

# FORTIGEL®

The Joint Health Revolution



## FORTIGEL® for sustainable mobility

- Scientifically studied to regenerate joint cartilage
- Stimulates the body's own mechanisms for maintaining healthy joints and optimum mobility
- Promotes joint health naturally with no side effects

**GELITA**  
Improving Quality of Life

# Collagen – The Body's Protein!

Collagen is a major component of the human body. About 30% of our total body protein is collagen. Collagen is crucial for mobile joints, stable bones, healthy muscles, strong ligaments and tendons, smooth skin, glossy hair and healthy finger nails. It is one of the primary structural proteins of connective tissues and also abundant in blood vessels, intervertebral discs, the blood-brain barrier, the cornea, dentin and the intestinal wall – a vital component of our whole body.

## Bioactive Collagen Peptides® stimulate collagen metabolism

GELITA Bioactive Collagen Peptides® (BCP) are a composition of different specific peptides optimized for specific physiological benefits. The peptides are derived from a highly controlled production process of collagen which is determined by hydrolyzation conditions. As a result, GELITA Bioactive Collagen Peptides® differ in physiological functionality. They are optimized to maximize stimulation of the human cell types involved in collagen biosynthesis.

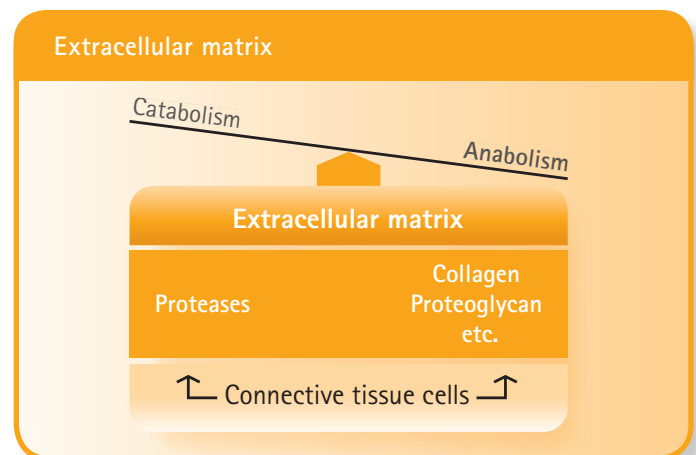
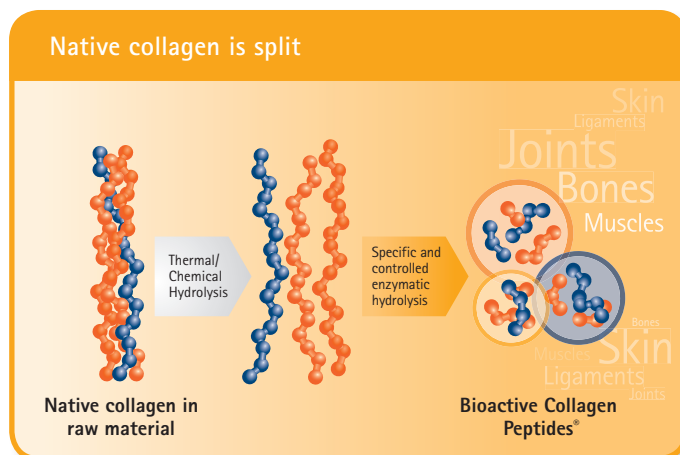


The effect of collagen peptides on increased extracellular matrix synthesis is based on two mechanisms:

- 1) Supply of typical collagen amino acids as valuable building blocks
- 2) Stimulate cell synthesis

### Bioactive Collagen Peptides®

Skin Health	Fibroblasts	VERISOL®
Joint Health	Chondrocytes	FORTIGEL®
Bone Health	Osteoblasts/Osteoclasts	FORTIBONE®
Body Toning	Muscle cells	BODYBALANCE®
Ligaments/Tendons	Ligamentocytes/Tendocytes	TENDOFORTE®





## FORTIGEL® keeps people physically active and mobile

Today, every fourth person suffers from joint problems and the number is continually increasing. The principal cause is wear and tear of the joint cartilage brought about by age, excess activity and stressed joints. But there is help available for those in need of joint support.

Developed by GELITA, FORTIGEL® is an innovative ingredient for the regeneration of joint cartilage. Collagenous protein makes up nearly 70% of cartilage mass. Optimized specific collagen peptides of FORTIGEL® have been proven to activate the growth of new cartilage by stimulating cells helping to make the joints smooth and mobile. By keeping people physically active and mobile, FORTIGEL® can improve quality of life.

## FORTIGEL® promotes growth of cartilage tissue

The effectiveness of FORTIGEL® has been scientifically researched in numerous studies. According to published research, orally administered FORTIGEL® is absorbed intestinally and accumulates in cartilage. The ingestion of FORTIGEL® stimulates a statistically significant increase of cartilage tissue metabolism.

