

## Healthy Bone & Joint



### What is Osteoporosis and Osteoarthritis?

Osteoporosis is the most common metabolic bone disease where bone loses density and becomes fragile. It causes more than 8.9 million fractures annually in Asia and is estimated to increase by more than 50% by year 2050 (International Osteoporosis Foundation, 2017).

Normal bone composes of a mixture of calcium and other minerals like magnesium and phosphate. It is also made up of collagen, which forms the structural framework of bone. One of the major culprit for the development of Osteoporosis is inadequate calcium intake. As Osteoporosis progresses over time, it leads to the thinning and deterioration of bone tissue, losing calcification and density causing the bone to become fragile and break (Aldosh, 2017).

Osteoarthritis (OA) is another prevalent arthritic condition that causes progressive degeneration of cartilages that leads to joint space loss. It is the most common arthritis disorder and usually affects hands, knees, feet and hips (Kenmochi, 2020).

## **Who is at Risk?**

Osteoporosis is a chronic lifelong condition. Researches have shown an increasing number of fracture cases resulted from osteoporosis occurring among women after the age of 55 and men after 65 years old (Compston et al., 2019). According to the latest statistics by International Osteoporosis Foundation (2017), 1 in 3 women and 1 in 5 men over the age of 50 will experience osteoporotic fractures in their lifetime.

As the availability of lactose-free, calcium-rich foods is limited, individuals with lactose intolerance may have increased risks of developing Osteoporosis and Osteoarthritis. Avoidance of dairy which results to low calcium intake may lead to reduced bone density and fragility fractures (Hodges et al., 2019). Old age and obesity can contribute to the development of Osteoarthritis and affecting mobility.

## **How to keep your bones & joints healthy?**

Synergy 1 derives naturally from plants and can improve bone health. It maximises peak bone mass during adolescence and minimizes bone mineral loss during old age, decreasing the risk of Osteoporosis. In addition, Synergy 1 also promotes the absorption of calcium by enhancing the bioavailability of calcium in the diet.

Vitamin D and K are both fat-soluble vitamins that are important for calcium metabolism. Vitamin D is vital for normal development and maintenance of the skeleton and joints. Severe Vitamin D deficiency may lead to joint disorders (Chlebowski et al., 2013) whereas adequate intake facilitates intestinal calcium absorption to provide the necessary calcium for bone mineralization (Carmeliet et al., 2015). Vitamin K promotes bone formation by stimulating the osteoblast differentiation, increasing the level of some bone formation markers as well as preventing bone resorption (Solmaz & Amir, 2018).

Calcium is vital to bone mineralization, especially in bone health, from the formation and maintenance of the structure to the rigidity of the skeleton. The average absorption rate is approximately 30% which occurs mainly in the small intestine (Beto, 2015), while the rest is transferred to the large intestine where another 10% is absorbed (Warzecha & Czerwiński, 2016).

Low magnesium intake is associated with low bone density in pre and postmenopausal women. Magnesium intake is found to be positively correlated with a greater bone mineral density in both men and women. Higher dietary magnesium intake can prospectively reduce the risk of Osteoporotic fractures in middle-aged men and women (Veronese et al., 2017).

## In a nutshell

The prevalence of Osteoporosis is increasing globally at an alarming rate. The population of those aged over 50 and 70 years old in Thailand are projected to increase by 74% and 216% respectively. As an ageing population, they require a greater focus on Osteoporosis and general healthcare in the coming years (IOF, 2013). We are never too young to build healthy bones and joints. It is extremely important to take advantage of our younger years as it will set the stage for later in life.

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