

**Sources:**

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**dr nicholas shannon**

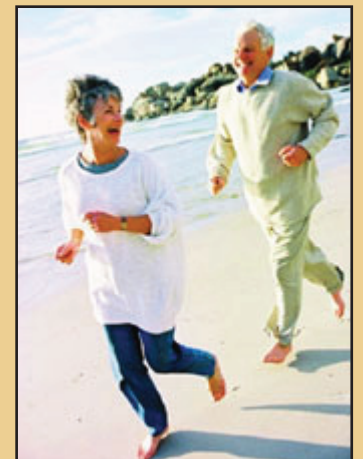
Galleria Medical Centre  
Level 2, 343 Little Collins Street  
Melbourne, 3000  
Ph: 03 9670 9950



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**dr nicholas shannon**

# Osteoporosis



## What is Osteoporosis?

Osteoporosis is a disease characterised by a decrease in bone mass and deterioration of the bone micro-architecture which results in bone fragility and susceptibility to fractures, it currently affects over two million Australians. Osteoporosis most commonly occurs in females usually postmenopausal (over 60years), but can still occur in males. It is more common in females partly because the peak bone mass in males occurs during the third decade of life and then slowly declines at 4% per decade. Whereas females maintain their peak bone mass until menopause, then it declines at 15% per decade.

The onset of osteoporosis is governed by a combination of genetic and environmental factors. Some of those being, advanced age, prior fracture, history of a femur fracture, family history, low bone mass, rheumatoid arthritis, premature menopause, smoking and alcohol abuse.

## Types of Osteoporosis + Symptoms

There are three types of osteoporosis, type 1 (postmenopausal) which is thought to be due to a deficiency in estrogen which leads to accelerated bone loss. Type 2 (senile) which is due to decreased bone formation. Type 3 which is bought on by medication such as glucocorticoids.

Diagnosis of Osteoporosis is made via a bone density scan and a T Score  $< -2.5$  indicates Osteoporosis.

Osteoporosis maybe asymptomatic, it may have a mild generalized ache or there maybe a sharp sudden onset of pain as a result of a fracture. The most common locations fractures occur include, the hips, spine and wrists.

## Treatment Options

The key to Osteoporosis is not in the treatment but in the early detection as it can substantially improve the overall outcome. The current treatment options available according to the research literature include:

*Biphosphonates (alendronate and risedronate)*-Are first line pharmacological drugs both which can substantially reduce the risk of hip and vertebral fractures but are contraindicated in patients with upper gastrintestinal disease.

*Selective Estrogen-Receptor Modulators (Raloxifene)*-Are an alternative first line pharmacological drug that provides considerable protection against vertebral fractures through inhibiting bone resorption and increasing bone mineral density. It also reduces the risk of breast cancer, the major side effect are hot flushes.

*Strontium Ranelate*-Is a relatively new drug which appears to increase bone mineral density within the spine and hips. It reduces the risk of fractures, side effects include nausea, diarrhea and an increased risk of venous thromboembolism.

*Diet*-Has only been proven to have a moderate relationship with Osteoporosis, but increasing fruit and vegetable intake as well as soy products and reducing salt levels, may reduce the risk of Osteoporosis fractures.

*Calcuim and Vitamin D*-Calcium is required for bone formation and remodeling. An intake of 1500mg/day is recommended, sources include dairy, green vegetables, legumes. Vitamin D is required for the absorption of calcium, without it calcium can't be absorbed. An intake of 400-800IU/day is recommended, sources include fatty fish (Salmon, Mackerel), 20mins of UV sunlight. Both calcium and Vitamin D are important nutritional requirements in the older population.

*Physical Activity*-There is convincing evidence suggesting exercise especially that which maintains or increases muscle strength, co-ordination and balance is beneficial in reducing the risk of falls and preventing Osteoporosis fractures.