

AN IDEA WHOSE TIME HAS COME

JUICE *Feasting*



MSM: MIRACLE SULFUR COMPOUND

We have reported how the mighty sulfur supplement, MSM, is a unique substance with healing properties that only now are beginning to be fully identified. **What's making MSM so hot in nutritional circles is that it brings a multitude of exciting health benefits and relief to those suffering from a variety of ailments but who never had a clue that sulfur possessed such a broad influence in normalizing the functions of the body.** Study after study has shown that a low concentration of MSM is associated with tissue and organ malfunction, a heightened susceptibility to disease, and adverse physical as well as psychological stress. Every day I hear of more applications for this amazing mineral. - **The MSM Miracle by Earl Mindell, R.Ph., Ph.D.** (42-46)

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MSM: A BASIC ESSENTIAL NUTRIENT NEEDED NOW MORE THAN EVER

MSM: THE MULTI-PURPOSE COMPOUND

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See also:

DMSO

Books:

***The Miracle of MSM* by Dr. Stanley Jacob, M.D.
The MSM Miracle by Earl Mindell, Ph.D.**

Articles:

Audio/Video:

Websites:

<http://www.bulkmsm.com>

Publications:

Organizations:

People: Stanley W. Jacob, M.D.

Live Food Nutrition: *Take with Vitamin C, up to 2000 mg per Tablespoon of MSM*

Chronic Pain
Arthritis
Acne
Rosacea
Chronic Back Pain
Chronic Headaches
Muscle Pain
Fibromyalgia
Tendonitis, Bursitis
Carpal Tunnel Syndrome
TMJ
Post-traumatic pain and inflammation
Heartburn and Hyperacidity
Interstitial Cystitis
Scleroderma
Diabetic Ulcerations

Vitamin C with MSM

Angstrom Molybdenum with MSM when taking high quantities of MSM

SULFUR BEARING FOODS: ONIONS AND GARLIC

Contraindications

Stanley Jacob, M.D.: "Our concern is that anyone taking high doses of aspirin, or blood-thinning medication such as heparin or dicumarol, should exercise caution when using MSM." (46)

In follow-up experiments with human volunteers, we found no toxic effects at intake levels of up to 1 gram per kilogram of body weight per day for 30 days. That means about 68 grams for an average 150-pound person [15+ teaspoons]. A few patients have taken more than 100 grams orally of MSM daily without any side effects. But these were extremely unusual cases involving very sick patients under my personal care. Do not take that much on your own. Please refer to Chapter 3 for details on how much MSM to take.

Conventional:

Nonsteroidal Anti-Inflammatories (NSAIDs)

Cortisone

Penicillin – contains sulfur compounds

Terms:

Methylsulfonylmethane – MSM

Dimethyl Sulfoxide – DMSO

Analgesic – pain relieving

Vasodilation – blood vessel dilation, increasing blood flow

Electromyography – conventional tool used to measure muscle tension, spasm

LD-50 – LD stands for lethal dose. The number 50 refers to the amount of a substance required that would result in the death of half the number of laboratory animals used in a toxicity test.

Brimstone – the old name for sulfur which rained down from heaven to extinguish the sin spots of Sodom and Gomorrah

Sulfur Amino Acids – Methionine and Cysteine

Glutathione – a molecular "superman" found in virtually all living cells. It is a primary antioxidant and detoxifying agent in the body. Among other things, it helps the body rid itself of some carcinogens and hazardous chemicals.

BENEFITS OF MSM

Source: *The Miracle of MSM* by Stanley Jacob, M.D., pp. 23

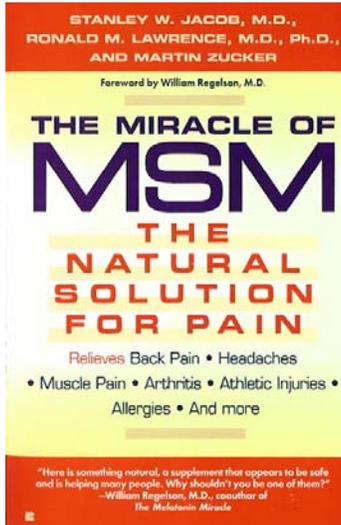
As I began using MSM with patients, I found it produced many-but not all-of the DMSO effects. I consider the following to be MSM's most significant actions:

- It is an **analgesic**. It relieves pain.
- It reduces inflammation.
- It passes through cellular membranes of the body, including the skin.
- It dilates blood vessels (**vasodilation**) and increases blood flow.
- It is a cholinesterase inhibitor. Cholinesterase is an enzyme that stops excessive passage of nerve impulses from one nerve cell to another. **I have seen MSM provide swift relief of constipation associated with aging.** By blocking the action of cholinesterase, MSM helps restore normal bowel activity (peristalsis).
- It **reduces muscle spasm**. Injury or inflammation commonly causes spasm in a muscle or group of muscles. Spasm involves a sudden contraction, which is followed by pain and interference with function. Spasm can be felt by a physician's touch or measured with **electromyography**. If you apply an MSM gel or cream to an affected area and then feel the muscle again later, or measure it electrically, the muscle is looser, the area less tender. MSM taken orally produces a muscle-relaxing effect.
- It alters the crosslinking process in collagen, thus reducing scar tissue. Crosslinking is the process in which new structural proteins are knitted to existing healthy tissue at the sites of surgical incisions or traumatic damage in the body.
- It has antiparasitic properties, particularly for giardia, a protozoan parasite that causes diarrhea.

It has an immune normalizing effect, as observed in some autoimmune diseases such as rheumatoid arthritis, lupus, and scleroderma.

THE MIRACLE OF MSM: BOOK EXCERPTS

Source: *The Miracle of MSM* by Stanley Jacob, M.D., pp. 23



The definitive book on the amazing pain reliever MSM--by the pioneer doctor who discovered its effects and benefits.

MSM, or methylsulfonylmethane, is the first safe, natural, side-effect-free remedy for many types of pain and inflammatory conditions. In this authoritative look at MSM, Drs. Stanley Jacob and Ronald Lawrence reveal how to tap into the benefits of this amazing "miracle" compound. Experienced in the successful treatment of thousands of patients for pain, they explain how to take MSM--how much, when, with what foods, and in what form--to relieve pain in its many varieties, including:

- Degenerative arthritis
- Chronic back pain
- Chronic headache
- Muscle pain
- Fibromyalgia
- Tendinitis and bursitis
- Carpal tunnel syndrome
- TMJ
- Post-traumatic pain and inflammation
- Allergies
- and more

"Here is something natural, a supplement that appears to be safe and is helping many people. Why shouldn't you be one of them?"-- William Regelson, M.D., coauthor of *The Melatonin Miracle*

About the Author

Stanley W. Jacob, M.D., is director of the DMSO Clinic and professor of surgery at Oregon Health Sciences University in Portland.

Neurologist Ronald M. Lawrence, M.D., Ph.D., is a founding member of the International Association for the Study of Pain and the American Association for the Study of Headaches.

Health writer Martin Zucker has written extensively on natural healing, nutrition, fitness, and alternative medicine for more than twenty years.

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Chapter 1 (Selections): "Amazing MSM"

MSM is a nutritional supplement rapidly establishing a reputation as a safe, natural, and effective solution for many types of pain and inflammatory conditions, including:

- ✓ Degenerative wear-and-tear arthritis
- ✓ Rheumatoid Arthritis
- ✓ Chronic back pain
- ✓ Chronic headaches

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- ✓ Muscle pain
- ✓ Fibromyalgia
- ✓ Tendonitis and bursitis
- ✓ Carpal tunnel syndrome
- ✓ TMJ
- ✓ Post-traumatic pain and inflammation
- ✓ Heartburn

MSM stands for **methylsulfonylmethane**, a natural substance in food and in the human body.

MSM is often so effective for pain relief that doctors are able to lower the dosage of medication they prescribe for patients. Sometimes they are even able to discontinue the medication. The end result is relief along with fewer or no side effects that are frequently caused by prescriptive pain medications.

An exciting and natural option for pain relief has arrived—a nutritional supplement that supplies **biologically active sulfur**, a sorely neglected mineral nutrient. Sulfur has a long tradition of healing and throughout history physicians have prescribed mineral hot springs rich in sulfur to their infirm patients.

Stories are spreading about remarkable recoveries with MSM—some that occur dramatically, others involving slow and steady improvement after patients have suffered with intractable pain for years—stories such as these:

- A Colorado mail carrier who was told she would need surgery on her painful **arthritic knees**. She no longer has pain, no longer needs pain pills, and has avoided the surgery.
- An Oregon woman whose doctors said she would never walk and be normally functional again after her back was crushed in an automobile accident. Today she is not only walking, but she works 100 hour weeks and actively participates in physical improvements at the private school she owns and operates.
- An Arizona doll maker who suffered from the headaches and widespread pain of fibromyalgia for five years. Pain pills made her sick, so she took anti-depressants because she had no life left. Three weeks on MSM removed much of the pain and gave her a new lease on life.
- A Massachusetts teacher who developed a severe form of **temporomandibular joint disorder—known as TMJ**—that often turned the simple act of talking into torture. Baby food replaced solid food, which she could no longer chew. In a slow process that took months, MSM first cleared up most of the pain and then the massive inflammation of her jaw joint, allowing her to resume a normal life.
- A Canadian researcher with **chronic tendonitis** of the arm, and his wife, a hairdresser who had developed back pain from years of standing and serving customers in her beauty salon, were both relieved of their pain with MSM.

The foregoing cases, covered in greater detail later in the book, are a tip of the iceberg, an indication of the broad painrelieving potential of MSM.

Clinical experience involving thousands of cases has demonstrated that **MSM provides relief in about 70 percent of patients with pain.** Given the massive incidence of pain problems in our society, this suggests a huge role for MSM if it were to be recommended by physicians as an addition to their regular treatment of pain. MSM certainly fits the growing demand of patients seeking alternative remedies that do not cause adverse side effects.

The Pain Epidemic (5-6)

In the U.S., pain has reached "epidemic" proportions, according to a July 1997 *Science News Report* issued by the American Medical Association. Citing Norman J. Marcus, M.D., director of the New York Pain Treatment Program at Lenox Hill Hospital in New York City, the report said that "tens of millions of Americans suffer from some form of pain each year, taking a substantial toll on their productivity in the workplace and their ability to take care of their responsibilities at home."

According to *The Management of Pain*, a two-volume reference book for physicians published in 1990, more than one-third of the American population have chronic painful conditions and of those, half or more are partially or totally disabled for periods of days, weeks, months, years, or permanently.

Such pain comes in many forms:

- Headaches that disrupt productivity among 40 million Americans each year.
- Back pain suffered by 36 million people.
- Arthritis afflicting more than 40 million individuals. This includes degenerative arthritis (osteoarthritis), the most common type, 21 million sufferers; fibromyalgia, afflicting 3 to 6 million; and rheumatoid arthritis, the most crippling type of illness, 2.5 million.
- Neck pain—20 million.
- Another 24 million people are debilitated in some way by muscle pain.
- Other painful disorders—neurologic, cardiac, cancer, facial, and abdominal—involve more than 11 million.
- The medical cost of disability, as well as loss of productivity, is estimated at more than \$100 billion per year for persistent pain.
- So-called repetitive strain injuries (RSIs) affect the hands, arms, shoulders, necks and backs of countless workers who constantly repeat the same motions day after day, year after year, motions such as gripping, twisting, bending, lifting, reaching, cutting, and keying. Unlike a sudden accident, these overuse conditions develop slowly and cause minute trauma to muscles, tendons, joints, and nerves. Over time, the damage builds up into severe pain, numbness, inflammation, restriction of joint movement, loss of strength and manual dexterity, arthritic conditions, and, if left untreated, lasting disability. According to the U.S. Bureau of Labor Statistics, RSIs account for about 60 percent and rank first-among all work-caused physical illnesses.

The Side-Effects Epidemic

Treatment of pain typically revolves around pharmaceutical drugs and has contributed to sales that have made the pharmaceutical industry the nation's most profitable as measured by return on investment. While many conditions are so painfully severe that they require powerful medication, there is a serious downside to widespread usage—the issue of safety. Adverse reactions to medical drugs are believed responsible for more than 100,000 deaths and 1.5 million hospitalizations in the U.S. each year, according to reports in the *Journal of the American Medical Association* and other leading medical publications. Fatal drug reactions are, in fact, among the leading causes of death. [See: Iatrogenic]

Medical authorities continually caution physicians and patients alike regarding the use of nonsteroidal anti-inflammatories (NSAIDs) for pain conditions. They frequently cause ulcers, serious side effects, and even fatalities. Recently, one such drug was removed from the market shortly after

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it was approved because of four deaths and illness necessitating liver transplants among eight of its users.

Many of our patients come to us with drug-induced symptoms. They are often unable to continue taking NSAIDs prescribed by other physicians because they cannot tolerate the side effects of stomach pangs, acid reflux, and nausea.

Steroidal drugs such as **cortisone** are also widely prescribed to reduce the inflammation associated with a wide array of painful conditions. These are important drugs but they frequently lead to **unhealthy weight gain, high blood pressure, a characteristic "moon face," and even diabetes.**

MSM – Relief Without Side Effects

Two of us (Jacob and Lawrence) are medical doctors with nearly ninety years of combined clinical experience treating severe and debilitating pain problems. One of us (Jacob) participated in the development of MSM and was the first physician to use MSM in the treatment of patients nearly twenty years ago. We have both repeatedly seen MSM significantly ease the suffering of patients with different types of pain and inflammatory conditions and restore their ability to function more normally. **In our opinion, MSM can greatly reduce the staggering amount of disability and loss of productivity caused by chronic pain.**

People continually tell us:

"I wish I had had known about MSM before."

