

Collagen peptide[®]
SOLUGEL[®]
The natural solution for strong bones and healthy joints



BONE
AND JOINT
HEALTH

SOLUGEL® SUPPORTS HEALTHY AGING

Maintain high quality of life by sustaining mobility

For more than a century, life expectancy has kept on increasing in many countries. People expect to live longer while staying in good health and maintaining an active lifestyle.

As a consequence of increasing aging population, countries around the world are witnessing an alarming rise in chronic diseases, nearly half of which are due to bone and joint related diseases ⁽¹⁾.

Throughout your lifetime, the human body is continuously subjected to different “shock and effort”, which affects the supportive elements of the body such as bones and joints. Therefore, a number of skeletal disorders may occur with aging.

The most common diseases are osteoporosis and osteoarthritis.

Collagen peptide, a natural and innovative ingredient for bone and joint health

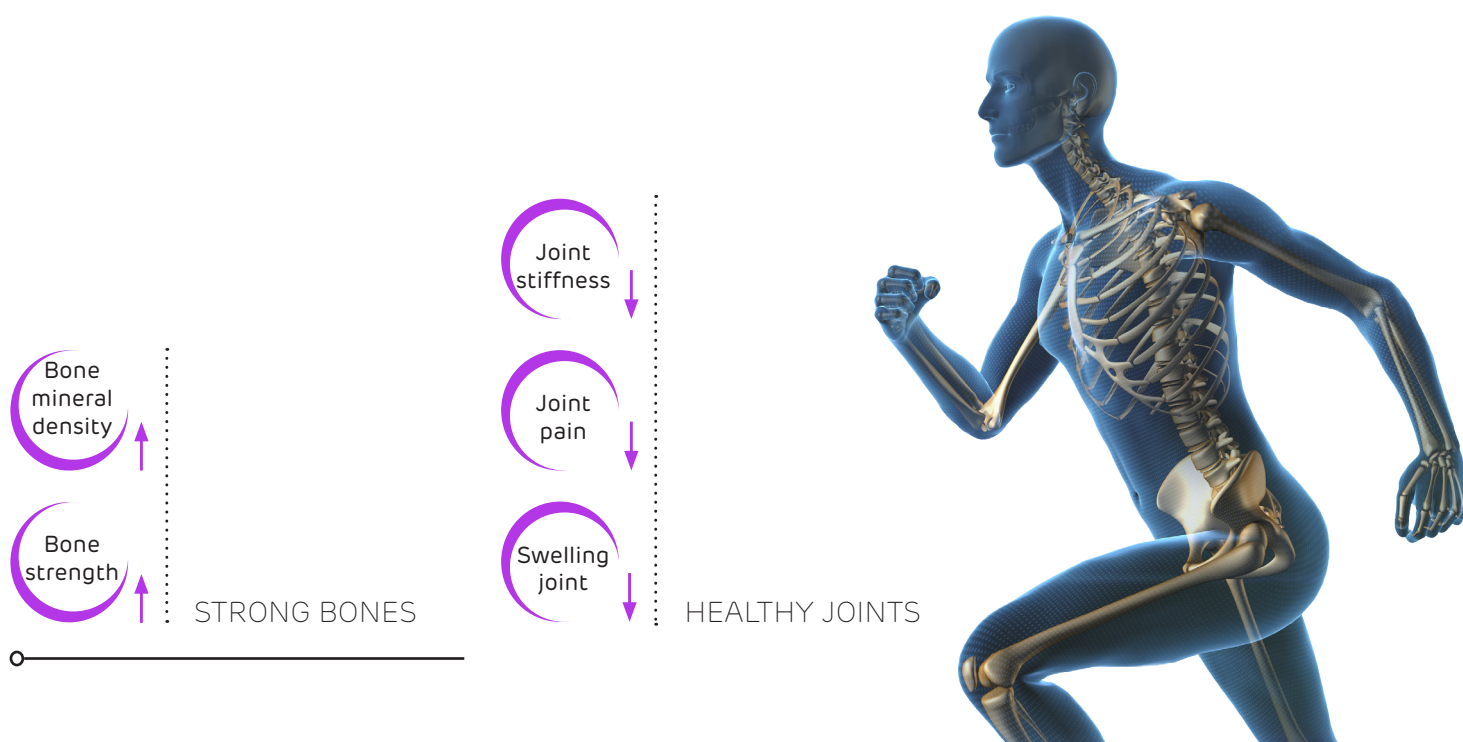
Looking for more natural and comfortable ways to continue daily life activities is a global trend. Besides medical solutions with side effects on long term therapy, consumers are turning to natural health supplements, as they offer greater health benefits.

