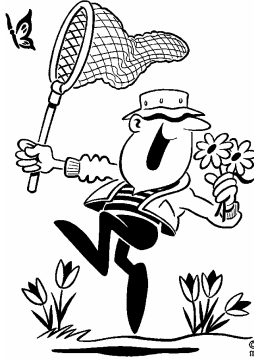


- The body wants to heal itself, if it can get the proper nourishment ○
- We all need a little extra MSM each day, for good health ○
- The body uses up 1/8 teaspoon of "MSM" each day ○

## Want to Feel Good Again?



## Try Some MSM

I have been told that Mother Nature made our bodies so that they make new cells every day of our lives. It is very important that our glands put out the right enzymes and hormones to regulate and keep our bodies healthy.

Without the proper nutritional sulfanyl or "MSM" in our system, we cannot produce healthy cells.

We could get this essential nutritional sulfanyl from some of our foods such as milk, fruits, vegetables, meat and fish, but we lose most of this important nutrient by heating, drying and processing our food.

When our system is deficient in "MSM", our bodies cannot make enough healthy cells to overcome the effects of the unhealthy cells. We are then subject to various illnesses, aches, pains and allergies until we correct the problem with good healthy cells.

MSM is now available at Sunstone Herbals

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# MSM

## *Methylsulfonylmethane*

Tired of Being Sick? Sick of Being Tired?  
Want to Feel Good Again?  
Read On

Most people have heard of DMSO, and of how hundreds of thousands of ill people have been helped by using DMSO.

A few years ago, the world's leading DMSO researcher, the eminent Dr. Stanley Jacob of the Oregon Health Sciences University, discovered and was able to isolate an extremely important and beneficial part of DMSO. It is referred to as *Methyl Sulfonyl Methane*, and is simply known as MSM.

It was determined that it was the MSM part of DMSO that brings so many health benefits to those that suffer from various ailments and diseases. Furthermore, MSM provides the health-giving benefits without any nuisance side effects.

It is estimated that the human body uses up about 1/8 teaspoon of MSM each day! It needs to be replaced every day. Good health practices involve replacing essential substances that our body naturally uses up or lose through illness or abuse.

MSM is a natural form of organic sulfur found in all living organisms, and is present in low concentrations in our body fluids and tissues. It is found in a variety of fresh foods, including fruit, vegetables, meat, eggs, fish, and milk. However, unless your diet is composed primarily of raw foods, it is unlikely that you are receiving enough MSM for proper health management.

When we process our foods with heat or drying, we lose most of the MSM that is vital to our well being. MSM helps our bodies utilize the vitamins that we take, thereby providing the means to derive the maximum benefit from them. MSM is part of the Amino Acid Chain. Without the presence of the proper amount of MSM in our body, the Amino Acids will continue

to build the glands, but there is failure to produce the correct enzymes, making us prone to unnecessary illness.

MSM is the flexible bond between proteins. When a cell dies, a new cell takes its place. But without the needed amount of MSM, it attaches but becomes rigid. When tissues lose their flexibility, problems develop with the lungs and other parts of the body. MSM detoxifies the body and increases blood circulation.

Because there are few nerves in the bones, our pain comes from soft tissues. Aspirin shuts off the nerves, but the muscles are still damaged. MSM relieves the inflammation, permits the muscles to heal and prevents them from becoming sore. If you play baseball and you normally get sore muscles the next day, take 1/2 teaspoon of MSM before playing the game and you will notice a difference. If taken after the game, the soreness will go away faster.

MSM is a free radical scavenger, so allergies to foods and pollens will go away. MSM also prevents overreaction to other medicines, so it does not work against any other medications. MSM controls acidity in the stomach, so it can help ulcers. MSM coats the intestinal tract so parasites lose the ability to hang on. They are flushed away. This could prevent colon problems.

