

# MSM and DMSO

## - Organic Sulphur as a Versatile Healer -

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[MSM](#), dimethylsulfone or methylsulfonylmethane with the formula  $(\text{CH}_3)_2\text{SO}_2$  occurs naturally in many fresh foods but is lost during processing.

Its main use in the body is for collagen synthesis, forming skin, blood vessels, hair and nails. Its main benefit is to keep cells, skin and blood vessels elastic, which is the attribute of youth.

That is why organic sulphur is often regarded as the beauty mineral. It keeps cell walls permeable so that nutrients can freely flow into the cells and wastes and toxins can easily be removed.

Amino acid chains are usually linked with each other through flexible sulphur bridges.

Also the oxidative energy production of cells requires reactive sulphur compounds. Without sufficient organic sulphur as in the form of MSM cells and body structures lose their elasticity and flexibility.

The result are the well-known signs of aging:

inelastic skin with increasing wrinkles, scar tissue, hardening arteries, varicose veins and also hardened lungs causing emphysema.

Sufficient MSM is able to reverse these conditions to a significant degree, including emphysema. It is believed that the MSM in Aloe Vera is the active ingredient for repairing damaged skin.

MSM is used by athletes to increase stamina and minimize sore muscles. Its use for this purpose is even more widespread with racehorses and greyhounds. This effect may be mainly due to the ability of MSM to greatly increase the body's ability to eliminate metabolic residues, wastes and toxins from the cells. In a similar way it appears to help those with chronic fatigue.

With this it also helps us to recuperate from severe physical and mental exhaustion. MSM reduces the effects of stress and the incidence of stress related deaths in animals

MSM tends to reduce or eliminate allergic reactions to foods, chemicals and inhaled allergens. It also reduces reactions to the bites of mosquitoes, bees, poisonous spiders and snakes. It lessens inflammation, pain, stiffness and swellings due to arthritis or from other musculoskeletal system disorders and helps to normalize the blood chemistry in these conditions. It also reduces inflammations of the skin and mucous membranes.

MSM relieves leg and back cramps and muscle spasms, be it after periods of inactivity (night cramps) or during athletic activities.

Other conditions that often benefit from MSM supplementation are,

hot flashes (or hot flushes) as well as discomfort due to the monthly cycle, also acne, asthma, back pain, Candida, constipation, diabetes, diarrhea, diverticulitis, gastro-intestinal ulcers, hypertension, inflammations of all kinds, itching skin, migraines, nausea, pain, stress, sunburn and wound healing.

It should also be helpful with other chronic degenerative or inflammatory conditions, especially,

- Alzheimer's disease
- cancer
- Crohn's disease
- myasthenia gravis
- Parkinson's disease

Melanoma cells of a particularly aggressive strain were treated with a 2% MSM solution (see '[Methyl Sulfone Induces Loss of Metastatic Properties and Reemergence of Normal Phenotypes in a Metastatic Cloudman S-91 \(M3\) Murine Melanoma Cell Line](#)').

After one day of exposure the cells had become completely normal and remained so indefinitely.

Fingernails and hair have a high sulphur content and generally improve with MSM. It also reduces parasite infections in the intestinal and urogenital tracts. MSM appears to normalize our mental condition.

Individuals on MSM tend to report increased alertness, reduced mood swings and less depression. It seems to improve the immune system and the senses of taste and smell. In addition, it neutralizes the toxicity of anticholinesterase, thereby providing protection against insecticide exposure or ingestion. It also aids the liver in the detoxification of chemicals and, with this, is useful to ease drug withdrawal symptoms.

The Oregon Health Service University demonstrated in many years of clinical use that MSM:

1. inhibits pain impulses along nerve fibres (analgesia)
2. lessens inflammation
3. increases blood supply
4. reduces muscle spasm
5. softens scar tissue

## How to Use MSM

MSM is a natural food ingredient and is free of unpleasant taste and odor.

It is reported to be completely safe even in very high amounts. Because of its inert composition, it does not normally cause allergies or undesirable pharmacological effects. It can even safely be used to dilute blood.

The body will use what it needs and remove any excess through the kidneys. The water-soluble MSM is easily absorbed and provides a therapeutically important source of organically bound sulphur.

The daily maintenance intake commonly ranges from 5 to 20 g in several divided doses. Try to adjust the dose according to your wellbeing or observed effects. You may use more or less of these commonly used amounts. Initially I suggest starting with about 1 g and increase the dosage gradually to the full

amount.

The reason for a slow increase is that MSM often causes some beneficial but uncomfortable cleansing reactions.

This may result in headaches, nausea, diarrhea or weakness for a few days. If you are already on a high dose when this happens, just reduce or stop the intake until it is over. Cleansing reactions are a common and necessary part of effective natural healing methods.

