CONDITION

Fractures

A fracture is a crack or complete break in a bone.

WHAT IT IS
A crack or complete break in a bone

BODY SYSTEM
Bones and joints

MAIN SYMPTOMS
Pain, swelling, bruising, difficulty using the injured area

WHAT CAUSES IT
Injury, repeated strain, or weakened bone

HOW IT IS DIAGNOSED
Examination and X-rays, sometimes CT or MRI scans

MAIN TREATMENT
Realignment, immobilisation, rehabilitation, and sometimes surgery

CAN IT BE CURED?
Sometimes - most heal; some do not

IS IT AN EMERGENCY?
Sometimes - exposed bone or impaired blood flow

LONG-TERM OUTLOOK
Most fractures heal, but recovery time and function differ

Overview

A fracture is a crack or complete break in a bone. "Fracture" and "broken bone" mean the same thing.

A bone may crack without moving out of place or break into separate pieces. A displaced fracture means the pieces have moved from their normal position. In an open fracture , the broken bone communicates with a wound in the skin. Open fractures need urgent treatment because of the risk of infection.

Fractures can happen in any bone. Common sites include the wrist, ankle, arm, hip, ribs, spine, fingers, and toes. Their effect depends on the bone and type of break, and whether nearby joints, nerves, blood vessels, or soft tissues were injured.

Most fractures heal by making new bone across the break. Treatment keeps the bone in a

suitable position and protects it while this happens. Some fractures can cause lasting stiffness, weakness, pain, or changes in movement.

Symptoms

Pain is common and may worsen when you move the injured area, put weight on it, or press it. Pain alone cannot confirm whether a bone is broken.

Other possible symptoms include:

With an open fracture, there is a wound over or near the broken bone. Bone may be visible, but it does not have to be. Do not push exposed bone back under the skin.

Some fractures are less obvious. A stress fracture caused by repeated strain may produce pain that builds during activity and improves with rest. Spinal compression fractures can cause sudden back pain, loss of height, or a rounded upper back. Older adults with a hip fracture often cannot stand or walk, although some can still put weight on the leg.

- Swelling, bruising, or tenderness
- Difficulty moving the area or bearing weight
- A limb or joint that looks bent, shortened, or out of position
- Grinding or an unusual feeling during movement
- Numbness, tingling, weakness, or pale or cold skin beyond the injury

Causes and risk factors

Most fractures result from a force greater than the bone can withstand, such as a fall, collision, road crash, sporting injury, or direct blow.

Repeated loading can cause a stress fracture, particularly when running, marching, or jumping increases too quickly. Footwear, training surface, muscle fatigue, and low energy intake may contribute.

A fragility fracture happens after a minor event, such as a fall from standing height, that would not usually break healthy bone. It may indicate osteoporosis, which makes bones less dense and more likely to break.

Factors that can increase fracture risk include:

Children's bones are still growing. A fracture involving a growth plate near the end of a developing bone needs careful assessment because it can affect future growth.

- Osteoporosis or previous fragility fractures
- Older age and increased risk of falling
- Certain bone disorders, cancers, or long-term conditions
- Medicines that weaken bone over time, such as some corticosteroids like prednisone or hydrocortisone
- Smoking, heavy alcohol use, poor nutrition, or very low body weight
- Reduced vision, balance problems, or muscle weakness
- High-impact sports, repetitive training, or hazardous work

Diagnosis

A healthcare professional will ask how the injury happened and examine its shape, tenderness, movement, and swelling. They will also assess circulation, skin colour, sensation, and muscle function beyond the injury.

X-rays confirm many fractures and show whether the pieces have moved. Images are often taken from more than one direction and may include nearby joints.

Not every fracture appears on the first X-ray. If the examination still suggests a break, the area may be protected and checked again. Further imaging may include:

A fracture after a minor fall may lead to an osteoporosis assessment, including a review of risk factors and sometimes a bone-density scan.

- CT , which provides detailed images of complex fractures
- MRI , which can detect hidden fractures and soft-tissue injuries
- A bone scan, used less often to show areas of active bone repair

Treatment and management

Treatment depends on the bone, fracture pattern, position of the pieces, and whether skin, nerves, blood vessels, or joints are affected.

Until the injury is assessed, keep the area as still as practical. Support it in the position found rather than trying to straighten it. Apply wrapped ice for short periods if this does not delay urgent care. Remove rings or other tight items early because swelling may increase.

A stable fracture may be treated with a sling, splint, brace, or cast. Some can be managed with

supportive footwear or carefully controlled movement.

If the pieces are out of position, they may need reduction , meaning they are moved into better alignment. Pain relief or anaesthesia may be used. Reduction may be performed without an incision or during surgery.

Surgery may use plates, screws, rods, wires, or an external frame to hold the bone. Open fractures also need wound treatment and measures to reduce infection risk. Antibiotics and tetanus protection may be needed.

The right pain relief depends on factors including age, pregnancy, allergies, kidney or stomach problems, and other medicines. A pharmacist or clinician can advise you.