MSM is no more toxic than water. It can never hurt anyone. Any excess MSM in your system will stay in the blood stream for 12 hours and remove toxins and clean the interior walls of arteries.

MSM has one side effect. Your fingernails and hair will grow faster and become stronger. This is because there is more MSM in hair and nail cells than in any other part of the body.

*We all need a little extra MSM every day for good health.*

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Order on-line at: <http://www.sunstoneherbals.com/msm-shop.htm>

# Some Notes on Organic Sulfur

Sulfur is a mineral found in rather high concentrations in our body tissues. About half of the body's total sulfur is concentrated in the muscles, while the other half is found in the brain, hair, skin, and bones. Sulfur is a major component of your body.

Sulfur has a vital relationship with protein, since sulfur is found in the amino acids methionine, cystine, and cyseine. Thus, these amino acids are known as the sulfur-bearing amino acids which are considered the building blocks of protein.

The sulfur-bearing amino acid methionine is absolutely essential to health! This means it must be supplied by live food or the food supplement MSM. A lack of proper protein in our diet, therefore means a lack of the vital organic sulfur necessary to good health. Proteins contain sulfur, while carbohydrates and fats do not.

Sulfur is necessary for collagen synthesis. Collagen is an insoluble fibrous protein found in vertebrates (having a backbone, or spinal column) as the dominant component of connective tissue fibrils and bones. Sulfur operates as a synthesizer and activator with the B vitamins, Thiamine, Vitamin C, Biotin, and Pantothenic Acid which are needed for metabolism and healthy nerves.

Sulfur plays an important part in tissue breathing, the process whereby oxygen and other substances are used to build cells and release energy.

Sulfur also helps to maintain overall body balance between acidity and alkalinity, and works importantly with the liver to secrete bile.

Research indicates that perhaps sulfur's most important health role is in carbohydrate metabolism, which is significant for hypoglycemics and diabetics. Sulfur is a significant component of insulin, the protein hormone secreted by the pancreas that is essential to the metabolism of carbohydrates. The lack of nutritional sulfur in the diet can result in low insulin production. On the other hand, a diet that contains adequate

amounts of sulfur might increase the body's ability to produce insulin to the point where insulin injections can be reduced.

Because nutritional sulfur helps keep skin, hair, and nails healthy, it has been referred to as nature's "Beauty Mineral".

*Welcome to the "Get Well" – "Stay Well" world of nutritional sulfur!*

MSM (Methylsulfonylmethane) or  $\text{DMSO}_2$  has been found in primitive plants such as *Equisetum Arvense* and in the adrenal cortex of cattle. The S in  $\text{DMSO}_2$  stands for sulfur. MSM is found naturally in food when food is fresh. It is driven out of all foods, even with moderate processing. Most people are sulfur deficient unless they eat their fish and meat raw and their vegetables uncooked. MSM is present in most green plant food and certain algae, and a variety of fruits, vegetables, and grains in small amounts. MSM in food is destroyed by dehydration and heat.

For general use, MSM should be taken internally as a food supplement. MSM (the beauty mineral) is necessary for collagen synthesis: skin, hair, and nails. MSM softens tissue, relieves stress, asthma, arthritis, inflammation, constipation, candida, detoxifies the body and increases blood circulation, reduces muscle cramps and back pain, permits muscles to heal, increases energy and mental calmness, and improves the ability to concentrate. MSM scavenges 125 free radicals, relieves allergies to foods and pollens and helps the liver produce choline, controls acidity in stomach and ulcers, coats the intestinal tract so parasites lose the ability to hang on, helps with hypersensitivity to drugs, increases the body's ability to produce insulin and is important for carbohydrate metabolism and speeds wound healing.

MSM is the transport molecule for elemental sulfur. Essential sulfur is required for proper assimilation of the amino acids methionine and cysteine. In addition, the peptide hormone, insulin, requires sulfur in its molecular structure and numerous other proteins, catalysts, and enzymes incorporate sulfur into their molecular framework. Proteins are essential for proper cellular metabolism and soft tissue synthesis. Proper protein synthesis can only be achieved with MSM monomers which maintain the correct molecular framework for soft and connective tissue throughout the human body.

