Patient Information

The Facts About Fractures

A fracture is a broken bone, whether a small crack or a clean break, and can occur to any bone in the body. Fractures are classified according to the severity of injury to the surrounding tissues and the way the bone breaks. For instance, a closed fracture is one in which the skin around the bone remains intact, whereas an open—or compound—fracture is one in which the bone breaks through the skin. A transverse fracture happens when a bone breaks in one place across its width (imagine a pencil broken in half), while a *comminuted* (**kom**-uh-nyoot-ed) fracture happens when a bone breaks in several places. When the broken bone maintains its original shape and alignment, it is a nondisplaced fracture, but when the bone is separated at the break, it is a displaced fracture.

Most often, fractures are caused by severe physical trauma, such as a bad fall or motor vehicle accident. They also can occur gradually as a result of overuse—called a stress fracture. Certain diseases, such as *osteoporosis* (ahs-tee-o-puh-**ro**-sehs), can weaken a person's bones and make them more prone to fracture, even with a minor fall or regular activities. A fracture caused by weakened bones is known as a pathologic fracture.

The type, severity, and, sometimes, the cause of your fracture will determine your treatment and recovery options.

How do I know if I'm at risk?

Participating in activities that place you at risk for physical trauma may increase your risk of fracture. Older age also increases the risk of fracture because a person's reflexes and amount of protective body fat decrease with age. A common site of fracture in older adults is the hip.

Stress fractures are seen commonly in athletes who jump or run on hard surfaces, such as basketball players and dancers.

Many pathologic fractures are caused by osteoporosis—which occurs more often in women, older adults, and those who eat a low calcium diet. Metabolic disorders, cancer, and infection also can weaken the bones, as can medications that are used to treat these and other conditions.

What are the warning signs?

Pain in the affected area is the most obvious sign of fracture. The area around the fracture also may be swollen, bruised, or misshaped. It may be difficult or impossible to use the limb that is broken. If you are at risk for pathologic fractures, you may be able to detect an oncoming fracture if you feel tenderness or pain in the affected area.

What tests do I need?

An x-ray is the most important test used to diagnose a fracture. Other, more detailed imaging tests also may be necessary to reveal joint or soft tissue damage and can be helpful in determining the best treatment plan.

Your doctor may order a bone scan to diagnose fractures that are hard to see or to detect bone disease. Before the scan, you'll be injected with radioactive materials, called tracers, which are absorbed by bones that are in the process of healing and which are detected by a special camera. After the injection, you'll need to wait two to four hours before lying still on a table while a camera takes images. The scan is

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painless and can take up to an hour. Your body should eliminate the radioactive tracers through your urine within two days.

Blood tests that check for blood loss and fracture healing also may be ordered in certain cases, particularly with pathologic or hip fractures.

How can I avoid the problem?

To reduce the risk of fractures, wear protective gear during athletic activity and wear a seat belt while riding in a vehicle. As you age, changes in vision, hearing, and balance can make you less steady on your feet, so it's important to get regular vision and hearing tests. Talk with your doctor about exercises that can improve your coordination and strength and help prevent falls. Other steps you can take to avoid falls include wearing proper shoes and eliminating hazardous conditions in your home. Hip protectors are undergarments with lightweight foam on each side that may be helpful in decreasing hip fractures in some individuals.

If you have osteoporosis or are at risk for developing the disease, maintain a healthy weight; get enough lean protein and an abundant amount of calcium and vitamin D in your diet; participate regularly in safe exercise; and take your prescribed medications, which can improve bone density.

How is it treated?

If you suspect a fracture, contact your doctor immediately. To prevent further injury, immobilize the fracture with a splint or sling. You also may place a cloth-covered icepack on the injured area and take over-the-counter pain relievers. Do not take aspirin and *nonsteroidal anti-inflammatory* (non-stuh-**royd**-al an-tie-in-**flam**-uh-tor-ee) drugs, however, as they can increase bleeding.

Most fractures can be treated without surgery by keeping the broken limb immobilized with a splint, sling, or cast for several weeks. Casts are made by wrapping plastic or fiberglass around the fractured limb. Keep your cast dry and let your doctor know if it becomes loose. It's important to keep your broken limb elevated and wiggle your fingers or toes periodically to reduce swelling. If you feel increasing pain or numbness in your immobilized limb, contact your doctor immediately.

Surgery may be required for certain fractures, including open fractures and hip fractures. Your doctor will use metal wires, pins, screws, rods, or plates to keep the bone aligned. During the recovery period, it may be difficult to move around. One possible consequence of limited movement, particularly in older people with hip fractures, is a blood clot forming in the leg and traveling to the lungs. This is known as a *pulmonary embolism* (**puhl**-muh-nehr-ee **em**-buh-liz-um). If you experience unexplained shortness of breath or chest pain that gets worse with a deep breath, seek immediate medical attention.

During the healing process, it is normal for your immobilized muscles to become stiff or shrink somewhat. Once your doctor feels you are well enough, he or she may recommend physical therapy to help you regain flexibility and strength.

For additional information, visit the fractures page of the National Institutes of Health (http://www.nlm.nih.gov/medlineplus/fractures.html).

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