

An overview of chicory root fibers for bones health and osteoporosis prevention

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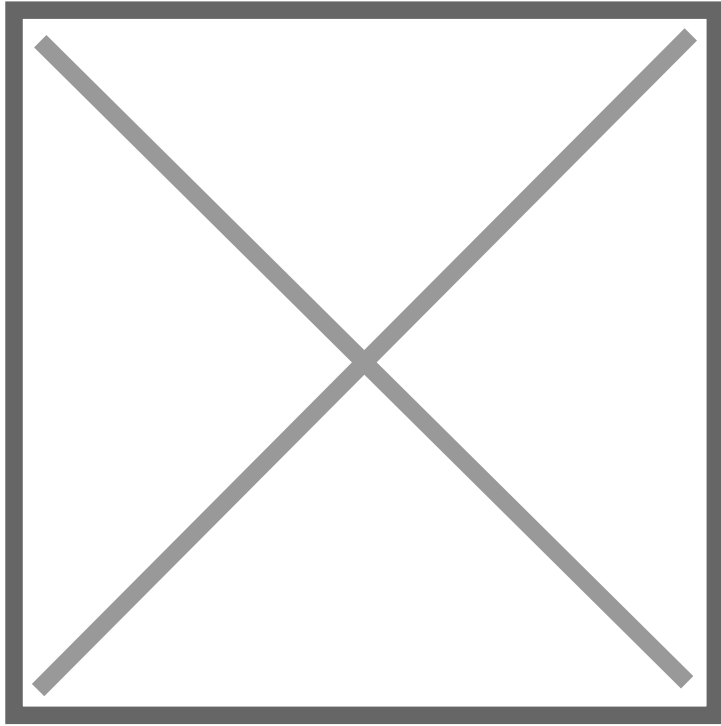
By Christian Philippsen, Managing Director at BENE0 Asia Pacific



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Calcium is an essential mineral for keeping our bones strong and healthy at any age. Maintaining a certain level of calcium in our blood is also needed to support important purposes in metabolism. However, most of the calcium we eat is not fully absorbed. Only about 30% is absorbed in the small intestine, while the rest reaches the large intestine and is excreted.

It is also important to note that bone health becomes even more crucial as we age, because we start to lose bone mass and strength, and our body's capacity to absorb calcium declines. That is why calcium intake should increase as we grow older. Yet, surprisingly all countries in Asia fall far below the calcium recommendations of 1000-1300mg/day set by the World Health Organisation. ² In fact, according to a systematic review on global dietary calcium intake among adults, many countries in Asia often intake less than 500mg a day.



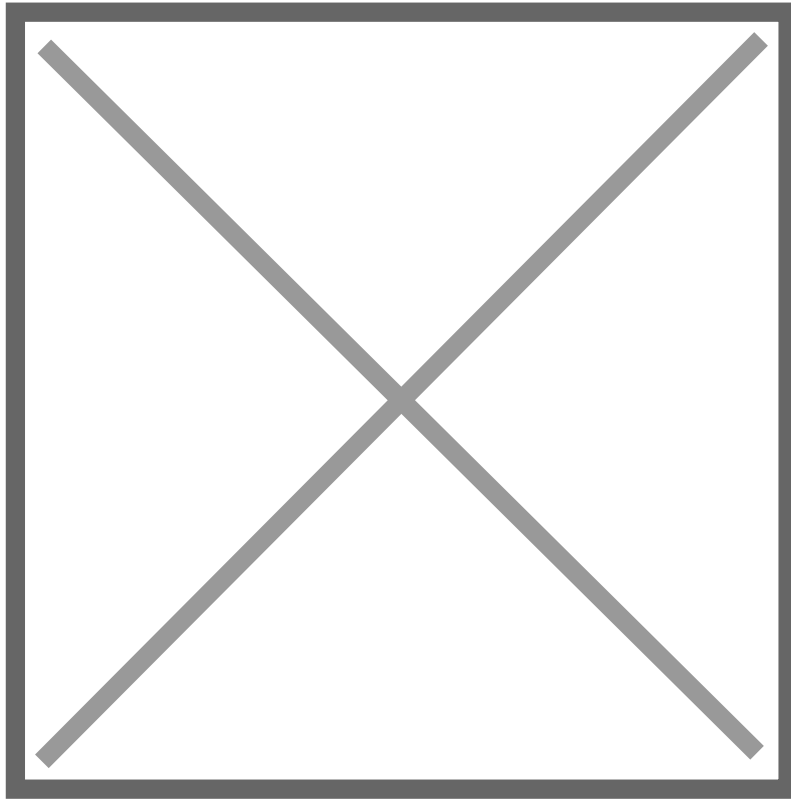
This insufficient intake of calcium, coupled with its low bioavailability, exposes older adults to the risk of bone diseases including osteoporosis. Osteoporosis is one of the most common bone diseases related to a chronically low calcium intake that leads to bone loss and results in fractures due to loss in bone mass. Osteoporosis results in impaired mobility and loss of independence for the elderly population.