If you want to overcome a specific health problem faster you may experiment with taking more than your usual maintenance dose. To spread the intake more evenly during the day you may dissolve the daily amount in a glass of fruit juice or herb tea and taking a sip now and then. The exact amount used each day is not critical.

You may equate a rounded teaspoonful of the fine, white crystals as being approximately 5 g. The benefit of MSM will be enhanced by a diet high in vitamin C or with additional vitamin C supplements.

You may also use MSM externally to carry other nutrients or remedies into the skin. With arthritis or connective tissue problems or generally for skin rejuvenation, you may dissolve,

glucosamine, copper salicylate, sodium ascorbate, magnesium chloride and MSM in a small amount of (warm) water and aloe vera gel,

...and rub it into the affected area, although DMSO is more effective for skin absorption.

MSM in amounts of 10 to 20 grams in addition to several teaspoons of DMSO can be used as an alternative oxygen supply system to greatly increase energy. For details see [Increase Your Energy](#).

**Caution:** Individuals who are sensitive to sulphites (often used as preservative) also may react to MSM and DMSO. This is usually due to a deficiency of molybdenum and can be overcome with supplementation (try 500 mcg).

## DMSO or DIMETHYL SULFOXIDE

DMSO ( $\text{CH}_3)_2\text{SO}$  is a natural substance derived from wood pulp.

It is generated during the normal decomposition of plants and therefore is in low concentrations present in many foods. DMSO is an antioxidant, by taking up oxygen it is converted into MSM. Unlike MSM which is sold as a powder or fine crystals, DMSO is an odorless, clear liquid which is completely water miscible. It has a high boiling point of 189°C and solidifies at about 18°C.

It has all of the beneficial properties of MSM but often at a higher degree, and it has some additional healing properties. These are based on the combination of its antioxidant nature with its excellent solvent properties for a wide range of nutrients and remedies.

There is no other biological solvent that can so easily penetrate the skin and carry such nutrients and remedies into the body.

There is a very long list of health benefits from using DMSO, the main ones are:

- It is an all-round microbicide effective against bacteria, fungi, mycoplasmas and viruses
- It improves the immune system and reduces allergies

- It is strongly anti-inflammatory with good antioxidant properties
- It blocks pain when rubbed onto affected muscles or joints
- It improves blood circulation by inhibiting formation of blood clots and hypercoagulation
- It even dissolves newly formed blood clots
- It dilates blood vessels and improves the function of the heart
- It efficiently transports molecules across cell membranes and moves through the blood-brain barrier
- It improves connective tissue, softens collagen and stimulates wound healing
- It is a potent diuretic and very effective with chronic bladder inflammation/cystitis

Equally impressive is the long list of diseases that have benefited from its use, including some that may not respond to other remedies, such as,

- brain and spinal cord damage
- Down's Syndrome
- schizophrenia
- ALS (amyotrophic lateral sclerosis)

It is able to dissolve blood clots and prevent damage after a stroke, improves skin conditions such as psoriasis and scleroderma, and is effective with autoimmune diseases, arthritis, ulcers, cystitis and other inflammatory conditions.

With diabetes it can improve insulin control and blood circulation.

Also eye problems have been successfully treated with DMSO, including macular degeneration, retinitis pigmentosa, glaucoma and cataracts, sometimes just with oral use but sometimes also with added remedies as eye drops.

DMSO is frequently used as a carrier in conventional chemotherapy or in antiviral therapy because of its ability to easily enter affected cells. With cancer it specifically zooms in on cancer cells and can be used to carry remedies along, good for treating brain tumors which are otherwise difficult to reach.

There are also reports of an anti-cancer effect of DMSO on its own (see '[Dimethyl Sulfoxide Promotes the Multiple Functions of the Tumor Suppressor HLJ1 through Activator Protein-1 Activation in NSCLC Cells](#)').

It is apparently beneficial with many cancers such as breast, lung and prostate cancers, leukemia and lymphomas.

Relatively weak (2%) solutions of DMSO were eliminating leukemia cells and, with the addition of suitable remedies, induced a variety of cancer cells to become normal cells.

DMSO also caused cancer cells to die naturally (apoptosis), and it has been shown to protect against radiation damage, especially in regard to cancer treatment.

DMSO kills the pleomorphic microbes that are the basic cause of cancer and autoimmune diseases. One of its most impressive functions is its ability to easily enter cells and kill viruses and mycoplasma that may hide there.

There are patents combining DMSO with antiviral remedies, anti-tumor agents, and amino acids and other nutraceuticals to enhance memory and other brain functions.

