

Osteoporosis

Osteoporosis literally means "porous bones". It's a condition where bones lose density causing them to become weak and more likely to fracture (break). About one in two women and one in five men over 50 will fracture a bone because of osteoporosis. Osteoporosis can affect all age groups, but it's most common in postmenopausal women. Having osteoporosis doesn't automatically mean that your bones will fracture; it just means that it's more likely.

Symptoms of osteoporosis

Osteoporosis has no symptoms, and may be unaware of any problems until you fracture a bone or start to lose height.

Complications of osteoporosis

Broken wrists, hips and spinal bones are the most common fractures in people with osteoporosis. Fractures can, however, occur in any bone. They can result in pain, disability, loss of independence and a drop in self esteem.

Causes of osteoporosis

Healthy bone consists of a strong mesh made of protein and minerals (particularly calcium). This mesh is living tissue that is constantly being renewed by two types of cells. One type builds up new bone and the other breaks down old bone. Up to our mid-20s our skeleton is strengthened, but from our 40s onwards our bones gradually lose their density as a natural part of ageing.

Our genes determine how prone we are to osteoporosis, i.e. it runs in families. However other factors increase the risk of osteoporosis.

The breakdown of bone is quicker in women who have been through the menopause. This is because of a lack of the hormone oestrogen. Oestrogen reduces the amount of bone broken down and so helps to protect against osteoporosis. In women, oestrogen is made in the ovaries from puberty until the menopause. Anything that reduces the number of years that a woman produces oestrogen may increase the risk of osteoporosis. These include:

- an early menopause (before the age of 45)
- a hysterectomy before the age of 45 (especially if both ovaries are removed)
- excessive exercising - this can reduce your hormone levels and as a result your periods may stop for a prolonged time

Other factors include:

- age - the risk increases as you get older
- race - Caucasian or Asian races are at greater risk than African-Caribbean
- gender - women have smaller bones than men
- a family history of osteoporosis, particularly a history of hip fracture in a parent
- a previous fragility fracture (fracturing a bone after only a minor accident)
- long-term immobility (eg confined to bed)
- a very low body mass index
- excessive alcohol consumption or smoking
- low levels of vitamin D or dietary calcium

Some medicines and disorders can increase your risk including:

- long-term use of corticosteroids (medicines sometimes used to treat severe allergies or inflammation)
- long-term use of heparin (used to thin the blood)
- aromatase inhibitors (used in the treatment of breast cancer in women)
- overactive thyroid disorders (eg hyperthyroidism)
- rheumatoid arthritis
- digestive disorders that affect nutrient absorption, such as Crohn's Disease, chronic liver disease, or coeliac disease

Diagnosis of osteoporosis

Osteoporosis is usually diagnosed in hospital, often after a fall or if you fracture a bone. Your doctor will measure your bone density using a dual-energy X-ray absorptiometry (DEXA) scanner. Osteoporosis is diagnosed when bone density is found to be significantly lower than average. Scans are painless and take approximately 10 to 20 minutes.

The results of the scan will be made available immediately or very soon after, depending on where you have it done. Your scan results will be given in the form of a T-score. A T-score value greater than -1 shows that your bone density level is normal and you do not have osteoporosis.

A T-score value of between -1 and -2.5 indicates that you have osteopenia. This is the early stage of osteoporosis and is a warning that you must start taking care of your bones.

A T-score of below -2.5 meanwhile indicates osteoporosis. In next week's article I will speak about the treatment of osteoporosis.

Self-help

If you have osteoporosis you need to be careful of vigorous, high-impact exercise. However, leading an active lifestyle will improve balance, coordination and develop muscle strength. All these can reduce the risk of falling and fracturing a bone. Beneficial exercise includes swimming, gardening, walking and golf.

Eating a diet rich in calcium is important for maintaining healthy bones. Dairy products and green leafed vegetables are good sources of calcium. Postmenopausal women with osteoporosis should aim to take 1,000mg of calcium every day, either in their diet or as a supplement. This can be obtained from 600ml of milk with either 50g of hard cheese (eg) Cheddar or Edam), one pot of yogurt, or 50g of sardines.

Your body also needs vitamin D to absorb calcium properly. Vitamin D is found in certain foods, including cod liver oil, oily fish such as sardines and herrings, margarine and egg yolks. It's also made by your skin when you're in the sunlight. The National Osteoporosis Society recommends about 20 minutes of sun exposure to the face and arms, every day during the summer, to provide you with enough vitamin D for the year. However, to reduce your risk of getting skin cancer, you should cover your skin between 11am and 3pm, and don't allow your skin to burn.

You should try not to drink fizzy drinks or have too much caffeine, salt or animal protein, as these can affect the balance of calcium in your body. Eating plenty of fruit and vegetables can help to cancel out the effects of too much protein in your diet.

Smoking can have a harmful effect on your bone strength and can also cause an early menopause. If you smoke, you should try to give up. You should also be careful not to drink too much alcohol.

New Research on vitamin D

New research has found that a daily supplement of 700 to 1000IU of vitamin D reduces the risk of fractures from falls among older people by 19%. In-fact the British Medical Journal shows that a dose of less than 700IU per day has no effect in reducing fractures.

Fall prevention programme

If you are diagnosed with osteoporosis or have been unlucky enough to have had a fracture your GP or hospital consultant will refer you to a fall prevention programme (FPP). Your fall prevention programme will be undertaken by a chartered physiotherapist. The physiotherapist will prescribe an exercise programme to help strengthen muscles which are involved in balance. This programme is very successful in preventing falls.

Medicines- all prescription only

- ❖ **Bisphosphonates**. Examples include Fosamax[®], Actonel[®] and Bonviva[®]. They work by slowing down bone loss. They are taken once weekly but Bonviva[®] is once a month. They can reduce the frequency of fractures by 50%.
- ❖ **Strontium ranelate** (eg) Protelos[®]. You may be prescribed this if you can't take bisphosphonates. This drug stimulates new bone to grow and reduces bone loss. It is taken once daily, it is a sachet you put in water. It reduces vertebral fractures by 41% and hip fractures by 36%
- ❖ **Parathyroid hormone peptides** (eg) Forsteo[®]. It works through the fact it is very similar to parathyroid hormone - this hormone helps to regulate calcium levels and the activity of cells involved in bone formation. It is a subcutaneous injection (into side of stomach usually), one injection is used daily. A trained nurse from Lilly will give training in your home initially for free. Reduces fractures by average of 41%. It is only used if you cannot tolerate other treatments.
- ❖ **The selective oestrogen receptor modulator** (eg) Evista[®]. This is a synthetic hormone that mimics the effect of oestrogen on the bones. One tablet is taken daily. It reduces risk of fractures by approx 47%.

Hormone replacement therapy (HRT) is a prescription-only treatment that relieves symptoms of the menopause by restoring hormones to a premenopausal level. HRT has also been shown to reduce osteoporosis, but you probably won't be prescribed it to treat or prevent the condition. Deciding whether to take HRT is your choice and your GP will discuss the risks and benefits with you.

Disclaimer: Information given is suitable for the person above only; Please ensure you consult with your healthcare professional before making any changes recommended

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