

MSM

**Doctor's
BEST**
Science-Based Nutrition™



1000mg, 180C & 360C

Supplement Facts

Serving Size 3 Capsules
Servings Per Container 60 & 120

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| MSM (Methylsulfonylmethane)(OptiMSM®) | 3000 mg | † |

† Daily Value not established.

Other Ingredients: Gelatin (capsule).

Suggested Adult Use: Take 3 capsules daily with food, or as recommended by a nutritionally-informed physician.

WARNING: If you are pregnant or lactating, consult your physician before using any health supplement.

Non-GMO / Gluten Free

Store in a cool dry place.

MSM 1000mg, 180VC

Supplement Facts

Serving Size 3 Veggie Capsules
Servings Per Container 60

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| MSM (Methylsulfonylmethane)(OptiMSM®) | 3000 mg | † |

† Daily Value not established.

Other Ingredients: Modified cellulose (vegetarian capsule).

Suggested Adult Use: Take 3 capsules daily with food, or as recommended by a nutritionally-informed physician.

WARNING: If you are pregnant or lactating, consult your physician before using any health supplement.

Non-GMO / Gluten Free / Vegan

Store in a cool dry place.

OptiMSM® is a registered trademark of Bergstrom Nutrition®

INGREDIENTS

Doctor's Best MSM features OptiMSM®, a highly purified form of methylsulfonylmethane (MSM). Also known as methyl sulfone or dimethyl sulfone (DMSO₂), MSM contains two oxygen atoms and two methyl groups bound to a sulfur atom. The sulfur, which makes up about 34% of the elemental weight of MSM, is a part of the global sulfur cycle that results in plants taking up MSM from the rain and becoming a concentrated source of the compound.¹⁻³ Unlike its parent compound dimethylsulfoxide (DMSO₂), MSM doesn't contribute to unpleasant after-effects such as garlic-like breath.⁴

Methylsulfonylmethane is widely distributed in nature and found in trace quantities among many foods, and in relatively higher quantities in a few foods and beverages, most notably Swiss chard, concentrated tomato products, milk, coffee, beer, port wine, and tea.^{5,6}

Since the amount of MSM found naturally in living materials is too small to be extracted, the MSM used for dietary supplements is manufactured. The makers of OptiMSM® developed a four-stage process to separate impurities including heavy metals and other contaminants from OptiMSM®. Each batch exceeds the United States Pharmacopeia (USP) monograph standards for MSM, and is validated by testing in independent laboratories.

BENEFITS

- Promotes joint comfort and mobility*
- Enhances antioxidant defenses*
- Supports healthy immune response*

EXTENDED BENEFITS

Promotes joint comfort and mobility*

In a double blind, placebo-controlled trial, 50 men and women were randomized to receive either 3,375 mg (3.375 grams) of MSM or a placebo daily for 12 weeks.⁷ Participants were instructed to take the tablets (each was 1.125 grams) in three doses per day with food, and to avoid taking the tablets before bed. Several validated and reliable scoring methods were used to measure joint function and comfort

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during the study. Compared with placebo, MSM was shown to significantly promote joint function and comfort, without side effects.

A larger dose was used in a randomized, double blind, placebo-controlled trial of 50 men and women (ages 40–76).⁸ Participants were randomized into two groups to receive either placebo capsules or OptiMSM® in 1 gram capsules for 12 weeks. They were instructed to ramp up to the eventual dose of 6 grams per day by starting with two doses of 2 grams per day for 3 days, followed by an increase to 4 grams per day for the next 4 days. At the beginning of the second week, the dose was raised to 3 grams twice daily. Participants were instructed to take the MSM with food, and to avoid taking it at bedtime. Knee joint function and comfort were measured by standardized (reliable and valid) questionnaires. After 12 weeks, physical function and knee joint comfort were shown to be superior in the MSM group when compared to placebo.

In a more complex double blind study, MSM was tested versus (a) a placebo, (b) glucosamine, and (c) a combination of MSM with glucosamine, in 118 men and women (ages 40–70).⁹ Participants were randomized into four groups to receive either a placebo, MSM alone (500 mg three times daily), glucosamine alone (500 mg three times daily), or MSM + glucosamine (500 mg each, three times daily). Using a number of analytical tools that measured joint functionality, comfort, and quality of life related to joint health, the researchers found that the MSM and glucosamine groups experienced significant support for joint health, whereas the placebo group experienced no such benefits. Additionally, the combination of MSM + glucosamine was significantly better at promoting joint comfort and functional ability than either taken alone.

