



# MSM / Glucosamine / Chondroitin

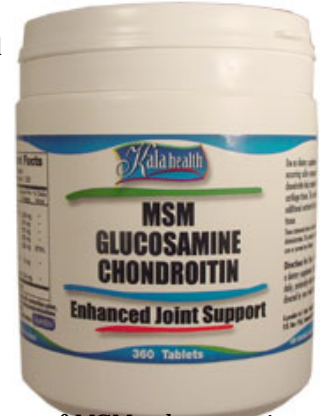
A KALA Health product



## WHAT IS MSM/GLUCOSAMINE/CHONDROITIN JOINT SUPPORT COMBO?

KALA Health's MSM / Glucosamine / Chondroitin Joint Support Combo is a combination of MSM, glucosamine, chondroitin and several other ingredients, each of which have been proven to benefit painful joints. The amounts and quality of each of the ingredients of MSM / Glucosamine / Chondroitin Joint Support Combo were carefully selected to maximize their ability to fight chronic joint injuries. Each of these ingredients works at different levels to benefit joint problems. Combined in a coated tablet and aided by several support ingredients, MSM, glucosamine

and chondroitin enhance each other's activities.



KALA Health's MSM, glucosamine and chondroitin Joint Support Combo offers the following advantages:

- Taken in the recommended dosage, the tablets contain the optimal amount of MSM, glucosamine and chondroitin according to the most recent scientific knowledge;
- In addition to MSM, glucosamine and chondroitin, each tablet also contains **Vitamin C** (as Ester C)

Vitamin C is essential for the production of collagen, elastin and other molecules that make up connective tissue and cartilage;

Vitamin C slows down the breakdown of GAGs, which form the matrix of cartilage (see column on right);

Vitamin C is the most important water soluble anti-oxidant in the body. It protects the body against the ravages caused by free radicals.

- Other important ingredients included are **Manganese** and **Molybdenum**. Both are sparse elements in the human body, nevertheless these minerals play an essential role in many metabolic processes. Manganese (see side panel) is a mineral essential to the formation of connective tissue (such as cartilage). Therefore manganese is extremely helpful in combating degenerative arthritis but there is also evidence that it promotes keeping bones strong and contributing towards the prevention of Osteoporosis. Manganese is also known to help with the production of collagen and proteoglycans from the glucosamine and the chondroitin sulfate, while molybdenum plays an important role in the assimilation of sulfur.

**MSM/GLUCOSAMINE/CHONDROITIN JOINT SUPPORT COMBO  
is available in bottles containing 120 and 360 coated tablets.**

<b>Supplement Facts</b>		
<b>Serving Size: 3 Tablets</b> <b>Servings Per Container: 40 or 120</b>		
	<b>Amount Per 3 Tablets</b>	<b>% Daily Value</b>
<b>Methylsulfonylmethane</b> (99.9% pure OptiMSM)	1,200 mg	*
<b>Glucosamine Sulfate</b>	375 mg	*
<b>Glucosamine HCL</b>	375 mg	*
<b>Chondroitin Sulfate</b>	675 mg	*
<b>Vitamin C</b> (as Ester C)	225 mg	375 %
<b>Manganese</b> (as manganese sulfate)	15 mg	*
<b>Molybdenum</b> (molybdenum amino acid)	0.24 mg	*

\* Daily value not established

**Other ingredients:** Cellulose, stearic acid, croscarmellose sodium, silicon dioxide, magnesium stearate, hydroxypropylmethylcellulose (coating), titanium dioxide (coating).

**Directions for Use:**

Take three tablets twice daily, preferably with meals. Dosage may vary as directed by your health care provider.

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## **Recent Studies with MSM, Glucosamine and Chondroitin**

**Clinical Study 1.** We would like to share with you important clinical research that proves the benefits of MSM in combination with glucosamine. In this recently published, randomized, double-blind trial, published in the journal *Clinical Drug Investigations*, it was found that MSM, glucosamine sulfate, and their combination produced pain-relief and anti-inflammatory effects in osteoarthritis of the knee.

Participants received either 1,500 mg per day of MSM, 1,500 mg per day of glucosamine sulfate, both, or placebo in the 12-week trial. Compared to placebo, the nutrients, individually and in combination, produced statistically significant decreases in the Lequesne Index, a standardized measurement of the signs and symptoms of osteoarthritis. The combination of MSM and glucosamine was more effective than either treatment alone.

The study provides clinical evidence of synergy between MSM and glucosamine in combating the symptoms of osteoarthritis. The publication of these study results validates the conclusions of Cardinal Nutrition's own recently completed randomized, double-blind study of OptiMSM for osteoarthritis of the knee. Since this clinical trial has not yet been published, we are unable to disclose specific results. However, the findings were positive, statistically significant, and wholly consistent with the findings of the MSM/glucosamine study discussed above.