One of the most well-known natural ingredients for the bone and joint health is the collagen peptide, obtained from naturally derived collagen. As the most

abundant protein in mammals, collagen protein makes up about 30% of the body's protein.

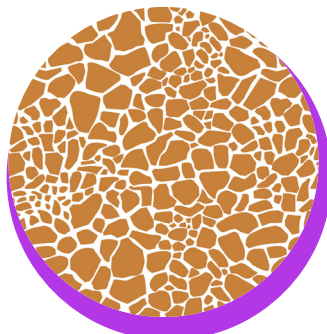
By enzymatically breaking the collagen down into smaller peptides, bioactive collagen peptides are obtained which can be absorbed rapidly in the blood stream and act on the spot.

Collagen peptides help maintain strong bones and healthy joints.



SOLUGEL® FOR BONE HEALTH

Osteoporosis and bone metabolism



Normal bone



Osteoporotic bone

Osteoporosis is a condition of fragile bone with an increased susceptibility to fracture. It weakens bone and increases risk of bone's breaking. Occurring mainly in elderly people and women after menopause, osteoporosis is the skeletal disease of greatest incidence in the world and responsible for millions of bone fractures every year.

Bones form the supportive skeleton of our body and they are mainly composed of mineral matrix and organic matrix. Collagenous protein, mainly type I collagen, takes up of 85 to 90% of the organic matrix.

Collagen is responsible of the ductility while the mineral matrix gives the stiffness to the bones. Alterations of collagen properties can therefore affect the mechanical properties of bones and increase fracture susceptibility.

Bones are living matter and undergo constant remodeling throughout our life. This bone remodeling process is aided by specific cells called osteoclasts for resorption and osteoblasts for the formation.

The imbalance of bone remodeling could lead to osteopenia and eventually osteoporosis, characterized by a decrease in bone mass and density.

Collagen peptides strengthen your bones

A number of in vitro and in vivo studies suggest that orally administered collagen peptides (10g during 24 weeks) may have beneficial effects on bone metabolism.

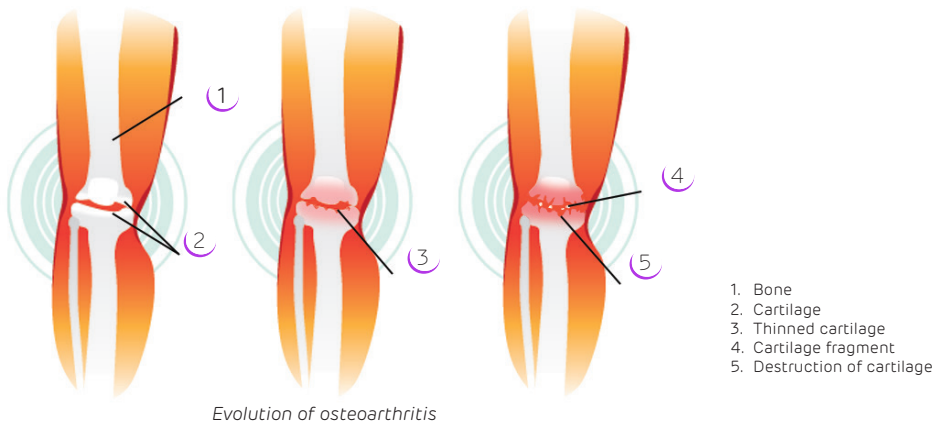
Collagen peptides stimulate osteoblast proliferation and collagen gene expression while inhibiting bone resorption by osteoclasts. The combination of the effects results in increased mineral density and physical strength of the bones ^(2,3,4,5,6).

Several studies suggest positive effects of collagen peptides for elderly people with low mineral density, such as postmenopausal woman ⁽⁶⁾.

The effects on bone formation of the combined intake of collagen peptide and calcium in pre-pubertal children has also been proven ⁽⁷⁾.

