OSTEOPOROSIS: WOMEN

Osteoporosis is a common condition, affecting over 1 million people in Australia, most commonly women after menopause.

It is a bone disorder, leading to loss of bone (mass/density) and fragility of that bone. This can lead to fractures (broken bone) with little or no trauma preceding the fracture.

Osteoporosis is asymptomatic until a fracture occurs. Therefore, it is underdiagnosed.

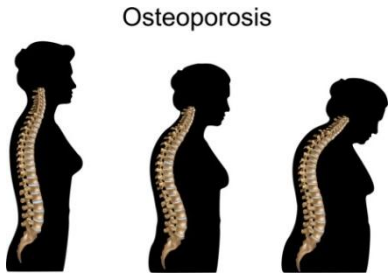
Risk factors

- Menopause. Oestrogen (present in normal levels prior to menopause) helps to prevent loss of bone and thus maintenance of bone mass/ density. The rapid loss of oestrogen after menopause leads to unopposed resorption of bone and thus bone loss and fragility.
- Family history of osteoporosis/ hip fracture, particularly in first-degree relatives (parents/ sisters/ brothers)
- Inadequate Calcium intake (should be 1300mg daily in women over 50; at least 3 serves dairy per day)
- Vitamin D deficiency
- Other medical disorders eg. Rheumatoid arthritis, Cushing's syndrome, chronic liver or kidney disease
- Gastrointestinal disorders causing malabsorption eg. Coeliac disease, inflammatory bowel disease
- Medications eg. Steroids
- Low hormone levels (early menopause/ late age at first menstrual period)
- Low levels of physical activity
- Low body weight
- Excessive alcohol intake
- Smoking

Fractures

The aim of management and treatment of osteoporosis is to prevent fracture, and prevent pain, hospitalisation and disability from fractures.

The most common sites of fracture in the setting of osteoporosis are the hip, spine, wrist, upper arm, ribs or forearm. Fractures in the spine due to osteoporosis can result in losing height or changes in posture.



Diagnosis

Osteoporosis is diagnosed on the basis of results of a bone density scan (DEXA scan). WHO (World health organisation) criteria for the diagnosis of osteoporosis are T score < -2.5. These are PBS-subsidised every 2 years for women aged over 70 or patients with a specific risk factor

X-ray of the spine may assist in determining if there have been any vertebral (spinal) fractures, which can occur without symptoms.

Blood tests may be done to evaluate for various risk factors for osteoporosis and to check bone turnover.

Treatment: Non-prescription

1. CALCIUM

Calcium is essential for building and maintaining bone. Almost about 99% of the body's calcium is found in the bones. Calcium combines with other minerals to form hard crystals that give your bones strength and structure.

Recommended Calcium intake for women 19+ years is 1000mg/day.

Recommended Calcium intake for women 50+ years is 1300mg/day.

3-5 of dietary calcium a day is ideal for calcium intake. Calcium supplementation may be needed if this cannot be achieved (discuss with your doctor).

Dairy products (milk (not with caffeine), yoghurt, cheese, ice cream) are excellent sources of calcium. In addition:

- Try soy based products and tofu that contain calcium
- Include broccoli, mustard cabbage, bok choy, silverbeet, cucumber, celery, chick peas in your regular diet
- Eat more almonds, dried figs and dried apricots
- Products fortified with calcium (eg some breakfast cereals) can help improve your calcium intake

2. VITAMIN D

Vitamin D helps improve calcium absorption from the gut, regulate the body's calcium levels and maintain the skeleton.

The major source of Vitamin D is sunlight. It is absorbed through the skin. This absorption is blocked by sunscreen/ clothing.

Vitamin D deficiency is common in Australia with over 30% of adults having a mild, moderate or even severe deficiency. Low vitamin D levels can

- lead to bone and joint pain
- increase the risk of falls and bone fracture in older people
- result in rickets (when very serious)
- impact on unborn children in mothers with vitamin D deficiency

Vitamin D levels should ideally be maintained at 90nmol/L or above in postmenopausal women with osteoporosis.

