Osteoporosis

Our bones are very useful and without them we wouldn’t get very far! The adult skeleton has 206 bones, some very small such as in the inner ear. Bones have a number of functions; most importantly providing structure to the body; however, they also protect vital organs, such as the ribs protecting the heart and lungs, store minerals (such as calcium), and some bones produce blood cells within bone marrow.

Osteoporosis is a condition that causes bones to become brittle, it predominantly affects older people, but it can affect young people as well. The average age of employees in the UK is on the rise and this could prove to be a growing issue for businesses, not to mention the huge impact it has upon people who are affected by the condition. Osteoporosis literally means ‘porous bones’ and is often referred to as the fragile bone disease. The disease affects mostly women but not exclusively. It is thought that approximately three million people have Osteoporosis in the UK.

Normally we think of bones as white and dry but this is not the case, they are alive and constantly being renewed (called remodeling) throughout life, more so when you’re younger. Although from the outside bones look simple, they are actually a clever design that allows the skeleton to be strong without being heavy. Each bone is made up of two types of bone tissue; a thick outer shell called ‘cortical’ bone and a honeycomb like structuring inside the shell called ‘trabecular’ bone.

World Osteoporosis Day (http://worldosteoporosisday.org/) is the 20th October this year, wear white to show your support.

What is Osteoporosis?

Osteoporosis causes the bones to lose their strength and so can easily be fractured. It is a condition where the bone is lost more quickly than new bone is grown, making the bones brittle, porous and therefore liable to breaking (called fragility fractures).

Before the age of 35 there is a balance between old bone that is removed (called resorption) and new bone replacing it, but as people get older this balance is not always maintained. The bones do not look any different when people have Osteoporosis, but in reality the cortical shell thins and the honeycomb structure becoming larger as the struts become thinner and sometimes break down. This change in the quality of bones is much more likely and more significant as people become older.

1 in 2 women and 1 in 5 men over the age of 50 experience fractures, mostly due to low bone strength. Although fractures caused by Osteoporosis can happen in various parts of the body; wrists, hips and spine are the most commonly affected areas.

Women are more likely to develop Osteoporosis than men due to hormone factors related to the Menopause, especially if this happens early or is induced by an early (before 45 years) hysterectomy. The cause for most men’s Osteoporosis is unknown but the male hormone, testosterone, does play a part in keeping bones healthy. Some diseases or conditions can increase the risk of developing Osteoporosis, as well as a family history of the condition. Some lifestyle factors can also increase a person’s risk, such as very low body weight, alcohol abuse, smoking heavily, and other factors. For more information see the Reference Section below.

Investigations and diagnosis

The most common investigations are the doctor listening to a person’s history of the problem, physical examination but also blood tests and in some cases a Bone Mineral Density Scan or Bone Densitometry (DEXA or DXA Scan).

Prevention
Your genes are responsible for determining your height and the strength of your skeleton, but lifestyle factors such as diet and exercise influence how healthy your bones are. Moreover, bone mass acquired during youth is an important factor, as the higher the peak bone mass, the lower the risk of Osteoporosis.

Regular weight-bearing exercise and resistance exercises are essential. As you will have heard before, it is recommended that adults aged 19 to 64 should do at least 150 minutes (2 hours and 30 minutes) of moderate-intensity aerobic activity every week. This can improve bone density and help to prevent Osteoporosis.

If you already have Osteoporosis, it’s a good idea to talk to your GP, health specialist, or physiotherapist before starting any exercise to make sure you will not harm yourself and it is the right type for you.

**Weight-bearing Exercises**

These are exercises where your feet and legs support your weight. High-impact weight-bearing exercises, such as running, skipping, dancing, aerobics, hiking in the countryside, brisk walking, or tennis, are all useful ways to strengthen your muscles, ligaments and joints. Unfortunately, even though they are exercise for our bodies, neither swimming nor cycling are weight-bearing exercises!

**Muscle-Strengthening or Resistance Exercises**

Resistance exercises should be for all the major muscle groups (so the legs, hips, back, abdomen, chest, arms and shoulders). They help as muscle strength causes the tendons to pull on the bone which boosts bone strength. Examples include press-ups, weightlifting, using weight equipment at a gym, using elastic exercise bands or even just raising up and down on your toes!

Yoga and Pilates can also improve strength, balance and flexibility. However, certain positions may not be safe for people with Osteoporosis so check with your GP or physiotherapist before commencing classes.

If the above suggestions are too vigorous for your condition, then the following website has some sitting exercises to perform that will benefit people with Osteoporosis. [http://www.nhs.uk/Livewell/fitness/Documents/NHS_sitting_exercise.pdf](http://www.nhs.uk/Livewell/fitness/Documents/NHS_sitting_exercise.pdf)

**Eating a healthy diet**

We’re always being told that a healthy and varied diet is good for us – which is true! To help prevent or treat Osteoporosis, Calcium and Vitamin D are important. The recommended intake per day for an adult is 700micrograms of calcium and 10micrograms of Vitamin D. These can usually be obtained through a balanced diet.

Some calcium rich foods are: leafy green vegetables, dried fruit, tofu, yoghurt, and milk

Some Vitamin D rich foods are: oily fish (this includes salmon, sardines, herring and mackerel), red meat & liver, fortified foods (this includes most fat spreads and some breakfast cereals - check the information label for amounts), and egg yolks.

**What else can you do?**

Other lifestyle factors that can help prevent Osteoporosis include:

- Quitting smoking – many GP practices now have group sessions as well as advice one to one
- Limiting your alcohol intake – the NHS recommends not drinking more than 14 units of alcohol a week; it’s also important to avoid binge drinking and to have ‘rest days’ from alcohol too.
- Limiting your caffeine intake – drinking large quantities of caffeine can affect calcium absorption, so reducing the amount consumed can help. Don’t forget that some soft drinks as well as coffee and tea contain caffeine.

**Treatment**

Keeping good levels of calcium and Vitamin D in the body through diet is essential, but medication can help as well.

Getting out in the sun will enable production of Vitamin D, which helps in strengthening bones. The best time for this is late March to September as winter sun in Britain does not give us enough of the light called Ultraviolet B to produce Vitamin D in the body.

**References & Further Reading**

[https://www.iofbonehealth.org/what-is-osteoporosis](https://www.iofbonehealth.org/what-is-osteoporosis)
[https://www.nos.org.uk/](https://www.nos.org.uk/)
[https://www.nof.org/](https://www.nof.org/)
[http://www.nhs.uk/conditions/osteoporosis/Pages/Introduction.aspx](http://www.nhs.uk/conditions/osteoporosis/Pages/Introduction.aspx)

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