

OSTEOPOROSIS FACT SHEET

What is osteoporosis?

Osteoporosis literally means porous or brittle bones. It is characterised by low bone mass (density) and deterioration of bone tissue. Another frequently used term is osteopenia, which indicates that the bones are thin but this has not yet reached the stage of osteoporosis. 'Osteo' means bone and 'penia' means poverty. Osteoporosis is a disease of the bones that results from loss of bone density.

Up until the age of about 25, calcium is accumulating in our bones and bone density is being gradually built up. Between 25 and 35, calcium levels remain fairly stable and our bones remain strong. However, from the mid thirties onwards, things start to go downhill. A loss in bone density occurs slowly, with a marked acceleration in women around the time of the menopause, and then around 1% a year thereafter.

Commonly thought to be restricted to women over the age of 60, osteoporosis can actually affect women of any age and also men, but is particularly likely to occur in women who have premature ovarian insufficiency (POI). With osteoporosis, prevention is far easier than cure.

Why is osteoporosis a problem?

The main problem with bone loss is that once it has started happening, it can be slowed down but it cannot always be turned back. The thinner the bones become the more likely it is that a fracture (broken bone) will occur. In osteoporosis this may be with apparently very little trauma. In women the most common fracture sites are the wrist, spine, shoulder, hip or pelvis.

The scale of the problem seems to be rising rapidly. For every two osteoporosis sufferers recorded in the 1960s, there were nine by 1990. In 2004 the cost of osteoporotic fractures to the NHS was stated to be £1.8 billion and, recently, a survey has revealed that more than a third of women will suffer at least one osteoporotic fracture during their lifetime. Even more worryingly, more women die as a consequence of osteoporosis than from cancer of the cervix, ovaries and uterus put together. This is mainly because a fractured hip leads to immobility and other health problems.

How is osteoporosis diagnosed?

Osteoporosis is diagnosed using a DXA (dual energy X-ray absorptiometry) scan of the hip and lower spine, which gives a measurement of bone density. In an ideal world, all women with an early menopause would have a DXA. DXA, usually performed in a hospital, measures the bone density of the hip and lower spine. It is a scanner which uses two simultaneous X-ray energy beams, one high energy and one low energy. The low energy beam can pass through tissue but not bone. Bone density can be calculated from how much energy the bones and soft tissue absorb from the energy beam. This is the gold standard of tests and is what you should ask your doctor for.

DXA can be performed at other sites (e.g. the forearm) and there are also smaller portable machines which work on an ultrasound basis where the procedure is usually performed by testing the bone density of the heel. These tests are much less reliable than DXA of the lower spine and hip in both diagnosis and assessment of response to treatment.

Late signs of osteoporosis include a loss of height, 'dowager's hump' and signs of osteoporosis on a normal X-ray (this is not seen until a significant proportion of bone has been lost).

Urine and blood tests are currently being investigated, but in the meantime you should ask your doctor to refer you for a DXA bone scan. If this suggestion meets with a negative response, enquire whether it is possible to arrange a scan privately.

Can anything be done to cure osteoporosis?

Lost bone cannot be always replaced but there are ways of halting, at least temporarily, the steady downwards decline. One of the most effective methods is oestrogen replacement, either in the form of Hormone Replacement Therapy (HRT) or the combined oral contraception pill (COCP). When a woman starts taking HRT, her bone density often rises significantly during the first year and this level is usually maintained for as long as HRT is continued. A recent report has confirmed that older women who have been taking HRT for 5 years have 25% fewer bone fractures overall and 33% fewer hip fractures. Oestrogen replacement is recommended in POI. Risks associated with HRT in older women do not apply to young women with POI. It can be considered simply replacing the hormones the body should be making itself at this young age. The COCP is another form of oestrogen replacement which you may wish to consider.

If HRT is not an option for you then bisphosphonate (e.g., aledronate) may be prescribed. This is only licensed for the treatment (not the prevention of) osteoporosis.

Can anything be done to prevent osteoporosis?

