

# Osteoporosis

**This disease just doesn't affect you in old age and you need to start young to prevent it.  
Prevention is the most effective cure**

Osteoporosis occurs when bone loss outstrips bone replacement. The result is that the bones become thinner and fracture more easily than normal bone- even with relatively minor trauma. Osteoporosis is not uncommon in Australia- about half of the women and a third of men over 60 will have an osteoporotic fracture during their lifetime. There are specific recognised risk factors such as smoking, thyroid disease, corticosteroid use, premature menopause and underlying genetic risk, but the reality is that osteoporosis is primarily a disease of aging. Women are particularly at risk as they tend to start with lighter bones than their male counterparts and also because lower levels of oestrogen levels after menopause tend to accelerate this loss - about 1 to 3% per year. Of all diagnosed osteoporotic fractures, 46% occur in the spine, 16% in the hip and 16% are wrist fractures. Having had one spinal fracture greatly increases the risk of subsequent fracture and women who have had a previous vertebral fracture are 5 times more likely to have another within the next 12 months.

Osteoporosis is a particularly "silent" disease with most sufferers experiencing few signs or symptoms until a fracture occurs and even after fracture 80% of osteoporotic fractures remain undiagnosed and untreated. Even if a low trauma fracture is diagnosed most Australian hospitals just treat the fracture without arranging further investigation- Less than 10% are investigated and less than 10% are started on any specific treatment. X-rays are not sufficient to diagnose osteoporosis as approximately 25% of bone must be lost before there is any discernable radiological evidence. However X-rays may be useful in late disease as a means of diagnosing the minimal trauma fractures. The only way to effectively measure bone density is through non-invasive techniques such as Dual-energy x-ray absorptiometry (DEXA) & Quantitative computerised tomography (QCT)

Peak bone mass is achieved somewhere between 20 - 30 years of age and from thereon it is all downhill from a bony perspective. One important message to younger women then should be to ensure adequate daily calcium intake so that they have the best chance of reaching their optimal bone mass. This can be a struggle since dairy products have a reputation of being fat-laden and tend to be avoided by a weight-conscious younger age group.

The critical time that diet can contribute to a lower incidence of osteoporosis is during childhood and adolescence. In those with a family history of osteoporosis this advice becomes even more critical. Parents should ensure that their children attain the highest normal bone density possible with optimal nutrition and regular exercise. In addition to eating a well-balanced diet, children should consume enough calcium-rich foods (including low-fat and non-fat dairy products, green leafy vegetables, and saltwater fish such as salmon) to reach the minimum daily requirement for calcium. Children allergic to milk should receive calcium from alternative sources that include soy beverages or supplementation.

Adolescent girls must be targeted for special attention because they often eat poorly or irregularly and rarely consume adequate amounts of calcium. Yet it is during the adolescent growth spurt that peak bone density is being achieved most rapidly. Parents, educators, and healthcare professionals should aim to educate young girls and women on the importance of good nutrition and adequate dietary calcium for the future health of their bones.

Regular weight-bearing exercise has a positive effect on bone density. Adequate calcium and Vitamin D intake have also been long recommended as essential to maintaining bone integrity. The average dietary calcium in Australian women is often below recommended levels.

The average Australian woman has a daily dietary intake of perhaps 500 mg of calcium. The usual recommended intake of calcium is 1000 mgs per day for adults (2-3 servings of calcium rich foods per day) but for children and older adults this recommendation is increased to 1500 mgs (3-4 servings per day) and it is difficult for most people to achieve this without some form of supplementation.

Post-menopausally a woman's calcium requirements differ depending upon their medical circumstances. In order to remain in zero calcium balance, **women on oestrogen replacement require a total of 1,000mg elemental calcium per day. Those women not on oestrogen replacement need to be having 1500mgs of calcium per day.** Calcium is ingested in the diet in a

limited number of calcium rich foods, with the highest content in:  
 Dairy products (300-350 mgs per serve), Fish with ingested bones (250-350 mgs per serve), Spinach, Tahini, Almonds, and Tofu (50-100 mgs per serve)

The main function of Vitamin D is to maintain skeletal calcium. It assists both the absorption of calcium from the gut and the incorporation of calcium into the bones. Vitamin D2 (ergocalciferol) is absorbed from dietary sources- such as fatty fish (like herring and salmon), cod liver oil, eggs and fortified milks and margarines. Dietary sources are only a secondary source of the Vitamin D required, the majority being synthesised by the body following exposure to ultraviolet light. The recommended daily intake of Vitamin D is 400-1900 IU per day. Up to 10-20% of the general Australian population are deficient in vitamin D with probably even higher numbers in winter.

The recommended levels of sun exposure for those with fair skin in this country are shown below and would represent the time for exposure of arms, shoulders and face in different parts of the country in both summer and winter. This table is a very simplified version of the Guidelines developed by the Australian and New Zealand Bone and Mineral Society of Australia and Osteoporosis Australia.

<b>Region</b>	<b>Dec- Jan 10am or 2pm</b>	<b>July- Aug 10am or 2pm</b>
Cairns/Townsville	5-7 mins	9-13 mins
Brisbane/Perth	5-7 mins	15-25 mins
Sydney/ Adelaide	5-8 mins	26-38 mins
Melbourne	6-8 mins	32-52 mins
Hobart	7-9 mins	40-47 mins

Older people and those with darker skin require more sun exposure to make same amount of Vitamin D. This message seems to sit at odds with the public health campaigns so successful at reducing the rate of sun exposure in a country like Australia which has one of the highest rates of skin cancer in the world. The challenge is the need to strike a balance between skin cancer risk and ensuring adequate ultraviolet exposure to allow for the production of Vitamin D. It is important to realise that the body simply “switches off” when it has made enough Vitamin D after short periods of exposure.

Osteoporosis is therefore more effectively prevented than treated. Considering the enormous cost and morbidity of osteoporosis-related complications, prevention is the only truly cost-effective approach. The primary goal of prevention is to achieve as high a peak bone mass as genetically possible prior to skeletal maturity. This can be accomplished with:

- Proper nutrition- particularly in younger age groups when bone is being laid down
- Sufficient weight-bearing activity— Resistance training, weights, squats, lunges etc. ( It needs to be noted that walking & other aerobic activities may help with cardiovascular function, they do not help with bond strengthening)
- Minimization of risk factors (smoking, excessive alcohol use, immobilization)
- By continuing beneficial habits throughout adulthood to maintain bone mass
- By increasing calcium intake as we age and intake becomes less efficient

At Shen Therapies we can provide you with all the correct dietary and nutritional advice to help prevent osteoporosis. We have many, high quality, superior, nutritional supplements to help with strengthening your bones.

Calcitite Hi-Strength is a well-rounded calcium supplement designed to be taken on an ongoing basis to maintain optimal bone mineral density and prevent osteoporosis. This formula contains easy-to-absorb hydroxyapatite bone extract and other essential cofactors that may assist in maintaining peak bone mass. Hydroxyapatite has consistently shown superiority over other forms of calcium supplementation. The combination of calcium, magnesium, phosphorus, boron, vitamin D and vitamin K assists in the prevention of osteoporosis & is particularly beneficial for women, as their calcium requirements increase during pregnancy and after menopause.

We also recommend that people should be taking our high quality multivitamin and omega oils to help with joint integrity and also keep you healthy longer.

Ask us how we can help you keep you and your family’s bones stronger today.