



UNDERSTANDING MORE ABOUT OSTEOPOROSIS





WHAT IS OSTEOPOROSIS?

Bone is the framework on which the rest of the body is built. Inside all our bodies, over two hundred bones link together to form a strong but lightweight skeleton that supports us, protects our major organs, anchors our muscles and allows us to move. Without a skeleton, our bodies would simply collapse.

Bone is made of living cells with a thick outer shell of minerals, particularly calcium and phosphate, and a strong inner mesh which looks like a honeycomb. In a healthy body, bone is continually renewed and restructured. This involves old bone being reabsorbed and new bone being formed. When these two processes are out of balance, bone loss occurs, leading to osteoporosis.

Osteoporosis literally means 'porous bone' and happens when the holes between the bony honeycomb mesh become bigger. It is a disease which destroys and weakens the structure of the bone, making it increasingly fragile and more likely to break. This leads to the skeleton becoming so porous that the slightest knock or fall can break a bone, usually in the wrist, spine or hip.

Osteoporosis is a progressive disease which means that it worsens over time and often produces no signs or symptoms for many years. However, osteoporosis is treatable and there are lots of things you can do to keep your bones healthy. Taking the medicines prescribed by your doctor is an important part of this.

The human skeleton has 206 bones

WHAT CAUSES OSTEOPOROSIS?

There are two types of cells constantly at work in our bones. One builds new bone, the construction cells, and the other breaks down old bone, the demolition cells.

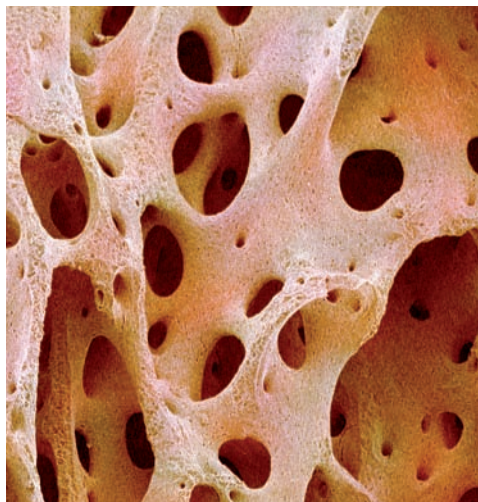
Up to our mid-20s, the cells that make bone, work harder, building strength into our skeleton. From our 40s onwards, cells that breakdown bone overtake and our bones begin to lose their density as a natural part of ageing. This bone loss can lead to broken bone (fracture) because of osteoporosis.

Osteoporosis is usually age-related and can affect both sexes but women are at greater risk because bone loss speeds up after the menopause (change of life). In the UK, one in two women and one in five men over the age of 50 will break a bone, mainly because of osteoporosis but it can affect people of all ages.

Any bone can be affected and fractures can occur without any obvious accident, for example from something simple as lifting or bending. Obviously, breaking a bone can significantly affect your quality of life, causing pain and disability.

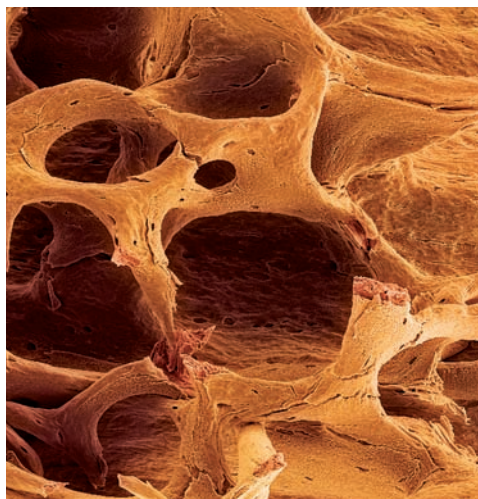
Fracture affecting the bones in your back (vertebral or spinal fracture) are the most common type of osteoporosis fracture and can result in loss of height, back pain and rounding of the back. It is estimated that every year there are 180,000 osteoporosis-related fractures in England and Wales.