"MSM has given me my life back."

"Thank God for something natural that relieves my pain without giving me any side effects."

"Nothing worked for me before this."

"It's like a miracle."

In this book you will encounter many such remarks from individuals who previously experienced multiple side effects from their medication or whose doctors told them there was nothing more that could be done for them, that they would have to learn to live with the pain.

MSM offers a natural way to reduce pain and inflammation without serious side effects. It may even deliver as much or even more relief as some of the standard painkillers-it just doesn't work as fast. (That's because MSM is not a drug; it is a nutritional supplement.) But you will often begin to experience noticeable easing of pain and discomfort, along with more energy, and in general feel better, within days.

The good news is that MSM is readily available as an inexpensive nutritional supplement in health food stores, drugstores, and through many health practitioners and other accessible outlets. You can purchase it in capsule form to take with a meal as you would any vitamin supplement or use it in crystal form and mix in a drink. You can also buy it as a cream, lotion, or gel and apply it directly to your skin for additional relief from pain and inflammation. You don't need a prescription. It is safe for adults and children alike.

MSM-Defined

MSM is a source of sulfur, a mineral element critical to the normal function and structure of the body. Sulfur is a raw material for the protein and connective tissue that make up our body mass, for enzymes that conduct countless chemical reactions, and for powerful natural compounds that protect us against toxicity and harmful oxidative stress. Sulfur also has a long history of healing but it has been overlooked in our current fascination with vitamins and minerals. When asked to think of minerals important for health, most people know that calcium is good for their bones, that iron is important for their blood, that zinc is needed by the prostate. But rarely does anyone mention sulfur.

In the next chapter we will look at the MSM's "pedigree" and its connection to DMSO and sulfur.

Although much of the scientific fine print relating to MSM's precise healing mechanisms in the body still needs to be determined, we know from clinical experience that it provides major pain relief through the following actions:

- The inhibition of pain impulses along nerve fibers
- Lessening of inflammation
- Increasing of blood supply
- Reduction of muscle spasm
- Softening of scar tissue

TO DOCTORS:

It is our hope that doctors who read this book will consider MSM as an adjunct to their therapies for pain, inflammation, and allergic conditions. MSM can be used with any standard medication without problem. Often patients can reduce and sometimes even discontinue their prescriptions because of MSM's healing effects. But any such modification of medication should be done only under the guidance of a physician. Do not discontinue any prescription without consulting your doctor.

Many people experience rapid relief after starting MSM. We have often heard the statement, "Within a few days my pain was gone." You may indeed experience relief within a few days, but for the very serious chronic conditions we treat in our medical practices we usually see improvement occurring gradually.

Chapter 3: "How to Take MSM"

MSM is a nutritional supplement with many nurturing and health-enhancing properties. If you are under treatment for any condition that is mentioned in this book, we recommend that you bring our observations to your physician's attention and obtain his or her professional opinion regarding your use of the supplement. In many instances, MSM's beneficial effects on the body permit a reduction in prescriptive medication, which, in turn, may reduce side effects.

Please keep your doctor informed. Do not reduce medication on your own.

Q: *What are the available forms of MSM?*

A: The general use of MSM is either orally, as capsules or crystals, or applied topically to the skin as a lotion, cream, or gel.

Q: *What is the best form of MSM?*

A: You should take whatever form is most convenient for you. If you are taking 2 or 3 grams a day or less, the capsules may be the most convenient. For higher doses, you may like to use MSM crystals and mix them into water, juice, or any nonalcoholic beverage, including coffee or tea. A level measured pharmacist's teaspoon holds about 4 grams, or 4,000 milligrams of MSM crystals. A level kitchen teaspoon, somewhat larger, will hold about 5 grams (5,000 milligrams). The crystals have a bitter taste.

Q: *How much MSM should I take?*

A: Whether you're taking a medication or a nutritional supplement, you should always take the least possible amount that gives you the benefit you desire. This same idea applies to MSM. More is not

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necessarily better.

Each of us are unique individuals with different genetic makeup, sizes, hormones, tolerances, energy, resistance, and levels of health or illness. Even if two people have the same type and severity of disease, each brings into play a different set of strengths and weaknesses with which to counteract it.

Because we are so different, our bodies also respond somewhat differently to medication. One aspirin may work for your headache but your brother with the same headache may need two. The same is true of natural remedies and nutritional supplements. One gram of MSM may give you a shot of energy but your brother may need five grams to feel the same effect.

Over the years, thousands of patients have experienced healing benefits by taking 2 to 8 grams (2,000 to 8,000 milligrams) of MSM a day, the amount depending on their gastrointestinal (or GI) tolerance and their condition.

For general maintenance and health, a dosage of around 2 grams (2,000 milligrams) or less is usually adequate. Higher doses are typically necessary to experience therapeutic effects. You may need 3 to 4 grams of MSM a day to control your allergic symptoms of sneezing, runny nose, and burning eyes during pollen season.

For severe, deep-seated conditions, you will probably need higher doses, and sometimes much higher, to experience relief. We have used extremely large doses in the treatment of extraordinary cases. We have recommended 40 or 60 grams and up in incremental daily doses for severe conditions, but in these instances patients were under our personal supervision.

It is our opinion that the higher the dose you can take without developing an upset stomach the quicker you will experience a healing response and the fewer symptomatic recurrences you will have. If you don't see a response, increase your dosage slowly.

Start low. Work up slowly. That's our general recommendation. **Build up to an optimum dose perhaps over a two or three week period.** Many people start off with 2 grams a day and increase another gram or two after several days. If you wish to go higher, raise your dose again by a similar amount several days later.

As you raise the level of MSM it is a good idea to divide the doses during the day. That helps your body become accustomed to the MSM.

This is not a cookbook. Dosages are not carved in stone. The recommendations we make are based on years of clinical experience. Just remember the individuality principle.

Q: What if I take too much MSM?

A: If you overdo it, you may develop minor gastrointestinal discomfort or more frequent stools. Just cut back if that happens.

Taking MSM in two or three doses over the day reduces the possibility of a GI reaction. Divided doses are recommended in particular for people taking larger quantities of MSM.

We have heard that some athletes and bodybuilders involved in high-intensity training start with relatively high levels of MSM to increase stamina and reduce muscle soreness. Some take 5 or more grams before and after workouts right from the start. We have been told that a number of them have experienced headaches or GI reactions in the beginning. Our recommendation for athletes and non-athletes alike is always to start low and build up slowly.

For pain and inflammatory conditions, and musculo-skeletal problems, we generally recommend the "double-barreled approach"—MSM orally and topically. Topically means applying an MSM gel or

lotion to the affected area.

Chapter 4: "MSM and Pain"

Relief for Four Damaged Bodies

Case #1: A Vietnam War Injury

Thirty years ago Corporal Mel Shiota of the U.S. First Cavalry Division jumped out of a helicopter into a Vietnam battle zone with forty-five pounds of machinegun, ammunition, and other equipment on his back. As he landed, he wrenched his left knee, the same knee, as luck would have it, that he injured playing high school baseball.

"I saw stars and could barely walk, but in a situation like that you just grit your teeth and keep moving," recalls Shiota, now fifty-two.

Twenty years later, the pain came alive again in his bad knee, the probable result of degenerative arthritis from the long-ago injury and the constant squatting and kneeling he does in his work. Shiota operates an automotive body shop in Los Angeles. He is continually up and down.

"My knee has been getting progressively worse," says Shiota. "In the morning, it would be so stiff and painful that I would have to manipulate the joints for a few minutes in bed before I could get up. At work, I would moan and groan every time I had to squat. I began having to take two or three Tylenol a day over the last four or five years."

Then Shiota heard about MSM from a friend and started taking half a teaspoon of crystals twice a day.

"It took about three or four weeks and I noticed I could get out of bed in the morning without so much pain and stiffness," he says. "It's been about six months now and more than half the pain and stiffness are gone. I don't need the Tylenol anymore."

Case #2: A Korean War Injury

Nick Puccio's wartime legacy of pain dates back more than fortyfive years to the Korean War. The sixty-eight-year-old retired U.S. Army Signal Corps lieutenant colonel developed a painful trick knee stringing telephone lines in rugged mountain terrain and also returned home with "jungle rot" of the feet. Every summer for decades he would develop painful, cracked, and bleeding skin between his toes.

"I had been suffering for a lot of years until I started using MSM gel both on my knee and my feet," says Puccio, who lives in Fairfax Station, Virginia.

"The pain in my knee was frequently pretty intense and would interfere with my walking. Whenever I took a misstep it would get worse. X-rays never showed anything wrong. I refused to use pain pills and just lived with the pain. Now I massage some MSM gel into the knee whenever it flares up. The pain starts easing up within twenty-four hours."

Puccio first started using the gel around 1990. He says it "cured" the painful bleeding between the toes of both feet.

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"This was a very miserable condition," he says. "Every summer, whenever it was hot, this condition would come back. My socks would become bloody. I tried every skin medication available and nothing worked. I was pretty amazed at what the MSM did. I used the gel for three months and the next year it didn't come back."

Case #3: Carpal Tunnel plus Accident-Related Arthritis

J. Tomita, forty, of Agoura Hills, California, has it all: carpal tunnel syndrome, a repetitive strain injury from working as a grocery cashier years ago, along with bad arthritic pain in the back, knees, and hips stemming from a 1984 automobile crash that nearly killed her.

"The pain has been so bad sometimes that I couldn't sleep. Practically every major bone in my body was broken, so you toss and turn all night because you can't get comfortable," says Tomita. "I don't like to take pain pills but I was taking Vicodin on a regular basis just to survive."

Tomita is a wife, mother of a four-year-old, part-time actress on TV soap operas, and manages a jazz band. On bad days, she says, she would limp through her real-life and TV roles because of the pain.

"I can't limp when I'm filming though. The script doesn't call for it. So if the pain got bad enough, I would just swallow my pain pills to get through the work."

That was before MSM. Tomita is amazed at the relief that came within two weeks. "I can be totally productive again without a problem. I take a teaspoon of crystals three times a day and that generally keeps the pain down so I can handle business, the household, and my four-year-old girl. I sleep at night now and I really feel much more rested. If the volume of the pain goes up, I just take more MSM to bring it down. If I forget to take the MSM for one day, the pain soon lets me know. In my back. In my hips. In my knee. In my wrists. I'm not curing anything. Just managing the pain and inflammation without any pain pills. But that's all I need with my banged-up body

MSM and Pain

At the DMSO Clinic at Oregon Health Sciences University, MSM has been used in the treatment of many patients with a variety of painful conditions. The supplement has proven to give significant pain relief in a majority of cases, perhaps 70 percent. Among the remainder, it has had only minor effects or none at all. There is, of course, no substance, whether a drug or a natural remedy, that works in every case. MSM is no exception.

The following is a list of some of the many conditions for which we have personally observed pain improvement with the use of MSM:

- severe accident-related pain
- degenerative arthritis
- rheumatoid arthritis
- fibromyalgia
- back pain from herniated discs, arthritis, and other causes - headaches
- muscle soreness
- tendinitis
- bursitis
- carpal tunnel syndrome
- interstitial cystitis
- scleroderma
- athletic strains and sprains

- cold sores
- shingles
- TMJ
- Bell's palsy
- Buerger's disease
- inflammatory bowel disorders

Questions People Ask Us About MSM and Pain Relief

Q: *How does MSM kill pain?*

A: We believe that MSM relieves pain in at least several ways:

1. It inhibits pain impulses along a major nervous system network called C fibers. These fibers carry messages of pain from a site of damaged tissue in the body to your brain.
2. MSM also reduces inflammation. Inflammation puts pressure on nerves and other tissues and causes pain.
3. MSM promotes blood flow, which enhances the healing process.
4. MSM reduces muscle spasm—a contraction of muscle tissue—often involved in painful conditions.

Q: *Will MSM help with both acute pain that comes on suddenly or develops after a traumatic event) as well as chronic pain related to arthritis or some other disease?*

A: Usually it helps in both circumstances. Almost always, acute pain responds more rapidly than long-standing chronic pain. If you incur a sprained ankle or fracture, MSM will probably help reduce the inflammation and you may have some pain relief as a result. If you have suffered from a pain-related disease for many years, you need to be patient and give MSM time to get into the system and work.

Q: *I have heard people who have been in pain for a long time say they have had dramatic overnight relief.*

A: This does happen. We have personally seen cases where people experience great relief within a few days. Such dramatic responses are not unusual and are very gratifying to both physicians and patients. However, we advise patients who have been suffering from chronic pain for many years not to expect overnight relief. Although it is very possible to happen sooner, the first signs of relief could take one month, two months, or even many months to become apparent. If you are not among the fortunate individuals who experience relief in the days or weeks after you start taking MSM, don't be discouraged. Stick with it. Be patient. You may not notice less pain immediately, but you may feel more energetic from the MSM, or you may experience other side benefits (see Appendix A on the additional benefits of MSM).

Q: *How long does it usually take to experience relief in very severe cases?*

A: This is difficult to answer. It depends on many things. Some severe cases can take months. The longer the problem has existed, the longer it may take for substantial relief to occur. Often MSM helps where nothing else does, where there are no other effective treatments available, or where strong medication is not advisable for a patient. The use of MSM may provide major relief or it may provide just enough to allow your physician to reduce the amount of medication. When a doctor can do that, the risk of side effects is also reduced.