Change in the joint cartilage after 3 months  
(tissue sections\*)



\* Oesser S et al. (2007) Osteoarthritis Cartilage 15: C61-C62, 94, adapted



## ! Penn State study confirms improvement of mobility with FORTIGEL®

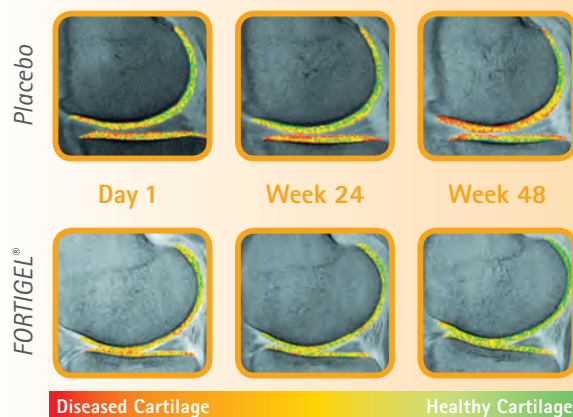
At Penn State University (USA, 2008), 147 athletes were recruited who experienced activity-related joint pain. Those athletes (mean age 20.1 years) were subdivided into one group taking FORTIGEL® as a nutritional supplement and a control group taking a placebo for 24 weeks. The severity of symptoms was rated both by the treating physician and by the study participants with a visual analogue scale.

In this prospective, randomized, double-blind, placebo-controlled study, it was interesting to observe a statistically significant difference of pain perception between treatment and control groups. When utilizing alternative therapies such as hydrotherapy, massage and ice and heat packs, there was a clear-cut difference between the treatment and the placebo group in favor of the FORTIGEL® group. This was the first trial to show improvement of joint pain in healthy athletes treated with FORTIGEL®.

In summary, the studies confirm that the intake of FORTIGEL® results in improvement of mobility in healthy individuals.



FORTIGEL® regenerates cartilage tissue in humans.



## ! McAlindon proves long term effect of FORTIGEL®

In a study published in March 2011 by McAlindon and colleagues, the long term effect of FORTIGEL® treatment on the composition of hyaline cartilage in individuals with early knee osteoarthritis was investigated. This prospective, randomized, double-blind, placebo-controlled pilot study was performed at the Tufts Medical Center in cooperation with Harvard University.

A specific type of magnetic resonance imaging (dGEMRIC) was utilized in order to visualize structural changes in cartilage tissue of the respective study participants. Overall, 30 subjects were randomized into one group receiving 10g FORTIGEL® a day for 48 weeks and a control group receiving a placebo. Three MRI scans of the knee were performed on each subject, one at baseline, one at 24 weeks with the final scan at 48 weeks.

The analysis of the cartilage scans revealed a statistically significant increase in proteoglycan density in the medial and lateral tibial regions of the FORTIGEL® treated subjects compared to the placebo group. Results indicate that oral supplementation of FORTIGEL® has a direct impact on human cartilage tissue. This confirms previous experimental data and clearly demonstrates that specific orally administered collagen peptides can have an influence on cartilage tissue regeneration. It can be assumed that this observed effect is not limited to pathophysiological conditions, as indicated by additional clinical studies.



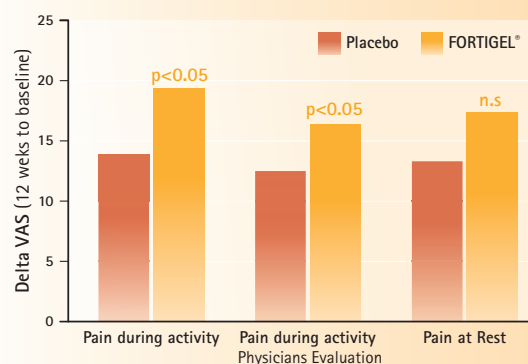


## University of Freiburg, Germany confirms mobility improvement in young adults

Intention of the mono centric, placebo-controlled, randomized, double-blind, observational trial on 160 subjects at the Institute for Sports and Sports Science, University of Freiburg, Germany was to investigate the effect of orally administered Bioactive Collagen Peptides® on young adults suffering from diagnosed activity-related knee joint pain. In the study a daily dosage of 5g FORTIGEL® or a placebo was orally administered for 12 duration of weeks. After 3, 6, and 12 weeks changes in pain, stiffness and physical function were evaluated in the FORTIGEL® group using the Western Ontario and McMaster Universities Index score (WOMAC)<sup>4</sup>.

The results of the study clearly demonstrate the efficacy of a daily intake of 5g FORTIGEL® in the treatment of gon- and coxarthrosis. After only 3 weeks of oral administration of the product a statistically significant improvement in pain, stiffness and physical function could be observed. Moreover, this positive effect of FORTIGEL® persisted and was even more pronounced after 6 and 12 weeks of treatment. At the same time secondary treatments such as massage and physiotherapy have been substantially reduced. The increased mobility was accompanied by a statistically significantly reduction in stiffness and a clear pain relief. In more than 40% of all patients a complete pain reduction was achieved and in 70% a positive effect of the therapy could be demonstrated. Thus FORTIGEL® is an effective approach for those suffering from knee- and hip conditions.

Fortigel® shows positive pain reduction on main study criteria.



## FORTIGEL® preserves quality of life

Based on the presented data it can be concluded that the oral administration of FORTIGEL® has a beneficial effect on cartilage tissue. Consequently, FORTIGEL® collagen peptides can contribute to the maintenance of joint health and help to preserve mobility and quality of life.

## Technological properties

FORTIGEL® is a collagen protein of neutral odor and taste that can be easily implemented into many applications. It provides excellent solubility and delivers clear solutions without interacting with other ingredients.

**FORTIGEL® promotes**

- clean label (no E numbers)
- highly digestible food
- non-allergenic food
- scientific evidence



# Make innovative product ideas a reality!

FORTIGEL® can enhance the most diverse applications, including dairy products, functional foods, dietary supplements and beverages.



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