

G A M E  R E A D Y[®]

GUIDE TO
SPEEDING UP YOUR BREAK OR
FRACTURE RECOVERY



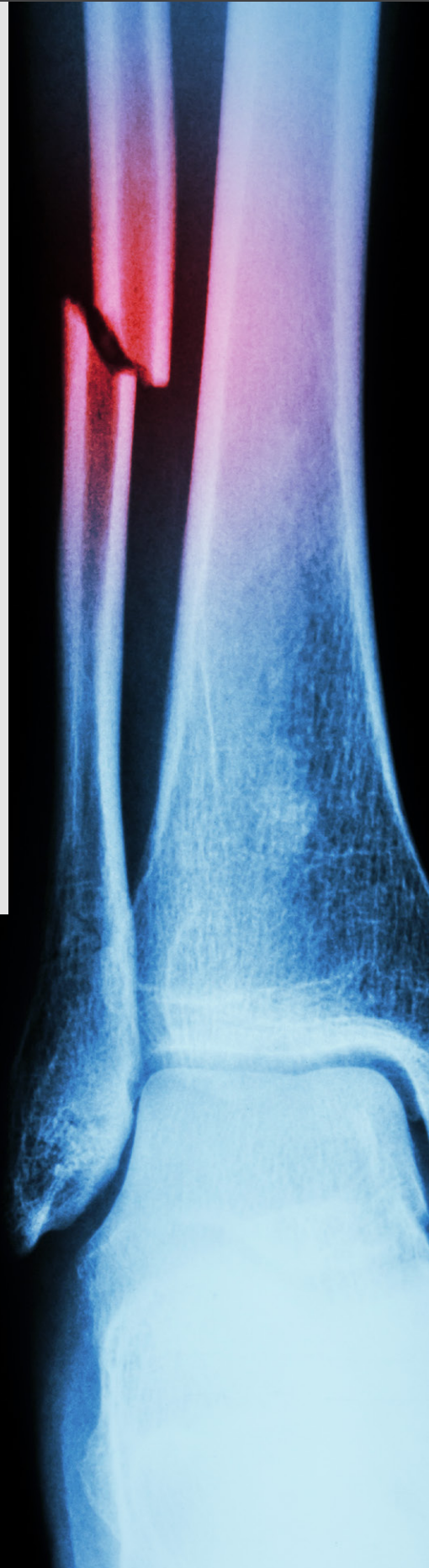
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INTRODUCTION: BASICS OF BREAKS OR FRACTURES

According to the American Academy of Orthopaedic Surgeons, approximately 18 million Americans are treated for a broken bone or fracture each year.¹ Whether falling off a bike while learning to ride, getting injured at work, slipping and falling on ice, or experiencing a sports injury, a broken bone can be very disruptive to daily life. Fortunately, modern medicine enables a safe recovery from most breaks and fractures, and by actively participating throughout the treatment process, it is possible to heal faster and return to normal activity more quickly.

This guide is designed to provide basic information about different types of fractures and the treatment methods that can help speed up the recovery process. Of course, it is always important to seek medical attention and follow a doctor's recommendations after any type of injury.



WHAT IS A BREAK OR FRACTURE?

The terms “break” and “fracture” can be used interchangeably in reference to an injury that impacts the continuity of the bone. “Fracture” is simply the clinical term for a break or crack in the bone. The causes of a fracture vary widely and can include:



Traumatic injury caused by impact (car accident, fall, etc.)



Chronic injury caused by stress (overuse, repetitive activity, etc.)



Conditions such as osteoporosis or bone cancer

Whatever the cause of the break, a quick recovery is always a priority, especially for athletes and people who lead active lifestyles.



SYMPTOMS OF A BREAK OR FRACTURE

The symptoms of a bone fracture will depend on the type of break it is, but there are some common signs to look for, including:



SWELLING OR BRUISING OVER A BONE

When a bone breaks, there is often damage to the thin membrane surrounding the bone. This membrane has blood vessels that can become torn when the injury occurs, and the bleeding that results will form a bruise around the area of the fracture. The bone itself also contains blood vessels that will bleed after a break. The surrounding soft tissues (muscles, ligaments, blood vessels, etc.) can also sustain damage from a broken bone, which leads to swelling, or the buildup of excess fluid.



THE BONE ITSELF ALSO CONTAINS BLOOD VESSELS THAT WILL BLEED AFTER A BREAK.



DEFORMITY OF A LIMB

Bones are responsible for maintaining the body's structure, and when they break, it is sometimes visible in the form of a deformed arm, leg, ankle, or wrist. The deformity might look like a bend where there shouldn't be one, a large bump, a twist, or a limb that looks shorter than the other one after the injury occurred. Of course, not every fracture results in an obvious deformity, so it's important to seek medical attention and get an X-ray if other symptoms are present.