At higher levels, MSM functions as a pharmaceutically active agent which can be used safely and effectively for a variety of purposes. MSM, unlike DMSO, is a dietary factor and is free of unpleasant odors and neutralizes the toxicity of anticholinesterase, thereby providing protection against insecticide exposure or ingestion. When administered orally, it is effective in ameliorating symptoms of physiological response to stress including gastrointestinal upset, inflammation of the mucous membranes, pain associated with musculoskeletal system disorders, and infecting allergens and it appears to augment immunological competence through a natural vitamin, like moderating or normalizing activity for various body functions and is noted for its exceptionally non-toxic nature for both children and adults, including geriatric patients.

MSM is now available at Sunstone Herbs

Order on-line at: <http://www.sunstoneherbals.com/msm-shop.htm>

# MSM: The Newest Arthritis Cure

## BY JACK CHALLEM

If you suffer from pain or inflammation or a host of other conditions, MSM and a related substance called DMSO, may help you on the road to recovery.

*Bill Rich*, a retired mechanic in Portland, Oregon, flashes back to 1970 as he tells the horrifying story of being trapped inside a burning car. "The doctors spent six months trying to put me back together," he says. With a patchwork of keloid scars - from the burns and extensive skin grafts - Rich admits, "I made Frankenstein look handsome". For years, he also suffered excruciating pain. After a couple of trips from the repair bay; to the parts department at the car dealership where he worked at the time, he'd practically buckle over and cry from the pain in his knees and ankles.

Then, in the early 1980's, a veterinarian suggested that he try a supplement routinely used to treat pain in horses and other animals. The compound was Methylsulfonylmethane, also known as dimethyl sulfone, or simply MSM.

"In three days, most of my leg pain was gone," Rich says. An inveterate tinker, he eventually developed an MSM containing cream that he regularly rubbed on his skin. Incredibly, his flat, purple scarring - years old - started to vanish, and was replaced by round, pink skin.

Origins of DMSO and MSM - If Bill Rich's story seems too incredible to be true, there are legions of other people who claim that MSM has relieved their joint and muscle pain, inflammation, pollen allergies, and other ailments.

Although there's relatively little published research on MSM, it does have a respectable, if derivative, scientific basis. MSM is a nutrient and a normal metabolite, or by-product, of dimethyl sulfoxide, better known as DMSO. Twenty years ago, DMSO was an alternative "wonder drug", and it still has a strong following.

"It's a tale of two cities," says Stanley W. Jacob, M.D., of Oregon Health Sciences University in Portland. Both substances, in a manner of speaking, have historically been joined at the hip. To appreciate MSM, it helps to understand a little about DMSO.

In 1961, when Jacob was head of the university's organ-transplant program, he realized that DMSO, a common industrial compound, might help in the cryogenic preservation of organs. It turned out that DMSO had other distinctive properties as well: It's a powerful pain reliever and anti-inflammatory, and it rapidly transports other substances (e.g. nutrients) through the skin and into the bloodstream. Jacob teamed up with Robert J. Herschler, a biological chemist and inventor, and together they investigated the properties and medicinal uses of DMSO. Although some drug companies showed interest in DMSO and funded research, the FDA was slow to approve it. It wasn't until 1978 (15 years later), that the FDA approved DMSO as a prescription treatment for severe bladder infections.

By that time, DMSO (relatively inexpensive and available over the counter), had gained a huge public following. In 1980, within days of a *60 Minutes* TV report on DMSO, Jacob's university office had received 100,000 phone calls. Health food stores, drugstores and even gas stations were selling DMSO to an estimated 23 million people. It eased the pain and inflammation of arthritis and other muscle and skeletal disorders and appeared safe. The only negative aspect of DMSO was its strong, sulfurous smell and the taste it left, even when applied to the skin.