DMSO is also excellent for **healing deep tissue**, muscle injuries, burns, and other wounds. It has extensively been used in sports medicine and horse racing.

Because it is so rapidly absorbed - it can be tasted in the mouth only minutes after applying it to the skin - and combined with its ability to block pain signals to the brain, DMSO also acts very fast to stop or greatly reduce pain from arthritis, muscle injuries, insect bites, and other sites of pain or inflammation. While the pain may come back after several hours, it tends to lessen with each re-application of DMSO.

Unlike other pain relievers, especially of the medical kind which may cause long-term damage, DMSO greatly speeds up healing of damaged areas.

This is due to its antioxidant, anti-inflammatory and antimicrobial properties, and its ability to improve blood circulation, nutrient supply, dissolve obstructions, and remove stress.

After oral use or skin application DMSO not only penetrates all soft tissues but also the bones. This is not only good for treating tumors and cancer of the bone, **but also jawbone infections and cavitations. Molecular or elemental iodine easily dissolves in DMSO.**

Therefore I would **dissolve a small amount of iodine or Lugol's solution in DMSO and frequently dab that from both sides on the affected gum. Dilute sufficiently so that it does not irritate. DMSO with iodine is also effective for fungal problems of nails, skin or scalp, e.g. manifesting as hair loss.**

**DMSO seems to inhibit Helicobacter pylori and help heal peptic ulcers in relatively low doses but higher doses are required with Candida.**

I found [the research on DMSO and Candida](#) somewhat amusing. Different researches got inconsistent and varying results for investigated fungicides until one recently had the bright idea to test DMSO which is commonly used as a solvent for antifungal drugs. It was found that **the more DMSO was used as a solvent the stronger was the effectiveness of the investigated fungicides.**

DMSO protects body cells against oxidative stress but increases stress on fungi.

If given soon after a stroke, **DMSO has been shown to dissolve the stroke-causing clot, restore circulation and prevent paralysis. It is best to start DMSO therapy within a few hours. In one reported case a male with a stroke refused to go to hospital and waited for 11 hours until his wife had talked to Dr Jacob.**

Then she gave him **one ounce of 50% DMSO in orange juice every 15 minutes for two hours and afterwards every half hour for two hours.** The next day, he was better and soon returned to normal.

In another case a 16-year-old girl broke her neck while diving into a pool. and became a complete quadriplegic. She was on DMSO for an entire year and gradually her organs began to function again until finally she could also walk.

Another quadriplegic did not start DMSO therapy until two years after his accident. Six months later he could lift both arms over his head, and sensation began to return to his lower chest and right hip. Later he also learned to move both of his legs.

**Dr Jacob helped two other quadriplegics recover completely when DMSO was started within one hour after the accident.**

## How and what to use

DMSO has been described as a clear colorless, very hygroscopic liquid, with practically no odor or slight garlic odor, slightly bitter taste with sweet after-taste.

Because cheap industrial grade DMSO can contain dangerous impurities, only good quality products with at least 99% and preferably higher purity should be used.

Because DMSO is hygroscopic (it attracts water) the main impurity at the higher grades is water.

Commonly used are Laboratory reagent and medical/pharmaceutical grades with about 99.5 to 99.9% purity. While glass bottles are best for retail sales, even highest grades of DMSO are commercially stored and shipped in HDPE (Type 2) containers which do not seem to cause any leaching problem.

Pure DMSO is not toxic and generally very safe but some precaution needs to be taken. For instance when applying DMSO for transdermal treatment the skin should be clean and free of undesirable chemicals, such as from commercial lotions or sunscreens.

DMSO can be used on its own and applied over inflamed, stiff or painful muscles or joints, or over troublesome organs, or it can be used to carry remedies or nutrients through the skin into the body. However, it does not carry microbes, large molecules or chemicals into the body that normally cannot penetrate the skin, it only enhances the absorption rate of those that are able to penetrate on their own but at a much lower rate.

To avoid skin irritation apply DMSO only in diluted form at 70% or less.

Some products on the market are already diluted. For common use you may make a treatment solution, e.g. in another glass bottle, by diluting full strength DMSO. To make it about 70% mix 2 parts of 100% DMSO with 1 part of water, and for a weaker solution (50%) mix equal parts of DMSO and water.

If you also add other dissolved remedies, such as Magnesium Oil, Glycerin, MSM or Lugol's, then you can count this as part of the water. It is alright to mix DMSO with non-acidified MMS/sodium chlorite, but the acidified MMS will probably become inactive by oxidizing DMSO to MSM.

Be careful, the solution gets warm when mixing DMSO with water, and while it does not harm the skin, spills may damage painted or plastic surfaces.