By 2050, more than half of all osteoporotic hip fractures globally is projected to occur in Asia, with the majority occurring in China. 3 Although osteoporosis is extremely prevalent in Asia, there is still a lack of awareness of this disease in many countries within the region. This is especially worrisome as Asia Pacific is home to many rapidly ageing populations. In 2022, UN ESCAP figures found that 670 million people aged 60 years or older reside in Asia and the Pacific, which equates to roughly one in every seven people. This is projected to double to 1.3 billion by 2050, or one in four people.

How then can we play a more active role in strengthening our bone health as we age?

Adopting a preventive approach through our smart diet choices is one strategic move that we can begin embracing. One of the ways to achieve this is by consuming prebiotic chicory root fibres. Orafiti® Inulin and Oligofructose are dietary fibres that are scientifically proven prebiotics recognised by scientists from the International Scientific Association for Probiotics and Prebiotics (ISAPP), the Chinese Nutrition Society, and the National Agency of Drug and Food Control of Indonesia (Badan Pengawas Obat dan Makanan). 789 The fermentation of these chicory root fibres by the gut microbiota in the large intestine generates short-chain fatty acids that enhance the bioavailability of calcium. This leads to an extended absorption capacity of calcium that traditionally occurs in the small intestine, and results in a significant increase in calcium that penetrates the bones.

In particular, a patented blend of inulin and oligofructose, known as Orafiti® Synergy1 is proven to increase the bioavailability of calcium in our diet. The shorter chains of chicory root fibres are mainly fermented at the beginning of the large intestine, while the longer molecules travel further into the more distal parts of the large intestine. Therefore, the large intestine becomes more acidic and calcium absorption can transpire over its entire absorption surface.



Several clinical studies have also demonstrated that prebiotic chicory root fibres enhance calcium absorption in children, adolescents, adults, and post-menopausal women. 10111213 Most notably, a human intervention study conducted over one year in 100 adolescents found that 8g/day of Orafiti[®] Synergy1 led to an improvement in bone mineral density. 14 This means that calcium absorption, calcium retention and bone strengthening by chicory root fibres is substantiated. Implementing foods and drinks containing prebiotic chicory root fibres in our diet is a viable approach to keep our bones strong. Food manufacturers can incorporate BENEOS[®]'s prebiotic ingredients into a broad range of applications, such as baked goods, breakfast cereals, cereal bars, dairy and dairy alternative products.

Achieving a longer, independent, and high-quality life

We need to recognise that we have a crucial part to play in taking care of our bone health. Adopting smart food choices as early in life as possible is an effective, preventive approach to healthy ageing.

Prebiotic chicory root fibres not only increase the bioavailability of calcium for the body, but also boost calcium absorption to improve our bone strength for years to come. This is a valuable contribution to prevent osteoporosis, promote well-being and stay healthy in our golden years.