**Clinical Study 2. Chondroitin Sulfate May Slow Knee Osteoarthritis** - Taking chondroitin sulfate supplements over short periods significantly relieved pain and improved mobility in patients with knee osteoarthritis, according to researchers. The study, looking at the effect of chondroitin taken over two three-month periods during one year, supported the long-term results of the supplement for osteoarthritis, said an international team writing in the April issue of *Osteoarthritis and Cartilage* (vol. 12: 269-276).

Osteoarthritis is a major cause of disability and there is neither an effective treatment to stop the disease worsening, nor a cure. The only available treatment is pain relief and replacing the worn out joints. Knee osteoarthritis affects 14.1 per cent of men and 22.8 per cent of women over the age of 45 but increases in life expectancy and ageing populations are expected to make osteoarthritis the fourth leading cause of disability by 2020, according to the World Health Organization.

In the new study, the group taking chondroitin sulfate (800 mg daily) saw symptoms measured by Lequesne's algo - functional index (pain and knee function) decrease by 36 per cent after one year compared to 23 per cent in the placebo group. Secondary measures of efficacy, such as walking time and paracetamol, also showed similar results. And X-rays at the end of the study revealed that while the placebo group patients had significantly decreased femoro-tibial joint space width, there was no change in the chondroitin group.

The researchers conclude that the intermittent administration of chondroitin sulfate supplements twice a year supports the prolonged effect seen with other symptom-modifying agents for osteoarthritis. They add that the inhibitory effect on progression of joint space narrowing could suggest further evidence of its ability to improve the condition.

# **Ingredients of MSM/Glucosamine/Chondroitin**

## **Joint Support Combo**

### **MSM**

MSM reduces chronic pain;  
MSM reduces inflammations and the inflammatory process;  
MSM normalizes the immune system, a great benefit to people who suffer from allergies;  
MSM supplies sulfur to cartilage, necessary for its regeneration;  
MSM improves the activity of many vitamins and other nutrients.

MSM (methyl- sulfonyl- methane) is organic sulfur. With increasing age the supply of sulfur in the body decreases: arthritic cartilage contains only one-third of the sulfur concentration of healthy cartilage. MSM is often considered one of the safest and most effective treatments for chronic pain. Three tablets twice a day supplies 2.4 grams of MSM which is sufficient for most people.

### **GLUCOSAMINE**

Glucosamine, an amino sugar, promotes the formation and repair of cartilage. A shortage of cartilage can cause painful joint movement. Glucosamine is an important building block of many GAGs (glycosaminoglycans), which are molecules that form the matrix of cartilage.

It is derived from chitin, a substance which gives strength to the exoskeleton of crabs, lobsters, insects and spiders. KALA Health's formula combines the two main forms of glucosamine in equal proportions. Both forms are very safe and easily assimilated by the body. Three tablets twice daily supplies 1,500-mg glucosamine, essential for the maintenance and proper functioning of cartilage, and the production of new cartilage.

### **CHONDROITIN**

The cartilage in the joints act as a spongy 'shock absorber'. For this it needs special substances to attract fluid. Chondroitin, another natural substance made in the body, attracts fluid into the cartilage like a liquid magnet. Without this fluid, cartilage would become malnourished, thinner and more fragile.<sup>3</sup> In this way Chondroitin protects cartilage from breakdown and also stimulates the synthesis of new cartilage, important for healthy joints.

Chondroitin works best when the molecules are small and easily taken up by the body. Cheaper forms of chondroitin are a waste of money as they are passed through the body without benefit. KALA Health's chondroitin is guaranteed to contain in excess of 90% active ingredient, and has a small molecular size (19,000 Daltons) that allows it to be easily assimilated. Three tablets twice daily provide 1,200 mg of chondroitin that is the recommended amount for optimal results. This dosage is also considered safe.

### **MANGANESE**

Manganese is an essential mineral found in large quantities in both plant and animal matter. Only trace amounts of this element can be found in human tissue, however. Manganese supports many enzyme controlled reactions, and plays an essential role in the formation of GAGs (see above). It aids in the formation of connective tissue, bones, blood-clotting factors, and sex hormones. Low levels of manganese in the body can contribute to bone malformation and weakness.

Experts estimate that as many as 37% of Americans do not get the recommended daily amounts of manganese in their diet. A few studies of people with osteoarthritis suggest that the combination of manganese supplementation taken along with glucosamine and chondroitin can reduce pain associated with the condition.