Q: *Is pain relief from MS lasting or temporary?*

A: That's another hard question to answer. It depends. Many people experience relief as long as they keep taking the MSM. When they stop, symptoms return. There are a number of case histories in the book that describe this. Sometimes the symptoms will return quickly if you stop the MSM. Sometimes they may take weeks or months or even years to return. Or they may never return. MSM speeds the healing process. Once the body is healed from an accident, the pain may vanish only to

return again at a later time in the form of degenerative arthritis that often follows in the wake of trauma. Continued use of MSM might help retard the onset of arthritis-related pain in such cases. We have observed a number of cases where patients have had remissions from serious illnesses, such as lupus and interstitial cystitis. They have taken MSM on a regular, long-term basis and this has probably contributed to their recoveries. If you are obtaining relief from pain associated with chronic illnesses, you will generally continue to experience such relief as long as you take the supplement.

PERSPECTIVES ON MSM AND OSTEOARTHRITIS

Perspective #1-Stanley Jacob, M.D.

MSM impacts osteoarthritis in the following ways:

- It reduces pain.
- It reduces inflammation.
- It reduces muscle spasm around arthritic joints, which also helps relieve pain. - It lessens the formation of scar tissue. - It improves blood flow throughout the body, including painful joints.
- It may slow down the degeneration of cartilage.
- It delivers biologically active sulfur to the body.

A number of medical studies over the years have indicated that sulfur levels in arthritic joints are lower than normal. In a 1995 study, sulfur concentration in arthritic cartilage was shown to be about one-third the level of normal cartilage. This figure was comparable to earlier sulfur measurements reported in *The Journal of Bone and Joint Surgery* and *the Journal of the Southern Medical Association* during the 1930s, which described the use of intravenous and intramuscular injections of sulfur for arthritis. These studies found the cystine content of fingernails to be 25 percent lower in arthritics. Cystine is a sulfur amino acid that helps build hard tissue such as fingernails and hair. In one of these older studies, when a group of 100 arthritics was given a solution of sulfur intravenously, pain was relieved in many cases and the cystine fingernail test returned to normal.

MSM offers major benefits for osteoarthritis. At this time we don't know precisely how the sulfur in MSM is utilized by the body to help arthritis, and whether, for instance, it directly contributes to the maintenance or repair of cartilage and joints. Sulfur-containing compounds called glycosaminoglycans are abundant in the cartilage and synovial fluid of joints.

In my clinic I have used MSM routinely for many years, often for severe, debilitating osteoarthritic cases where patients have traveled long distances seeking help. These are not minimal cases of pain and discomfort. MSM supplementation has provided significant improvement-less pain, less stiffness, greater mobility.

Study: MSM vs NSAIDs

Some years ago I conducted a clinical experiment to compare the effect of MSM and NSAIDs. In the study, twelve female arthritic patients were randomly assigned to take a moderate dosage of 600 milligrams of Motrin three times daily. Motrin is a popular NSAID. Another twelve women were assigned to take 6 grams (6,000 milligrams) of MSM daily. After one month, the patients from both groups reported an approximately equal degree of improvement in terms of reduced pain and inflammation. Among the Motrin group, three patients complained of moderate discomfort from hyperacidity. Gastrointestinal complaints are common among NSAID users. No side effects were reported among the patients who took MSM.

This small clinical study, while not a rigorously controlled experiment, nevertheless demonstrates there are safe, effective nonpharmaceutical remedies for arthritis.

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Many of my patients ask me about glucosamine sulfate, another sulfur compound enjoying current popularity as a remedy for osteoarthritis. Glucosamine is an organic component of connective tissue and cartilage. As a supplement it is said to help relieve symptoms and stimulate new cartilage formation.

MSM compared to glucosamine sulfate

A number of my patients have compared MSM to glucosamine sulfate. They have expressed the opinion that while glucosamine has given them varying degrees of relief, they feel that MSM provides even greater relief. Glucosamine sulfate is certainly worthwhile. In my experience, MSM is more effective for severe cases.

In 1997, one patient told me that she had better results when she took both MSM and glucosamine sulfate. There was less pain when she took both, she said, than when she took one or the other. I decided to test her observation and recommended to about two dozen osteoarthritis patients then taking MSM that they now add 1,500 milligrams of glucosamine, the generally recommended daily dosage. The feedback was quite positive. Less pain, the patients said. Thus there may be a synergistic effect from combining these two supplements.

As a tribute to MSM's potency, some supplement companies have already begun adding MSM to their glucosamine sulfate formulations. [*now done very frequently*]

Patients have frequently asked my opinion about chondroitin sulfate, another popular nutritional supplement suggested for arthritis. I have not seen patients improve after adding chondroitin sulfate, however.

MSM often allows patients on medication to reduce the number of pain pills they need and sometimes even eliminate them. If you are on medication, always consult your physician first before modifying or stopping a prescription. Some individuals have been taking **cortisone** for many years for its anti-inflammatory effect. In such cases, it is not advisable to stop taking it without medical supervision. You may not be able to eliminate the cortisone altogether. This is because once you take cortisone for a long period of time, your body's natural ability to produce its own cortisone—the anti-inflammatory hormone, cortisol—becomes diminished and may even be permanently suppressed. But MSM may allow you to reduce the dosage. But for your own safety, do not reduce this or any other prescriptive medication on your own, no matter how well you are feeling.

Perspective #2-Ronald Lawrence, M.D.

The first of my pain patients to start on MSM was an 80-year-old woman with generalized arthritis. Her condition involved the fingers, hands, knees, neck, and low back. Like some of my other arthritic patients, she had been taking glucosamine sulfate for a year or more. With glucosamine, her pain had lessened by about 30 percent. After starting MSM, she reported an additional-and significant-reduction in pain.

As I began recommending MSM to my other arthritic patients, they would tell me the same thing. Within two to four weeks, sometimes sooner, they would start feeling better. Less stiffness. Much less pain.

One such patient was a 75-year-old lawyer who already had undergone two knee replacements. He also suffered from severe arthritis in both shoulders, feet, and the low back. I introduced him to MSM as an addition to an existing treatment program that included acupuncture. In about four weeks he reported feeling significant improvement in overall pain. As this book is being written, he has been taking three heaping teaspoons of MSM daily for seven months. He says his pain relief is substantial, and he also reports being more limber.

Tom Rodriguez, my gardener, had developed painful degenerative arthritis in his lower back and

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knees, the physical toll of nearly forty years of hard landscape work in the Los Angeles area.

"It is getting harder and harder to move around," he told me. "My legs feel heavy and just don't have the same power as when I was younger. You get older and you got to expect these things."

Tom, who is 69, said that at the end of a long work day, he was increasingly relying on aspirin or Tylenol to ease his pain. I gave him a supply of MSM and suggested he try three 750-milligram capsules daily. A month later, Tom told me that his pain was virtually gone.

"The pills you gave me helped plenty," he said. "There is just slight pain in the knees, but the back pain is gone. My legs are much more flexible and not as heavy as they felt before. I haven't taken aspirin once. I am very happy and I am not going to stop taking the MSM."

This kind of positive feedback from patients and friends prompted me to conduct a small clinical study to measure the pain-reducing power of MSM. Pain is a very subjective matter. Only the person suffering really knows how much he or she is hurting. It is hard to express the degree of pain verbally. For the purposes of this trial, patients were asked to assess their pain on a scale of 0 to 100 (100 being the worst pain) at the start of the experiment, again at four weeks after starting MSM, and again at six weeks.

In the study, subsequently reported in the *International Journal of Anti-Aging Medicine*, I took sixteen patients, aged 55 to 78, and randomly assigned them to two groups. One group of ten patients was given 2,250 milligrams of MSM daily. That's the equivalent of taking a standard 750 milligram capsule three times a day. The other six patients took a specially prepared placebo pill that matched the MSM in appearance and taste.

The experiment was conducted according to a "blind" model. This means that neither the patients nor I, as the overseeing physician, knew who were taking MSM or who were taking the placebo until the trial was completed. Records were kept by an independent evaluator.

The participating patients all had degenerative joint disease, confirmed by X-rays, and had suffered from severe pain for many months or years. They represented a cross section of arthritis, ranging from one joint involvement to a generalized condition. Most had used NSAIDs or aspirin-type medications for relief. None had taken steroids previously. All drugs or other nutritional supplements were stopped prior to the study.

All patients in the study reported improvement while taking MSM, except for one. At the four-week mark, patients on MSM described an average 60 percent improvement; at six weeks, 82 percent. As is typical in medical studies, people on placebos usually report benefits. In this case, the placebo takers described an improvement of 20 percent on average at four weeks and an 18 percent improvement at six weeks.

In this study, and in my general clinical experience, I find that many patients taking MSM notice substantial relief of pain within three to four weeks although some have reported major relief within days. As a result, I have often been able to reduce the dosage and sometimes even eliminate the use of strong hydrocodone painkillers, such as Vicodin.

The similar results of this limited trial, and that of Stanley Jacob in his Portland clinic, and another clinical trial by a Brazilian doctor you will read about in a moment, invites a more intensive investigation of MSM for the relief of pain related to degenerative arthritis. Such a broader study should involve a larger group of arthritic patients and take into consideration additional evaluations such as range of motion.

I have been treating pain for forty-five years and started the first in-patient pain clinic in the

country-in 1970-under the auspices of the UCLA School of Medicine. I am keenly aware of the

limitations of standard pain medication. The side effects can be devastating, worse even than the condition that the drugs are supposed to treat. We physicians need to be extremely prudent in prescribing them. For this reason, I am very excited when a natural agent such as MSM becomes available, can provide significant pain relief without side effects, and enables me to lower the dosage of medication. I find that it can be used along with any other prescriptive medication. To date, I have not seen any adverse interactions.

What has been very poignant to me as a pain specialist is the experience of having dozens of osteoarthritis patients call me, or drop by my office, after they start on MSM, and tell me how good they are feeling, how much better their range of motion is, and how they have been able to become more active in life. These are people who have been suffering for years.

As impressive as the painkilling effect of MSM is on degenerative arthritis, in my experience it appears to be even more potent for rheumatoid arthritis (see the section on rheumatoid arthritis in Chapter 20). Some very severe, chronic cases have responded dramatically. Patients are surprised at how fast MSM relieves the pain and inflammation. Some rheumatoid patients have told me they started feeling relief within days.

Prior to using MSM, many of my degenerative arthritic patients took **glucosamine sulfate**. I found it to be a helpful, steady agent in about 35 percent of milder to moderate cases, but it did not appear to be as effective in patients with severe arthritis. MSM, in my experience, appears to be a more potent agent in the most difficult patients and in general offers more relief to more people. In addition, it has many side benefits that glucosamine does not have. I haven't observed the same surprising and dramatic results with glucosamine usage that I have with MSM.

As I began recommending MSM, I didn't tell my patients already taking glucosamine sulfate to stop that particular supplement. I just suggested they add MSM. Generally, after about two to four weeks they would report a noticeable improvement in their condition. These were people who had been on glucosamine for six months or a year and had appeared to reach a plateau of benefit. Their additional relief was clearly due to the effects of MSM.

I have found that **glucosamine** usually takes four to five weeks before it kicks in. The fastest appreciable response by any of my patients with glucosamine was about three weeks. This is with the standard dosage of 500 milligrams three times a day. I haven't seen any improved results by increasing the dosage. MSM, on the other hand, appears to have increased benefits when you step up the amount you take. MSM, in some cases, can generate relief in a few days, but for severe, long-standing cases you need to give it time. In my clinical experience, such patience pays off.

Arthritis in the hip joint can be a serious problem. I haven't found glucosamine effective with severe joint disease in this location. Results with MSM are far superior. In severe cases involving the knees, I have found glucosamine only mildly effective-far less than 35 percent of the time among my patients. Again, MSM has been much more beneficial here.

I have found that glucosamine sulfate taken with meals produces no effect. I have found that glucosamine sulfate is more effective when taken on an empty stomach.

We are now starting to see MSM being added to glucosamine products. It may be that a combination of the both offers some synergistic value and may be more beneficial. By the way, as far as cost is concerned, in the stores that I have checked, I have found that MSM is less expensive than

glucosamine sulfate.

In my experience, chondroitin sulfate, another cartilage-protective supplement, requires at least three months for an effect. Scientific research indicates it is apparently not well absorbed but still aids the joints.

Perspective # 3-Ephrain Olszewer, M.D.

In Brazil, Ephrain Olszewer, M.D., director of the International Preventive Medicine Clinic in Sao Paulo, has been testing MSM on arthritic patients for more than a year.

"We wanted to see if arthritics could be maintained on MSM alone, without any medication such as nonsteroidal anti-inflammatories," says Olszewer. "The results to date are good in 90 percent of the cases."

Involved in the Brazilian physician's clinical study were sixty men and women, ages 40 to 82, with mild to moderate arthritis of the knees, hips, hands, shoulders, or spine. They were prescribed 750 milligrams of MSM twice daily. If one joint only was affected, Olszewer had them also apply an MSM lotion made especially for him by a local pharmacy.

His assessment of MSM: "We "measure the mechanical movement of the involved joints and ask the patients about their pain and stiffness. We have measured greater motion and flexibility in the joints. The patients have told us they have much less pain and stiffness. Patients say the pain relief starts usually within the first fourteen days. In a few cases, as early as within two days. We haven't seen any kind of side effects or intolerances of the patients. In a few patients it didn't work at all."

