- Bones

INSIDE THE BODY

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How does a fractured bone heal?

Bones are the most robust structures in the body, four times tonger than concrete. But accidental falls can cause fractures. How does a bone then heal?

HUMAN BODY Even though bone tissue is four times stronger than concrete, most people will face an accident in their lifetime where one or more bones will fracture.

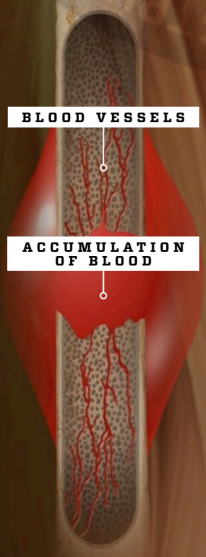
When a hospital's emergency unit receives a patient with a potential bone fracture, an X-ray is performed so that the doctor can determine the exact position and nature of the fracture.

The next step is to reposition the fracture ends correctly in relation to each other. This ensures that as little new tissue as possible needs to be formed, speeding the repair to reunite the bone ends, while also ensuring that the bone does not end up crooked.

The fracture ends must be held securely in place until the bones have healed. This is often done by applying a plaster cast or splint, which also relieves pain, as it prevents the fractured bone ends from moving and damaging surrounding tissue and nerves.

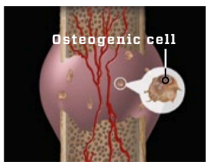
In complicated cases, it may be necessary to fix the fracture ends with metal wire, nails or screws, which require surgery to attach.

As a rule of thumb, it takes twice as long for a fracture in the lower half of the body to heal (16 weeks) as for one in the upper half (8 weeks). However, fractures generally heal twice as quickly in children, while the process becomes slower in the elderly.



Fractured bones become stronger

A fractured bone often means weeks or months in a cast, but subsequently, the healed fracture is often the strongest part of the bone.

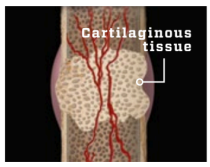


Blood flows to the fracture

1 When a bone fractures, several blood vessels are torn, causing an accumulation of blood between the fracture ends.

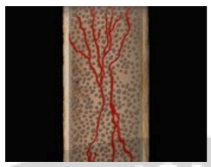
Stem cells produce new bone tissue

2 Osteogenic stem cells arrive to form new bone tissue. At the same time, blood vessels begin to heal across the fracture.



Accumulated blood turns into cartilage

3 The osteogenic cells produce cartilage-like tissue, which over the course of a few months absorbs calcium salts and becomes ever harder.



The bone has healed

4 After several months, the fracture has healed. During the healing period, rest helps new bone tissue become stronger.

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