



# MOVAGAIN™

## NUTRACEUTICALS

## ABOUT

Movagain™ is a newly developed dietary supplement ingredient created specifically to boost joint health. Its nature-sourced formula, an exclusive blend of collagen type II and chondroitin sulfate, promotes mobility and joint support, improving the quality of life for people as they age.

### • Osteoarthritis

Degenerative joint disease, also known as osteoarthritis, occurs in a large number of people all around the globe. Osteoarthritis usually gets worse as people age, causing stiffness and joint pain. It can lead to sleep issues – or even depression – due to the chronic pain many people experience.

Healthy cartilage mainly consists of water, collagen type II, and proteoglycans. The most abundant type of proteoglycan in cartilage is aggrecan, a compound that forms around a large number of chondroitin sulfate chains. These negatively charged aggrecan structures attract water, giving cartilage its inherent shock absorbency. During aging, the essential proteoglycans decrease, followed by degradation and the loss of collagen type II – osteoarthritis.

Eventually, osteoarthritis will affect a person's entire joint, causing changes in the connective tissue and bones. The joint lining becomes inflamed, giving rise to the condition's characteristic stiffness and pain. If the cartilage deteriorates completely, osteoarthritis will cause the bones in the joint to rub against each other.

The risk for osteoarthritis increases as people age. Other risk factors include being overweight, previous joint injuries, repetitive stress, bone deformities, a family history of the condition, and metabolic diseases, such as diabetes and hemochromatosis. Women, too, have an increased risk of developing osteoarthritis.

## MOVAGAIN™

### FEATURES AND OVERVIEW

- Movagain™ is an ingredient created to counter the cartilage loss that occurs in osteoarthritis
- It is a newly developed, unique, and naturally sourced formula
- It consists of a natural matrix of collagen type II and chondroitin sulfate.

#### Chondroitin Sulfate:

60 - 70 %

#### Collagen Type II\*:

≥ 25 %

#### Amino Acids:

Glycine, Alanine, Proline & Glutamic Acid

#### Origin:

Bovine

#### Shelf life:

2 years

#### Packaging:

25 kg

### • Movagain™ - Giving people a fresh start

With Movagain™, people with osteoarthritis can have a second chance to move freely and return to a more active lifestyle. The combination of chondroitin sulfate and collagen type II provides a unique solution to help them deal with the challenges of osteoarthritis. Movagain Nutraceutical™ combines these compounds in a revolutionary ingredient that manufacturers can include in a variety of foods and supplements, such as snacks, capsules, tablets, or even powders that people can mix into beverages or sprinkle on their morning cereal.

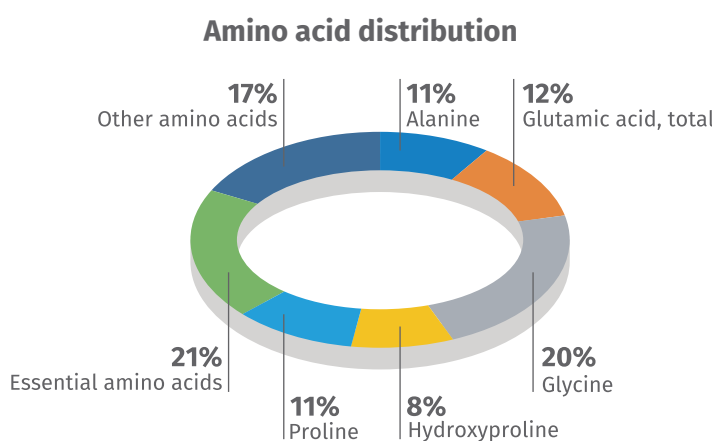
Movagain™ is naturally derived from bovine cartilage. It undergoes a clean, safe process – free from organic solvents – to obtain a naturally customized matrix of chondroitin sulfate and collagen type II. Unlike other collagen products typically derived from cowhides and pigskin, Movagain Nutraceutical™ is a direct source of natural cartilage molecules. Movagain Nutraceutical™ is a non-GMO product. It is produced exclusively in Denmark and meets and exceeds the nation's stringent production standards.

**Chondroitin sulfate** is a component of the extracellular matrix that naturally exists in the cartilage between bones. In connective tissue, chondroitin sulfate provides exogenous supplementation by providing hydration to the affected area.

In addition, chondroitin sulfate inhibits the enzymes that decompose joint cartilage. It stimulates chondrocytes, achieving homeostasis, which in turn reduces inflammation, resulting in less pain. Even better, it increases elasticity and plasticity, restoring the joint cartilage's natural function.

**Collagen Type II** is the main component of cartilage in connective tissue, providing the building blocks that form new collagen in connective tissue. By stimulating cell health – and growth – it creates new extracellular matrix components. Those new components create a state of homeostasis, giving rise to less pain and inflammation.

Naturally existing amino acids in collagen type II are predominantly glycine, alanine, hydroxyproline, and proline. These critical amino acids are the components that give rise to collagen type II's many anti-aging benefits. For that reason, Movagain™ contains high levels of these essential amino acids.



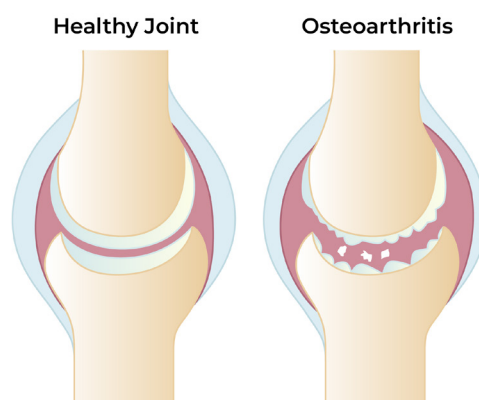
**Glycine** forms almost 33 percent of type II collagen. An essential ingredient in collagen synthesis, glycine has properties that are critical components of type II collagen's anti-aging effects. Movagain™ includes naturally sourced glycine, the most-preferred source of collagen for joint health applications.

**Proline**, like glycine, is a crucial amino acid found in collagen. As such, it is an essential part of the collagen synthesis process. Proline is the basis for hydroxyproline, yet another important amino acid found almost exclusively in collagen.

**Alanine** is a vital amino acid for building and maintaining proteins necessary to form the cartilage's extracellular matrix.

**Essential Amino Acids** are amino acids that are not synthesized by a pet's body and are therefore necessary to provide in the animal's diet through regular food and supplements.

**BCAA** is the collective name for the branched-chain amino acids (leucine, isoleucine, and valine), a small group of essential amino acids that have side chains with a characteristic "branch," a carbon atom attached to at least three other carbon atoms. These three branched amino acids are an essential source of energy for muscle tissue. Most scientists believe that these amino acids enhance muscle protein synthesis and reduce muscle protein breakdown.



In the illustration above, we have compared a healthy joint to one affected with osteoarthritis. Initially, the cartilage degradation will lead to subchondral bone friction, increasing the risk of bone spur formation (osteophytosis). As the disease progresses, the inflammation in the affected area will increase. If the inflammation goes untreated, the severity of osteoarthritis can intensify.

#### • About ZPD A/S

ZPD A/S is a global leader in the production of European-origin mucopolysaccharides. Based in Denmark and part of the Japan-based ZERIA Group, ZPD A/S operates in full compliance with GMP and employs strict raw material purchase management and control systems. The company sources only high-level, certified raw material from healthy livestock and controlled suppliers. ZPD is certified by the Danish Medicines Agency and the Danish Veterinary and Food Agency. To learn more about Movagain Pet™, get in touch with the ZPD A/S team through one of the contact methods listed below.

\*Calculated as total protein.

Reference list:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3771246/>

<https://aminoacidstudies.org/1/2>

<https://www.mayoclinic.org/diseases-conditions/osteoarthritis/symptoms-causes/syc-20351925>