplements are also fortified with Vitamin D.

Sodium, a main component of table salt, affects our need for calcium by increasing the amount of calcium we excrete in urine. As a result, people with diets high in sodium, or table salt, appear to need more calcium than people with low sodium diets in order to ensure that, on balance, they retain enough calcium for their bones.

Protein in excess amounts also increases the amount of calcium we excrete in urine, but it also has some important positive roles to play in bone health. For example, protein is needed for fracture healing. In addition, studies have shown that elderly people with a hip fracture who do not have enough protein in their diets are more likely to experience loss of independence, institutionalization, and even

death after their fracture. About one-third of our calories should come from protein, and most people will get enough without compromising their calcium intake by eating 2 to 3 moderate servings of protein-rich foods such as meat, fish, dairy products, eggs, and nuts each day, combined with smaller amounts found in many other foods.

I’ve always been active, but I don’t want to risk breaking another bone. Maybe I need to spend more time “on the sidelines” from now on.

It is perfectly understandable that you want to avoid another fracture. No one who has experienced a broken bone wants to revisit that pain and loss of independence. However, living your life “on the sidelines” is *not* an effective way to protect your bones. Remaining physically active reduces your risk of heart disease, colon cancer and type II diabetes, and may also protect you against prostate and breast cancer, high blood pressure, obesity, and mood disorders such as depression and anxiety. If that isn’t enough to convince you to stay active, consider this: exercise is one of the best ways to preserve your bone density and prevent falls as you age.

What type of exercise is best to reduce my risk of another fracture?

Exercise can help you reduce your risk of fracturing two ways: by helping you build and maintain your bone density and by enhancing your balance, flexibility and strength to reduce your chance of falling.

To Build and Maintain your Bone Density

Bone is a living tissue that responds to exercise by becoming stronger. Just as a muscle gets stronger and bigger the more you use it, a bone becomes stronger and denser when it is called upon to bear weight. Two types of exercise are important for building and maintaining bone density: weight-bearing and resistance exercises. Weight-bearing exercises are those in which your bones and muscles work against gravity, such as walking, climbing stairs,

dancing and playing tennis. Resistance exercises are those that use muscular strength to improve muscle mass and strengthen bone. The best example of resistance exercises is weight lifting, such as using free weights and weight machines at your local health club.

To Reduce the Risk of Falling

You can significantly reduce your risk of falling by engaging in activities that enhance your balance, flexibility and strength.

- **Balance** is the ability to maintain your body's stability while moving or standing still. You can improve your balance with activities like tai chi and yoga.
- **Flexibility** refers to the range of motion of a muscle or group of muscles. You can improve your flexibility through Tai chi, swimming, yoga, and gentle stretching exercises.
- **Strength** refers to your body's ability to develop and maintain strong muscles. Lifting weights will increase your strength.

Smart Moves

- | | |
|---------------------|-------------|
| • Walking | • Hiking |
| • Strength Training | • Bicycling |
| • Dancing | • Swimming |
| • Tai Chi | • Gardening |
| • Stair climbing | |

How can I exercise safely if I have osteoporosis?

If you have osteoporosis, it is important for you to get plenty of exercise. However, you will need to choose your activities carefully, being sure to avoid: activities with a high risk of falling such as skiing or skating; those that have too much impact like jogging and jumping rope; and those that cause you to twist or bend, like golf.

Unfortunately, some people become so afraid of breaking another bone that they become more sedentary, which leads to further loss of bone and muscle. Rest assured, however, that by practicing proper posture and learning the correct way to move, you can protect your

bones while remaining physically active. Almost every activity can be adapted to meet your age, ability, lifestyle and strength. Your doctor or a physical therapist can help you design a safe and effective exercise program. In the meantime, here are some general guidelines for safe movement:

DON'T:

- wear shoes with slippery soles.
- slouch when standing, walking or sitting at a desk.
- move too quickly.
- Don't engage in sports or activities that require twisting the spine or bending forward from the waist, such as conventional sit-ups, toe touches or swinging a golf club.

DO:

- Always pay attention to proper posture:
 - Lift your breastbone.
 - Keep your head erect and eyes forward.
 - Keep your shoulders back; lightly "pinch" your shoulder blades.
 - Tighten your abdominal muscles and buttocks.
- When climbing stairs, always use a handrail.
- Always bend from the hips and knees, not from the waist—especially when lifting.

