

Osteoporosis - prevention and treatment

Osteoporosis literally means 'porous bones'. It occurs when bones lose minerals such as calcium more quickly than the body can replace them. They become less dense, lose strength and break more easily. Most people don't realise they have osteoporosis until a fracture happens, as there are usually no signs or symptoms. This is why osteoporosis is often called the 'silent disease'.

If you have osteoporosis, lifestyle changes and medical treatment can prevent further bone loss and reduce your risk of bone fractures.

Bone density testing

Currently, the most reliable way to measure bone density is the dual-energy absorptiometry scan or DXA. A DXA scan is a short, painless scan that usually measures the density of your bones at the hip and spine.

There is a Medicare rebate for a DXA scan if you fulfil certain criteria, including if you:

- Have previously been diagnosed with osteoporosis
- Have had one or more fractures due to osteoporosis
- Are 70 years or over
- Have a chronic condition including rheumatoid arthritis, coeliac disease and liver disease
- Have used corticosteroids for a prolonged use of time.

Your doctor will be able to tell you whether you fit the criteria to receive a Medicare rebate.

Risk factors for osteoporosis

There are many risk factors for osteoporosis – some of which you cannot change, including being female, being Caucasian or Asian, and having a direct relative who has had an osteoporotic fracture.

However, there are many risk factors you can address, which can allow you to take control of your bone health and help prevent osteoporosis, including:

- Having a well-balanced diet, including adequate intake of calcium
- Doing appropriate exercise
- Getting adequate levels of vitamin D
- Making lifestyle changes – for example, stopping smoking and minimising alcohol and caffeine intake.

Diet and calcium

Enjoying a healthy balanced diet, with a variety of foods and an adequate intake of calcium, is a vital step to building and maintaining strong healthy bones. Calcium is needed in the blood to perform various functions. If there is not enough calcium in the blood, the body will take calcium from the bones. Making sure you have enough calcium in your diet is an important way to preserve your bone density.

It is recommended that the average Australian adult consume 1,000 mg of calcium per day. Postmenopausal women and men aged over 70 years are recommended to have 1,300 mg of calcium per day. Children, depending on their age, will need up to 1,300 mg of calcium per day.

Dairy foods have the highest levels of calcium, but there are many other sources of calcium including sardines, spinach and almonds. If you are unable to get enough calcium from your diet alone, you might need to talk to your health professional about calcium supplements.

Vitamin D

Vitamin D and calcium promote bone density. Vitamin D is important because it helps your body absorb the calcium in your diet. Your doctor may suggest testing your vitamin D and calcium levels. We obtain most of our vitamin D from the sun, so it is important to expose the hands, face and arms to the sun for 6–8 minutes every day in the warmer months (avoiding the hottest period of the day between 10 am and 3 pm), and about 30 minutes in the cooler months.

Vitamin D can also be found in small quantities in foods such as:

- fatty fish (salmon, herring, mackerel)
- liver
- eggs
- fortified foods such as low-fat milks and margarine.

For most people, it is unlikely that adequate quantities of vitamin D will be obtained through diet alone. Talk with your health professional about vitamin D supplements if you are concerned that you are not getting enough vitamin D.

Exercise for strong bones

Weight-bearing exercise encourages bone density. Consult your doctor before starting a new exercise program, especially if you have been sedentary, are over 75 years of age or have a medical condition.

General recommendations include:

- Choose weight-bearing activities such as brisk walking, jogging, tennis, netball or dance. While non-weight-bearing exercises, such as swimming and cycling, are excellent for other health benefits, they do not promote bone growth.
- Include some high-impact exercise into your routine, such as jumping and rope skipping. Consult your health professional – high-impact exercise may not be suitable if you have joint problems, another medical condition or are unfit.
- Strength training (or resistance training) is also an important exercise for bone health. It involves resistance being applied to a muscle to develop and maintain muscular strength, muscular endurance and muscle mass. Importantly for osteoporosis prevention and management, strength training can maintain, or even improve, bone mineral density. Be guided by a health or fitness professional who can recommend specific exercises and techniques.
- Activities that promote muscle strength, balance and coordination – such as tai chi, pilates and gentle yoga – are also important as they can help to prevent falls by improving our balance, muscle strength and posture.
- A mixture of weight-bearing and strength-training sessions throughout the week is ideal, aiming for 30 to 40 minutes, four to six times a week. Exercise for bone growth needs to be regular and have variety.