**Growing Interest In MSM** - By 1978, Jacob and Herschler had also become intrigued with MSM, one of the active forms of DMSO in the body. Fifteen percent of DMSO (whether taken orally, intravenously, or applied topically) is converted to MSM.

Unlike DMSO, MSM is found in many foods, and it is normally present in the bodies of people and animals, Jacob says. Unpasteurized milk is a particularly rich dietary source of it, and small amounts of MSM are found in fruits, vegetables, and grains. Food refining and processing remove MSM much the way they reduce vitamins and minerals.

Jacob believes that MSM, 34 percent sulfur by weight, works in large part by donating the mineral to a broad range of normal biochemical processes

in the body. "I think that the whole DMSO complex (DMSO, dimethyl sulfide), MSM provides a good portion of the body's need for sulfur," says Jacob. "Sulfur is an important building block".

That, in fact, is almost an understatement. Sulfur, one of the most abundant minerals in the body, is a component of amino acids (methionine, cysteine, taurine), vitamins (B1, biotin), hormones (insulin), coenzymes (coenzyme A) and antioxidants (gluthione, N-acetylcysteine, alpha lipoic acid). Because sulfur is necessary to build "disulfide bonds," which hold together tissue, it forms part of the body's physical structure, including protein, collagen, glucosamine, skin and nails.

Yet, ironically, while sulfur is clearly essential for health, it is not officially regarded as such by the U.S. Academy of Sciences, which establishes nutritional recommendations, or the FDA. In addition, sulfur, per se, has been one of the least researched nutritional minerals.

**MSM Benefits Many Varied Conditions** - Much of what is known about MSM gets back to Jacob's clinical experience in treating a wide range of conditions, as well as animal experiments by other researchers. Although only about two dozen scientific studies have been published on MSM, some people suggest that the 55,000 studies on DMSO are co-studies on MSM.

Jacob says that DMSO and MSM have very similar effects. "DMSO is the more potent pain reliever and an antioxidant. But MSM is a pain reliever, and it reduces inflammation clinically," he adds. One of the biggest advantages of MSM is that it doesn't possess or create a pungent, sulfurous odor. "That," Jacob adds, "increase its social acceptability".

How does he decide which to use in treating patients? In his university clinic, Jacob likes to combine the two, giving patients a little DMSO with MSM. But many people just take MSM.

These are some of the conditions that have benefited from MSM:

**Muscle and Joint Pain:** Like DMSO, MSM (taken orally) can relieve pain and inflammation in muscles and joints. Many of the components of joints are made from collagen and glucosamine, both of which are sulfur

dependent. Herschler, in one of his many patents on MSM, describes an 81 year old arthritic woman who was not helped by conventional drug therapy. After two weeks of taking MSM, she had "almost total" pain relief.

In an animal study on rheumatoid arthritis - "like" joint degeneration, DMSO and MSM were about equal in reducing joint inflammation, but MSM completely prevented the break down of cartilage. According to Jacobs, MSM can be helpful for most types of musculoskeletal pain and inflammation, including rheumatoid arthritis, osteoarthritis, tendinitis and gout.

**Interstitial Cystitis:** No infection is associated with this painful and debilitating bladder inflammation, and doctors don't know what causes it. Stacy J. Childs, M.D., of the University of Alabama, Tuscaloosa, recently described six patients with interstitial cystitis who benefited from MSM in Urological Clinics of North America. Interstitial cystitis is the only condition for which the FDA has approved DMSO as a treatment. MSM can also help.

**Scleroderma:** The initial symptoms of scleroderma (systemic sclerosis) are swelling and thickening of the fingertips. It evolves into a chronic disease with scarring of the skin, joints, and internal organs. When this scarring affects the esophagus, patients experience difficulty swallowing and chronic heartburn. Jacob, who has served as the medical director for the Scleroderma International Foundation for more than 25 years, says that both MSM and DMSO can ease symptoms. Both substances appear to normalize collagen formation.

