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Methylsulfonylmethane (MSM)

What is it?

Methylsulfonylmethane (MSM) is a chemical found in green plants, animals, and humans. It can also be made in a laboratory.

MSM became popular because of a book called "The Miracle of MSM: The Natural Solution for Pain." But there is little published scientific research to support its use. Some literature that promotes MSM states that MSM can treat sulfur deficiency. But there is no Recommended Dietary Allowance (RDA) for MSM or sulfur, and sulfur deficiency has not been described in the medical literature.

People use MSM for osteoarthritis. It is also used for pain, swelling, aging skin, and many other conditions. But there is no good scientific evidence to support most of these uses.

How effective is it?

Natural Medicines Comprehensive Database rates effectiveness based on scientific evidence according to the following scale: Effective, Likely Effective, Possibly Effective, Possibly Ineffective, Likely Ineffective, Ineffective, and Insufficient Evidence to Rate.

The effectiveness ratings for **METHYLSULFONYLMETHANE (MSM)** are as follows:

Possibly effective for...

- **Osteoarthritis.** Research shows that taking MSM by mouth in two to three divided doses daily, either alone or together with glucosamine, can slightly reduce pain and swelling and improve function in people with osteoarthritis. But the improvements might not be clinically significant. Also, MSM might not improve stiffness or overall symptoms. Some research has looked at taking MSM with other ingredients. Taking an MSM product (Lignisul, Laborest Italia S.p.A.) together with boswellic acid (Triterpenol, Laborest Italia S.p.A.) daily for 60 days might reduce the need for anti-inflammatory drugs but does not reduce pain. Taking MSM, boswellic acid, and vitamin C (Artrosulfur C, Laborest Italia S.p.A.) for 60 days might reduce pain and improve walking distance. The effects appear to persist for up to 4 months after stopping treatment. Taking MSM, glucosamine, and chondroitin for 12 weeks may also reduce pain in people with osteoarthritis. Also, early research suggests that taking a combination product containing MSM (AR7 Joint Complex, Robinson Pharma) by mouth for 12 weeks improves rating scores for joint pain and tenderness in people with osteoarthritis, but does not improve the appearance of joints.

Possibly ineffective for...

- **Athletic performance.** Research shows that taking MSM daily for 28 days does not improve exercise performance. Also, applying cream containing MSM before stretching does not seem to improve flexibility or endurance.
- **Poor circulation that can cause the legs to swell (chronic venous insufficiency or CVI).** Research shows that applying MSM and EDTA to the skin can reduce swelling in the calf, ankle, and foot in people with chronic venous insufficiency. But applying MSM alone seems to actually increase swelling.

Insufficient evidence to rate effectiveness for...

- **Aging skin.** Early research shows that taking MSM might help to reduce wrinkles on the face and make the skin appear smooth.
- **Hay fever.** Early research suggests that taking MSM (OptiMSM 650 mg) by mouth for 30 days can relieve some symptoms of hay fever.
- **Muscle damage caused by exercise.** Some research shows that taking MSM daily beginning 10 days before a running exercise can help reduce muscle damage. But other research shows that it doesn't reduce muscle damage.
- **A skin condition that causes redness on the face (rosacea).** Research shows that applying an MSM cream to the skin twice daily for one month can improve redness and other symptoms of rosacea.
- **Nerve damage in the hands and feet caused by cancer drug treatment.**
- **Hemorrhoids.**

- **Joint pain.**
- **Pain after surgery.**
- **Painful conditions caused by overuse of tendons (tendinopathy).**
- **Allergies.**
- **Alzheimer disease.**
- **Asthma.**
- **Autoimmune disorders.**
- **Cancer.**
- **Chronic pain.**
- **Constipation.**
- **Dental disease.**
- **Eye swelling.**
- **Fatigue.**
- **Hair loss.**
- **Hangover.**
- **Headaches and migraines.**
- **High blood pressure.**
- **High cholesterol.**
- **HIV/AIDS.**
- **Insect bites.**
- **Leg cramps.**
- **Liver problems.**
- **Lung problems.**
- **Mood elevation.**
- **Muscle and bone problems.**
- **Obesity.**
- **Parasite infections.**
- **Poor circulation.**
- **Premenstrual syndrome (PMS).**

- **Protection against sun/wind burn.**
- **Radiation poisoning.**
- **Scar tissue.**
- **Snoring.**
- **Stomach upset.**
- **Stretch marks.**
- **Type 2 diabetes.**
- **Wounds.**
- **Yeast infections.**
- **Other conditions.**

More evidence is needed to rate MSM for these uses.

How does it work?

MSM might supply sulfur to make other chemicals in the body.

Are there safety concerns?

When taken by mouth: MSM is **POSSIBLY SAFE** for most people when taken by mouth for up to 3 months. In some people, MSM might cause nausea, diarrhea, bloating, fatigue, headache, insomnia, itching, or worsening of allergy symptoms.

When applied to the skin: MSM is **POSSIBLY SAFE** for most people when applied to the skin in combination with other ingredients, such as silymarin or hyaluronic acid and tea tree oil, for up to 20 days.

Special precautions & warnings:

Pregnancy and breast-feeding: There isn't enough reliable information to know if MSM is safe to use when pregnant or breast feeding. Stay on the safe side and avoid use.

Varicose veins and other circulatory problems (chronic venous insufficiency): Applying a lotion that contains MSM to the lower limbs can increase swelling and pain in people with varicose veins and other circulatory problems.

Are there interactions with medications?

It is not known if this product interacts with any medicines.

Before taking this product, talk with your health professional if you take any medications.

Are there interactions with herbs and supplements?

There are no known interactions with herbs and supplements.

Are there interactions with foods?

There are no known interactions with foods.

What dose is used?

The following doses have been studied in scientific research:

BY MOUTH:

- **For osteoarthritis:** 1.5 to 6 grams of MSM daily taken in up to three divided doses for up to 12 weeks has been used. 5 grams of MSM plus 7.2 mg of boswellic acid taken daily for 60 days has been used. A specific product (Artrosulfur C, Laborest Italia S.p.A) containing MSM 5 grams, boswellic acid 7.2 mg, and vitamin C taken daily for 60 days has been used. One capsule of a combination of collagen type II with MSM, cetyl myristoleate, lipase, vitamin C, turmeric, and bromelain (AR7 Joint Complex, Robinson Pharma), taken daily for 12 weeks, has been used. 1.5 grams of MSM taken daily plus 1.5 grams of glucosamine in three divided doses daily for 2 weeks has been used. MSM 500 mg, glucosamine sulfate 1500 mg, and chondroitin sulfate 1200 mg taken daily for 12 weeks has been used.

Other names

Crystalline DMSO, Dimethylsulfone, Diméthylsulfone, Dimethyl Sulfone MSM, DMSO2, Methyl Sulfone, Methyl Sulfonyl Methane, Methyl Sulphonyl Methane, Méthyle Sulfonyle Méthane, Méthyle Sulphonyle Méthane, Méthylsulfonylméthane, Metilsulfonilmentano, MSM, Sulfone de Diméthyle MSM, Sulfone de Méthyle, Sulfonyl Sulfur.

Methodology

To learn more about how this article was written, please see the *Natural Medicines Comprehensive Database* methodology

[<https://medlineplus.gov/druginfo/natural/methodology.html>] .

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