Bone loss occurs naturally to everyone as they get older but the broken bones caused by osteoporosis are not an inevitable part of ageing.



Above: Healthy bone

Below: Unhealthy/porous bone



WHO IS AT RISK OF OSTEOPOROSIS?

Our bone health is largely due to our lifestyle and age. But there are other factors that can put people at greater risk and you are advised to discuss these with your doctor.

Here are some of the more common reasons why people develop osteoporosis:

- Women who have had an early menopause or hysterectomy with the removal of both ovaries before the age of 45
- Men with low levels of testosterone
- People who use corticosteroid tablets for conditions such as asthma or arthritis
- People with a family history of osteoporosis
- People with medical conditions such as Crohn's disease or coeliac disease
- People with medical conditions which leave them immobile (unable to move) for a long time
- People who drink heavily
- People who smoke
- People who don't exercise enough
- Women who are underweight or have an eating disorder

Smoking can increase the risk

Lack of oestrogen after the menopause speeds up bone loss in women, increasing fragility and fracture risk. Lower weight and body mass index (BMI) are associated with low bone mass. Lifestyle behaviours such as lack of exercise, smoking and heavy alcohol consumption affect bone vitality and increase fracture risk. A poor diet, insufficient calories and inadequate nutrients also promote bone loss, as do certain medical conditions and medications. Falling increases the chances of osteoporosis-related fractures.

WHAT HAPPENS IF I GET OSTEOPOROSIS?

If you have read the leaflet and think that you might be at risk of developing osteoporosis you should talk to your doctor. They will be able to give you more information about how to prevent and treat the disease.

There are many things you can do to help your bones. These include eating a well-balanced, calcium-rich diet to give you all the vitamins and minerals you need to develop and maintain strong, healthy bones. Following a varied diet will not only be good for the health of your bones but will also help to reduce the risk of other diseases such as heart disease.

Physical activity (exercise) is also important in keeping your bones strong and healthy. People who stay physically active throughout life have a lower risk of osteoporosis.

If you are diagnosed as having osteoporosis, there are many different medicines which can help to stabilise the condition.

The aim is to strengthen bones to prevent them from breaking because it is these broken bones which can cause pain and have a disabling effect on people's lives.

If you have already broken a bone because of osteoporosis then you are more likely to break another in the future. Changing diet, exercising regularly and taking the right medicines prescribed by your doctor can help to lower that risk.



Exercise keeps bones healthy

WHAT TREATMENTS ARE AVAILABLE?

Bisphosphonates are the most commonly prescribed medicines in the prevention of osteoporotic fragility fractures in postmenopausal women. They slow down the work of the 'breakdown' cells that absorb bone, and allow cells that grow bone to rebuild bone mass. This effectively reduces the risk of fractures.

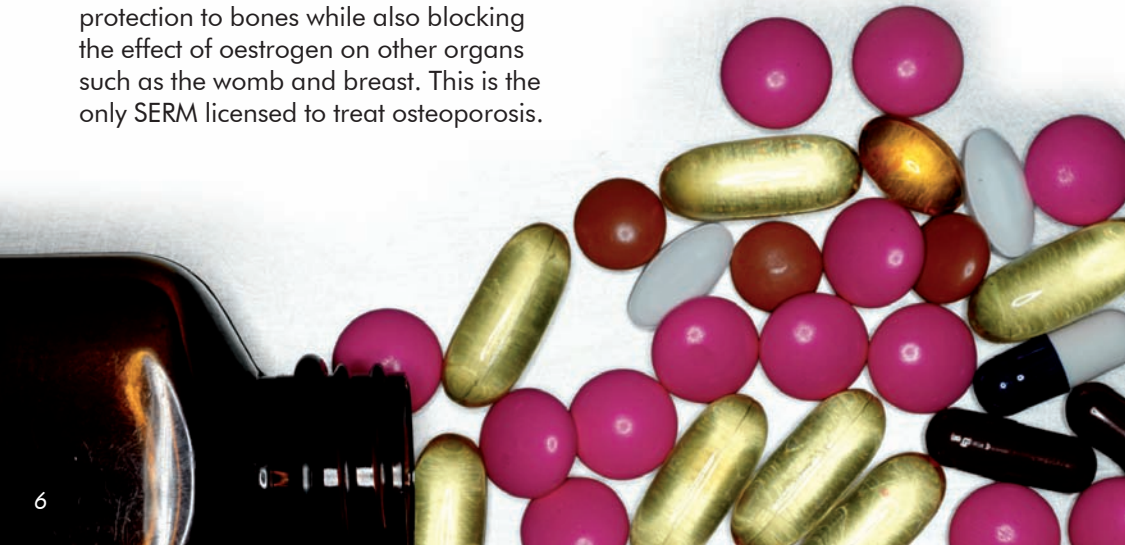
Bisphosphonates include alendronic acid (Fosamax), alendronic acid plus vitamin D (Fosavance), cyclical etidronate acid (Didronel PMO), ibandronic acid (Bonviva) and risedronic acid (Actonel). Bisphosphonates are usually tablets. The dose of tablet varies with its strength. Some bisphosphonates are taken daily, weekly, monthly or 2 weeks every 3 months.

