

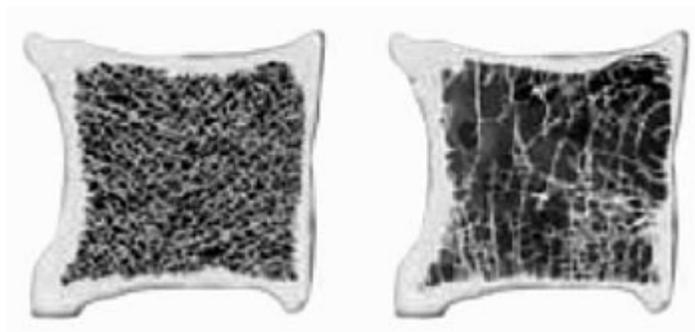
Osteoporosis

What is it?

The hallmark of this disease is brittle bones. The weak bones are due to a decreased absorption of calcium into the body and depletion of calcium and bone protein. It is a common type of metabolic bone disease in which bones become thinner and weaker as a part of ageing. The bones are subject to fractures and heal slowly, occurring especially in women following menopause. If it is left untreated, the skeletal bones will become fragile and some of them will be likely to break or fracture, especially the hip and spinal bones.

Osteoporosis is most common in women over the age of 50 years. Following menopause, women experience rapid bone loss due to the decrease in oestrogen production. Any bone can be affected, but of special concern are fractures of the hip and spine. Spinal or vertebral fractures can lead to a loss of height, severe back pain, nerve compression and deformity.

The following risk factors are associated with **osteoporosis**: smoking, chronic diseases, alcohol consumption, high caffeine consumption, early hysterectomy with associated removal of ovaries, hyperthyroidism and chronic steroid medication usage. Vitamin D plays a crucial role in calcium absorption. Building strong bones by eating calcium-rich foods, maintaining a well-balanced diet and exercising during early life can be the best defence against osteoporosis.



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These images demonstrate osteoporosis. The top image shows a fracture of the thoracic spine. This type of fracture is called a compression fracture. Note the wedge shape of the vertebra as it collapsed at the front. The bottom image demonstrates a normal vertebra on the left and an osteoporotic vertebra on the right. Note the loss of bone in the body of the vertebra with just a few slivers of bone remaining.

What are the symptoms?

Bone loss occurs without **symptoms**. People can lose bone mass over a long period of time without being aware of it. The first indication of **osteoporosis** is frequently a fracture of the spine, hip or wrist following a simple fall. When bone loss is severe and osteoporosis is advanced, the following **symptoms** can occur:

- Pain in the lower back
- Neck pain
- Leg cramps at night
- General bone pain and tenderness
- Abdominal pain
- Rib pain
- Broken vertebrae
- Brittle fingernails

Loss of height of the vertebrae and a stooped posture are the main effects of osteoporotic spinal fractures.

How is it diagnosed?

Osteoporosis is **diagnosed** with spinal X-rays, a spinal CT scan or a bone density scan (Dexa scan). A suspicion of osteoporosis is usually present when a spinal fracture occurs where there has been only a small amount of force present, such as a simple fall.

How is it treated?

The best **treatment** is prevention. Adequate calcium and vitamin D intake and exercise are important preventative aids against osteoporosis. Avoiding smoking and excessive alcohol intake are other important factors. There are a number of drugs that may help to increase bone density. The antiresorptive medications, biphosphonates (alendronate, ibandronate and risedronate), calcitonin, oestrogens and raloxifene affect the bone remodeling cycle. Teriparatide, a form of parathyroid hormone, is a newly approved medication for osteoporosis. It is the first drug to increase the rate of bone formation in the bone remodeling cycle.

Fractures that are sustained because of osteoporosis can be treated with Kyphoplasty, Vertebroplasty, bed rest or external bracing. Kyphoplasty is a procedure where a balloon is inserted into the vertebra to raise the collapsed segment and bone cement is then injected into the space created by the balloon. In a Vertebroplasty, bone cement is injected into the vertebra without a balloon being inflated. These procedures are performed with needles that are inserted through the skin of the back (see the section *Kyphoplasty and Vertebroplasty*). External bracing requires that a patient wears a brace.

Does this treatment have any complications?

There is a small risk with Vertebroplasty and Kyphoplasty that the bone cement may leak out into the blood vessels or into the spaces where the nerves are located. This is rare and is avoided by careful surgical techniques.

Speak to your specialist about the other risks involved (see the section *Your Back Operation*).

What are the long-term expectations?

Osteoporosis is a progressive disease that can lead to ongoing fractures that can be disabling. Prevention is the best advice, but there is hope with newer treatments that are available. It is crucial to diagnose osteoporosis as early as possible.