



# *Frequently Asked Questions*

## **Osteoporosis**

Bone is made up of two main components. The first is a protein substance, which forms the basis of the skeleton. The second component is calcium salts which are deposited within the protein and which give it its hardness and add to its strength. As they get older the loss of both of these components from the bones occurs in every individual, leading to some thinning of the bones. Osteoporosis is a condition in which this thinning of the bones occurs to an unusually high degree and in which the individual is at risk from fractures, especially of the hips, wrists and vertebrae (the bones of the spine). It is a condition, which mainly occurs in women over the age of 50 (20% of women are likely to be affected), although younger women and about 1 in 12 men can also be affected.

### **Why does it occur?**

Doctors do not yet know everything they would like about the causes of osteoporosis, but in recent years much research about the condition has been done, so more is known about it than ever before. Most people reach their maximum bone strength at about the age of 35. After this age all men and pre-menopausal women (those who have not yet had their menopause) lose bone thickness quite slowly at a rate of about 1% a year.

Women lose bone thickness more quickly than this after the menopause. This occurs whether the menopause is at the usual age of approximately 50 years, or as a result of premature menopause or removal of the ovaries during surgery. The female hormone oestrogen protects against rapid loss of bone, so when oestrogen levels fall after the menopause this protection is lost.

This faster rate of post-menopausal bone loss is the commonest cause of osteoporosis. However, there are certain drugs and medical conditions and various factors in a person's lifestyle, which may also speed up bone loss. These will be discussed below. Similarly, one cause of osteoporosis in men is lack of the male hormone testosterone, which also seems to give some sort of protection against loss of bone in men.

### **Who is more at risk of developing osteoporosis?**

Certain groups of people are at more risk of developing osteoporosis. Some of the factors listed are beyond the control of the individual person but some are not, and therefore it is often possible for someone to lower their chances of getting the condition. Those at higher risk include:

- ❖ Post-menopausal women, especially those with premature menopause occurring either naturally, or due to having both ovaries removed (oophorectomy) as a result of surgery or radiotherapy
- ❖ Smokers
- ❖ People with a family history of osteoporosis in close relatives
- ❖ Thin people including especially those with anorexia nervosa (sometimes also called 'slimmers disease')
- ❖ People who have a diet which is low in calcium
- ❖ Those with a high intake of alcohol
- ❖ People who have to take steroids over a long period of time for another medical condition such as severe asthma or certain types of arthritis
- ❖ Men who have a medical condition which results in low levels of the male hormone testosterone
- ❖ People with reduced mobility

## **What symptoms does osteoporosis cause?**

Osteoporosis may not cause any symptoms at all until it is bad enough to cause pain due to distortion or breakage of the bones. The most commonly affected bones are in the vertebrae (bones of the spine) and the bones of the wrists and hips, although anywhere in the body can be affected. Therefore the first sign of a problem may be that a person notices that they are developing a curvature of the spine causing them to have a permanent stoop.

This occurs as a result of a slow compression of the weakened vertebrae which makes them become wedge-shaped. This can eventually cause quite a pronounced forward curve of the spine called a 'kyphosis'. Alternatively, someone with osteoporosis will notice that even quite minor falls result in a fracture of the hip or wrist.

## **How is osteoporosis diagnosed?**

A doctor may strongly suspect that osteoporosis is present from a history of frequent fractures in a patient or from the development of the classic kyphosis mentioned above, but really the only accurate test for osteoporosis is bone densitometry usually carried out by means of a DEXA (dual x-ray absorptiometry) scan.

This measures the amount of calcium in the bone and therefore provides a measurement of bone mass. Accesses to these types of scans vary throughout the country but they are becoming more readily available.

## **What is the treatment for osteoporosis?**

A number of treatments exist to slow the rate of bone thinning in people who have osteoporosis, but unfortunately as yet there is still no treatment which restores osteoporotic bone to normal. It is therefore important to try to prevent bone loss from happening in the first place if at all possible, so various preventative measures are discussed below. Drug treatments for the condition fall into three main groups:

**Hormone replacement therapy:** The benefits of HRT in the prevention and treatment of osteoporosis have been known for many years and it is still the treatment of choice for most women. As each year goes by new HRT formulations are produced, some of which offer hormone replacement without the need for a return to the regular periods which many women find unacceptable. However, some women worry about the slight increased risk of breast cancer from taking HRT and it has been found that much of the protection to the bones given by HRT is lost soon after stopping treatment. Research is under way to develop drugs which give the protective effect of HRT on the bones and heart without the disadvantages of the risks involved.

**Biphosphonates:** These are drugs which have been found to help 'fix' calcium to the bones and therefore help to prevent further bone loss in women in whom osteoporosis has actually been diagnosed. They are useful for those women who are unsuitable for, or who cannot tolerate HRT. The first of these drugs to be produced was one called etidronate which is given with calcium in a preparation called Didronel PMO. This has been found to reduce further bone loss and can safely be used for several years continuous therapy. Another drug with similar properties is alendronate (Fosamax).

**Calcium and vitamin D:** Between 1 and 1.5 grams of calcium is required in the diet daily to ensure good bone health in osteoporosis. Most osteoporotic patients do not consume this much, so calcium supplements are often recommended, together with vitamin D. This helps the skeleton to absorb calcium since many elderly patients are also slightly deficient in this vitamin. Some preparations now exist which combine calcium and vitamin D.

## **Can osteoporosis be avoided?**

In some cases osteoporosis is difficult to avoid - for example, when it is caused by long term steroid therapy. However, in many instances the individual can do several things to lessen their chances of developing the condition. There is evidence that both weight-bearing exercise and increased calcium in the diet are of benefit in strengthening bones. A litre of milk contains 1 gram of calcium so a modest

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intake of dairy products would meet the recommended daily requirement. Even an extra glass of milk a day has been found to significantly increase bone density. Alcohol in moderation (1-2 units a day) has a slightly protective effect but taken in excess may hasten bone loss. Also a lot of salt in food has been found to reduce calcium absorption from the gut and should therefore be avoided, as should an excess of protein. Smoking is a risk factor for osteoporosis and so is not advisable especially in those at high risk of osteoporosis.

Finally, those who think they may be at special risk of developing osteoporosis should discuss the possibility of having their bone density measured so that their risk can be assessed and any necessary measures undertaken to prevent or slow down the disease.

## **Where can I obtain further information?**

Apart from contacting your GP, the following organizations may offer further help and information:

National Osteoporosis Society  
PO Box 10  
Radstock  
Bath  
BA3 3YB  
Telephone: 01761 471771  
Helpline: 01761 472721

Amarant Trust  
11-13 Charterhouse Buildings  
London  
EC1M 7AN  
Telephone: 01293 413000 (Mon-Fri 12.00-19.00)  
HRT line: 0891 660620

## **Sources**

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HEINONEN, A., et al. (1996) Randomised controlled trial of effect of high-impact exercise on selected risk factors for osteoporotic fractures, Lancet. 348(9038) pp.1343-7.

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