Raloxifene (Evista), a daily tablet, is a selective oestrogen receptor modulator (SERM) used for the treatment and prevention of osteoporosis in postmenopausal women. SERMs mimic the female hormone oestrogen, giving protection to bones while also blocking the effect of oestrogen on other organs such as the womb and breast. This is the only SERM licensed to treat osteoporosis.

Strontium ranelate stimulates the bone building cells and inhibits the bone absorbing cells. Taken daily at bedtime at least 2 hours after eating, it comes as a sachet of powder that is mixed in water.

Calcium supplements (e.g. Adcal, Cacit, Calcichew, Calcidrink, Sandocal, Calceos, Calfovit) can be used to help prevent bone loss when dietary intake is low. These daily tablets are often prescribed to older people in nursing care to help prevent broken hips. Evidence indicates that **vitamin D** is also important. Daily doses of calcium and vitamin D have been shown to increase bone density and reduce the number of hip fractures and non-vertebral fractures.

There are many effective drug treatments for osteoporosis



ARE THERE ANY OTHER TREATMENTS?

Calcitonin is also used to treat postmenopausal osteoporosis. It maintains bone mass by suppressing bone absorption.

Calcitriol (Rocaltrol) is taken as a daily dose of tablets.

Teriparatide (Forsteo) has also been shown to be effective in postmenopausal osteoporosis treatment. It is an injection that you give yourself every day for up to 18 months. Teriparatide is mostly used for patients who have had a fracture or cannot take bisphosphonates. This drug is only available from specialists.

Hormone replacement therapy or HRT is used to treat osteoporosis in both men and women. For women, this means treatment with a drug containing oestrogen, sometimes with progestogen, following the menopause. For men, it can mean testosterone treatment if their osteoporosis is found to be because of low levels of this hormone. HRT is no longer the first choice of treatment for early osteoporosis in women but it is useful to tackle severe menopausal problems with added bone protection back-up.



HOW CAN DIET HELP?

Boost your calcium intake

Calcium is vital for strong teeth and bones because it gives them strength and rigidity. Our bodies contain about 1kg of this vital mineral and 99% of it is found in our bones. Most people should be able to get enough calcium through healthy eating.

Here are some tips on how to top up your calcium intake:

- Start your day with breakfast cereals. Add milk and it bumps up the calcium content even more
- Drink plenty of water. Bottled mineral waters and calcium-enriched waters and orange juice can be useful sources
- Enjoy your daily pint! Milk and dairy products, like yoghurt, fromage frais and cheese, are an excellent source of calcium
- Don't throw away the bones of tinned fish like sardines. They are rich in calcium. So too is whitebait
- Try tofu, a vegetable protein made from soya beans. It's high in calcium and low in fat
- Eat plenty of green leafy vegetables, like watercress, broccoli and curly kale

Keep up your levels of vitamin D

You need vitamin D to help your body absorb calcium. The best source is sunlight which your body uses to manufacture the vital vitamin in your skin. About 15-20 minutes sun exposure to the face and arms every day during summer should provide you with enough vitamin D for the year.