Lifestyle changes

Be guided by your doctor, but general recommendations may include:

- **Stop smoking** – smokers have lower bone density than nonsmokers.
- **Get some sun** – exposure of some skin to the sun needs to occur on most days of the week to allow enough vitamin D production.
- **Drink alcohol in moderation** – excessive alcohol consumption increases the risk of osteoporosis.
- **Limit caffeinated drinks** – excessive caffeine can affect the amount of calcium that our body absorbs.

Managing osteoporosis

If you have osteoporosis, the strategies listed to prevent osteoporosis will help to manage the condition, but you may also need to consider:

- Safer exercise options
- Falls prevention
- Medication.

Safer exercise options

If you have osteoporosis, the risk of a fracture (break) with high-intensity exercise and poorly performed strength training can outweigh the bone-building benefits of these exercises. The best approach is to have an individually prescribed exercise program put together for you by a physiotherapist or exercise physiologist.

The program may include:

- Modified strength-training exercises
- Weight-bearing exercise such as brisk walking
- Gentle exercises that focus on posture and range of movement.

Falls prevention

A third of people aged over 65 fall every year and 10–15 per cent of those falls lead to a fracture. Reducing the risk of falls is important. Be guided by your doctor, but general recommendations include:

- Perform exercises to improve your balance as prescribed by a physiotherapist or exercise physiologist.
- Wear your prescription glasses as directed by your optician.
- 'Trip proof' your home – for example, remove loose rugs, install handrails in the shower and toilet, and make sure all rooms are well lit. An occupational therapist can assist with this.
- Wear sturdy flat-heeled shoes that fit properly.
- Consider wearing a hip protector. This is a shield worn over the hip that is designed to spread the impact of a fall away from the hipbone and into the surrounding fat and muscle. Worn correctly, a hip protector can reduce the risk of hip fracture.

Medication for osteoporosis

As well as diet and lifestyle changes, your doctor may recommend medication. The options may include:

- **Bisphosphonates** – bone cells are created and broken down in a constant cycle. Bisphosphonates encourage bone density by slowing the 'breakdown' process. These drugs are commonly used in Australia to treat osteoporosis in men and women. In rare cases, use of bisphosphonates can lead to jawbone problems. Speak to your doctor and dentist about your risk of developing this problem.
- **Selective oestrogen receptor modulators (SERMs)** – sites in the female body called 'oestrogen receptors' respond to the hormone oestrogen. SERMs mimic the action of oestrogen and therefore reduce bone loss. SERMs have been shown to reduce the risk of spinal fractures, but they may increase the risk of clots and stroke.
- **Strontium ranelate** – similar to bisphosphonates, strontium ranelate slows down the 'breakdown' process of bones and increases the 'build-up' process.
- **Testosterone therapy** – men with symptoms of testosterone deficiency and low testosterone levels can improve their bone density with testosterone replacement. It is treated by giving doses of testosterone to bring the blood levels back up to normal by injections, implants, skin patches, oral capsules, gels or creams.
- **Parathyroid hormone** – the parathyroid glands make the parathyroid hormone (PTH). This chemical regulates the amounts of calcium, phosphorus and magnesium in the bones and blood. Parathyroid hormone therapy stimulates new bone formation and can increase bone density and strength. This medication is used for people with severe osteoporosis when other types of medication are considered either unsuitable or ineffective.

- **Hormone therapy (HT)** – in women, the female sex hormone oestrogen plays an important role in maintaining the strength of bone tissue. Menopause causes a marked drop in oestrogen levels and increases the risk of osteoporosis and osteoporotic fractures. While HT boosts oestrogen levels and prevents osteoporosis after menopause, it has also been associated with an increased rate of heart attack, stroke and breast cancer. Its long-term use is no longer recommended for osteoporosis management.

Treatment for osteoporosis

There is no standard treatment for osteoporosis. Treatment is tailored to a person's specific needs. Generally speaking, your overall risk of fracture helps to determine the best course of treatment.

Where to get help

Your doctor

- Arthritis Victoria incorporating Osteoporosis Victoria Tel. (03) 8531 8000 or 1800 011 041
- Osteoporosis Australia Tel. (02) 9518 8140
- Jean Hailes for Women's Health Tel. 1800 JEAN HAILES (532 642)
- Australasian Menopause Society Tel. (03) 9428 8738

Things to remember

- Diet, vitamin D and exercise can help to prevent osteoporosis.
- If you have osteoporosis, medical treatment can prevent further bone loss and reduce your risk of bone fractures.
- Treatment options for osteoporosis include dietary changes, supplements, exercise, lifestyle changes, falls prevention and medications.

This page has been produced in consultation with, and approved by:

Arthritis Victoria incorporating Osteoporosis Victoria

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