SOLUGEL® FOR JOINT HEALTH

Osteoarthritis and joint metabolism



Osteoarthritis (OA) is a joint inflammation that results from cartilage degeneration. Osteoarthritis can be caused by aging, heredity, and injury from trauma or disease. Of those with osteoarthritis, 80% have limitations in movements and as much as 20% cannot perform their daily activities.

A joint is the point where two or more bones are connected. In a healthy joint, the ends of the bones are encased in smooth cartilage to absorb the shock of movement and distribute the load of the body.

Joints are composed of chondrocytes (2-10%), living cells, and an extracellular matrix (ECM) maintained by the chondrocytes. This matrix consists of fluid (80%) and structural macromolecules

like collagen (12%), proteoglycans (5-7%) and non-collagenous proteins (3-4%).

Chondrocytes have a central role in the metabolic processes characterized by a slow, continuous turnover of the ECM to maintain healthy cartilage. Our joints undergo significant changes as we get older, practice sports or engage in day to day activities all of which may affect cartilage turnover ultimately leading to an imbalance between cartilage build up and breakdown. This can lead to chronic joint symptoms such as discomfort, stiffness, loss of flexibility and even swelling.

There is no known cure for osteoarthritis, therefore the objective of most treatments is pain reduction, increase of joint mobility and prevent or limit further damage.

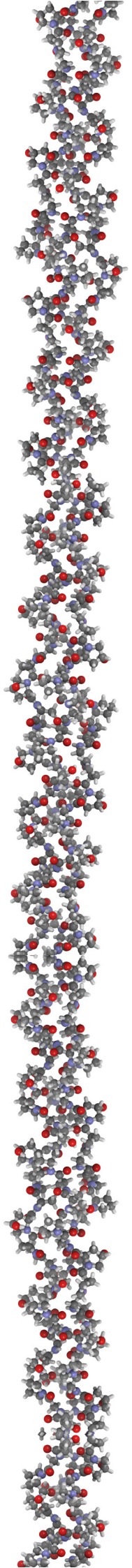
Collagen peptides support healthy joints

Scientific research suggests that a daily oral intake of 10g collagen peptides may have positive effects on joints and alleviate pain, maintain mobility and minimize disability. Major effects are seen on activity related pain after 3 to 6 months supplementation ^(8,9,10).

In vitro studies report on the positive effect of orally administered type I collagen peptides with molecular

weight distribution of 2-10 kDa on the extracellular matrix synthesis of collagen, proteoglycan, and elastin by chondrocytes in cartilage ⁽¹¹⁾.

This results in decreased cartilage tissue degeneration and ultimately reduced pain and increased mobility.



SOLUGEL® PERFORMS

Precious in so many ways

	Dosage	Duration	Effect	Reference
Strong bone	10 g/day	24 weeks	Increase of: <ul style="list-style-type: none">• Bone density• Bone strength	2,3,4,5,6
Healthy joint	10 g/day	12-24 weeks	Decrease of: <ul style="list-style-type: none">• Joint stiffness• Joint pain• Swelling joint	8,9,10

Solugel® is a high quality collagen peptide. Scientific studies suggest that oral ingestion of collagen peptides helps maintain strong bones and healthy joints.

In bones, the activity of osteogenesis is stimulated by small collagen peptides while the bone desorption is reduced. This leads to the beneficial effects such as increased bone mineral density and bone strength.

In joints, collagen peptides stimulate the extracellular matrix synthesis and thus rebalancing cartilage build up and breakdown, resulting in improved mobility, reduced stiffness and pain. In addition, it limits the swelling of the joints.

Solugel® is easily dissolved in water and it has neutral odor and flavor. It is available with different molecular weight profiles and there is a choice of different raw materials, including halal and kosher products. High protein concentrations can be achieved with low viscosity, ideal for beverages, bars, confectionery and instant preparations.

Solugel® provides added value for your various applications, from food supplements to nutrient enriched foods.



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More information on scientific studies are available on request.



E-mail: info@pbgelatins.com
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SOLUGEL® BEAUTY FROM WITHIN

Collagen peptide that brings elasticity, smoothness and hydration to the skin

SOLUGEL® BONE AND JOINT HEALTH

Collagen peptide that helps maintain strong bones and healthy joints

SOLUGEL® SPORTS NUTRITION

Collagen peptide that offers a unique combination of amino acids for sports and active lifestyles

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