COLLAGEN PEPTIDES FOR HEALTHY JOINTS AND BONES

Collagen Peptides for a Healthy Lifestyle

PRODUCED & MARKETED BY ROUSSELOT
A healthy, active lifestyle is the goal of many modern consumers. Essential to achieving this are strong bones and joints. As the global population gets older, joint- and bone-related health concerns are becoming increasingly common. Physically active people, such as athletes, can also encounter joint discomfort and injury to connective tissue as a result of high-intensity exercise.

In view of this, proactive consumers are looking for ways to maintain healthy joints and bones and are searching for products with added benefits to help maintain their active lifestyles.

**KEEPING ACTIVE**

Joint discomfort and restricted joint function affect almost 10% of men and 18% of women over the age of 60, seriously impacting their mobility—currently, 80% of those affected suffer limitation in movement.

Joint related conditions can affect people across a broad age spectrum. People who regularly take part in high-intensity exercise, for example, place extreme pressure on their joints, often leading to joint discomfort. Extra strain is also put on joints by overweight individuals.

Keeping bones healthy and strong are equally important, with one in three women and one in five men over the age of fifty experiencing a bone fracture. Preserving healthy bones is vital to avoid unnecessary fractures and to maintain mobility while aging. Exercise combines with a healthy diet rich in calcium, vitamin D and protein is recommended to support bone health as we age.

**ENSURING OPTIMUM JOINT AND BONE HEALTH FOR AN ACTIVE LIFESTYLE**

- **HEALTHY AND STRONG BONES**
  - Maintain bone mass density

- **HEALTHY AND FLEXIBLE JOINTS**
  - Maintain cartilage and joint function
STAND OUT FROM THE CROWD

As more consumers are seeking ways to stay active for longer, many are now looking beyond glucosamine and chondroitin sulfate products, to new active second generation joint health ingredients, such as collagen peptides.

Rapidly gaining popularity, collagen peptides can be used alone or in combination with other ingredients, and are natural and safe, with no reported side effects. Additionally, based on the body’s own connective tissue protein, Peptan collagen peptides resonate well with consumers, offering real value and proven benefits. Peptan is widely used in dietary supplements and can easily be integrated into functional food and beverage products.

PEPTAN® PROTECTING JOINTS

Cartilage is made up of cellular building blocks (chondrocytes), which produce an extracellular matrix, consisting of collagen and proteoglycans (mainly aggrecan). Collagen fibers make up 70-95% of cartilage and are responsible for its structure and strength, while proteoglycans serve as lubricant to the joint.

Healthy cartilage is maintained by a finely-balanced process that breaks down collagen and aggrecan and replaces them with a newly-formed matrix. If this balance is interrupted, enzymes can attack collagen and aggrecan leading to a loss of cartilage and joint function.

To maintain healthy joints, it is essential to ensure this balance is protected and the necessary building blocks for collagen are available to support cartilage regeneration. Collagen peptides like Peptan are designed to support this process.

PEPTAN® COLLAGEN PEPTIDES

DEMONSTRATED JOINT HEALTH BENEFITS

A highly active process of cartilage formation can help to prevent excess matrix degradation and thus help maintain healthy joints. Collagen peptides such as Peptan have been proven to stimulate chondrocytes to produce more collagen and aggrecan.

A large body of scientific evidence support the efficacy of collagen peptides (type 1) to support connective tissue and promote healthy joints. This evidence include in-vitro, in-vivo, and multiple placebo controlled clinical study.4-10

Peptan has been extensively tested for its regenerative effect on cartilage tissue and demonstrated effect on reducing joint discomfort and stiffness in a double-blind, randomized, placebo-controlled study.4

Peptan’s ability to stimulate chondrocytes (joint cells) to produce more of the key joint matrix compounds, collagen and aggrecan, is shown in the below graph.3
REDUCED JOINT DISCOMFORT AND IMPROVED MOBILITY

In a double-blind, randomized, placebo-controlled clinical trial, 94 female participants aged 40-70 suffering from knee joint pain or discomfort due to osteoarthritis were randomly assigned either 8 g of Peptan or a placebo per day for 6 months. Participants were assessed at the beginning of the trial, three months into the trial and at the end of the trial.

These assessments were based on two established methods, a standardized questionnaire, the WOMAC score, to measure joint pain and joint function in daily life and the Lysholm score, to evaluate knee joint function when limping, walking, jumping and stair climbing.

Participants who were given Peptan reported lowering WOMAC scores over time and recorded significantly lower pain scores at the end of the study. In comparison, no significant change was shown in the placebo group.

```
Development of WOMAC scores
(decreased score value = improvement)

Placebo group
Peptan group

0 months 3 months 6 months

p<0.001
```

Compared to the placebo group, participants who received Peptan also recorded significantly increased scores on the Lysholm system, demonstrating better knee movement.

```
Development of Lysholm scores
(increased score value = improvement)

Placebo group
Peptan group

0 months 3 months 6 months

p<0.001
```

Numerous clinical studies have shown similar effects. Recent scientific reviews on joint pain and joint mobility have concluded that collagen peptides are particularly beneficial to individuals with joint health issues in comparison to other nutraceutical ingredients, especially for reducing joint discomfort. Multiple trials have also demonstrated that subjects with the greatest joint deterioration benefited the most from the effects of collagen peptides.