PAIN IN THE INJURED AREA

Broken bones are painful. Although bones don't have pain nerves in them, all of the surrounding tissues do. After a fracture, pain in the injured area typically becomes worse with movement or when pressure is applied. The body might also respond with muscle spasms in an attempt to hold broken bones together, which results in painful cramping.



LOSS OF FUNCTION IN THE INJURED AREA

Inability to move a body part or joint in the typical way can be a sign of a broken bone. The loss of function is not always in the same location as the fracture itself. For example, a broken wrist might result in the inability to make a fist or grip an object, or a fracture in one of the lower-leg bones can cause loss of muscle control in the lower legs or feet.



BONE PROTRUDING FROM THE SKIN

A bone that protrudes from the skin is clearly broken and must be attended to by medical professionals as soon as possible because of the risk of infection. This type of break is called an "open fracture" and can range in severity from simple, clean fractures to complex ones with extensive tissue damage.

TYPES OF BREAKS OR FRACTURES

There are multiple types of fractures, each with varying medical classifications. Some of the more common types are:

GREENSTICK

This type of fracture occurs in the softer bones of infants and children. With a greenstick fracture, the bone bends until it partially breaks. Because it is not completely broken, a physical deformity may be difficult to see, as it might be a slight bend or not visible at all. A greenstick fracture is painful in the way any other type of broken bone will be, and there will be associated swelling around the injury.

TRANSVERSE

A transverse fracture is characterized by the broken piece of bone being at a right angle, or perpendicular, to the bone's long axis. To visualize a transverse fracture, imagine cutting through the bone to create a cross section. The result is a horizontal fracture line across the short part of the bone. Transverse fractures are typically caused by bending forces that cause the bone to break.

OBLIQUE

An oblique fracture is also perpendicular to the long axis of the bone, but the break occurs at a diagonal angle, rather than a right angle. These types of fractures most often occur in the longer bones in the leg or upper arm. An oblique fracture can occur as the result of a fall, an accident, or other traumatic incident.





ONE OF THE COMMON CAUSES OF THIS TYPE OF BREAK IS A HIGH-IMPACT FALL OR ACCIDENT.

COMMINUTED

A comminuted fracture is characterized by a bone that is broken or shattered into several parts. One of the common causes of this type of break is a high-impact fall or accident. People with conditions like osteoporosis are more susceptible to this type of fracture, because the integrity of the bone is compromised, making it weaker and likelier to break in multiple areas.

IMPACTED

When a bone breaks and one section of the bone is driven into another section, it is called an "impacted fracture." The impaction is typically caused by the force of the injury, and the result is a shortening of the bone or misalignment.



RECOVERY TIMELINE FOR BREAKS OR FRACTURES

Although more severe or complicated cases might take longer, a typical broken bone heals on its own in a matter of weeks. Bones are able to heal themselves by regenerating the necessary cells and tissues.

The first step is the formation of blood clots on the ends of the broken bones. The body then gradually joins the two bone segments together and forms a temporary bone called a “callus.” The callus can be fully formed in about five weeks. At this time, a stabilizing cast can be removed, but because the bone has not completely healed yet and can easily break again, care must be taken for another month or so before resuming regular activity.

The stages of the bone-healing process are:

1

Inflammation

This stage, which is characterized by pain and swelling around the injury, starts immediately and lasts for three to five days after the fracture occurs. Inflammation is also the first phase of recovery, as the dying cells release chemicals that start the healing process. It is critical to align and stabilize broken bones during this stage so that they repair themselves correctly and to reduce movement between the bone fragments.

2

Soft callus formation

After about four days, the formation of soft callus starts and continues for three weeks. Soft callus is a spongy material that begins to form between the bone fragments. Two weeks into this process, the bone is stable enough to begin forming new blood vessels. Immobilization of the broken bone remains critical at this stage, as movement between the fragments can disrupt the healing process.

3**Hard callus formation**

The soft callus starts transforming to hard callus, or woven bone, two to three weeks after the injury occurs. This process continues for six to 12 weeks, depending on the size and location of the broken bone. In general, fractures in the upper limbs heal faster than ones in the lower limbs. During this stage, although immobilization might be necessary at the beginning of the process, gentle weight-bearing exercises are typically recommended, because they encourage the continued growth of bone tissue.

4**Bone remodeling**

Part of the bone-healing process is the body creating more hard callus than is necessary to repair the bone tissue. This results in a bump around the area. The bone-remodeling process starts when the two broken areas have reunited and can continue for years, ultimately resulting in a return to the normal shape of the bone. During this stage an increasing progression of weight-bearing exercises will help improve bone strength. A full return to normal activity will depend on the specific injury, but can occur in as few as six to eight weeks for a minor injury.



TREATMENT OPTIONS FOR BREAKS OR FRACTURES

A variety of treatment options can be employed to help repair a broken bone. In many cases, a combination of methods is used to stabilize the injury, mitigate pain, and promote healing.