**Allergies:** Symptoms of pollen allergies may be reduce with MSM supplements. Jacob admits that he does not understand why MSM relieves allergies, but he suspects that MSM blocks cell-receptor sites for histamine, which triggers allergic symptoms. "It's a real phenomenon," Jacob says of MSM's effect on pollen allergies. It's best taken in the evening, a couple of grams a day, maybe more when the pollen count is high". MSM has been shown helpful, clinically, in lupus erythematosus and may be beneficial in other auto-immune (self-allergic) disorders.

**Other Disorders:** Although research is limited, MSM may reduce excess stomach acid and hypersensitivity to some drugs, such as aspirin and non-steroidal, anti-inflammatory drugs. Laboratory studies have found that it can retard the growth of vascular smooth-muscle tissue, which is associated with increased risk of coronary heart disease. MSM may also have some anti-cancer properties. Animal studies have found that it slows the growth of breast and colon cancers.

**How To Take MSM:** For all practical purposes, MSM has vitamin-like effects that promote normal growth and repair mechanisms in the body. "I wouldn't call it a vitamin, but I would call it important nutritional supplement," qualifies Jacob. "MSM is useful and safe".

The dosage ranges widely, going from 1 or 2 gm. daily all the way up to 80 gm. daily. "A couple grams a day would be a good general dosage," says Jacob. "I would be very careful in the 80 gm. daily range. That much is best used under the watchful eyes of a health professional."

Jacob, at 73, would like to see more basic research conducted on MSM and greater use of it in preventing and treating diseases. Unfortunately, there seems to be little pharmaceutical industry interest in conducting extensive research, particularly with a substance easily purchased over the counter.

The paucity of scientific research will undoubtedly hinder medical recognition and acceptance of MSM as a therapeutic nutrient. However, based on its growing use and positive anecdotal evidence, MSM will develop a strong following as an effective natural, over-the-counter remedy.

MSM provides a good portion of the body's need for sulfur, a vital building block for health. Sulfur helps to build amino acids, vitamins and hormones.

### MSM : Three Success Stories

Gerald Adams, 59, of Cleveland, N.C., has suffered from asthma and chronic obstructive lung disease for years. He'd have to stop 3 times to catch his breath while walking to and from his rural mailbox, a distance of

about 150 feet. And, almost like clockwork, he'd be hospitalized every six months with severe breathing problems. Adams started taking MSM in April 1997 and started breathing easier after just 4 days.

When he skipped taking MSM in August, he suffered severe breathing problems and ended up in the hospital for 5 weeks. Since then, he has taken MSM religiously and continues to feel better. "It's the MSM that has made such a difference," he says. "Without it, I'm not sure that I'd be talking with you."

Father Sam Bungo, 46, of Frenchville Penn., suffers from bursitis and arthritic symptoms in his knees and one shoulder. His knee problems, he says, are probably the result of joint damage from jogging. "A lot of times, I would get up in the morning and have to go down the stairs very slowly, one step at a time," he says. That was before he began using MSM almost a year ago. "Now, I have no trouble with my knees," Father Bungo says. However, the shoulder pain returns if he stops taking MSM for a few days.

TEN YEARS AGO, Charlotte Callan, 72, of Burlington, Ontario, Canada, was diagnosed with polymyalgia rheumatica and fibromyalgia; diseases characterized by muscle pain and weakness. Hunched over, she was treated with prednisone, a hormone, but her health failed to get much better. In 1995, she traveled to Portland, OR, where Stanley Jacob, M.D., treated her with MSM, and she has continued to take MSM. "I was pretty close to being an invalid," she says. "Now, I do my washing, ironing, baking and cooking. MSM is a pretty marvelous, wonderful thing."