Strength for topical use may vary according to the sensitivity of the skin. DMSO is not normally used on broken or open skin, but it has been applied to fresh cuts and other wounds and greatly speeded up healing without causing pain or other discomfort. Depending on the degree of pain or inflammation DMSO may be applied several times during the day over the area of pain, but the need for multiple applications may reduce on following days.

The effect may be felt within minutes. Also swellings such as from sprained ankles can quickly disappear if kept covered with DMSO.

While DMSO mixes freely with water and glycerin, it does not mix with oils or kerosene. It does not dissolve magnesium chloride but it can improve absorption by carrying along water in which the magnesium is dissolved. The same seems to apply to vitamin B12 which also does not dissolve directly in DMSO but can be better absorbed with its addition. For general applications it may be good for the skin to add a small amount of glycerin.

Alpha lipoic acid dissolves very well in DMSO, and Glutathione and Coenzyme Q10 to some degree. Transdermal application of these may give a better absorption rate than oral use. Generally strong oxidants oxidize DMSO to MSM while microbes reduce it to Dimethylsulfide or DMS which creates a strong sulphur smell.

It has been noticed that during periods of infection individuals emit a much stronger garlicky smell when using DMSO than when they are well.

This is actually the main drawback of DMSO, and why some individuals do not like to use it - it can lead



to social problems, especially at the workplace. Not everyone has this problem, and one may be able to minimize it by using only a relatively small amount in the evening or experiment with spraying or rinsing mouth and exposed skin with diluted non-acidified MMS (sodium chlorite) solution (e.g. 1 teaspoon of MMS in 500 ml of water) which can oxidize and so deodorize smelly sulphur compounds.

Oral intake is the other major form of DMSO use.

As to its safety:

Dr **Stanley Jacob** who pioneered the medical use of DMSO **has taken an ounce of it orally every day for more than 40 years.** The only side-effect seems to be that he has not been sick in years. Others have taken even higher doses for weeks or months.

DMSO is effective in heart attacks and angina; prompt use of it in heart attacks has been credited with preventing damage to heart muscle but rather high doses should be used.

Dr **Morton Walker** suggested 2 grams per kilogram of body weight in the treatment of heart attacks.

Except for emergencies, it is always best to start with low doses, such as half a teaspoon in a drink, and increase gradually to the intended maximum or until there is some unexplained reaction. Generally effective healing methods tend to induce some kind of reaction, be it microbial die-off effects or skin eruptions or gastro-intestinal effects, such as diarrhea.

In such case temporarily cut back and when the reaction subsides gradually increase again.

A suitable daily maximum intake with chronic diseases may be 20 to 30 ml in divided doses, good to take it in a drink together with specific supplements to enhance their absorption.

As with all supplements, It is also good not to remain at the same dose for a long time but rather slowly cycle up and down between a maximum and a minimum level. Finally, as long as there are problems in specific parts of the body it is preferable to use topical applications in addition to oral use.

While DMSO is widely used in most countries as a medical drug, in the USA it is only approved for the treatment of interstitial cystitis.

In Australia DMSO is a prescription poison and cannot be used for treating humans but it can be sold and used for veterinary purposes and as a solvent. For a good account of the DMSO saga see <http://www.thehealingjournal.com/node/1347>.

**With DMSO having so many superb features you** may wonder if there is still a place for MSM.

I believe there is. MSM provides the many benefits of a high sulphur intake for detoxifying and regenerating connective tissue without any apparent side-effect, while DMSO can cause an odor problem in social and work-related settings. DMSO can also cause excess intestinal gas and loose bowels.

It has the ability to carry not only desirable but also undesirable chemicals through the skin and into the brain, therefore one needs to be much more careful, and it can induce microbial die-off reactions which are ultimately beneficial but need to be understood and managed.

As MSM and also DMSO are effective in cancer treatment but in a somewhat different way, it may be preferable to use them both combined.

**MSM may be dissolved in DMSO at a rate of 34 grams per 100 ml.** For breast cancer, melanomas and other tumors close to the skin this solution may be diluted 2 : 1 or 1:1 with water and kept as a pack over the tumor until it appears to normalize.

For accessible internal tumors, such as in stomach, uterus etc it may be best to expose them frequently to this solution by assuming a position which tends to pool the ingested or instilled solution around the tumor.

However, DMSO should not be used rectally as it may carry toxins into the blood. For inaccessible tumors a combination of high-dose topical and oral intake could be tried.

I do not believe that there is a genuine allergy to DMSO.

Instead some individuals react because they are deficient in the trace mineral molybdenum which is required by enzymes to oxidize sulphur compounds such as sulphites to sulphates.

**NOTE:** Where to [get MSM](#).

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