

Osteoporosis Treatment

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.

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 vegetables. 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. Care must be taken as many dairy products are high in fat, however the low fat versions have the exact same calcium levels as full fat versions.

You should try not to drink fizzy drinks or have too much caffeine, salt or animal protein such as beef, 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.

Vitamin D deficiency in Ireland

One of the risk factors for osteoporosis is vitamin deficiency. Vitamin D is essential in aiding the absorption of calcium and maintaining the strength of bones. Vitamin D has many other functions in the body including ensuring muscle strength, ensuring a strong immune system and reducing inflammation.

Recent Studies have surprised health authorities by revealing that low vitamin D status and vitamin D deficiency are widespread in the population of Ireland. Vitamin D deficiency was thought to have been eradicated in Ireland in the second half of the 20th century due to better nutrition. However, over 20 cases of rickets (due to vitamin D deficiency) in infants and toddlers were discovered at two Dublin hospitals in the last four to five years. Further evidence is emerging that there is widespread low levels of vitamin D in the general population in Ireland. There are several Irish factors which has contributed to this. Vitamin D is mainly produced in the body by exposure of the skin to sunlight. However, because of Ireland's northerly latitude, in the months between November and March there is inadequate quality and quantity of sunlight to enable sufficient production of vitamin D by the body. Even on sunny days in the winter, the sun's rays are of the wrong type for production of vitamin D.

In addition, with more people working indoors and using sunscreen (to prevent skin cancer) when outside, vitamin D from sunlight exposure has decreased.

Darker skinned people living in Ireland are particularly at risk as they require more sunlight to produce vitamin D (10 to 50 times more exposure to sunlight required). With more people of Afro-Caribbean origin now living in Ireland, cases of vitamin D deficiency is becoming more prevalent.

Dietary sources of vitamin D are not consumed in sufficient quantities in Ireland to counter the lack of sunlight exposure and does not form part of the weaning diet for infants. Examples of dietary sources of vitamin D include oily fish (e.g. salmon, mackerel, and sardines), egg yolks and fortified foods such as milk and breakfast cereals.

Recommended Dietary Allowances (RDAs) for Vitamin D

Age	Male	Female	Pregnancy	Breast Feeding
0–12 months*	400 IU (10 mcg)	400 IU (10 mcg)		
1–13 years	600 IU (15 mcg)	600 IU (15 mcg)		
14–18 years	600 IU (15 mcg)	600 IU (15 mcg)	600 IU (15 mcg)	600 IU (15 mcg)
19–50 years	600 IU (15 mcg)	600 IU (15 mcg)	600 IU (15 mcg)	600 IU (15 mcg)
51–70 years	600 IU (15 mcg)	600 IU (15 mcg)		
>70 years	800 IU (20 mcg)	800 IU (20 mcg)		

Osteoporosis and Vitamin D

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.

Between 40 to 80 per cent of people over 65 have vitamin D deficiency in Ireland. Vitamin D deficiency also causes a mild muscle weakness and hence increases the risk of falls and hence fractures. Therefore, vitamin D supplementation is especially important in this age group.

If you are not getting enough vitamin D from your diet, Adult D[®] Capsules which are available from Whelehans Pharmacy are an excellent source of vitamin D. Adult D[®] Capsules contains 1000IU of vitamin D3 which is the easiest type of vitamin D to absorb. It is recommended by the Food Safety Authority of Ireland and only costs €2.98 per month. It is not recommended to take above 4000IU of vitamin D daily but unlike vitamin A, there is no evidence that high levels of vitamin D pose any risk to health.

Medication

Bisphosphonates. Examples include Alendronate (Fosamax[®], Fosavance[®], Romax[®], Osteomeil[®]), Risedronate (Actonel[®], Ridate[®]) and Ibandronic Acid (Bonviva[®]). Fosavance[®] contains vitamin D in addition to alendronate. Generic versions such as Romax[®] and Ridate[®] are equally as effective but can be significantly less expensive.

They work by slowing down bone loss. They are taken once weekly but Bonviva[®] is once a month. Biphosphonates can reduce the frequency of fractures by 50%.

According to NICE* guidelines, alendronate is first choice in postmenopausal women over 65 with risedronate or etidronate recommended as alternatives.

*NICE = National Institute of Clinical Excellence with are the main medication advisory body of the NHS in the UK.