MEDICAL PROCEDURE

Although a broken bone can heal itself, the bone fragments must be properly aligned in order to successfully heal. Open fractures and comminuted fractures with multiple fragments might require surgery to realign and stabilize the bones. During the procedure, the fragments are first realigned and then held in place with a combination of rods, screws, plates, or pins. In some cases, an external fixator rod with pins that are placed in the bone above and below the break might be used to hold the fragments in place and then removed after the bone has sufficiently healed. The recovery time after surgery depends on the type of procedure and how much damage the bone has sustained.



OPEN FRACTURES AND COMMUNUTED FRACTURES WITH MULTIPLE FRAGMENTS MIGHT REQUIRE SURGERY TO REALIGN AND STABILIZE THE BONES.



DEVICES

A doctor might recommend different types of stabilizing and mobility devices throughout the recovery process, including:

- **Cast**

A hard shell made from plastic or fiberglass that immobilizes the joints around the broken bone.

- **Fracture boot**

A removable cast that enables walking during recovery of a broken ankle or foot bone.

- **Sling**

A soft immobilizing device that prevents movement during recovery of a broken shoulder, arm, or collarbone.

- **Crutches**

Devices that enable walking without bearing weight on a single leg.

- **Cane**

A device that enables walking while putting limited weight on a single leg.

- **Walker**

A device that helps with balance and shifts some weight to the upper body while walking during recovery from a broken hip or pelvis.

- **Wheelchair**

A manual or electric device that enables movement while preventing weight-bearing during recovery of a broken hip, pelvis, or lower extremity.



PHYSICAL THERAPY

Working with a physical therapist during recovery from a broken bone is essential for maintaining range of motion, rebuilding strength, and learning how to function during the healing process. A physical therapist will provide different recommendations at various stages of recovery:

- **In The Hospital**

Immediately after breaking a bone, a physical therapist will teach a patient the proper way to use any recommended assistive devices such as crutches or a cane. He or she will also provide directions for going up and down stairs, getting in and out of cars, and performing other daily tasks that might be impacted by the injury.



A PHYSICAL THERAPIST WILL PROVIDE DIFFERENT RECOMMENDATIONS AT VARIOUS STAGES OF RECOVERY

- **Home care**

If an injury requires immobilization and patients are unable to go to a clinic, a physical therapist can provide home-based exercises to help improve endurance and strengthen the muscles around the injured area. Wearing a cast for several weeks inevitably results in muscle atrophy, so it's important to build strength in other areas to prepare for the recovery phase after cast removal. A physical therapist can also suggest alterations to the home environment to allow for safe movement.

- **Clinical care**

After the cast or other immobilizing device has been removed, patients can go to a physical therapy clinic to work with a therapist to return the injured area to normal function. This might include weight-bearing or lifting activities that will help build strength and promote the growth of bone tissue, without exceeding the limits that can compromise a weakened bone. Stretching exercises will also help patients return to their normal range of motion after removing a cast.

A physical therapist's role is to help patients safely return to normal function. The exercises and devices used will depend on the location of the injury and the limitations it has caused.



MEDICATION

Because broken bones are painful, a doctor might prescribe pain medication immediately after the injury and during the inflammation phase of recovery. If the pain is not too severe, he or she might recommend an over-the-counter non-steroidal anti-inflammatory drug (NSAID) that helps reduce pain and swelling without the undesirable side effects and addiction risk of prescription medications. However, because NSAIDs might contribute to slower healing of bone tissue, phasing them out early in the recovery process could contribute to a faster recovery.² For open fractures or those that require surgery, antibiotics might also be prescribed to prevent infection.



COLD THERAPY

Cold therapy can be used immediately after breaking a bone and throughout the entire recovery process to help reduce pain and swelling without the use of medication. When applied right after the fracture occurs, cold therapy can help prevent excess swelling and relieve some of the pain that comes with a broken bone.

During the inflammation stage of the recovery process, cold therapy will continue to control pain and swelling and will also contribute to faster tissue repair. During the later stages of recovery, cold therapy is particularly useful after physical therapy sessions, when muscles are sore and the body has been safely pushed to its limits.

Cold therapy can be applied using ice packs, by soaking the injured area in an ice bath, or with a cold therapy system that also applies active compression at the same time. Cold therapy systems, which are available for rent with a prescription, have been proven to be more effective than ice packs. Many physical therapists also have cold therapy systems available at their clinics for use after exercise sessions.



CONCLUSION

Fractures are common injuries with established treatment protocols and healing timelines. However, by seeking immediate treatment, using the recommended immobilization and assistive devices, working with a physical therapist, and applying cold therapy, it is possible to safely accelerate healing and return to normal activity more quickly. Broken bones will always require at least several weeks to heal, but actively participating in the recovery process can make this difficult time go by faster.

One of the critical elements of successfully recovering from a fracture is working with a physical therapist to strengthen the surrounding muscles and perform gentle weight-bearing exercises to promote bone growth. To learn more about how to select a physical therapist for broken-bone recovery, [download the free Checklist for Finding a PT.](#)

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