Methyl Sulfonyl Methane (MSM)

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Supplement Forms/Alternate Names
• MSM

Related Terms
• Dimethyl Sulfone (DMSO)

Principal Proposed Uses
• Osteoarthritis

Other Proposed Uses
• Improving Growth of Nails and Hair; Interstitial Cystitis; Rheumatoid Arthritis; Rosacea; Snoring; Sports Injuries

MSM (methyl sulfonyl methane) is a sulfur-containing compound normally found in many of the foods we eat. It is chemically related to DMSO (dimethyl sulfoxide), a popular (although unproven) treatment for arthritis. When DMSO is applied on the skin or taken orally, about 15% of it breaks down in the body to form MSM. If so, MSM might be preferable as a treatment, because it does not cause some of the unpleasant side effects associated with DMSO treatment, such as body odor and bad breath. In addition, as a natural substance found in food, MSM would be expected to have a good safety profile. However, there is as yet no more than preliminary evidence that MSM is useful for any medical condition.

Requirements/Sources

There is no dietary requirement for MSM. However, it occurs naturally in cow's milk, meat, seafood, vegetables, fruits, and even coffee, tea, and chocolate. MSM supplements are sold in healthfood stores and some pharmacies. Although creams and lotions containing MSM are also available, it is hard to see the purpose of these topical products since MSM, unlike DMSO, is not absorbed through the skin.

MSM supplies sulfur. Some advertisements for MSM claim that sulfur deficiency is widespread, and that for this reason alone MSM will improve the health of most everybody who takes it. However, there are numerous other dietary sources of sulfur, including, most prominently, many forms of ordinary protein.

Therapeutic Dosages

Dosages of oral MSM used for therapeutic purposes range from 1,500 to 10,000 mg daily, usually divided up into 3 daily doses.
Therapeutic Uses

Two small double-blind, placebo-controlled studies indicate that MSM may be helpful for osteoarthritis. In one small, placebo-controlled trial, the topical application of methylsulfonylmethane with silymarin (milk thistle) for 1 month appeared to be effective in the treatment of 46 subjects with the skin condition rosacea. Small, unpublished trials have been used to claim that MSM is effective for the treatment of snoring, aiding the growth of nails and hair, and assisting in recovery from sports injuries. However, the design of each of these studies was substandard, and the results were not subjected to any proper statistical analysis; therefore, they cannot be taken as meaningful evidence of efficacy.

One study in mice found positive effects of MSM in the treatment of rheumatoid arthritis. Other animal studies hint that MSM might have cancer preventive properties. Human studies on these potential uses of MSM have not been reported.

MSM has also been proposed as a treatment for interstitial cystitis, an inflammation in the wall of the bladder that causes frequent and painful urination. When prescribed for this condition, MSM is usually instilled directly into the bladder, although oral use has also been suggested. However, no clinical studies on this use have been performed: the only evidence for this treatment comes from case studies and anecdotal reports. Since interstitial cystitis is known to respond very positively to placebo, these reports mean little.

MSM has also been advocated for allergies (including drug allergies), scleroderma, excess stomach acid, and constipation, but there is no meaningful evidence whatsoever to support these proposed uses.

What Is the Scientific Evidence for Methyl Sulfonyl Methane?

In a double-blind, placebo-controlled study performed in India, 118 people with osteoarthritis of the knee were given one of the following four treatments: glucosamine (500 mg, 3 times daily), MSM (500 mg, 3 times daily), a combination of glucosamine and MSM, or placebo. The study ran for 12 weeks. The results showed that both MSM and glucosamine improved arthritis symptoms as compared to placebo, and that the combination of MSM and glucosamine was more effective than either one alone. Benefits were also seen in a 12-week, double-blind, placebo-controlled trial of 50 people with osteoarthritis, utilizing MSM at a dose of 3 g twice daily.

However, in a comprehensive review of 6 studies involving 681 patients with osteoarthritis of knee, researchers concluded it is not yet possible to convincingly determine whether or not either DMSO or MSM is beneficial.

Safety Issues

MSM is a natural component of the foods we normally eat and is not believed to be toxic. A laboratory study examining doses up to 8 g per kilogram of body weight per day (about 250 times the highest dose normally used by humans) reported that no toxic effects were seen.

Maximum safe doses for young children, pregnant or nursing women, or people with liver or kidney disease are not known. Possible drug interactions are also not known.
References


7. Jacob SW. The current status on the use of a new pharmacologic approach (dimethyl sulfone) for the relief of snoring. Oregon Health Sciences University. Unpublished.