The main side effects of biphosphonates are oesophageal irritation, abdominal pain, indigestion, regurgitation, diarrhoea, constipation, flatulence, muscle pain and headache. Biphosphonates should be taken with a good glass of water at least 30 minutes before breakfast on an empty stomach and the person must stand or sit upright for half an hour after taking (ie) not lie down. This is because if the patient lies down the tablet can get stuck in the oesophagus and cause irritation including ulcers. It should be avoided in patients with poor swallow and it is not advised to crush. For patient with poor swallow a better option is Protelos[®] Sachets as they are mixed with water and taken like a drink.

There have been reports of osteonecrosis of the jaw (ONJ) reported with biphosphonates, particularly with intravenous formulations given in high doses for metastatic bone disease. ONJ is a condition where the jaw breaks. The frequency of ONJ with biphosphonates has been estimated to be about 1 in 100,000 patient-years, which is similar to the frequency in the overall population.

Strontium ranelate (eg) Protelos[®]. You may be prescribed this if you can't take bisphosphonates. According to NICE, strontium should be the next option if biphosphonates cannot be used by the patient. This drug stimulates new bone to grow and reduces bone loss. It is taken once daily, preferably at bedtime. It is a sachet you put in water making it a good option in those with poor swallow. It reduces vertebral fractures by 41% and hip fractures by 36%. Side effects include nausea, diarrhoea, risk of clots, headache and skin irritation. It can very rarely cause a severe allergic reaction so a person should stop taking it and consult their doctor if they get a skin rash while taking it.

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) Raloxifene (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%. Unlike HRT, Evista[®] does not reduce menopausal symptoms like flushing and sweating. An advantage of Evista[®] is that it reduces the risk of oestrogen receptor type breast cancer so is a good option for those postmenopausal women prone to both osteoporosis and oestrogen receptor positive breast cancer. Evista[®] should be avoided in women prone to venous thromboembolism (clots in the veins) and side effects include hot flushes, leg cramps, minor fluid build up and slight flu like symptoms.

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. HRT should not be considered as the first line for postmenopausal osteoporosis in women over 50. HRT is of most benefit for the prevention of postmenopausal osteoporosis if started early in menopause and used up to 5 years. Deciding whether to take HRT is your choice and your GP will discuss the risks and benefits with you.

Calcitonin (Miacalcic[®] Spray) contains the active ingredient salmon calcitonin, which is a manufactured form of the natural hormone calcitonin. Calcitonin is a hormone produced naturally by cells in the thyroid gland. It plays a part in controlling the amount of calcium in the body, by regulating the formation and breakdown of bone. Salmon calcitonin has the same effects as the natural human hormone and is used to prevent bone breakdown. Miacalcic[®] nasal spray has been shown to reduce the risk of vertebral (spinal) fractures, but not hip fractures, in postmenopausal women with osteoporosis.

When you administer Miacalcic[®] nasal spray into the nose, the calcitonin is rapidly absorbed through the lining of the nose into the bloodstream. It is advised that Calcium and vitamin D supplements are taken in combination with this Miacalcic[®]. Side effects are rare but may include nausea and vomiting, indigestion, constipation, diarrhoea, palpitations, headaches, dizziness or fatigue. The pack should be kept in the fridge until opened but once opened it can be kept at room temperature. The container should be discarded within 4 weeks of opening.

Denosumab (Prolia[®]) is a human monoclonal antibody that inhibits osteoclast formation so reduces the breakdown of bone. It is licensed for use in postmenopausal women at risk of osteoporosis or men who have bone loss due to prostate cancer. Prolia[®] is a six monthly subcutaneous injection which is given into the abdomen or thigh. It is mainly used for patients unable to follow the more complicated dosage regime or cannot tolerate side effects of other osteoporosis medication. Side effects include constipation and urinary tract infections.

Zoledronic acid (Aclasta[®]) is an intravenous infusion which only has to be administered once a year. It is usually administered in hospital and the administration only takes 15 minutes. It is a bisphosphonate. It is normally reserved for use when other treatments have failed. It is shown to reduce vertebral fractures by 70% and hip fractures by 35%. Side effects include flu like symptoms after administration.

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

For comprehensive and free health advice and information call in to Whelehans or log on to www.whelehans.ie or dial 04493 34591.