

Prevention for a long, strong and healthy life

The importance of protecting joint and bone health for life, with GELITA's Bioactive Collagen Peptides (BCP)[®]



By 2050, the United Nations estimates that there will be 2.1 billion people aged 60 or over in the world – twice as many as there were in 2020. The over-60s are expected to account for 35% of the population in Europe, 28% in Northern America, 25% in Latin America and the Caribbean, 24% in Asia, 23% in Oceania and 9% in Africa.¹ The number of people aged 80 years or over, meanwhile, is projected to reach to 426 million in 2050, a more than threefold increase on 2020.²

With this vast jump in predicted numbers, it is vital to safeguard not just a long life, but a life that is healthy too. Currently, many older people are burdened with diseases and disabilities. The World Health Organization uses the term disability-adjusted life years (DALYs) to describe the years of full health that are lost because of disease,³ underlining the importance of prevention in ensuring a long life full of health and wellbeing.

A strong body requires a strong foundation

The musculoskeletal system is divided into two parts: active and passive. While the active part of the system (skeletal muscles, fasciae, tendons) is responsible for movement, the passive part (bones, cartilage, joints, ligaments) supports the skeletal muscles and shapes the body. To help prevent older people from falling or experiencing pain, a strong musculoskeletal system is a good foundation.

As a key component of bones and joints, collagen makes up 95% of the human body's bone matrix; as such, it is essential for bone health as it helps to prevent brittleness and breakage. Collagen is also a core component of the matrix that gives structure to cartilage, which is vital for the flexibility and proper functioning of joints. Thus, supplementing the diet with collagen peptides from GELITA helps to prevent bone and joint issues, as has been proven in a number of clinical studies.

Collagen supplementation for flexible joints

Lack of movement coupled with a sedentary



lifestyle and an unbalanced diet can lead to inflammatory diseases like osteoarthritis. Affecting the joints, osteoarthritis develops over time as the protective cartilage that normally cushions the ends of our bones wears down. Symptoms can include joint pain, instability, weakness and a reduced range of motion.

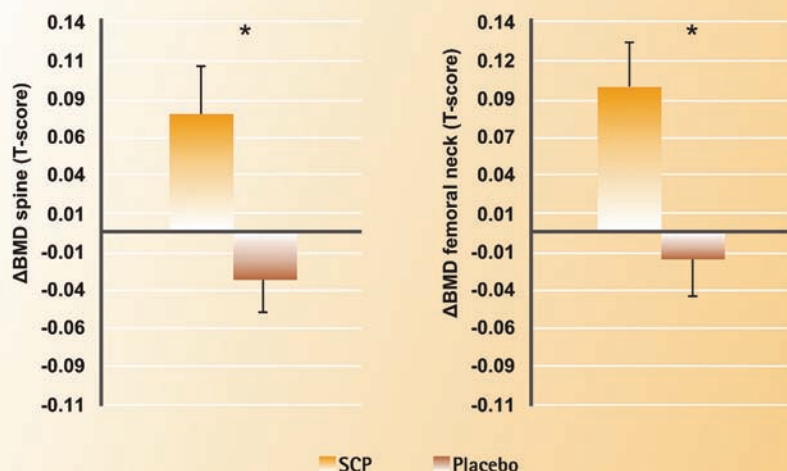
Collagen is an essential component of healthy joint cartilage. Therefore, to prevent cartilage-related joint pain, GELITA has developed FORTIGEL[®]: specific BCP[®] optimised and scientifically proven to stimulate joint cartilage regeneration and promote measurable growth of cartilage tissue. Its considerable advantage over other ingredients typically offered to improve joint conditions is that it tackles the actual cause of the problems rather than just the symptoms. Once inside the body, FORTIGEL[®] accumulates in the joint cartilage, where it promotes the production of collagen and proteoglycans, the two major components of cartilage dry mass. It also combats progressive degeneration of cartilage tissue.

FORTIGEL[®] has been tested in more than 20 clinical and pre-clinical studies, primarily conducted among patients with mild to moderate

osteoarthritis of the knee. Preclinical studies substantiate the observation that orally ingested FORTIGEL[®] has a stimulating effect on biosynthesis of the extracellular cartilage matrix.

In a randomised, double-blind, placebo-controlled study carried out in 19 medical centres in the USA, the UK and Germany, 389 patients aged between 45 and 80 with diagnosed osteoarthritis of the knee joint were given either 10 grams of FORTIGEL[®] per day or a placebo for 24 weeks.⁴ In the German arm of the study, it was proven that the FORTIGEL[®] therapy led to a significant reduction in pain as well as improved mobility. In order to identify its possible mode of action, another study was conducted on patients with mild osteoarthritis of the knee joint at the Tufts Medical Center in Boston, USA.⁵ Structural changes in joint cartilage were evaluated using a special magnetic resonance imaging technique called dGEMRIC. While in the placebo group a progressive loss of cartilage was observed over the one-year study period, the group receiving FORTIGEL[®] showed significantly reduced degeneration of the extracellular cartilage matrix. "This study showed for the first time in humans that orally adminis-

Changes in bone mineral density



A scientific study shows that 5 grams of FORTIBONE® intake increased bone mineral density in postmenopausal women after 12 months.

tered collagen peptides have a direct influence on cartilage structure,” commented Martin Walter, Category Management Mobility at GELITA. “And this recently led to the Health Claim approval for FORTIGEL® by ANVISA authorities in Brazil.”

