

# O NUTRICIA COLLAGEN - SPORTS NUTRITION

## INCREASING LEAN BODY MASS AND MUSCLE STRENGTH

Nutrition plays a key role as athletes prepare to reach **optimal performance** levels and the essential role of proteins are also well known to recreational athletes and **anyone** pursuing an active lifestyle. However it is not just athletic performance, but also the functioning of the musculoskeletal system and maintaining our wellbeing and physical appearance.

## WHAT ARE THE BENEFITS?

O Nutricia collagen peptides are bioactive proteins that support connective tissues, limit joint discomfort and can prevent injury, by stimulating local cells to produce more collagen fibres and tissue matrix. Sufficient availability of amino acids can ensure optimum muscle regeneration. During long periods of exercise, oxidation causes protein loss in the muscle.

## WHY O NUTRICIA COLLAGEN PEPTIDES FOR SPORTS NUTRITION?

<i>Unique amino acid composition</i>	<i>Bioactive &amp; easily digestible</i>	<i>Clean label natural and safe</i>
O Nutricia contains high levels of: Hydroxyproline (11.7) Proline (13.3) Arginine (8.5) Glycine (19.8) Alanine (8.3) offering specific health benefits	Over 90% of collagen peptides are digested and quickly absorbed after oral ingestion – ready to deliver their benefits.	O Nutricia is a natural, 100% Bovine, clean protein, free of E-numbers, gluten, wheat, soya, sugar, additives and preservatives Suitable for Paleo and Banting

## **BOOSTING PROTEIN AND PROTECTING JOINTS**

It is an increasing concern that too much physical activity may lead to joint-related problems such as *osteoarthritis*. The continuous stress that physical activity places on the joints can result in micro trauma and degeneration of the articular cartilage. However, osteoarthritis onset appears to depend on the frequency, intensity and duration of physical activity. Preventive nutrients like **O Nutricia collagen peptides** can help to prevent the onset of joint problems and keep people physically active.

O Nutricia collagen has a **unique** amino acid profile, providing specific nutritional benefits which cannot be found in other protein sources. Hydrolysed collagen contains *high levels* of the amino acids glycine, hydroxyproline, proline, alanine and arginine. O Nutricia collagen offers multiple benefits linked to muscles, athlete performance and connective tissue support. O Nutricia collagen contains a high number of glycogenic amino acids, which can be converted by the body into glucose. In the case of glucose depletion, this might help fulfil body's energy requirement.

<b>AMINO ACIDS</b>	<b>O NUTRICIA COLLAGEN PEPTIDES</b>	<b>WHEY PROTEIN</b>
Glycine	<b>19.8</b>	1.5
Hydroxyproline	<b>11.7</b>	0
Proline	<b>13.3</b>	4
Alanine	<b>8.3</b>	4
Arginine	<b>8.5</b>	2
Glutamic	11.4	13

## HIGH NITROGEN CONTENT HELPS PRODUCE MORE PROTEINS

O Nutricia Collagen offers *higher nitrogen content* compared with whey (on a per g basis). This is because of collagen's high proportion of amino acids that have a low molecular weight.

O Nutricia collagen replaces the energy used in training sessions and enhances the positive effects of resistance training. It positively influences body composition, supports **body toning** and helps to **increase muscle mass** while **decreasing fat mass**.

Human muscular function is dependent on the energy produced by the breakdown of a compound called adenosine triphosphate (ATP) in our cells. Creatine is a molecule consisting of three amino acids – glycine, arginine and methionine – that can aid muscular contraction during periods of high-intensity exercise, while it also helps to replace depleted ATP levels

## WEIGHT LOSS:

O Nutricia Collagen peptides contains **92g of protein** per 100g, a satiating macronutrient which **makes people full and eat less**. Collagen also helps to detox the liver which helps to boost its fat burning ability. The main amino acid is **Glycine**, comprising almost 20% of its amino acids. Glycine can synthesize glutathione. Glutathione can aid in detoxification and provide protection to cells and body tissue. Proline can help to inhibit tumour production.

Both Glycine and Proline aid in **phase 2 liver detoxification** and can aid in the protection of the liver. Arginine helps to reduce ammonia in the body by helping the ammonia removal function of the liver. Proteins such as collagen peptides may modulate thermogenesis and thereby increase energy expenditure.