Recommended levels of sun exposure to maintain adequate vitamin D levels :

At 11am/ 3pm with arms and legs exposed to sun

Melbourne Summer:

Fair skin: 6-8min; Dark skin: 20-50min

Melbourne Winter:

Fair skin: 25 mins; Dark skin: 1hr 30 min - 2 hr 30min

3. EXERCISE

Exercise must be regular and ongoing to have a proper benefit. Our bones become stronger when a certain amount of impact or extra strain is placed on them. This means there are specific types of exercises that are better for bone – these are called weight-bearing exercises. Eg. eg: brisk walking, jogging, skipping, basketball / netball, tennis, dancing, impact aerobics, stair walking. Resistance training (eg. Weights under supervision) may also be beneficial

Regular exercise should be performed at least 3 times per week and the duration of exercise depends on age, but generally at least 30 minutes per session is recommended.

Avoiding falls

Avoiding trip hazards in the home is essential. Appropriate footwear (eg. Avoiding high heels and uncomfortable shoes which may promote falling) should be worn by all people with osteoporosis. If balance is an issue, a falls and balance class may assist in avoiding falls.

Treatment: Prescription Drugs

The first step in treatment should be to treat any reversible factors or underlying/ secondary causes (eg. Treat coeliac disease with gluten free diet). If medication is required, the choice of medication depends strongly on the circumstances of the individual patient. All these medications have potential side effects and the choice should be made with the doctor. The following classes of osteoporosis medications are available for use in Australia:

Bisphosphonates

Tablets (weekly or monthly): Alendronate (brand name Fosamax), Risedronate (brand name: Actonel) Once yearly intravenous infusion: Zoledronic acid (brand name: Aclasta).

- These medicines can increase bone density by approximately 4-8% in the spine and 1–3% in the hip, over the first 3-4 years of treatment. This may appear small, however they have a very positive effect on fracture rates eg: bisphosphonates have been shown to reduce spinal fractures by 30 – 70% and hip fractures by 30 – 50% (a positive effect can be seen as early as 6 – 12 months after starting treatment).
- PBS subsidy applies to men and women with osteoporosis and fractures, and older people (over 70) with low bone density. It also applies to people taking corticosteroids (eg: prednisone or cortisone) at a dose of 7.5 mg for at least 3 months.

See Bisphosphonates Info

Denosumab

6 monthly injection: Denosumab (brand name: Prolia)

- This medicine works in a different way to bisphosphonates but has the same effect of slowing the rate at which bone is broken down. The treatment can reduce spinal fractures by two thirds and has a significant effect on hip fractures and other fracture types.
- Denosumab is available for women, and for men receiving certain prostate treatment.
- PBS subsidy applies to post menopausal women with osteoporosis and a fracture or women over 70 with low bone density.

Strontium ranelate

Sachet dissolved in water daily: strontium ranelate (brand name: Protos)

- This medicine is absorbed into the bone in a similar way to calcium. It both increases bone formation and reduces bone loss resulting in denser and stronger bones over time. It reduces the risk of spinal fracture and also reduces the risk of other fractures in people with low bone density.
- Strontium ranelate is available for use by both men and women
- PBS subsidy applies to post menopausal women with established osteoporosis and a fracture or women over 70 with low bone density

Selective oestrogen receptor modulators (SERMS)

Daily tablet: Raloxifene (brand name: Evista)

- This medicine acts like the hormone oestrogen in the bones, helping reduce bone loss and is most effective in reducing spinal fractures.

- PBS subsidy applies to postmenopausal women with established osteoporosis and a fracture.

Hormone replacement therapy (HRT)

Active ingredient is the hormone oestrogen. Some HRT treatments also contain progestogen – this is known as combined HRT

- HRT, even at low doses, helps to slow bone loss, reducing the risk of osteoporosis and fractures
- HRT is of greatest benefit to women under 60 who are at risk of fracture (and are unable to take osteoporosis medicine). It is particularly useful for women who have undergone early menopause (before 45 years of age).
- Above 60 the risk of heart disease, stroke, blood clots and breast cancer increases. HRT is thought to increase these risks so other osteoporosis medicines are more suitable for women over 60.

Teriparatide

Daily injection for 18 months (self administered): Teriparatide (Brand name: Forteo)

- This medicine stimulates bone-forming cells (osteoblasts) resulting in improved bone strength and structure.
- Is restricted to people who have tried other treatments but continue to have very low bone density and further fractures. It is prescribed by a specialist and is available for both men and women. Once the course of the treatment is finished another osteoporosis medicine will need to be used so the new bone produced by using teriparatide is maintained and improved.

Patient info: www.osteoporosis.org.au