

Benefits

Supports Joint Structure and Function*

Glucosamine Sulfate

Glucosamine sulfate is one of the most important nutritional supplements for joint health ever developed. Glucosamine sulfate provides significant benefits for both the structure and function of joints. Many years of research have produced unequivocal evidence that glucosamine sulfate normalizes cartilage metabolism, slows breakdown of cartilage, and improves joint function.^{4,5,6}

Glucosamine sulfate has been thoroughly researched over the last twenty years. Experimental studies and human clinical trials convincingly demonstrate that orally consumed glucosamine sulfate improves joint function.^{4,5,6}

In one large open trial, over 1200 people took oral glucosamine sulfate for periods ranging from 36 to 64 days. 252 physicians participated in this multicenter study. 95% of the subjects experienced greater joint comfort and increased mobility. The physicians reported "good" results in 59%, and "sufficient" results in 36%. The improvements lasted for up to three months after the glucosamine sulfate was discontinued.⁵

Chondroitin Sulfate

In a 1996 controlled, double-blind multicenter clinical trial published in the *Journal of Rheumatology*, 146 volunteers consumed 1200 mg of chondroitin sulfate every day for 6 months.⁷ Changes in joint function were measured according to several clinical parameters and carefully analyzed. After the first month, significant improvements were noted and maintained for three months after the subjects stopped taking the chondroitin sulfate. In an earlier double-blind study subjects taking chondroitin sulfate had improvements in joint function after three months of use, as determined by both objective and subjective measurements.⁸ In both studies, the benefits lasted for weeks after subjects stopped taking chondroitin sulfate.

In another controlled multicenter study, 192 subjects took 1200 mg of chondroitin sulfate or a placebo daily for one year. At the end of the trial, chondroitin sulfate produced substantial increases in joint cartilage thickness, while those on placebo had decreases. Improvements in joint function also occurred. The researchers reported that "we clearly demonstrated that (chondroitin sulfate) exerts a chondroprotective activity."⁹

New Clinical Evidence of MSM's Joint Benefits

A small pilot study recently conducted at the U.C.L.A. School of Medicine is the first controlled double-blind trial to test the effects of MSM on joints.¹⁰ Sixteen subjects demonstrating need for joint support took either MSM or a placebo daily for six weeks. As measured by a Visual Analog Scale, those taking MSM registered an 82 percent improvement compared to 20 percent with placebo. Though preliminary due to the small number of subjects, these results suggest potential for MSM as a joint

support nutrient that warrants further investigation in larger double-blind trials.

Additional Benefits of MSM

Sulfur is a structural mineral that maintains the strength of various tissues by forming sulfur "tie-bars" (sulfhydryl bonds) between connective tissue proteins. MSM serves as a readily available source of sulfur for this function, and thus helps maintain the pliancy of tissues and cell membranes.

Based on anecdotal clinical reports, as outlined in MSM patents, ingestion of MSM by humans appears to have the following beneficial effects: 1) Supports normal gastrointestinal function; 2) Improves the body's resistance to adverse physical stress; 3) Supports mental alertness and maintenance of healthy mood; 4) Helps regulate body's inflammatory function; 5) Helps modify the physiologic response to allergens; 6) Supports normal lung function; 7) Helps maintain healthy skin.^{11,12}

Supplementation is Needed to Realize the Benefits of MSM

Widespread in nature, MSM is found in a variety of foods, including fresh fruits and vegetables, raw milk, raw meat and raw fish. However, MSM is a volatile substance easily lost during cooking, pasteurization, food processing and storage. The average American diet thus supplies at best a marginal MSM intake which may be inadequate to maintain the optimum MSM concentration in the body. The average body's MSM concentration is also believed to decline with increasing age.^{11,12,13}

Safety

Suggested Use: As a dietary supplement, take 2 capsules twice daily.

Note: Glucosamine is obtained from the shells of shellfish.

Does Not Contain: *milk, egg, wheat, corn, sugar, sweeteners, starch, salt, or preservatives.*

Scientific References

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