Even if you have been told that you have osteoporosis, there is still much that can be done to prevent your bones from becoming even more fragile and to slow down the spread of the disease. If you have teenage daughters, encourage them to think about their bones now. The main areas you need to look at are your diet, your exercise regime and your lifestyle.

About 20% of the calcium in your bones is reabsorbed and replaced every year, as old bone cells are broken down and new ones are formed to keep the skeleton strong. In effect, the whole skeleton is replaced every seven years.

With osteoporosis, prevention is the most effective treatment. To build and maintain healthy bones, the body needs osteoid, a mesh of micro fibres for calcium, magnesium and other minerals to stick to. Osteoid is mainly comprised of protein, elastin and collagen. To build all these various components the body needs vitamin C and B6, copper, zinc, manganese and glucosamine. Then you need vitamin K to activate the whole thing. Calcium and magnesium adhere to the mesh and the body uses this to form bone.

What you eat can make a difference to your bone health since calcium, whether in the form of low fat dairy products, dark green, leafy vegetables or nuts is vitally important for bones. Current UK government recommendations are that perimenopausal and postmenopausal women should not allow their calcium intake to fall below 1500 mg per day (one pint of semi skimmed milk contains 750 mg). The problem is that absorption of calcium tends to become less efficient after the menopause. Vitamin D helps with this process and so it is vital either to add a vitamin D supplement or make sure you consume plenty (found in oily fish and fish liver oils and fortified margarines) or feel the sun on your skin on a regular basis. For more advice on what to eat, see The Daisy Network fact sheet entitled 'Nutrition and the Menopause'.

Increasing dietary calcium is important for bone health. If you don't like, or cannot tolerate, dairy products, there are now orange juices and mineral waters which are fortified with calcium.

Exercise is another key part of dealing with osteoporosis and the emphasis here is on weight-bearing exercise which puts weight on your muscles and bones through gravity. A startling demonstration of the importance of exercise is the fact that astronauts often develop osteoporosis due to long periods with no weight-bearing activities. The usual advice is that you should take small amounts of regular exercise, perhaps walking for, say, 30 minutes four times a week and even introducing some gentle weight-lifting activities. Dancing, cycling and tennis will also be very beneficial and may even be enjoyable!

As for your lifestyle, cutting out alcohol and cigarettes can make a big difference since both rob the body of essential nutrients. One study has suggested that smoking decreases bone mass by as much as 25% because it reduces vitamin C levels in the body. It is also a good idea to reduce your intake of sodium and to make sure that you drink at least 1-2 litres of filtered water every day. In general, if you enjoy a healthy, well balanced and varied diet, take regular walks and concentrate on living well, you will be doing as much as is possible to keep osteoporosis at bay.

Summary

The National Osteoporosis Society recommends the following six steps to healthy bones:

1. Don't smoke
2. Take regular weight-bearing exercise
3. Limit alcohol to no more than two glasses of wine a day
4. Eat a balanced diet rich in calcium and vitamin D
5. Discuss taking oestrogen replacement (HRT or COCP) with your GP
6. Contact the NOS for more information.

Useful Addresses

National Osteoporosis Society,
Manor Farm, Skinners Hill
Camerton
Bath
BA2 0PJ
Tel: 01761 471771 / 0845 130 3076 (Mon - Thu 9 - 4.30pm, Fri 9 - 4pm)
Helpline: 0845 450 0230 (Mon - Fri 9 - 5pm)
[E-mail: info@nos.org.uk](mailto:info@nos.org.uk)
www.nos.org.uk

Independent medical charity offering information and support by telephone or letter on all aspects of osteoporosis, including HRT. The society also publishes a number of booklets which are free and easy to download if you wish.

Useful Books

Beat Osteoporosis: Help Yourself to Delicious, Calcium-Rich Meals for Better, Stronger Bones, by Dr Victor Ettinger and Judy Fredal

Everything You Need To Know about Osteoporosis by Rosemary Nicol

Exercise for Strong Bones by Joan Bassey and Susie Dinan (Foreword by the National Osteoporosis Society)

Understanding Osteoporosis by Dr Juliet Compston

Osteoporosis – The Silent Epidemic by Marilyn Glenville