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# MSM: DMSO2 After 20 Years

Stanley W. Jacob and Robert Herschler

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MSM, an odorless, essentially tasteless, white crystalline chemical demonstrates usefulness as a dietary supplement in man and lower animals. Our research suggests that a minimum concentration in the body may be critical to both normal function and structure.

Limited studies suggest that the systemic concentration of MSM drops in mammals with increasing age. This may be due to dietary habits where one ingests foods with lower MSM potential with maturity or possibly there is a change in the renal threshold. Healthy juvenile rabbits maintain a level at or above 1 ppm body weight, with milk being the dominant food source. Cow's milk normally contains between 2 and 6 ppm MSM, dependent on source and freshness. In an adult man, the circulating concentration varies but may average about 0.2-0.25 ppm. We have no estimate of total body concentration as yet, but suspect that MSM is banked in some of the organs, other than the adrenals. Based on radiolabel (35S) studies, the residence time of a single challenge in mammals may be several weeks with gradual dumping via the renal system. Daily output of urine contains several milligrams of MSM. This possibly is not the dominant excretory route.

The following abnormal conditions seen in the clinic have responded to oral MSM generally administered at dosage levels of 250 to 270 mg./day.

(1) Response to allergy. Oral MSM moderates diverse allergic responses as to pollen and foods. Antiallergy medication and desensitization methods may be sharply reduced.

(2) Control of hyperacidity. Subjects seen to be chronic users of various antacids and histamine H<sub>2</sub> receptor antagonists prefer MSM by reason of relief obtained coupled with freedom from serious, untold effects.

(3) Hypersensitivity to drugs. Subjects demonstrating drug hypersensitivity as to aspirin, several non-steroid antiarthritic agents (Naprosyn, Indocin, Motrin) and oral antibiotics, were drug tolerant when MSM was given within an hour before or concurrent with the sensitizing drug.

(4) Control of constipation. Particularly in the older population seen in our clinic, chronic constipation can be a medical problem of concern. To date, over 50 subjects presenting chronic constipation have gained prompt and continuing relief by supplementing the diet with 100 to 150 mg. of MSM per day.

(5) Lung Dysfunction. We have seen some individuals with severely restricted lung function. Of these, only a few cooperated in vital function assessments. All cooperated in endurance measurement, however. Limited objective and strong subjective evidence suggests that MSM is a useful dietary supplement to reduce lung dysfunction.

(6) Antiparasitic action. In vitro and in vivo tests suggests MSM has an activity against a variety of medically important parasitic problems. Thus far, work has concentrated on parasitic problems of the intestinal and urogenital tracts. MSM, for example, is active against Giardia, Trichomonads, and round worms. MSM may affect such infections by competing for binding or receptor sites at the mucous membrane surface, presenting a blocking interface between host and parasite. We are at present evaluating the action of MSM with a variety of abnormal or medical problems to determine whether any are responsive to a diet supplemented by MSM.

We are intrigued by the fact that MSM is a consistent factor in all normal diets of vertebrates and somewhat mystified by the seeming need of the body of adults for a concentration level above that available from a diet presumed as "normal". We hope soon to have data defining any specific interacting role that MSM may have with the water-soluble vitamins particularly vitamin "C", which like MSM is reportedly banked in the adrenals.

It is not possible to directly compare DMSO and its' derivative MSM, though of the same chemical family. Each is unique unto itself. MSM is a

dietary factor derivable from most natural foods. It is conveniently taken alone, or in foods. Taken by mouth, there is no after-breath. DMSO has certain unpleasant attributes not possessed by MSM.

While MSM is a dietary factor, DMSO is not. DMSO readily penetrates the dermas and less complicated membrane systems while MSM does not. Each contributes to the well-being of mankind, but in differing ways. Both have important implications.

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-as reported in the Journal of the New York Academy of Sciences

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