If you enjoy walking, gardening or any other outdoor activity, you are probably getting enough sunlight without even thinking about it. But be careful not to allow your skin to burn. You can also find vitamin D in margarine, egg yolks, oily fish, such as herrings and sardines, and cod liver oil.

Drink moderately

Drinking too much alcohol damages your skeleton but enjoying the odd glass of red wine could actually help your bones. It's always good to have alcohol-free days as well.

Try to quit smoking

Smoking has a toxic effect on bone and is another good reason to give up.



Eat a well-balanced, calcium-rich diet

WHY IS EXERCISE IMPORTANT?

Keep yourself active



Keep fit together

If you use your muscles less as you grow older, they will lose their strength. This, in turn, will affect your mobility and sense of balance. Leading an active lifestyle can halve your risk of breaking a bone, particularly your hip.

Keeping active means enjoying a variety of physical activities throughout the day. These may include leisure activities like bowls, dancing or walking, as well as everyday activities like housework, shopping or climbing the stairs regularly.

Remaining physically active as you get older is one of the best ways to reduce your risk of falling, which can result in painful broken bones. By remaining fit and active, your posture and sense of balance may improve and your muscles and stamina will stay stronger for longer.

You can adopt a more active lifestyle at any age, provided you begin with familiar activities that you enjoy and progress at an appropriate pace. You will feel the benefits whatever your age – research has shown that you are never too old to start reaping the rewards of being more active.

Try a little exercise

Strengthening your leg muscles will make you steadier on your feet. Cycling is excellent exercise for leg muscles, especially the thigh muscles. Golf, bowls and croquet are all sports that can be enjoyed and gardening can also be a useful activity. Use long-handled tools and raised flowerbeds to avoid bending.

Keep your balance

As we get older, our risk of falling increases so we often need to improve our sense of balance. If you like to swim, try walking about in the water, sideways and backwards as well as forwards. Tai Chi trains balance through gentle and controlled movements and dance is another balance-improving activity.

Don't overdo it

High impact exercises, such as jogging or jumping, are not appropriate for older exercisers and especially not for people with osteoporosis because they can cause a broken bone. Avoid forward bending exercises, such as touching your toes, which increases the risk of spinal fractures.

WHAT ELSE DO I NEED TO KNOW?

Changes in diet are sometimes recommended for people with osteoporosis. A diet low in calcium is associated with increased fracture risk among older men and women and in a recent study there was a significant decrease in fracture risk in patients who received calcium supplements.

It is well known that physical activity, particularly activity that maintains or increases muscle strength, coordination and balance, is beneficial in preventing osteoporotic fractures. If you have broken bones, you may need to be careful of high impact exercise but it is important to stay active and find something you enjoy to keep fit.

If your GP or specialist has prescribed a medicine for your osteoporosis, it is important that you keep using the treatment in the way prescribed. If you experience any side effects, tell your doctor immediately. Don't stop taking it or switch to something else without first talking to your doctor.

All medicines have benefits as well as possible side effects and risks. No treatment is right for everyone. Remember that medicines affect people in different ways so one medicine may cause side effects for one person yet not for another. You may have to try a number of different medicines to find one that suits you.

You and your doctor need to decide which treatment will be right for you. You will usually need to take your treatment for a long time so you need to be happy with it.



Keep taking your tablets

HAVE I GOT OSTEOPOROSIS?

As the average age of the population increases, so too does the incidence of osteoporosis.

Osteoporosis causes your bones to become more fragile so they are more likely to break.

If you have already broken a bone after a minor bump or fall, you may already have osteoporosis.

You may already have had a fracture and this is how your osteoporosis was picked up.

Other warning signs include loss of height and curvature of the spine (kyphosis).

If you have one of these warning signs, you may want to discuss your risk of osteoporosis with your doctor.

Alternatively, call the National Osteoporosis Society Helpline **0845 450 0230** and speak to one of their nurses.

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