Hormonal imbalance and age-related bone loss can cause osteoporosis

High bone mineral density (BMD) is of great importance when it comes to maintaining bone health and preventing falls and fractures. Unfortunately, the human body reaches its peak BMD at the age of around 30, with levels decreasing after this. Low BMD is associated with osteoporosis, a disease that makes bones more prone to brittleness and fractures. Menopause puts women over the age of 50 at a greater risk of osteoporosis. But osteoporosis is not just a female disease. In the EU, more than 168,000 hip fractures occurred in men in 2010, representing 28% of the total number of hip fractures in both sexes. Meanwhile, the number of hip fractures in the USA is expected to increase by 51.8% from 2010 to 2030.⁶ The decreasing BMD through age consequences bone atrophy and fractures which can lead in senile osteoporosis.

Currently, non-pharmacological approaches to the prevention of osteoporosis include daily physical activity, stopping smoking and reducing alcohol consumption, all of which are important in maintaining bone health. However, although these basic therapies may protect against a further loss of BMD, once osteoporosis has been diagnosed, they are unlikely to promote any improvement. Supplementation with calcium and vitamin D is often recommended to patients with the condition, but this has not been shown to significantly reduce the risk of bone fractures. Pharmacological treatments have many downsides too, with bisphosphonates, human monoclonal antibody therapy and selective oestrogen receptor modulators all associated with unwanted side effects. The potential market for manufacturers of supplements that not only maintain bone health but also offer the potential for treatment is therefore huge.

Current studies on collagen and bone health

Researchers at GELITA specialising in the application of targeted collagen peptides have made breakthroughs in this area. They have proven that specific collagen peptides known as FORTIBONE® contribute significantly to overall bone health.

FORTIBONE® stimulates osteoblast activity to increase the production of extracellular bone matrix. In addition, it regulates the degenerative processes that affect bones by reducing osteoclast-based protease production. Hence, it supplies the body with the basic components needed for a strong and stable bone structure, supporting overall stability and flexibility.

Numerous studies have investigated the impact of supplementation of FORTIBONE® collagen peptides on bone density. They have

shown a statistically significant reduction in the amount of excreted bone collagen breakdown products,⁷ and statistically significant down-regulated serum levels of bone degradation markers.^{8,9}

Furthermore, a study looking at BMD in postmenopausal women with osteopenia or milder forms of osteoporosis found that a daily dose of 5 grams of FORTIBONE® for 12 months had an

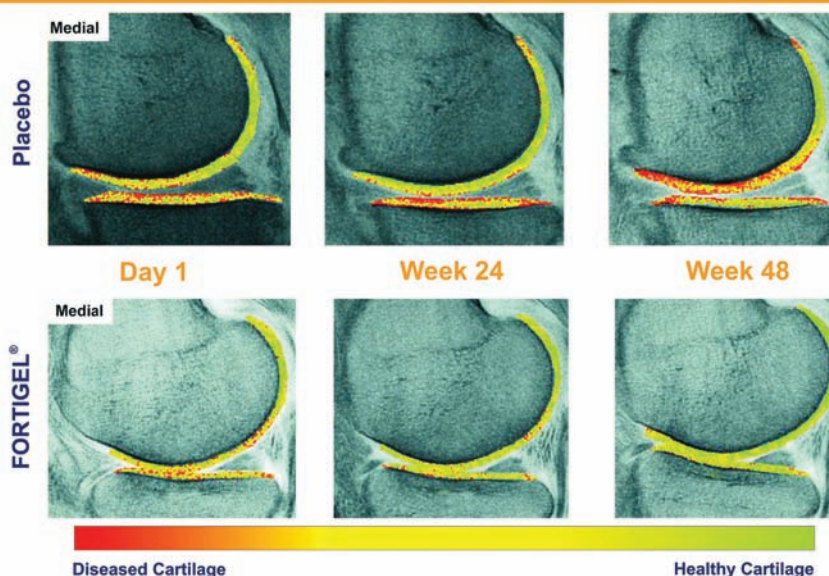


Regular physical exercise combined with a smart nutrient choice can help to promote an active and healthy life.

anabolic effect, with a pronounced increase in BMD after supplementation.¹⁰ There was also an escalation of bone formation, but no changes in bone degradation markers. These data support the assumption that FORTIBONE® holds great promise for the formulation of products that counteract bone degeneration and support bone health.

Orally administered collagen peptides FORTIGEL® can have a positive influence on cartilage structure.

FORTIGEL® Regenerates Cartilage Tissue in Humans



Excellent features for excellent products

GELITA's Bioactive Collagen Peptides are extremely well tolerated with no adverse side-effects. After oral administration, they pass through the intestinal mucosa and enter the bloodstream in partially intact form. They are easily digestible, quickly absorbed and highly bioavailable: Studies have proven that more than 95% is absorbed in the intestine.

GELITA's collagen peptides also offer many technological advantages for manufacturers: They are easy to combine with vitamins, minerals and other nutrients and show excellent cold water solubility. Being neutral in taste and clear in solution, they have no negative impact on the sensory profile of end products. They have high heat and acid stability as well as low viscosity, and there is no precipitation or clumping during processing. As well as being free from fat and cholesterol, they are completely natural, which makes them ideal for clean label formulations.

"Our range of specific collagen peptides offers almost unlimited opportunities for developing new food and drink products and dietary supplements targeting the healthy ageing market," says Martin Walter. "They are non-allergenic and have no negative impact on the taste or texture of end products, so they are easy to incorporate into a wide range of items, including dairy foods, protein bars, drinks and dietary supplements that help to maintain quality of life and keep people agile for longer."

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