Follow instructions about weight-bearing and cast or wound care. Moving too soon can disturb healing, while avoiding movement for too long can cause stiffness and muscle loss. Physiotherapy or guided exercises may help restore strength, flexibility, balance, and function.

Complications

Most fractures heal without a major complication. Possible problems include:

Compartment syndrome is a rare emergency in which pressure rises inside a group of muscles. Warning signs include severe or rapidly worsening pain, marked tightness, numbness, or increasing difficulty moving the fingers or toes.

- Delayed union or nonunion: the bone heals slowly or does not join
- Malunion: the bone heals in a position that affects shape or function
- Infection, particularly after an open fracture or surgery
- Joint stiffness, muscle weakness, or ongoing pain
- Damage to nearby nerves or blood vessels
- Arthritis after a fracture extends into a joint
- Reduced blood supply causing bone tissue to die, called avascular necrosis
- Growth disturbance after some childhood growth-plate fractures
- Blood clots after certain lower-limb fractures, surgery, or prolonged immobility

Prevention

Not all fractures can be prevented, but you may lower your risk by:

Discuss a fracture from a minor fall at routine follow-up. It may be the first clear sign of fragile bones, and assessing bone health can help prevent another fracture.

- Building activity gradually and allowing recovery between demanding sessions
- Using suitable protective equipment for sports and hazardous work
- Wearing well-fitting footwear and addressing trip hazards at home
- Having vision, balance, and medicines reviewed if you are at risk of falls
- Eating enough protein, calcium, and vitamin D as part of a balanced diet
- Doing regular weight-bearing and muscle-strengthening activity when safe
- Avoiding smoking and limiting alcohol
- Following any recommended osteoporosis treatment plan

Living with it and what to expect

Healing can take from weeks to many months. Small, stable fractures often recover sooner than displaced, open, major, or joint-involving fractures. Age, circulation, nutrition, smoking, infection, and other conditions can affect healing.

Pain and swelling usually change as healing progresses, but improvement may not be steady. Swelling can remain noticeable later in the day, particularly after ankle or foot fractures. A cast or brace may be changed as swelling settles.

Follow-up X-rays may check alignment and new bone formation. Appointments also assess pain, skin, movement, and whether activity can increase. Keep these visits even if the area feels better, because comfort may improve before the bone can withstand full strain.

After immobilisation, the area may feel stiff or weak. Rehabilitation is usually gradual. Returning to work, driving, or sport depends on the bone involved and whether you can perform the required movements safely. Contact sport and heavy loading may need to wait after ordinary daily activity becomes comfortable.

Some people regain their previous function. Others have lasting stiffness, altered movement, weakness, or pain, especially after a severe fracture or joint injury. Further rehabilitation, pain management, or surgery may be considered.

When to get medical help

Seek prompt medical assessment if an injury causes marked pain, swelling, deformity, or

difficulty using a limb or bearing weight. Being able to move the area does not prove it is not broken.

Call emergency services or go to an emergency department if:

While waiting, avoid food or drink in case an urgent procedure is needed, unless emergency staff tell you otherwise. Do not move someone with a possible neck, spine, or pelvic injury unless they are in immediate danger.

During recovery, get urgent advice for increasing pain, new numbness, fever, fluid or a bad smell from a wound or cast, or fingers or toes that become cold or change colour. A damaged, wet, overly tight, or very loose cast also needs review.

Routine follow-up is suitable for ongoing stiffness, slow improvement, activity questions, or a bone-health assessment after a low-impact fracture.

- Bone is visible or there is a deep wound near the suspected break
- Bleeding is heavy or does not stop with firm pressure
- The limb is severely deformed
- The hand or foot becomes pale, blue, cold, numb, or weak
- Pain or tight swelling becomes severe or rapidly worsens
- A major accident may have injured the head, neck, spine, pelvis, or thigh
- The person is difficult to wake, confused, short of breath, or seriously unwell

Common questions

Can a fracture heal without a cast?

Yes. Some stable fractures heal with a splint, brace, sling, supportive footwear, or controlled movement. Others need a cast or surgery. The correct support depends on the fracture, not only on the pain.

Can I move a body part if the bone is broken?

Sometimes. Movement and limited weight-bearing do not rule out a fracture. Significant pain, swelling, tenderness, or loss of function should be assessed.

How long does a broken bone take to heal?

There is no single timetable. The bone, fracture pattern, treatment, age, smoking, circulation, nutrition, and general health all matter. Functional recovery can continue after X-rays show that the bone has joined.

Why does my fracture still hurt after the cast comes off?

Stiff joints, weak muscles, swelling, and sensitive healing tissues can cause discomfort. This often improves with gradual rehabilitation. Worsening pain, new swelling, numbness, fever, or loss of function needs medical review.

Will a healed fracture be stronger than before?

New bone temporarily forms a thickened repair area called a callus, which is gradually reshaped. The healed site is not permanently stronger than the rest of the bone, so follow the recovery plan before returning to heavy loading.

Can I drive with a cast or brace?

A cast or brace can limit control, reaction time, and the ability to make an emergency stop. Insurance and local legal requirements also matter. Do not drive until you can control the vehicle safely and have followed the advice given for your injury.

Sources

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