****Before embarking on any exercise program, be sure to consult your physician.****

My fracture happened after I tripped on a rug in my own home. How can I prevent another fall?

Falls are a major source of fractures. The likelihood that you will fall depends on both personal and environmental factors.

Personal factors. A fall may occur because your reflexes have slowed over time, making them less able to react quickly to a sudden shift in body position. Loss of muscle mass may occur as you age, which can diminish your strength. Changes in vision and hearing can also affect your balance, as can the use of

alcohol and certain medications. People with chronic illnesses that affect their circulation, sensation, mobility or mental alertness are more likely to fall. To reduce your risk of falling, be sure to:

- ✓ Stay active to maintain muscle strength, balance and flexibility.
- ✓ Have your vision and hearing checked regularly and corrected as needed.
- ✓ Discuss your medications with your doctor to see if one of them (or their combination) might lead to falls.

Environmental factors. At any age, people can make changes in their environment to reduce their risk of falling and breaking a bone. Here are a few tips that should help.

Indoor safety checklist:

- ✓ Use nightlights throughout your home.
- ✓ Keep all rooms free from clutter, especially the floors.
- ✓ Keep floor surfaces smooth but not slippery. When entering rooms, be aware of differences in floor levels and thresholds.
- ✓ Wear supportive, low-heeled shoes even at home. Avoid walking around in socks, stockings or floppy slippers.
- ✓ Check that all carpets and area rugs have skid-proof backing or are tacked to the floor, including carpeting on stairs.
- ✓ Keep electrical cords and telephone lines out of walkways.
- ✓ Be sure that all stairways are well lit and that stairs have handrails on both sides. Consider placing fluorescent tape on the edges of top and bottom steps.
- ✓ Install grab bars on bathroom walls beside tubs, showers and toilets. If you are unstable on your feet, consider using a plastic chair with a back and non-skid leg tips in the shower.
- ✓ Use a rubber bath mat in the shower or tub.
- ✓ Keep a flashlight with extra batteries beside your bed.
- ✓ Add ceiling fixtures to rooms lit only by lamps; or install lamps that can be turned on by a switch near the entrance to the room.
- ✓ Use at least 100-watt bulbs in your home.

Outdoor safety checklist:

- ✓ In bad weather, consider using a cane or walker for extra stability.
- ✓ In winter, wear warm boots with rubber soles for added traction.
- ✓ Look carefully at floor surfaces in public buildings. Many floors are made of highly polished marble or tile that can be very slippery. When floors have plastic or carpet runners in place, try to stay on them whenever possible.
- ✓ Use a shoulder bag, fanny pack or backpack to leave hands free.
- ✓ Stop at curbs to check height before stepping up or down. Be cautious at curbs that have been cut away to allow access for bikes or wheelchairs. The incline may lead to a fall.

What is hip padding? Should I consider it?

Research has shown that hip protectors can decrease the risk of hip fracture among individuals at high risk for falls. Most hip protectors are washable undergarments made with a thin layer of lightweight foam plastic on each side of the garment that fits over the hips. They are typically worn by people who have an unstable stride or posture, and by people who tend to fall **down** (with the main impact near the hip) rather than the more typical fall **forward** (with the main impact on the hands or knees). However, in studies, up to one third of individuals refuse to wear the protective garments or wear them for only limited periods, a main limitation of this approach to hip fracture reduction.

Is there anything else I can do?

If you are a smoker, now would be a good time to quit. Tobacco is toxic to your bones, putting you at higher risk for low bone mass and osteoporosis. Excessive alcohol intake also may be damaging to your bones, and people who drink heavily tend to have more bone loss and fractures due to poor nutrition and an increased risk of falling.

Where can I go for more information?

NIH Osteoporosis and Related Bone Diseases ~ National Resource Center

2 AMS Circle
Bethesda, MD 20892-3676
Phone: (202) 223-0344 or
(800) 624-BONE (2663)

Fax: (202) 293-2356

Internet: <http://www.osteoo.org>

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The National Institute on Aging Information Center

P.O. Box 8057
Gaithersburg, MD 20898-8057
Phone: (301) 496-1752 or (800) 222-2225
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