Two Painful Arizona Knees

Doug Ohmart operates a health-food store in Tucson and says he has tried every supplement on the market to help relieve the chronic pain in his left knee. The arthritic pain is a legacy from his high school gymnastic days when he severely injured the knee.

"My doctor says the cartilage is like mush," says Ohmart, 44. "It's really bad degenerative arthritis in the joint. I have just suffered through the pain, which is always there. Whenever it gets intolerable, which is maybe twice a month, I will take an ibuprofen prescription. At times like that I can just barely walk on it."

When glucosamine became popular a few years ago, Ohmart started taking the supplement but says it didn't help much.

"It didn't do anything to speak of for the pain or the flexion," he says. "I took it for eight months."

In 1997, he first heard about MSM and started taking it-a half teaspoon twice a day in his regular protein drink.

"I couldn't believe what happened. In two days, there was a huge reduction in pain. Huge. It was like a gift from heaven. I don't know if it was the MSM and glucosamine working together. I have no idea. I only know that right after I started the MSM there was this major improvement.

"What's more, I have regained a lot of the lost flexion in my knee. As a result of my injury and arthritic condition I only had about half or less of the normal flexion. Before MSM, if I laid on my back and brought my knee up to my chest and then pulled down on the ankle, I couldn't get it within two feet of my rear end. Now I'm only about ten inches away. I've regained a lot of bend, although for me the prospect of being able to bend the knee so I can sit back on my heel is a pipe dream. As far as pain is concerned, it's not entirely gone, but my worst day now with pain is like my best day before MSM. I haven't had to take any ibuprofen since MSM."

Early in 1998, an enthusiastic Ohmart related his experience to Gary Sebring, a security guard at a Tucson electric utility company, whose job requires walking regular rounds of two six-story buildings. Arthritic pain in his right knee was making the job torture.

Says Sebring: "Because of the pain I would often limp along, take the steps real slow and use the railings for support, and when anybody was around I would just pretend I was fine. I had considered getting a cane but a security guard with a cane doesn't project the right image. I was concerned I might need a knee replacement."

The knee pain had started a year before and increased over time. "At the end of the workday I would just come home, sit down in pain, and hardly be able to get up," he says. "That wasn't like me. I like to go fishing and camping but I could hardly even stand in the boat to fish anymore or barely climb forty feet without taking a rest. I stopped all my outdoor activities because of the pain. I couldn't walk from my front yard to the back without some pain."

Sebring says he tried glucosamine sulfate for a month but had no relief. Then Ohmart told him about MSM. "After hearing his story I decided to try it as well, so I started taking about a quarter or half a teaspoon twice a day," says Sebring. "**Within three or four days, the pain practically disappeared.** It was pretty amazing. It's been about eight months and now there is only slight pain when I overdo it. I handle the walking routine at my job now without any problem and even go on three-mile walks a few times a week for exercise. I couldn't do that before. I'm also back to fishing and camping and have no trouble walking up and down the banks of streams. It's great. My knee isn't like it was when I was sixteen but compared to before it feels like a new knee."

Chapter 9: Fibromyalgia (114-121)

"My gift from God": Joyce Scott's Story

Joyce Scott, of Fountain Hills, Arizona, was as good as dead for five years.

"I used to be the most active person you could imagine," she says. "I had raised five children, did aerobics, and made and sold dolls out of my home. One morning after I returned from a doll show, I couldn't get out of bed. I was beyond exhaustion. I could hardly move. It came out of nowhere."

What came out of nowhere is what doctors diagnosed as chronic fatigue and later as fibromyalgia.

"I started to hurt around the clock and after a while the pain would wake me up at night," she says. "It would migrate all over my body and be worse at one time in my knee or in my shoulder or left hip or lower back. I had constant headaches. It was as if my whole skeleton hurt from head to toe. Even my fingers hurt, sometimes so bad that it took my breath away."

The 62-year-old Scott says that her condition also affected her clarity of mind. "I couldn't remember where the drinking glasses were in the house or how to drive to the bank and I have lived in the same place for more than twenty-five years. I stopped driving because of the mental confusion. If I had a good week friends would take me to play mahjong. Otherwise I was as good as dead for five years."

Scott took anti-depressants because she "didn't have a life anymore." But she says she couldn't take pain pills because they upset her stomach.

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During her ordeal, friends were constantly recommending different supplements for her to take, including MSM.

"I am a very cautious person," she says. "I don't jump into everything. But I saw that a friend of mine with a candida problem had gotten relief taking MSM so I decided to try some myself. That was July of 1998. I didn't like the taste much, but things started to happen right away so I stuck with it."

Scott says she has had a rosacea condition and it started to clear up within days. Rosacea is a chronic red coloration affecting the skin of the nose, forehead, and cheeks.

"That was the first thing," she continues. "Then the energy started to kick in. During the second week I had one bad day but I felt I was getting better, and by the third week I had so much more energy.

"The pain started gradually going away, and after three weeks there was considerable relief. Now, a month and a half later, I am pain-free most of the time. That's why I call MSM my gift from God.

"I have a pool that is thirty steps down from my house. I have been in that pool more in the month and a half since I started taking MSM than during the previous five years. I can go up and down the steps with ease and go up the hill now to get my mail. I couldn't do that before. I'm driving again, and I'm living again. Now I feel good enough so that I am about to re-launch my doll business, which has been on hold for five years."

Scott says she started with a half teaspoon of MSM crystals with water in the morning and evening and then slowly built up to three teaspoons twice a day. As a result of feeling better she has started to reduce the amount of the supplement she takes.

About Fibromyalgia

Fibromyalgia is a relatively recent term for a common rheumatic disease that was previously called soft tissue rheumatism, fibrositis, or nonarticular rheumatism. According to the Arthritis Foundation, it is the second leading arthritis-related condition. The American College of Rheumatology believes 3 to 6 million Americans are affected. The Arthritis Society of Canada estimates the prevalence of fibromyalgia is between 2.1 and 5.7 percent of the population, with women affected four times more than men. The incidence increases with age and is said to be the most common in women 50 or older.

Common degenerative arthritis involves the joints of the body. Fibromyalgia attacks the soft tissue—the muscles, tendons, and ligaments. **Symptoms** include persistent burning, soreness, pain, and stiffness all over, a flulike feeling, headaches, irritable bowel, fatigue, insomnia, anxiety, and depression. The severity of symptoms fluctuates, but most patients experience discomfort on a daily basis and some pain is always present.

Fibromyalgia is hard to diagnose because many of the symptoms mimic those of other diseases. The American College of Rheumatology has developed certain diagnostic criteria. The main elements are widespread pain for a period of three months or longer, both above and below the waist, and on both sides of the body, as well as the presence of tenderness in at least eleven of eighteen specific, localized areas, particularly in the neck, spine, shoulders, and hips.

The cause of fibromyalgia is not known. [that is because Fibromyalgia is a general term for a basket of symptoms resulting from toxemia, injury, and malnutrition] Before symptoms develop some patients report having had a viral, bacterial, or parasitic infection, or a physical trauma such as an automobile accident, fall, or athletic injury. Among the possibilities are also poor diet, steroids, birth control pills, antibiotics, food allergies, nutritional deficiencies, and chemical sensitivities. Fibromyalgia may be associated with changes in muscle metabolism, such as decreased blood flow, which causes fatigue and decreased strength. Recent studies funded by the National Institute of

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Arthritis and Musculoskeletal and Skin Diseases also indicate an association with low levels of the anti-inflammatory hormone cortisol.

MSM cannot cure this major painful condition. But it is an excellent source of safe and substantial relief. Women diagnosed with fibromyalgia who have taken MSM say it has relieved their condition better than anything else they had previously tried.

This great benefit comes from MSM's pain reducing, anti-inflammatory, and increased blood-supply properties, but there may be other mechanisms at work that have yet to be determined.

Chapter 11: Tendinitis (133-138)

MSM is a valuable natural remedy against most inflammatory musculoskeletal conditions involving the tendons and ligaments. Many of these problems are caused by repetitive and stressful motions related to work or sports. According to the National Center for Health Statistics, about four million workers suffer from tendinitis.

Forceful, repetitive motions can create damage and inflammation of the tendons connecting muscle to bone or the ligaments connecting bones and cartilage. Injury to these tough cords of fibrous tissue may result in severe pain, chronic soreness, scar tissue and stiffening, and loss of movement.

MSM provides effective relief for such problems as the following:

- Tennis elbow (also known as pitcher's elbow or bowler's elbow)
- Golfer's elbow
- Tendinitis of the shoulders, arms, legs, and feet
- Achilles tendon contraction
- Bursitis

We have found that in general 6 to 8 grams a day of MSM orally helps reduce the pain and swelling. Some people find that less is also effective. Others need more. For additional benefit, rub a 15 percent MSM gel or cream over the affected area several times a day. Healing time is faster if you use MSM both orally and topically.

Chapter 12: Carpal Tunnel Syndrome (139-144)

About Carpal Tunnel Syndrome

Carpal tunnel syndrome is the most widely reported **repetitive strain injury (RSI)** that occurs in the workplace. RSIs affect the hands, arms, shoulders, necks, and backs of workers who do the same repetitive motions for many months or years. Such motions include gripping, twisting, bending, lifting, reaching, cutting, and keying.

The National Institute of Occupational Safety and Health (NIOSH) says RSIs have increased in recent years because of automation and job specialization where a given job may involve only a few manipulations performed thousands of times per workday.

Carpal tunnel syndrome is named for the eight bones in the wrist-the carpals. They form a tunnel-

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like passage filled with tendons that control finger movement and the median nerve that carries nerve impulses to and from the hand. Repetitive flexing and extension of the wrist may cause an inflammation of the protective sheaths surrounding the nerve, which produces symptoms.

Generally, the problem first appears as painful tingling in one or both hands during the night. Most commonly, the thumb, index, and ring fingers are affected. Later, tingling can develop during the day, along with a decrease in dexterity and grip power.

Women, according to Bureau of Labor statistics, account for nearly two-thirds of all work-related carpal tunnel conditions and repetitive strain injuries even though they comprise only 45 percent of total employees.

Deborah Quilter, author of two books on the subject, including ***The Repetitive Strain Injury Recovery Book*** (Walker & Co.), says the reasons for greater female susceptibility are these: a narrower carpal tunnel, smaller and weaker muscles than men, as well as hormonal changes from pregnancy, menopause, and gynecological surgery that can contribute to swelling.

"The higher proportion can also be attributed to the large number of women in jobs that require repetitive movements of the hands and arms, such as data entry operators, telephone operators, and cashiers," she says.

Prevention and symptom-reduction strategies include redesigning tools and tool handles to enable a workers' wrist to maintain a more natural position, modified layouts of work stations, and special exercises that include simple flexing and extending of the wrists, turning the head from side to side, and yoga postures.

At the first sign of symptoms, "see a competent physician immediately," says Quilter.

It is interesting to note that over the years medical researchers have found that many carpal tunnel sufferers have a variety of concurrent medical conditions. Diabetes, thyroid disease, wrist osteoarthritis, and any form of inflammation affecting the wrist joints or tendon sheaths have been frequently associated with carpal tunnel. Some researchers suggest that health factors, and not just occupational activity, may promote or aggravate symptoms. In a 1998 study in the *Archives of Internal Medicine* a group of researchers found that 40 percent of 213 patients with carpal tunnel had a metabolic, inflammatory, or degenerative condition "that might have caused the symptoms." Nevertheless, they noted, a direct cause-and-effect relationship to carpal tunnel has not been proven.

Conventional treatments for carpal tunnel involve wrist braces, anti-inflammatory medications to reduce swelling, and steroid injections. If these fail, several different surgical procedures are available to relieve pressure on the median nerve. Such treatments, however, "have met with mixed results, especially when an affected person must return to the same working conditions," according to NIOSH.

MSM and Carpal Tunnel Syndrome and Related Problems

We see many patients with severe carpal tunnel. Often they have already been operated on before, sometimes even twice, and still have the same discomfort, pain, and disability. Frequently the problem is worse afterward. We have not been impressed with the surgical approach to this condition.

We believe that oral and topical MSM can be as good as any conservative approach. **Approximately 70 percent or more of the individuals who take MSM regularly report significant reduction of pain.**

Chapter 15: Heartburn and Hyperacidity (154-157)

About Heartburn

You chew and swallow, and if all is well the mush balls of food drop straight down the esophagus and into your stomach for digestive processing. If all is well. . .

Heartburn is that burning sensation felt in the upper chest or lower neck area that is sometimes misinterpreted as a heart attack. Often it is a sign of **gastro-esophageal reflux disease (GERD)**, a chronic condition that allows acid from the stomach to rise upward into the esophagus and sometimes as far up as your mouth. The incidence of GERD, and the heartburn it produces, is often underestimated, according to experts, who say that as many as a half of patients with unexplained chest pain, chronic hoarseness, or asthma may be suffering instead from this condition.

GERD may occur as a result of weakness in the valve at the bottom of the esophagus that is designed to prevent just that from happening. The feeling of heartburn can be associated with inflammation and bleeding in the esophagus.

Symptoms usually start within an hour of eating. Esophageal reflux may also be related to a hiatal hernia, a bulge of the stomach through a hole in the muscular diaphragm separating the abdomen from the chest.

Many of us have occasional heartburn, but frequent heartburn may be a sign of GERD and should be brought to the attention of a physician. Approximately 10 percent of Americans experience heartburn on a daily basis, and many of them turn to over-the-counter preparations such as Pepcid, Tagamet, and Zantac.

About Hyperacidity

When food enters the stomach, it gets a dousing of hydrochloric acid (HCL) and pepsin, a digestive enzyme. This chemical activity breaks down protein and prepares the food for the next stage in its digestive processing in the small intestine.

If you overeat, consume too much fried and fatty foods, overdo it with coffee, and you smoke, you run the risk of producing too much acid in the stomach. Over time, constant hyperacidity, in combination with a specific bacterium called helicobacter pylori, can cause the development of stomach or upper intestinal ulcers. The regular use of nonsteroidal anti-inflammatory drugs, often prescribed for arthritic conditions, is another major cause of ulcers. The common symptoms of ulcers are heartburn, burning or pain over the area of the stomach, and pain while lying down or during the middle of the night.

Standard medical treatment for ulcers includes antacids, bland diets, antibiotics, and anti-ulcer drugs. Although some of these measures can be effective on a short-term basis, relapses frequently occur.

Stanley Jacob, M.D., Comments:

In 1982, after using MSM in my clinic for a few years, I made the following brief comment in a report for the Annals of the New York Academy of Sciences: "Subjects seen to be chronic users of various antacids and histamine H2 receptor antagonists prefer MSM by reason of relief obtained coupled with freedom from serious, untoward effects." (H2 antagonists are acid suppressant agents).

In the ensuing years, patients have continued to tell me that they find MSM gives them relief from

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heartburn comparable to such medications as Tagamet or Pepcid. These are individuals who have been taking antacids and anti-ulcer preparations.

Based on clinical observation, the use of MSM frequently permits a patient to lower the dosage of stronger prescriptive medication. It helps to relieve pain and discomfort in many cases.

MSM may offer anti-ulcer potential and be a useful adjunct in the treatment of gastric acidity disorders. The precise mechanism for its effects in this area are unknown at this time. We need studies to determine these important details.

My son Stephen developed GERD and used MSM to wean himself off Prilosec, a powerful gastric anti secretory agent. He was diagnosed in 1997 after complaining of stomach pain and severe heartburn that would frequently wake him in the middle of the night. Any food he ate could cause the problem, but it was more likely to happen if he ate too much, too late, and finished off his meal with ice cream.

Prilosec worked well for him. He didn't want to take it continually so he took MSM one day and the medication the follow ing day. The combination was effective. **After a short period of time, he was able to stop Prilosec totally** and remain symptom-free by taking MSM every other day while eating an earlier and lighter dinner.

SULFUR (MSM): A BASIC ESSENTIAL NUTRIENT NEEDED NOW, MORE THAN EVER BEFORE

Source: <http://www.all-natural.com/msm.html>

Methylsulfonylmethane is a relatively new dietary supplement form of sulfur that is found in our living tissues. MSM supports healthy connective tissues like tendons, ligaments, and muscle. **Thus, it is important in conditions such as arthritis, muscle pains, bursitis, etc.** MSM should be considered an integral part of any health care practice because of its physiological action, indirect importance, and current / future uses.

To understand MSM, some background information is necessary. MSM is a "naturally-occurring nutrient found in normal human diets".¹ It gets into the diet through the sulfur cycle. Ocean plankton release sulfur compounds which rise into the ozone where ultra-violet light makes MSM and DMSO. DMSO, dimethyl sulfoxide, is a precursor to MSM. MSM and DMSO return to the surface of the earth in rain.² Plants concentrate MSM and return it to the earth and the sea. Evaporation into the air results in their return to the earth.³

MSM has a unique action on body tissues. It decreases the pressure inside the cell. In removing fluids and toxins, sulfur affects the cell membrane. MSM is an organic form of sulfur, whereas sulfites in foodstuffs are inorganic. Sue Williams states "sulfur is present in all cells" and is in the form of "organic compounds throughout the body".⁴ However, sulfur can be found in the body in sulfate forms. It forms sulfate compounds with sodium, potassium, magnesium, and selenium. MSM has a significance, because sulfur compounds are found everywhere throughout the body and in nature.

¹ Total Health. 1998. "MSM". Feb/Mar, Vol., 20 No. 1. pp. 30-31.

² Ibid.

³ Ibid.

⁴ Williams, S. 1997. Nutrition & Diet Therapy (8th ed.). Academic Press, N.Y., N.Y.

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Sulfur has an indirect importance, because sulfur compounds play a role in many body organs and systems. Sulfur is in the hair, skin, and nails. Many amino acids, the building blocks of protein, have sulfur as a component. Taurine is a sulfur-containing amino acid formed from methionine.⁵ Taurine stabilizes cell membranes. Methionine contains sulfur, detoxifies cells, and is involved in pain relief. Carnitine comes from methionine and transports long chain fatty acids preventing accumulations of lipoproteins.⁶ Many B-complex vitamins interact with or contain sulfur. Sulfur is needed for insulin production.

One current use of MSM is for joint problems, as sulfur is found in and near osseous structures. Sulfur supports healthy muscles, tendons, and ligaments. Arthritic conditions have responded to oral MSM. Some researchers note results from MSM when used for post-exercise muscle pain.⁷ MSM normalizes pressure inside cells and removes toxins. Oregon Health Sciences University has conducted arthritis studies with mice. The mice which received MSM had "no degeneration of articular cartilage".⁸ The other non-MSM mice had cartilaginous degeneration. The university has used MSM on over 12,000 patients. Researchers make no claim about MSM as a supplement, but osteoarthritis, rheumatoid arthritis, muscle soreness and muscle pain respond to oral MSM.

One researcher claims MSM is about as safe as water. One should drink extra water with MSM use. There are other dietary factors to consider.

Avoiding nightshade plants has helped arthritis patients (tomatoes / potatoes / green pepper/eggplant). Biotin and vitamin C help the body assimilate MSM. Biotin and vitamin C are found in fresh fruits. Eating fresh fruits while taking MSM could be helpful.

In addition to arthritis, it may have other future uses. Dr. Stanley Jacob believes 'most people are deficient' in sulfur.⁹ Insulin synthesis depends upon sulfur. Many vitamins require or contain sulfur. Some researchers claim it has many future uses such as in allergies.¹⁰

A good MSM product is both safe and effective. The MSM source for MSM supplements is often lignin from pine trees. Lignin is a molecule in plants that is part of a plant's cell wall. Lignin oxidation in oak wine barrels results in the vanilla flavors of wines. The pine tree lignin is an ideal source for a good MSM product.

For those who do not want to take MSM as a supplement, food sources of sulfur are as follows: sunflower seeds, garlic, lentils, soybeans, and yogurt. Persons with kidney problems or recurrent kidney stones may not want to take MSM. Certain renal tubular defects can make a person susceptible to recurrent kidney stones.¹¹ Other kidney defects include errors of metabolism in which processing of sulfur amino acids is altered.¹² Such persons may wish to avoid MSM.

One thousand to three thousand milligrams per day is a typical dosage range, but some people take well above that amount. This author takes MSM alone.

From the cell walls of pine trees to the cells of the human body, a good MSM supplement can contribute to good health.

⁵ Ibid.

⁶ Ibid.

⁷ Total Health. 1998. "MSM". Feb/Mar, Vol., 20 No. 1. pp. 30-31.

⁸ Ibid.

⁹ Ibid.

¹⁰ Ibid.

¹¹ Williams, S. 1997. Nutrition & Diet Therapy (8th ed.). Academic Press, N.Y., N.Y.

¹² Ibid.

Conditions That Have Reportedly Responded to MSM Supplements

- **Acne**
- **Allergies**
- **Arthritis**
- **Asthma**
- **Candida Yeast Infections**
- **Carpal Tunnel Syndrome**
- **Chronic Fatigue**
- **Constipation**
- **Diabetes**
- **Digestive Disorders**
- **Fragile Hair & Nails**
- **Migraine Headaches**
- **Muscle Pain & Cramps**
- **Parasites**
- **Skin Damage & Aging**
- **Toxic Build-up**
- **Ulcers**

A body made up of healthy, flexible cells will not only feel better, it will look better too. The body is continuously at work replacing old, worn out cells with new ones. The process goes on 24 hours a day, 7 days a week, without stop. When all the raw materials needed for cell-building are available, it is a very efficient process. When there are deficiencies, the new cells may be weak, rigid or deformed.

One of the most important raw materials for building healthy new cells is a form of organic sulfur known as methyl sulfonyl methane (MSM). This element is so essential to life that it is found in every cell of every plant and every animal. Sulfur makes up 0.25% of human body weight. However neither plants nor animals can use elemental sulfur directly. Sulfur is not easily available to living organisms in its inorganic form.

MSM is not a medicine, a drug, or a food additive. It is a *food*. MSM is an organic form of sulfur that can be easily absorbed and utilized by the body. Although DMSO and MSM are chemically similar, each is unique. MSM is a pure, stable, white crystalline powder without the unpleasant smell or taste of DMSO.¹³ Also, MSM does not give you a strong body odor like DMSO.

Since sulfur is a component of all cells, it is essential that the body have a plentiful supply of this mineral in its usable form. There is a positive synergistic effect on building healthier cells when MSM is taken in combination with vitamin C. The new cells are more pliable and permeable, allowing fluids to pass through the tissue more easily.¹⁴ Internally this means more efficient elimination of toxins, a reduction in inflammation and pain - so you feel better. On the outside it shows up as a softer, smoother complexion, stronger hair and nails - so you look better.

MSM for Relief of Pain and Inflammation

Approximately half of the total body sulfur is concentrated in the muscles, skin and bones. One of the most significant uses of MSM as a supplement is its demonstrated ability to relieve pain and inflammation. When rigid fibrous tissue cells swell and become inflamed, pressure and pain result.

¹³ Total Health. 1998. "MSM". Feb/Mar, Vol., 20 No. 1. pp. 30-31; Williams, S. 1997. Nutrition & Diet Therapy (8th ed.). Academic Press, N.Y., N.Y.; Thomas, C. 1993. Taber's Cyclopedic Medical Dictionary, (1 7th Ed.). F.A. Davis Company, Philadelphia, PA.

¹⁴ Total Health. 1998. "MSM". Feb/Mar, Vol., 20 No. 1. pp. 30-31.

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Since MSM can restore flexibility and permeability to cell walls, fluids can pass through the tissues more easily. This helps equalize pressure and reduce or eliminate the cause of pain. Harmful substances such as lactic acid and toxins are allowed to flow out, while nutrients are permitted to flow in. This prevents the pressure buildup in cells that causes inflammation.¹⁵

MSM has shown a remarkable ability to reduce or eliminate muscle soreness and cramps both in geriatric patients and in athletes. It's even given to race horses before a race to prevent muscle soreness, and afterward to reduce the risk of cramping. People with arthritis report substantial and long-lasting relief with MSM supplements. Taken along with glucosamine, a key substance in the process of rebuilding cartilage, MSM can relieve pain and help repair worn or damaged cartilage in joints, ligaments and tendons with healthy, flexible new cells.¹⁶

How Does MSM Work?

MSM makes cell walls permeable, allowing water and nutrients to freely flow into cells and allowing wastes and toxins to properly flow out. The body uses MSM along with Vitamin C to create new, healthy cells, and MSM provides the flexible bond between the cells. Without proper levels of MSM, our bodies are unable to build good healthy cells, and this leads to problems such as lost flexibility, scar tissue, wrinkles, varicose veins, hardened arteries, damaged lung tissues, dry cracking skin, digestive disorders, joint problems, and inability to defend against allergic reactions to food, animals and plants.

MSM is an anti-oxidant that helps to clean the blood stream and flush toxins trapped in our cells. It is also a foreign protein and free radical scavenger. In order to maintain good health, we need to supplement our diets with MSM, to enable the body to heal itself. The body uses what it needs, and after 12 hours will flush out any excess amounts.

The Beauty Mineral for Hair, Skin and Nails

Sulfur has been called nature's "beauty mineral" because it is needed to keep the hair glossy and smooth and keeps the complexion clear and youthful. It is needed for synthesis of collagen and is prevalent in keratin, a tough protein substance necessary for health and maintenance of the skin, nails and hair.

MSM is responsible for the flexible disulfide bonds between cells, including those that make up the skin. It blocks undesirable chemical and physical cross-linking or bonding of collagen which is associated with tough, aging skin. Consequently MSM enhances tissue pliability and encourages repair of damaged skin. If there is insufficient sulfur in the body when new cells are being manufactured, the new cells will be rigid. This rigidity can contribute to cracking, wrinkling and unsightly scar tissue. When sufficient sulfur is present for new cells, the skin is softer, smoother and more flexible. MSM provides that sulfur.

Acne, including the severe acne rosacea, responds favorably to MSM supplements.

Adequate sulfur and vitamin C are also needed for healing. When the body is deficient in these nutrients, the new tissue will be elevated leaving an unattractive, raised scar. Because MSM makes the skin more permeable and pliant, it can also help prevent blistering and promote faster healing from sunburn or wind damage.

With MSM supplements, nails show not only an increase in growth rate, but also increased toughness and resistance to chipping and cracking. This effect has been seen both in human nails and horses hoofs.

¹⁵ Ibid.

¹⁶ Ibid.

Allergens, Toxins and Parasites

Flexible, permeable cells are also important in that they allow toxins, allergens and foreign substances to be flushed out of the body more easily. When skin cells are soft and permeable, many toxins can be eliminated through the sweat glands, which takes some of the load off the liver and kidneys. While MSM is not a cure for allergies, supplementation may reduce symptoms by allowing allergens to be removed from the body more quickly. Even reactions to insect bites, poison ivy and poison oak are less severe when the diet is supplemented with MSM. Vitamin C is also synergistic in this application in that it can lower histamine levels.

MSM has also shown amazing anti-parasitic action against Giardia, Trichomonas, roundworms, nematodes, Enterobius and other intestinal worms. When parasites attach themselves to the intestinal lining, they can live, reproduce and rob the body of nutrients indefinitely. MSM blocks parasites by competing for receptor sites on the mucous membrane. When parasites can not attach themselves, they are simply flushed out of the system.

The same is true with food allergens. MSM coats mucosal surfaces and occupies the binding sites that could otherwise be used by challenging food allergens. It can also bind with offending agents to produce harmless substances which are then excreted from the body. This facilitates normal digestion and assimilation and allows the body to get maximum nutritional value from foods that would otherwise cause a reaction. Individuals who experience an allergic response to certain foods have reported improved or complete tolerance to those foods when they take MSM supplements. Healthy flexible colon tissues along with improved digestion, can also relieve constipation.

Diabetes

Sulfur is also a component of insulin, the hormone that regulates carbohydrate metabolism and insufficient sulfur may result in decreased insulin production. It is also possible that a lack of bio-available sulfur would make the cells so rigid and impermeable that they become unable to absorb sugar from the blood efficiently, leaving blood sugar levels elevated. Studies indicate that regular MSM supplements which cause the cell to become permeable, could help balance blood sugar and allow the overworked pancreas to return to normal.

Why Supplement?

Since sulfur is present in every cell of every living thing, it might seem that we would get plenty of this essential mineral from dietary sources and should not need supplements, but that may not be the case. Meat, poultry, fish, eggs and dairy products are the main sources of dietary sulfur, but we have been advised to restrict or remove many of those foods from our diets. Vegetarians, especially those who do not eat eggs, are at particular risk for sulfur deficiency. Plants cells contain sulfur but not in abundant quantities and much of the MSM present in unprocessed foods is lost in washing, cooking or steaming. And, of course, MSM levels decline noticeably with age - doesn't everything? So, the older you get, the more important it becomes to maintain adequate sulfur levels in the body.

Usage and Toxicity

Due to its positive effects, particularly in maintaining healthy cell formation, 2,000 to 6,000 mg. of supplemental MSM daily is recommended. Of course, the optimum daily dosage of MSM depends largely on body size, age and the nature and severity of any deficiency symptoms you may be experiencing. Since vitamin C provides a positive synergistic it should be taken along with MSM.

MSM ranks in the "extremely low" toxicity category with a toxicity profile similar to that of water. When oral supplements are taken, the body will distribute MSM where it is needed. After about 12

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hours, any excess amounts will be flushed out of the body. MSM, a member of the sulfur family, should never be confused with sulfa drugs to which some people are allergic.

References:

1. *Total Health*. 1998. "MSM". Feb/Mar, Vol., 20 No. 1. pp. 30-31.
2. Williams, S. 1997. *Nutrition & Diet Therapy* (8th ed.). Academic Press, N.Y., N.Y.
3. Thomas, C. 1993. *Taber's Cyclopedic Medical Dictionary*, (1 7th Ed.). F.A. Davis Company, Philadelphia, PA.
4. Mindell, Earl L., *The MSM Miracle - Enhance your health with organic sulfur*, Keats Good Health Guide, Keats Publishing, Inc., New Canaan, CT, 1997
5. Herschler, R. J., "Methylsulfonylmethane in Cosmetics", 1984, Cardinal Associates, Inc.
6. Whitaker, J., "Try MSM for Relief from Muscular Pain", *Health and Healing*, Oct. 1997
7. Kirschmann, J. D. and Dunne, L. J., *Nutrition Almanac*, Second Edition, McGraw-Hill, 1984
8. Balch, J. F. and Balch P.A., *Prescription for Nutritional Healing*, Avery Publishing, Garden City Park, NY, 1990

MSM: THE MULTI-PURPOSE COMPOUND

Source: Gary Prater, Life Extension Foundation, <http://www.lef.org/magazine/mag99/sep99-products.html>

MSM (methyl-sulfonyl-methane), also known as dimethyl sulfone, is a naturally occurring sulfur compound, found in human diets and those of virtually all other vertebrates. In its purified form, it is an odorless, slightly bitter tasting, water soluble, white, crystalline powder containing 34% elemental sulfur. Its chemical formula is $(CH_3)_2SO_2$.

Some atmospheric chemists have suggested that MSM and its related compounds, DMSO (dimethylsulfoxide), and DMS (dimethylsulfide) provide the source for 85% of sulfur compounds in all living organisms. These naturally occurring compounds begin in the ocean where phytoplankton convert inorganic sulfur present in the sea water to tertiary dimethyl sulfonium salts. These salts are later broken down, by enzymatic action, into the volatile compound called dimethylsulfide (DMS), which escapes the ocean as a gas, rises into the upper atmosphere to be oxidized there in the presence of ozone and ultraviolet light to its chemical cousins, DMSO and MSM. Unlike DMS, both DMSO and MSM are water soluble and are returned to the earth in rain. Plants rapidly absorb the two compounds, concentrating them up to a hundred-fold. Animals eat the plants and the distribution of these sulfur compounds is then complete. MSM has been found in the blood and adrenal glands of cows. Cows' milk contains between two and six parts per million MSM.

MSM occurs naturally in the human body as a result of the food we eat. It is a normal component of fresh fruits, vegetables, seafood and meat. It has also been found in tea, coffee and chocolate. It has been detected in normal human urine. The amount of MSM present in the circulatory system of an adult human male is about 0.2 parts per million. Normal adult humans excrete from four to eleven milligrams of MSM per day in their urine. In vertebrates, the concentration of MSM decreases with age. Some research suggests that there is a minimum concentration of MSM that must be maintained in the body to preserve normal function and structure.

Experiments using MSM that contains radiolabeled sulfur (^{35}S) have shown that after ingestion, MSM gives up its sulfur to the essential amino acids methionine, cysteine and other serum proteins, eventually finding its way into the collagen of skin, joints and blood vessels. It is also incorporated into the keratin of hair and nails.

MSM is rated as one of the least toxic substances in biology. It is so inert and nontoxic that aqueous solutions can even be used as a blood diluent. In mice, no clinical changes were observed at oral doses of 2000 mg per kilogram of body weight. The lethal dose (LD50) of MSM for mice is over 20 grams per kilogram of body weight. Hundreds of patients have been treated at the Oregon Health Sciences University with oral MSM at levels above two grams daily for many years without serious toxicity.

Scientists don't yet know all the functions of MSM in the human body, but at the Oregon Health Sciences University the following conditions have responded well to supplemental MSM:

- **Allergy Response to pollens and foods is sharply curtailed.** Medication may be reduced or eliminated.
- **Control of hyperacidity.** Patients who have used antacids and histamine-receptor antagonists to control hyperacidity can employ MSM with excellent results.
- **Relief from constipation.** Patients with chronic constipation have had prompt and continuing relief with a daily supplement of MSM.

Research done at Ohio State University College of Medicine showed that oral MSM can protect rats against the onset of breast cancer. Rats bred to be susceptible to breast cancer when given certain carcinogenic compounds were fed a diet containing added MSM for eight days. Following this period the rats were given 15 mg doses of 7,12-dimethylbenzanthracene by oral gastric intubation. The health of the rats was monitored for nearly one year and compared to a similar group of carcinogen-dosed rats that had not received the MSM diet. Although there was no statistical difference in the number of tumors developing in the two groups, the MSM diet rats developed their first tumors 100 days later than the non-MSM diet rats, and these tumors became cancerous about 130 days later than those in the control group.

The same researchers from the Ohio State University College of Medicine also studied the protection that dietary MSM provided rats injected with 1,2-dimethylhydrazine, a compound that induces colon cancer. One group of rats received MSM as a 1% solution in their drinking water during the experiment. The control group received only tap water. One week after the start of the dietary regimen, all rats were injected with the carcinogen. At two-month intervals the rats were examined under anesthesia for tumors. Rats without any appearance of tumors were returned to the experiment. Again, the number of bowel tumors occurring in the rats was statistically the same for treated and untreated rats over the entire nine-month experiment. However, the time of appearance of the first bowel tumors was considerably longer in the MSM treated rats. The conclusion of the researchers was that MSM significantly lengthens the time of tumor onset compared to controls and MSM should be further investigated as a preventive for colon cancer.

Researchers at Oregon Health Sciences University studied a strain of mice that were prone to spontaneous development of joint lesions similar to those in rheumatoid arthritis. **They found that animals fed a diet that included a 3% solution of MSM, in drinking water from the age of two months until the age of five months, suffered no degeneration of articular cartilage.** In the control group of mice receiving only tap water, 50% of the animals were found to have focal degeneration of articular cartilage.

Finally, recent human research at the UCLA School of Medicine found an 82% reduction in pain after six weeks of oral MSM use in a double blind study on degenerative arthritis. The study spanned four months and involved sixteen patients: ten patients on MSM and six on placebo. After only six weeks, those patients using the MSM experienced better than 80% control of their pain, while those on the placebo experienced on average an 18% improvement at six weeks.

References

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- Crown-Zellerbach Corp., Toxicity bulletin 1983.
Herschler, R. J., U.S. Patent No. 4,973,605, Nov. 27, 1990.
Istituto di Ricerche Biomediche, RBM EXP., No. 980174, Aug. 19, 1998.
Jacob, J.W. and Herschler, R., Ann. N.Y. Acad. Sci., Vol. 411, xiii, 1983.
Jacob, S.W., Oregon Health Sciences University, Portland, Oregon, personal communication.
Lawrence, R. M., U.C.L.A. School of Medicine, Methyl-Sulfonyl-Methane, A Preliminary Correspondence.
Lovelock, J.E. et al., Nature, Vol. 237, 452, 1972.
McCabe, D. et al., Arch. Surg., Vol. 121, 1455, 1986.
Morton, J. I. & Moore, R. D., Federation of American Societies for Experimental Biology, 69th Annual Meeting, April 21-26, 1985, 692, 1985.
O'Dwyer, P.J. et al., Cancer, Vol. 62, 944, 1988.
Richmond, V. L., J. Nutrition, Vol. 116, No. 6, June 1986.
Williams, K.I.H. et al., Arch. Biochem. Biophys., Vol. 113, 251, 1966.
Williams, K.I.H. et al., Proc. Exp. Biol. & Med., Vol. 122, 865, 1966.

MSM and DIABETES

Source: below

Source: *The MSM Miracle* by Earl L. Mindell, Ph.D. (42-43)

Diabetes is a condition brought on in part by poor metabolism resulting in excess blood sugar and insufficient production of insulin or cell resistance to insulin. As noted earlier, a deficiency in the sulfur-bearing B vitamin biotin can cause high blood sugar. This vitamin is a critical part of glucokinase, the enzyme involved in the utilization of the sugar glucose. Sulfur is also a component of insulin, the protein hormone secreted by the pancreas that is essential to carbohydrate metabolism. Lack of nutritional sulfur in the diet can result in low insulin production. Of special interest to diabetics is the fact that a diet containing plenty of organic sulfur might enhance the body's ability to produce insulin to the point at which injections of insulin can be reduced.

Experts theorize that with diabetes the cells in the body may have become rigid and impermeable. Consequently, when insulin carries the blood sugar to your cells, it can't be absorbed. The pancreas must then work harder and faster to compensate for the deficiency, but then becomes overworked and stops functioning properly. The blood sugar that is not being used saturates the bloodstream, creating a high level of blood sugar. Studies indicate that taking MSM regularly (I recommend a minimum of 2,000 mg per day) causes cells to become permeable and the pancreas to return to normal as blood sugar is absorbed through cell walls, balancing the sugar levels.

Source: *The Miracle of MSM* by Stanley Jacob, M.D.

MSM is helpful for diabetic neuropathy of the extremities and gastrointestinal tract.

MSM and THE EYES

Source: below

Source: *The MSM Miracle* by Earl L. Mindell, Ph.D. (44)

Think of your eyeball as a balloon full of water, but instead of being rubber, it is a protein membrane. Optical tissue normally allows fluids to flow through the membrane wall which acts like a filter, cleaning out harmful particles, keeping your eyes clear and your vision good as it allows

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nutrients to permeate. But should the membranes become tough like leather, the fluids are trapped and particles begin to accumulate. If this buildup continues, your vision will seem as if you're looking through frosted glass, a condition known as cataracts.

When eyedrops containing the proper amount of MSM are applied, the membrane becomes permeable, and this has reversed the problem. It is also important that the eye remain flexible so that the muscles can alter its contour and focus as needed. In the event that its membranes and muscles become rigid and tough, the eye will not be able to focus properly, resulting in blurred vision. The MSM in eyedrops soothes and softens the membranes, permitting fluids to pass through the optical tissues to stabilize the pressure, repair any damage, clear up red spots and bloodshot vessels, and remove floaters and other particles in the eye.

In one case, a 15 percent solution of MSM in isotonic saline was a soothing treatment for the eye following accidental injury due to particulate matter in the eye. In a test with an irritated eye of a rabbit, the eye cleared when treated every hour with a 10 percent aqueous solution of MSM. Be assured, the concentration in the MSM eye drops you get will be sufficient. Follow the instructions on the label.

As noted earlier, the B vitamins in general and the sulfur-related amino acids and compounds are vital to maintaining healthy eyes. Specifically, we've learned that glucosamine is the starting material for the eyes, that glutathione promotes good eye health and low levels accompany almost every type of eye disease [**DWR: Watermelon juice is very high in glutathione**]. We also know that people suffering from the eye disease retinitis pigmentosa show reduced levels of taurine within the eye.

MSM and STRESS

Source: *The MSM Miracle* by Earl L. Mindell, Ph.D. (43-44)

STRESS

While stress is often considered either a mental or psychological problem, it has very real physical effects. You've heard people attribute stress-related symptoms to "nerves," and there's no doubt stress usually affects parts of the body that are related to the nervous system particularly through the digestive organs. As we learned earlier, use of MSM can be beneficial in many digestive disorders.

I have a fish story to tell you. One stress study quoted in the literature for MSM involves 50 goldfish in a large aquarium. Half of them were removed and placed in a small aquarium (designated A) and the other 25 were placed in an identical aquarium (designated B). The fish in A were fed regular goldfish food and those in aquarium B received the same food treated with MSM. The fish in both aquariums were then stressed equally by manipulation of their confinement, movement, and temperature range. By day ten, 11 fish died in aquarium A but only one went belly-up in the MSM-treated tank.

Stress, both physical and psychological, is an unavoidable part of life. We've learned how MSM has proven to be useful in the treatment of a number of physiological problems, and now limited evidence suggests that low levels of MSM have been associated with adverse psychological stress as well. For now, we'll just have to wait for confirming evidence on this potentially exciting application. I recommend beginning your stress control program with 3,000 mg of MSM daily.

MSM and MENTAL HEALTH

Source: *below*

MENTAL NORMALCY

Source: *The MSM Miracle* by Earl L. Mindell, Ph.D. (45)

Mental normalcy in humans is demonstrated by alertness and an inner calmness that is not subject to sharp mood swings. What literature exists suggests that individuals on MSM generally report increased alertness, a plateau of mood changes, and very infrequent depression. A few subjects taking depression medication observed that MSM relieved their depression within hours rather than days, as had been their prior experience with the anti-depression medication. Students report that while on MSM their ability to concentrate is enhanced. The most useful application for MSM seen to date in the field of mental normalizing is as an aid to the terminally ill to relieve anxiety and depression. Try up to 9,000 mg per day to start then taper down to 3,000 mg.

ALZHEIMER'S TESTIMONIAL

Source: <http://www.bulkmsm.com/research/msm/msm6.htm#alzheimer>

My name is Mary and I live in Portland, Oregon. My husband is 72 years old and for the last 6 years I could not communicate with him. He would get lost going from room to room and would forget why he was going there. I cooked, washed, bathed and put him to bed every day for 6 years.

Then I heard about MSM, and how it could help. I gave him about 20 capsules of MSM every day for two weeks. I had him soak in a tub with warm water and 3/4 cup of *Clorox* for 20 minutes twice a week. It leached the aluminum out of his system. In two weeks, he was up working in the garden, communicating clearly and going shopping. My husband and I cannot thank MSM enough for getting him mind back in order.

We are now living again thanks to MSM - It really works!

Here's how it works:

The brain is made up of billions of nerve cells, intricately connected with each other like electrons in a electrical circuit. When you think - you send electrical impulses throughout your brain. Alzheimer's disease is a condition where the many of these cells are coated with aluminum, causing them to short circuit and sends brain impulses to the wrong synapse creating confusion.

MSM opens the membrane that contains the aluminum, and allows the unwanted deposits to be flushed into the blood stream. The hot bath with *Clorox* makes the body sweat and release the aluminum. Then the *Clorox* leeches it right off your body.

MSM and LUNG DYSFUNCTION

Source: *The MSM Miracle* by Earl L. Mindell, Ph.D.

LUNG DYSFUNCTION

In one study, seven subjects with respiratory deficiency were given MSM to take by mouth. Five had emphysema, and two had lung tumors plus fluid accumulation. Before and during the test period, at two-week intervals, the five subjects with emphysema were required to walk a measured distance compatible with their physical capabilities. **Within four weeks of beginning to take MSM, all emphysema sufferers had at least doubled their walking distance.** The two subjects with lung tumors were assessed by attending physicians and nurses and their family as being more alert and with a better attitude than before the test. The lung fluid had

disappeared during the first months of the test period. MSM could be introduced into the lungs and bronchial tree as a solution in aerosol form.

MSM and ORAL HYGIENE

Source: *below*

ORAL HYGIENE

The MSM Miracle by Earl L. Mindell, Ph.D.

Subjects who had not had professional dental cleaning for at least four to six months and who demonstrated minor yet discernible gum inflammation, probably due to plaque irritation, were given a commercial toothpaste or powder mixed 50/50 with MSM, which they used twice daily.

Following one week of use, the oral mucosa were free of signs of inflammation. In other tests, subjects with bad breath associated with smoking or food such as onion or garlic reduced or eliminated the bad breath by cleansing the teeth and mouth with a preparation containing MSM.

Begin with a dosage of up to 10,000 mg of MSM per day then, once results are observed, gradually reduce the dosage to 3,000 mg daily.

TOOTH SENSITIVITY

Source: *The Miracle of MSM by Dr. Stanley Jacob, M.D. (150)*

MSM can help dental patients with tooth sensitivity, according to Craig Zunka, D.D.S., a holistic dentist in Front Royal, Virginia.

"After you have worked on somebody's teeth, such as fillings or crowns, the teeth are sometimes sore and the nerves are hypersensitive. MSM reduces this soreness and calms the sensitivity," says Zunka.

"Apply the MSM directly to the gums. Open a capsule, pour the contents onto a small plate, and add a bit of water to make a paste. Rub the paste on your gums over the root of the sore tooth. Some of the MSM appears to be absorbed right into the tissue. The rest dissolves in the mouth."

Zunka says that more than fifty of his patients have used this simple method and reported less discomfort. He suggests applying the paste in this manner twice a day for a day or two after treatment.

In Spartanburg, South Carolina, John 1. Tate, D.D.S., recommends 3 grams of MSM daily to his patients to help with inflammation, recovery of teeth following dental work and reduction of tooth sensitivity.

"I find it very beneficial for patients who have had a lot of dental work and who in general have more tooth sensitivity," says Tate. "The MSM brings the inflammation rate under control in the dental pulp (nerve), which reduces pain and sensitivity. This also reduces the risk of future root canals, in my opinion."

TOOTH WHITENING

Source: *The Miracle of MSM by Dr. Stanley Jacob, M.D. (152)*

As we age, so do our teeth. In the process, they tend to become darker. Several patients have

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MSM and Its Many Uses, Information from The Miracle of MSM by Dr. Stanley Jacob

mentioned that brushing with MSM made their teeth whiter. Our curiosity was aroused and so we asked some patients to try it. The feedback has been positive.

Give yourself about two weeks to start seeing whiter teeth. First do your regular daily brushing. Rinse off the toothbrush. Then put some MSM crystals on the wet brush, enough to cover the top of the bristles. Before brushing, allow the crystals to soften further and dissolve on the brush inside your mouth. Then brush as normal. Do this once or twice a day.

MSM has started to appear as an ingredient in toothpaste.

MSM and INSECT BITES & SUNBURN

Source: *The MSM Miracle* by Earl L. Mindell, Ph.D.

INSECT BITES AND SUNBURN

MSM reacts with foreign protein, such as venom and toxins injected by insects, by locking them up, neutralizing the poisons, which can then be harmlessly eliminated. Subjects in a test who took MSM daily had much milder reactions to insect bites, with a significant reduction in post-bite irritation and itching. **MSM is also reported to take the itch out of poison ivy and poison oak.** Because MSM contributes significant permeability and pliability properties to all tissues, including the skin, it prevents blistering and promotes faster healing from sunburn or wind damage. People who took from 0.5 to 2 (500 to 2,000 mg) grams of MSM suffered only mildly after about four hours of exposure to summer sun and wind, while their companions who took no MSM were severely sun- and windburned. In cases involving the skin, lotions containing MSM would be the preferred form of application.

MSM and SNORING

Source: *The MSM Miracle* by Earl L. Mindell, Ph.D.

SNORING

While the snore wars are fought externally, snoring is really an internal problem generally caused by the narrowing of the nasopharyngeal airway such that turbulent airflow during relaxed breathing vibrates the soft parts of the oropharyngeal passage. That's when you kick someone or they kick you!

Experiments to determine the effectiveness of the instillation of MSM as a snoring reduction agent have been carried out with an initial sampling of fifteen individuals with a known history of snoring. In each case, the subjects were instructed to instill approximately .5 to 1.0 milliliters (8-16 drops) of the solution containing the MSM about ten minutes to one hour before going to sleep. The observation of the presence or absence of snoring was made by the subject's mate. The observing party was not told that the subject was employing intranasal MSM. **The subject's mates reported the lessening or absence of snoring in 80 percent of the cases.** Subsequent experiments using higher concentrations of MSM showed even more positive results.

If you or someone you know snores, try the recommended daily dosage of 3,000 mg per day to determine if MSM can help everybody get a good night's sleep.

MSM AND ALLERGIES

Source: ***The Miracle of MSM by Stanley Jacob, M.D., pp. 14-15***

Many people like Father Sam who take MSM to relieve pain often experience an additional, and unexpected, benefit: relief from allergic symptoms.

"Every year without fail, ever since I was a boy, I endured a perpetually runny nose and nonstop sneezing during pollen season," he says. "It used to be so bad that I had to have allergy shots. "

As an adult, he relied on Sinutab, an over-the-counter decongestant for sinus and allergy relief. "I would always be sure to take my Sinutab before Sunday masses," he says. "Sunday morning was of particular concern. I could deal with the allergies more easily during the week because there would be so few people coming to Mass. But on Sundays I have three Masses that are well attended. I didn't want to have a sneezing attack in the middle. *Just* in case of trouble I had two or three handkerchiefs stuffed in my pockets. The medication usually got me through, but now and then I had to pull out a handkerchief. Without the medication it would have been a disaster."

One evening in the late spring of 1998, Father Sam happened to be watching a television newscast and heard a reporter say the current allergy season was one of the worst in many years. As he heard the report he realized he hadn't been taking his allergy medication and hadn't experienced any symptoms.

"I had totally forgotten about how bad my allergies had been. It dawned on me that here I was in the middle of this bad pollen season not taking the medication and yet I wasn't having any problems," he says. "I was astonished."

Father Sam sailed through the 1998 allergy season on MSM only.

The parish priest's experience is not uncommon. People who take MSM consistently report relief from pain *and* allergies. A mechanic suffered from nose and throat symptoms as a result of pollen that rained down on him from the underside of cars as he worked beneath the vehicles. After taking MSM for a pain problem, he noticed that his pollen allergy had cleared.

MSM offers prompt and powerful relief of pollen allergies, commonly called hay fever—a major seasonal ordeal for some 35 million Americans. MSM may perhaps be as effective as any antihistamine on the market.

Two of the authors of this book (Jacob and Lawrence) have personally experienced the anti allergy benefits of MSM. Both have been plagued by pollen allergies and have taken many medications and natural remedies to counteract allergy symptoms. None has worked as well as MSM.

MSM is a surprising supplement. When you start taking it, you may notice a number of good things happening in your life in addition to pain and allergy relief: more energy; cosmetic benefits such as softer skin, thicker hair, stronger nails; decreased scar tissue; and relief of constipation.

MSM AND SCAR TISSUE

Source: *below*

Source: *The Miracle of MSM* by Stanley W. Jacob, M.D., pp. 23, 218-220

"It [MSM] alters the crosslinking process in collagen, **thus reducing scar tissue**. Crosslinking is the process in which new structural proteins are knitted to existing healthy tissue at the sites of surgical incisions or traumatic damage in the body." (23)

Scar Tissue (218-219)

Scar tissue formation is a normal aftermath of the body's response to injury. When you undergo an operation or sustain an injury, the natural intelligence of your body wants to reconnect or "knit" the damaged tissues, and scarring is the visible sign of the successful conclusion of this repair process. Unfortunately, the pieces don't usually heal up to their pre-damaged state.

If you are a runner, for instance, and undergo a knee operation, the scar tissue that forms never quite gives you the same knee you originally had. The knee may heal up 95 percent or more, but it's extremely rare that it returns to 100 percent. An operation is like an injury. You take a knife. You cut the skin. You cut the subcutaneous tissue. You bring about scar. We have never seen an incision heal without some scar.

If you were to line up a group of individuals with similar wounds who have undergone otherwise normal healing, you would see scarring but varying degrees of it. The reasons are not completely understood, but one appears to be due to a process in the collagen, the primary protein component in the healed wound, called "cross-linking." Abnormal increases in the crosslinking in collagen enlarge the bulk of a scar.

Scar tissue can cause residual stiffness and decreased range of motion. Frequently, pain develops at the site of a scar. This is due to small nerve fibers becoming "entrapped" and compressed in the scar tissue.

Over time, scar tissue diminishes. There tends to be a contraction as some normal adjacent tissue grows in. You will have a bigger scar two weeks after an abdominal operation than you will have six months later. But you won't ever be without a scar.

MSM and Scarring (219)

MSM normalizes the cross-linking process. This was determined years ago in laboratory experiments. The practical effect of this is that when MSM is taken orally as a supplement and/or used as a gel or lotion topically it helps lessen scar formation and reduces the potential for pain. **MSM does not eliminate scarring, but it helps, and even many years after the formation of a scar, it may alter scar tissue in a positive manner.**

When MSM is taken *before surgery*, scars tend to be smaller. It may work as well as any agent currently available to minimize post-surgical adhesions and scarring. In this respect, MSM acts like DMSO, which is used topically by many plastic surgeons before and after procedures to minimize the amount of scar tissue.

For best results, start taking MSM before surgery and continue afterward. Once the dressing comes off and the wound is closed, apply topical MSM to the affected site.

MSM's ability to reduce scars occurs both externally and internally. In the case of chronic pulmonary disorders such as emphysema, asthma, and bronchitis, this property helps make the breathing process easier. MSM may also lessen the prominence of stretch marks. **Start using it right after childbirth. The marks won't disappear, but you should start seeing a reduction within two months.**

MSM and Keloids (219-220)

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Keloids are thick, protruding scars resulting from excessive amounts of collagen in healing tissue. They occur after surgery, burn wounds, and frequently after ear piercing, and develop more frequently on the upper part of the body, particularly the ear lobes, the borders of the jaw, the shoulder, and the chest. Thicker scars are associated with some types of cosmetic surgery, notably ear pinbacks, breast reductions, and tummy tucks.

MSM gradually softens and reduces such heavy scar tissue and makes it less prominent. If you put MSM to use for this purpose, be patient. The reduction process can take months and even years, and will not completely remove the scar.

Burn Victim MSM Experience

One of the most dramatic MSM stories involves Bill Rich, 64, a Portland mechanic and businessman. In 1970, he was trapped in a burning van for twenty minutes following a highway collision and was severely burned over a large area of his body.

"The fire cooked me on the right side from my knee up to the armpit," Rich says.

Extensive skin grafting left his body covered with scar tissue and adhesions, severely inhibiting normal activity. Even minimum physical effort was enough to stop him in his tracks, crying in pain. He was unable to walk more than a block a day.

"I had a patchwork of keloid scars like welding slag from the burns and skin grafts," he says. "One-third of me was twisted purple tissue. Frankenstein was good-looking by comparison. I measured the total length of all my scars once and they were sixty-five feet."

For seventeen years, Rich was often kept awake at night by the pain. In 1987, a veterinarian suggested he try a nutritional supplement used for pain in horses and other animals. The supplement was MSM. After three days, Rich says, most of the pain related to his scar tissues and adhesions was gone. As a sergeant in the Oregon State Defense Force, he was soon able to march with his troops.

Rich later made a lotion from the MSM and applied it regularly over the areas of his body that had been burned. With time, the knots of purple scarring-years old-started to shrink and were replaced by healthy pink skin. Today, he says, virtually all the scarring is gone.

MSM LOTION

Source: below

MSM Lotion (off the web)

The best is about 3-4 tsp. into 4 oz. aloe vera. Takes a couple of hours to dissolve.

MSM Lotion Addition from *The Miracle of MSM* by Stanley Jacob, M.D. pp. 49

We recently heard an interesting comment from an Arizona man regarding topical MSM. He said he had been using a commercial MSM lotion for a stubborn facial skin condition but wasn't having significant results. **He decided to fortify the lotion with crystals from the MSM supplement he was taking.** He found that if he first ground the crystals into a fine powder in a coffee grinder that the powder dissolved more readily into the lotion. He said the additional MSM made an immediate difference and cleared up a chronic dry, flaky, red rash in the area of his nose and cheeks. His successful formula was one-third powder to two-thirds of the lotion.

MSM: CLINICAL RESEARCH

Source: below

Efficacy of methylsulfonylmethane (MSM) in osteoarthritis pain of the knee: a pilot clinical trial.

Osteoarthritis Cartilage. 2005 Nov 22; Kim LS, Axelrod LJ, Howard P, Buratovich N, Waters RF. Southwest College Research Institute, Southwest College of Naturopathic Medicine & Health Sciences, Tempe, AZ,

Methylsulfonylmethane (MSM) is a popular dietary supplement used as a single agent and in combination with other nutrients, and purported to be beneficial for arthritis. METHODS: A randomized, double-blind, placebo-controlled trial was conducted. Fifty men and women, 40-76 years of age with knee osteoarthritis pain were enrolled in an outpatient medical center. Intervention was MSM 3g or placebo twice a day for 12 weeks (6g/day total). Outcomes included the Western Ontario and McMaster University Osteoarthritis Index visual analogue scale (WOMAC), patient and physician global assessments (disease status, response to therapy), and SF-36 (overall health-related quality of life). RESULTS: Compared to placebo, MSM produced significant decreases in WOMAC pain and physical function impairment. No notable changes were found in WOMAC stiffness and aggregated total symptoms scores. MSM also produced improvement in performing activities of daily living when compared to placebo on the SF-36 evaluation. CONCLUSION: MSM (3g twice a day) improved symptoms of pain and physical function during the short intervention without major adverse events. The benefits and safety of MSM in managing osteoarthritis and long-term use cannot be confirmed from this pilot trial, but its potential clinical application is examined.

Sulfur-Based Supplement May Fight Arthritis

Methylsulfonylmethane, or MSM, has become a popular dietary supplement for arthritis pain relief, but few studies have been conducted involving actual human patients. Researchers from the Southwest College of Naturopathic Medicine in Tempe, Ariz., and the Arthritis Health Center in Scottsdale, Arizona, gave 3 grams of MSM twice a day to 25 knee arthritis sufferers in a randomized, double-blind trial. The study lasted 3 months. The age of the men and women ranged between 40 to 75 years. The patients taking MSM reported significant decreases in pain and improvements in their physical function, compared with a control group taking a placebo. However, no notable differences were found in stiffness or aggregated total symptoms.

My thoughts: 6 g of MSM daily is a very high dose, and I would suggest using a smaller amount since most people will probably take MSM longer than just 3 months. Also, if MSM is combined with other nutrients and herbs used for arthritis, the dosage would have to be further reduced.

Glucosamine and MSM work better together for arthritis

A new study, which was published in Clinical Drug Investigations, made big news in July 2004. The study found that the combination of glucosamine and methylsulfonylmethane -- better known as MSM -- is more effective against osteoarthritis than either nutrient alone. Although the individual nutrients did improve pain and swelling in patients' affected joints, the combined therapy was more effective than MSM or glucosamine alone in reducing these symptoms and improving the function of joints. In a clinical trial conducted at the Institute of Medical Sciences in Hyderabad, India, 118 patients with mild to moderate osteoarthritis were treated three times daily with either 500 milligrams of glucosamine, 500 milligrams of MSM, a combination of both, or an inactive placebo. After 12 weeks of treatment, the average pain score had fallen from 1.74 to 0.65 in the glucosamine-only group. In MSM-only participants, it fell from 1.53 to 0.74. However, in the combination group, it fell from 1.7 to 0.36. The researchers also found that the combination treatment had a faster effect on pain and inflammation compared to glucosamine alone. All of the treatments were well tolerated. "It can be concluded," the researchers say, "that the combination of MSM with glucosamine provides better and more rapid improvement in patients with osteoarthritis."

Aspirin and methylsulfonylmethane (MSM): a search for common mechanisms, with implications for cancer prevention.

Anticancer Res. 2003 Jan-Feb;23(1A):453-8.

Aspirin (acetylsalicylic acid), a prototypic nonsteroidal anti-inflammatory drug (NSAID), and MSM, a "nutritional supplement", are both used in the treatment of arthritis and described as cancer chemopreventive agents. Initial experimentation indicating that aspirin and MSM also induced the differentiation of murine erythroleukemia (MEL) cells led to a search for common mechanisms involving these two agents. Since the major mechanism of action attributed to aspirin is the inhibition of cyclooxygenase (COX), prostaglandin (PG) production was examined under differentiation-inducing conditions in MEL cells. RESULTS: Aspirin at low, nontoxic concentrations induced differentiation leading to terminal cell division. Aspirin had no effect on PGE2 production and minimal inhibitory effect on COX activity. Furthermore, salicylate, a major metabolite of aspirin and an ineffective COX inhibitor, induced differentiation at concentrations comparable to aspirin. Similar experiments with MSM indicated that MSM had no effect on PGE2 production or on COX activity under differentiation--inducing conditions and at concentrations reported in other studies. CONCLUSION: These experiments indicated that aspirin and MSM induced differentiation by a COX-independent mechanism(s) and suggested that a common mechanism for the chemopreventive action invoked by both agents might be the activation of gene functions leading to differentiation and thereby dismantling the cellular capacity for proliferation.

A multicentered, open-label trial on the safety and efficacy of methylsulfonylmethane (MSM) in the treatment of seasonal allergic rhinitis.

Barrager E, . GENESIS Center for Integrative Medicine, Graham, WA,
J Altern Complement Med. 2002 Apr;8(2):167-73.

Seasonal allergic rhinitis (SAR) affects more than 23 million Americans annually, and current epidemiologic studies indicate that its prevalence within the United States is increasing. Numerous clinical observations and case studies have led researchers to hypothesize that methylsulfonylmethane (MSM) may help ameliorate the symptoms associated with SAR. The primary goal of this study was to evaluate the efficacy of MSM in the reduction of SAR-associated symptoms. This study also examined possible adverse reactions associated with methylsulfonylmethane supplementation. Finally, this study attempted to elucidate the method of action by which MSM elicits its effect on allergy symptoms. DESIGN: Fifty-five (55) subjects were recruited for the study. All met the criteria for participation in the study. 50 subjects completed the study. Those subjects completing the study consumed 2,600 mg of MSM orally per day for 30 days. Clinical respiratory symptoms and energy levels were evaluated by a Seasonal Allergy Symptom Questionnaire (SASQ) at baseline and on days 7, 14, 21, and 30. Immune and inflammatory reactions were measured by plasma immunoglobulin E (IgE) and C-reactive protein at baseline and on day 30. An additional inflammatory biomarker, plasma histamine, was measured in a subset of subjects (n = 5). RESULTS: Day 7 upper and total respiratory symptoms were reduced significantly from baseline. Lower respiratory symptoms were significantly improved from baseline by week 3. All respiratory improvements were maintained through the 30-day visit. Energy levels increased significantly by day 14; this increase continued through day 30. No significant changes were observed in plasma IgE or histamine levels. The results of this study are promising. It would be worthwhile to conduct a larger, randomized, double-blind, placebo-controlled study to establish further if MSM would be a useful agent in the treatment of symptoms associated with SAR. CONCLUSION: The results of this study suggest that MSM supplementation of 2,600 mg/day for 30 days may be efficacious in the reduction of symptoms associated with SAR. Furthermore, few side effects are associated with the use of this compound. Recent acute and subacute chronic toxicologic data on the same source of MSM as used in this study, further validate the safety of this product.

Toxicity of methylsulfonylmethane (MSM) in rats.

Food Chem Toxicol. 2002 Oct;40(10):1459-62.

Methylsulfonylmethane (MSM) is a popular dietary supplement used in a variety of conditions

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including pain, inflammation, allergies, arthritis, parasitic infections and the maintenance of normal keratin levels in hair, skin and nails. Despite its popularity, there is little published toxicology data on MSM. The objective of this study was to evaluate the acute and subchronic toxicity of MSM in rats at a dose five to seven times the maximum recommended dose in humans. MSM administered in a single gavage dose of 2 g/kg resulted in no adverse events or mortality. MSM administered as a daily dose of 1.5 g/kg for 90 days by gavage resulted in no adverse events or mortality. Necropsy did not reveal any gross pathological lesions or changes in organ weights. Renal histology of treated animals was normal. It is concluded that MSM is well tolerated in rats at an acute dose of 2 g/kg and at a subacute chronic dose of 1.5 g/kg.

Methylsulfonylmethane observed by in vivo proton magnetic resonance spectroscopy in a 5-year-old child with developmental disorder: effects of dietary supplementation.

Cincinnati Children's Hospital Medical Center, 3333 Burnet Avenue, Cincinnati, OH
J Comput Assist Tomogr. 2002 Sep-Oct;26(5):818-20.

Proton magnetic resonance spectroscopy (MRS) revealed a distinct resonance at 3.15 ppm in the brain of a 5-year-old male diagnosed with autism. The resonance assignment is attributable to ingestion of methylsulfonylmethane (MSM) as a dietary supplement. Glucosamine with MSM is marketed as a source of dietary sulfur and treatment of joint pain. Recognition of this chemical on brain proton MRS as an exogenous compound is necessary to avoid confusion as a pathologic metabolite of pediatric metabolic disease.

Accumulation of methylsulfonylmethane in the human brain: identification by multinuclear magnetic resonance spectroscopy.

Lin A, Nguy CH, Shic F, Ross BD.

MR Spectroscopy Unit, Huntington Medical Research Institutes, Pasadena, CA
Toxicol Lett 2001 Sep 15;123(2-3):169-77.

Methylsulfonylmethane (MSM) is a widely available 'alternative' medicine. In vivo magnetic resonance spectroscopy (MRS) was used to detect and quantify MSM in the brains of four patients with memory loss and in three normal volunteers all of who had ingested MSM at the recommended doses of 1-3 g daily. MSM was detected in all subjects at concentrations of 0.42-3.40 mmole/kg brain and was equally distributed between gray and white matter. No adverse clinical or neurochemical effects were observed. Appearance of MSM in significant concentrations in the human brain indicates ready transfer across the intact blood-brain barrier.