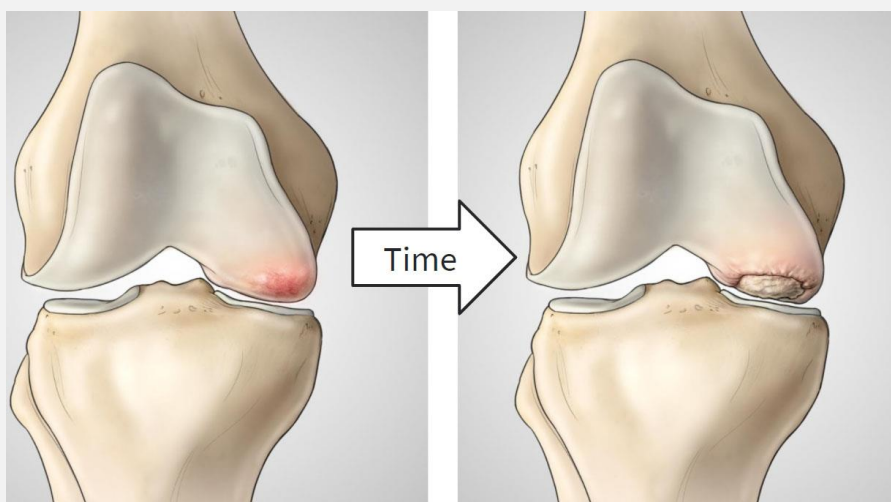
## O NUTRICIA COLLAGEN – MUSCLES, BONES AND JOINTS

O Nutricia collagen peptides can help prevent the negative effects of osteoarthritis (cartilage loss, mostly in the knees), osteopenia (loss of bone mass) and sarcopenia (loss of muscle mass). Staying active and healthy for longer is key to maintaining a **good quality of life** as we get older.

### OSTEOARTHRITIS

Osteoarthritis is a joint disease that mostly affects cartilage. Cartilage is the slippery tissue that covers the ends of bones in a joint. Healthy cartilage allows bones to glide over each other. It also helps absorb shock of movement. In osteoarthritis, the top layer of cartilage breaks down and wears away. This allows bones under the cartilage to rub together.

The cartilage contains cellular building blocks (chondrocytes). These produce the extracellular matrix, which consists of collagen and proteoglycans (mainly aggrecan). Collagen fibers make up 70-95% of cartilage and are responsible for its structure and strength, while proteoglycans lubricate and cushion our joints. **Healthy cartilage** is maintained by a finely balanced process that breaks down collagen and aggrecan and replaces them both with newly-formed matrix. In joints of osteoarthritic people, this process is disturbed, increased matrix breakdown leads to a loss of cartilage and joint function



O Nutricia collagen peptides can *promote chondrocytes* (cartilage cells) synthesis, producing increased aggrecan and collagen type 2, the two main components of cartilage. This can *reduce* the cartilage-degrading effects of osteoarthritis.

## SARCOPENIA

It's not only the young and ambitious sportsmen and women who benefit from *O Nutricia collagen* intake. Scientific studies have proven that it can also be used to prevent Sarcopenia (age-related loss of muscle mass and muscle performance) in the elderly. Another consequence of aging is diminished strength. The body becomes frail – making normal daily activities a challenge and affects independency.

### *Clinically Proven*

Scientists and health professionals often recommend a combination of ***resistant training and O Nutricia collagen*** to delay and counteract the onset of Sarcopenia. In 3 months one could gain the muscle mass lost in 10 years of natural aging.

*In a recent double blind, placebo-controlled, randomized study, 50 male seniors with indications of muscle loss were given 15g of O Nutricia collagen peptides or a placebo daily during a three-month period and subjected to three hourly sessions of resistance training each week.*

*The outcomes were assessed in terms of body composition and strength. Both groups exhibited improved body composition and significant increases in overall strength. A notable increase in muscle mass and decrease in fat mass was observed in the O Nutricia group compared with the placebo group. The researchers concluded that O Nutricia collagen peptides play a significant role in body toning and muscle maintenance.*

## OSTEOPENIA

Osteopenia is the first stage towards developing osteoporosis. It is an age-related condition which results in reduced bone mineral density (BMD). O Nutricia collagen has been proven in multiple in-vivo studies to stimulate osteoblasts (bone formation cells), restoring BMD and **increasing bone size and strength.**

Research has also indicated that collagen peptides could be more effective than whey protein in preserving muscle mass during the consumption of an older person's typically low protein diet.

*Daily dose of only **10 grams O Nutricia hydrolyzed collagen** can help*

*In vivo tests have proven that 10g of O Nutricia hydrolysed collagen, when taken daily over a period of at least **six months**, can not only prevent, but even slow down the progress of osteopenia.*

*Studies show that the body completely integrates the nutrient hydrolysed collagen into the bones, making them stronger and less brittle.*

*O Nutricia hydrolysed collagen **activates** the osteoblasts, which, in turn, produce more calcium. The same dose of hydrolysed collagen is also recommended as a dietary supplement for those suffering from painful arthritis in the joints to alleviate pain and strengthen the cartilage tissue again.*

