DMSO or DIMETHYL SULFOXIDE  by: Walter Last

DMSO (CH₃)₂SO 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 methylsulfonylmethane (MSM). Unlike MSM which is sold as a powder or fine crystals, DMSO is an odourless, clear liquid which is completely water miscible (describes two or more liquids that can be mixed together). 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, and ALS (Amyotrophic Lateral Sclerosis) also often referred to as Motor Neurone Disease. 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.

With cancer it specifically zooms in on cancer cells and can be used to carry remedies along, good for treating brain tumours which are otherwise difficult to reach. It is also beneficial with other cancers such as with breast and prostate cancers, leukaemia and lymphomas. Relatively weak (2%) solutions of DMSO were killing leukaemia cells and, with the addition of suitable remedies, induced a variety of cancer cells to become normal cells. DMSO has been shown to protect against radiation damage, especially in regard to cancer treatment.
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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-tumour 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 tumours 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 colourless, very hygroscopic liquid, with practically no odour or slight garlic odour, 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
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Main impurity at the higher grades is water. Commonly used as a 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, Glycerine, 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 oxidising 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 glycerine, 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 glycerine.

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.

Another problem that may arise with skin application is reduced nerve conductivity which is the basis for the quick pain relief. Individuals with paresthesia such as tingling or numb fingers, toes
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or other skin areas may temporarily get increased symptoms if they apply DMSO over the nerve that leads to the affected area. This effect can last for several hours after application but is best avoided, and does not seem to be a problem if DMSO is applied to other parts of the skin or used orally.

**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 (approximately 29 mls) 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 diarrhoea. 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](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 odour 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.

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 oxidise sulphur compounds such as sulphites to sulphates. Overall I would say that it is good to continue using a daily teaspoonful of MSM in addition to DMSO.

**Source:** by Walter Last: [http://www.health-science-spirit.com](http://www.health-science-spirit.com)