

An Introduction to Osteoporosis

What is osteoporosis?

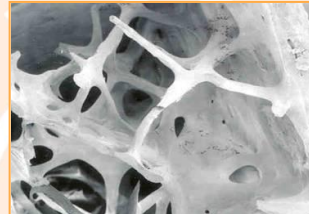
Osteoporosis is a disease that affects the strength of bones, making them more susceptible to breaks or fractures. In most instances, fractures affect the hip, spine and wrist¹.

What happens in healthy bones?

Bone is alive and constantly being renewed. In healthy bones, the old bone is removed by cells called 'osteoclasts' and replaced with new bone-building cells called 'osteoblasts'. This is a well-balanced process called bone turnover².



Normal Bone



Osteoporotic Bone

What does osteoporosis do to bones?

In people with osteoporosis, old bone is destroyed faster than it is replaced, so bones become thinner and weaker. The result is that the bone becomes more prone to breaking after even just a minor fall.

Bones are made up of a thick outer shell known as 'cortical bone' and a strong inner mesh of 'trabecular bone' which looks like a honeycomb³. Osteoporosis causes this mesh to thin, making the bone more fragile and likely to break.

What can be done about osteoporosis?

The good news is that osteoporosis is now a largely treatable disease and, with a combination of lifestyle changes and appropriate medical treatment, osteoporosis can be controlled and the risk of life-threatening fractures can be reduced.



What are the symptoms?

Osteoporosis has no obvious symptoms other than a fracture when the bone is already significantly weakened. Unfortunately, the first apparent sign of osteoporosis is often after a broken bone, which is why the condition is also known as the "silent epidemic"⁴ – the majority of women do not realize they have osteoporosis until they experience a break or fracture. However, loss of height with a gradual curvature of the spine may also be an indicator of osteoporosis⁵. Another symptom could be pain, as some vertebrae in the spine collapse and initially this may be felt as severe back pain⁵.

Who can get it?

Although osteoporosis affects both men and women, it is more common in postmenopausal women. This is because estrogen is a hormone which plays an important role for maintaining strong bones, and during the menopause levels of estrogen fall very fast.

Genetic factors also play a large part in determining whether an individual is at risk of osteoporosis, but nutrition and exercise can affect the rate of bone loss and have a key role in determining how well our bodies are able to replace old bone⁶.

How many people are affected by osteoporosis?

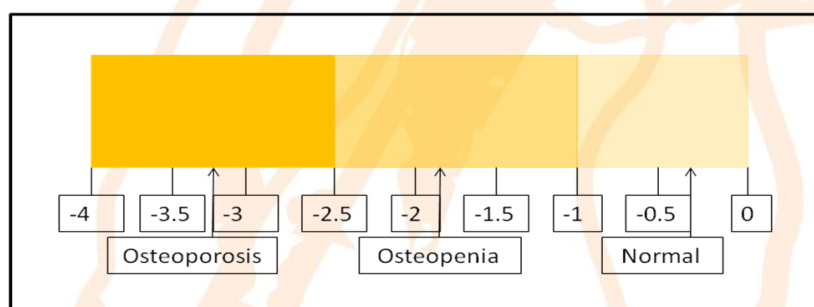
- It is estimated that over 200 million men and women worldwide suffer from osteoporosis⁷
- One out of three women over the age of 50 will suffer a fracture because of osteoporosis⁸
- Nearly one out of five men and women over 50 who have a hip fracture will die within a year because of its indirect consequences⁹
- In 2000, an estimated 5.5 million new osteoporotic fractures occurred in women throughout the world⁹
- In Latin America about 15% of women suffer a spine fracture because of osteoporosis⁹
- Osteoporosis can cause serious illness for patients; in some cases, it can lead to disability, pain and, indirectly, even death
- Osteoporosis can also have a negative impact on a patient's family and friends

How is osteoporosis diagnosed?¹⁰



- If a doctor thinks their patient has osteoporosis, they will recommend a Bone Mineral Density (BMD) test called dual x-ray absorptiometry (DXA or DEXA for short)
- A BMD test will measure the density of minerals (such as calcium) in bones. This is then used to determine the strength of bones¹¹

- A low BMD does not necessarily mean a patient will suffer a break or a fracture. However, it is important that women know the value of their BMD and discuss this aspect of their condition and possible treatment options with their doctor
- If a doctor has no access to BMD testing facilities, the FRAX[®] tool can be used to calculate the ten-year probability of fracture of an individual



DXA Test Readings¹⁰

Above -1 is considered normal

Between -1.1 and -2.49 means the woman could have osteopenia, a condition that may lead to osteoporosis

Below -2.5 indicates a person has osteoporosis

- Ideally, combining the use of FRAX[®] and DXA provides the most adequate prediction of fracture.

What is FRAX®?¹²

- BMD is currently the best single indicator of the risk of future fracture. However, several other considerations need to be taken into account
- The World Health Organization (WHO) has launched a tool called “FRAX®” which is a major advance in helping physicians to improve identification of patients at high risk of fracture for treatment
- It is a tool, combining risk factors such as age, sex, weight, smoking habits, etc. FRAX® then gives a figure indicating a ten-year fracture probability, which provides guidance for determining the need for treatment. For more information visit www.shef.ac.uk/FRAX/

Treatments for osteoporosis

A number of medications are currently available to treat osteoporosis and prevent fractures. In most cases, these are prescribed to patients with calcium and vitamin D supplements⁶.



Osteoporosis treatments should be taken regularly and as directed by the doctor to ensure maximum fracture protection. Forgetting to take medication regularly means you may receive a lot less or even no protection from fractures at all¹³. It is best not to stop your medication unless advised by your doctor. If any side-effects develop, you should see your doctor as soon as possible¹³.

It is therefore important that doctors and those with osteoporosis work together to better understand the needs and lifestyles of women with the disease and to identify the best treatment option.

Fast facts about osteoporosis



- Osteoporosis literally means ‘porous bones’
- The term ‘osteoporosis’ was first coined in the 1820s in France¹⁴
- Well-known women with osteoporosis include Ursula Andress, Joan Rivers and Britt Ekland
- Osteoporosis mainly affects postmenopausal women. Younger women can also be affected, though this is

more unusual and generally results from specific risk factors, including anorexia, continuous use of treatments such as steroids to treat other diseases like rheumatoid arthritis or asthma, among many others

¹ International Osteoporosis Foundation. What is Osteoporosis? Available at: <http://www.iofbonehealth.org/patients-public/about-osteoporosis/what-is-osteoporosis.html>. Last accessed October 2009.

² The International Osteoporosis Foundation. Basic Bone Biology. Available at: <http://www.iofbonehealth.org/health-professionals/about-osteoporosis/basic-bone-biology.html>. Last accessed October 2009.

³ The International Osteoporosis Foundation. Facts About Bones. Available at: <http://www.iofbonehealth.org/patients-public/about-osteoporosis/facts-about-bones.html>. Last accessed October 2009.

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