The effectiveness of collagen peptides has also been shown in athletes with activity-related joint pain in a 24-week study. At the end of the trial, an assessment of participants who consumed collagen peptides showed significantly reduced joint pain at rest, when walking, standing or carrying objects.
Bones are in a constant state of flux. The maintenance of the bone matrix and minerals is dependent on a process called bone remodeling, or bone turnover, which replenishes the cells and matrix which form our bones.

Bone turnover replaces approximately 15% of bone mass in healthy adults each year. Imbalanced rates of bone resorption and formation, leading to more bone loss than formation, can lead to reduction in bone mass density over time.

Representing around 90% of organic bone mass, collagen provides the structural framework on which calcium and other minerals are anchored. Collagen fibers also provide bone flexibility. Research has shown that a daily intake of 8-10 g/day of bioactive collagen peptides can assist in maintaining collagen levels and can help preserve bone health.

**PEPTAN® COLLAGEN PEPTIDES DEMONSTRATED BONE HEALTH BENEFITS**

Peptan’s beneficial effects on bone health have been documented in multiple in vitro and in vivo trials.

**POSITIVE EFFECTS ON BONE FORMATION**

Peptan has been shown to preferentially stimulate the bone cells responsible for bone formation (osteoblasts) compared to cells involved in bone resorption (osteoclasts), triggering an increase in bone formation. These findings have been supported in various studies.
RESTORES BONE MINERAL DENSITY

In a recent in vivo study at the Physiology and Ingestive Behavior Laboratory, INRA AgroParisTech,15 ovariectomized (ovx) mice were used to mimic osteopenia in postmenopausal women and divided into two groups, with only one group fed a diet including Peptan over a 12-week period. A group of normal (non-ovariectomized) mice was also used as a control. The trial found that the group fed a diet with Peptan maintained the same bone mineral density (BMD) level as the non-ovariectomized mice over the test period.

POSITIVE EFFECTS ON BONE STRENGTH

In the same study the daily intake of Peptan over a 12-week period was investigated for the effect on bone size, bone strength and solidity. The results showed an increase in these parameters compared to the ovariectomized (ovx) and control group.

SCIENTIFIC REFERENCES

1 World Health Organisation (WHO), www.who.int/chp/topics/rheumatic/en
2 International Osteoporosis Foundation (IOF), www.iofbonehealth.org/facts-statistics
3 2011. Rousselot in vitro study. Atlantic Bone Screen, France
9 Benito-Ruiz P et al., 2009. A randomized controlled trial on the efficacy and safety of a food ingredient, collagen hydrolysate, for improving joint comfort. International Journal of Food Sciences and Nutrition, 60: 99-113
10 Clark, K.L. et al., 2008. 24-Week study on the use of collagen hydrolysate as a dietary supplement in athletes with activity-related joint pain. Current Medical Research and Opinion, 24: 1485-1496
Collagen is the most abundant protein in the human body. It holds together all living tissue and provides the infrastructure of the musculoskeletal system, making it essential for mobility.

Collagen peptides – the hydrolyzed form of collagen – are increasingly recognized as a highly effective solution for manufacturers targeting the bone and joint health market. They offer specific benefits that cannot be found in other protein sources, are derived from 100% natural sources, and are highly digestible and bioavailable. In fact, studies have shown that more than 90% of the peptides are digested and absorbed within 12 hours of oral ingestion, ensuring they are rapidly available in the connective tissue to stimulate endogenous collagen synthesis in bones and joints.19,20,21

Rousselot’s Peptan collagen peptides can be easily and cost-effectively used in a range of dietary supplements and functional foods, beverages and nutraceuticals.

QUALITY FIRST
Peptan is manufactured by Rousselot in its state-of-the-art certified plants in France and Brazil, meeting the highest international food and quality standards. Peptan are premium quality collagen peptides; 100% natural and safe, fully traceable and free from any preservatives or additives.

ADD VALUE TO YOUR PRODUCT WITH PEPTAN
- Deliver demonstrated joint and bone health benefits
- Meet growing demand for exciting nutraceuticals with added benefits for aging consumers, plus physically active or overweight individuals.

ASK THE EXPERTS
With application and expertise centers located around the world, Rousselot is continuously developing new product concepts and recipes to support our customers’ innovation focus.

Our technical experts are available to provide local application advice to customers, anywhere in the world. Rousselot also offers local regulatory support and provides scientific evidence files to back up the efficacy of Peptan.
About Rousselot and Peptan:
Rousselot and Peptan are both brands of Darling Ingredients Inc. Rousselot is the global leader of gelatin and collagen peptides. Rousselot’s wide range of collagen peptides are marketed under the Peptan brand. We work in partnership with our customers all over the world, delivering innovative and advanced ingredient solutions manufactured through state of the art operations. We help our customers achieve their goals, enabling them to create world class pharmaceutical, food and nutritional products to inspire and excite today’s demanding consumers.

Your Rousselot and Peptan sales contact information: