STRUCTURE AND FUNCTION

Glucosamine, a key component of cartilage and synovial fluid, is an aminomonosaccharide utilized as the primary substrate in the synthesis of GAGs and proteoglycans. The amide group of Glucosamine is required for metabolic conversion into Glucosamine-6-phosphate, which is subsequently converted to galactosamine required for GAG assembly. Glucosamine from food and supplements is incorporated into the metabolic pathway of proteoglycan and GAG synthesis, promoting cartilage production and articular function.* Glucosamine has also been shown to suppress platelet aggregation, release of granule constituents, thromboxane A2 production, calcium mobilization and phosphorylation of Syk possibly via the inhibition of ADP-binding to the receptors (Hua et al. 2004).

Chondroitin Sulfate is a natural constituent of cartilage, made up of repeating chains of GAGs. Chondroitin Sulfate is a highly charged polyanion, promoting water retention in the connective tissue to support joint flexibility and cushion joints. Composed of N-acetyl-galactosamine and glucuronic acid, Chondroitin Sulfate provides a raw material for proteoglycan and GAG synthesis to actually help renew cartilage. Chondroitin Sulfate also promotes healthy enzymatic metabolism of cartilage, to further maintain joint health.*

MSM is a dietary source of sulfur and is an odorless crystalline powder similar to the texture of sugar. MSM contains 34% sulfur by weight and is derived by the heating of dimethyl sulfoxide (DMSO). Unlike DMSO, MSM however does not possess solvent properties and is completely odorless.

Since sulfur is an integral component in connective tissue, MSM clinical studies have focused on cartilage and joint support. Cartilage is comprised of an extracellular matrix made of complex proteins known as glycosaminoglycans (GAGs) and proteoglycans. Enhancement of GAG synthesis, promotes cartilage production and articular function.* Sulfur concentration of arthritic cartilage is one third of normal tissue (Rizzo et al. 1995).

INDICATIONS

Researchers have been studying glucosamine for several decades and now glucosamine is recognized by rheumatologists and general practitioners. The mixture of compounds found in Cartilage Companion® may provide joint comfort and contribute to the overall health of the connective tissue.* For clients that are concerned with overall joint health, including mobility, flexibility and range of motion, Cartilage Companion is formulated based on extensive reviews of published scientific literature.*

HOW CLIENTS MAY BENEFIT*

- Promotes range of motion, mobility, and flexibility for comfortable movement.*
- Glucosamine supplies a natural component of cartilage.*
- Chondroitin Sulfate promotes water retention to cushion joints.*
- Chondroitin Sulfate promotes healthy enzymatic metabolism of cartilage for joint maintenance.*
• Helps to promote cartilage formation.*
• Slows the natural breakdown of cartilage associated with aging.*
• MSM possesses antioxidant properties.*
• Promotes joint and cartilage comfort.*
• May provide joint comfort.*

CLINICAL EVIDENCE

• Reginster et al. (2001) published a double-blind placebo controlled study that investigated the long-term effects of Glucosamine Sulfate in a trial of 212 subjects. After 3 years of 1500 mg/day, the subjects that received Glucosamine maintained cartilage as measured in the knee. Joint support was not observed in the placebo group. In addition, Glucosamine significantly promoted joint comfort and range of motion compared to placebo.
• Qiu et al. (1998) showed that both glucosamine sulfate and ibuprofen performed equally as well (p<0.0001) and after two weeks improvement favored those subjects taking glucosamine sulfate (p<0.01).
• Morreale et al. (1996), Bourgeois et al. (1998) and Bucsi & Poor (1998) saw significant improvements in the Lesquesne index with 400mg of chondroitin sulfate (p<0.01).
• Bucsi & Poor (1998) evaluated the effects of 800 mg Chondroitin Sulfate on knee joint health in a double-blind, placebo-controlled study of six months duration. A statistically significant difference favoring Chondroitin Sulfate was found in all parameters measured, including joint comfort and walking time (p<0.01).
• Verbruggen et al. (1998), Pipitone et al. (1992), and Krezberg et al. (1987) found significant improvements in radiographic progression, mobility, and global functioning, as well as decreased NSAID consumption (p<0.01) in subjects consuming chondroitin sulfate for over 3 months.

SUMMARY
Both glucosamine and chondroitin are essential building blocks of connective tissue that form cartilage, heart valves, mucous membranes, and synovial fluid.*

Sulfur is one of the building blocks of collagen and GAGs, key structural components in cartilage.* The compounds play an important role in the integrity and maintenance of joint cartilage.* MSM is a natural dietary source of sulfur which synergistically enhances the body's connective tissue, including hair, skin and nails.*

Together these ingredients form the perfect combination to effectively maintain and support connective tissue.*

SUGGESTED DOSAGE
Take one (1) capsule up to three times daily with meals or follow the advice of your health care professional. As a reminder, discuss the supplements and medications you take with your health care providers.
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