MSM could serve as a source of sulfur to support the maintenance and formation of cartilage, thereby supporting knee joint health.¹⁰ Its two methyl groups could be valuable to its actions, being necessary for tissue repair and maintenance. Its molecular structure suggests it could also have redox (electronic catalytic) properties that would facilitate antioxidant or other human benefits.

Enhances antioxidant defenses* Supports healthy immune response*

Oxidative stress is a term used to describe negative imbalance between production of reactive oxygen species (ROS) and the body's antioxidant capacities. Strenuous exercise have the potential to create an uptick of ROS, and subsequently oxidative stress.¹¹ Human and animal studies suggest that taking MSM prior to exercise may help to ease oxidative stress, especially in individuals not accustomed to the stress of exercise.^{12, 13}

In an exploratory trial of eight healthy men accustomed to a moderate amount of exercise (no more than 2.5 hours per week), the effect of MSM on antioxidant capacity after exercise was investigated. Half of the participants were given 1.5 grams of OptiMSM® per day, and the other half 3.0 grams per day. Both groups took the MSM for 30 days, and were instructed to split their daily dose in order to take half of it in the morning and half in the evening. On two exercise test days (before and after 28 days of MSM consumption), participants took their morning MSM dose immediately prior to eating a standardized breakfast, then performed 18 sets of a standardized exercise. A statistically significant increase in blood antioxidant capacity following exercise was reported in the group taking 3 grams MSM daily, as measured by the well-accepted Trolox Equivalent Antioxidant Capacity assay.¹²

MSM has been suggested to support healthy immune function through antioxidant actions. Neutrophils, the most abundant white blood cells in the body, routinely release free radicals crucial to their immune activities; this can be a double-edged sword, as excessive free radical generation contributes to oxidative stress. Laboratory research suggests MSM can help regulate free radical production by neutrophils.¹⁴ In mice macrophage (immune) cells, MSM was shown to down-regulate overactive immune factors without being toxic to the cells.¹⁵ In a mouse model examining joint health, MSM dissolved in the drinking water influenced immune function in a



MSM 1500mg, 120T

Supplement Facts

Serving Size 1 Tablet
Servings Per Container 120

| | Amount Per Serving | % Daily Value |
|--|--------------------|---------------|
| MSM (Methylsulfonylmethane)(OptiMSM®) | 1500 mg | † |
| † Daily Value not established. | | |

Other Ingredients: Microcrystalline cellulose, stearic acid, modified cellulose (coating), magnesium stearate (vegetable source), silicon dioxide.

Suggested Adult Use: Take 1 tablet twice daily with food, or as recommended by a nutritionally-informed physician.

WARNING: If you are pregnant or lactating, consult your physician before using any health supplement.

Non-GMO / Gluten Free / Vegan
Store in a cool dry place.

MSM Powder

Supplement Facts

Serving Size 3 scoops (3 grams)
Servings Per Container Approximately 83

| | Amount Per Serving | % Daily Value |
|---|--------------------|---------------|
| MSM (Methylsulfonylmethane) (OptiMSM®) | 3 g | † |
| † Daily Value not established. | | |

Other Ingredients: None.

Suggested Adult Use: Mix 3 level scoops into 8 ounces juice or beverage of your choice daily, or as recommended by a nutritionally-informed physician.

WARNING: If you are pregnant or lactating, consult your physician before using any health supplement.

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way that significantly supported joint structure and function when compared to mice in a control group.¹⁶

MSM's benefits for human immune function were studied in an open-label clinical trial. A total 50 men and women were given OptiMSM®, 2.6 grams per day for 30 days.¹⁷ The MSM was given as four 650 mg capsules—two in the morning and two in the afternoon—each day. Immune function was measured by questionnaire, which included three subsections of questions about upper respiratory health (the head, eyes, nose, and throat), lower respiratory health (the lungs and chest), and energy level. The data suggested MSM produced clinically significant support for the upper respiratory system after one week, the lower respiratory system after three weeks, and enhanced energy levels after two weeks. These benefits continued into the fourth and final week of the study. A subset of 16 participants who experienced the least benefit from the MSM were selected to continue taking OptiMSM® for an additional 14 days, but at the higher dose of 5.2 grams per day. These individuals then reported experiencing significantly enhanced energy levels and superior overall respiratory scores.

While new research is exploring the potential of methylsulfonylmethane in promoting the maintenance of GI health¹⁸ and bone health,¹⁹ the current clinical evidence shows MSM provides meaningful support for the joints, for immune function, and for the body's antioxidant and overall protective capacities. MSM is proven very safe to take, very well tolerated, and effective at intakes as high as 6000 mg (6 grams) per day.

SCIENTIFIC REFERENCES

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