

SULFUR IN HUMAN NUTRITION - Part 1

by Lady Carla Davis, MPH

Specializing in Nutrition

Until recently, the vital element of **Sulfur/Sulphur** has been significantly neglected by most health gurus, researchers, and media publications. Was this deliberate?

Sulfur/sulphur, is a nonmetallic, multivalent chemical element. It's atomic number is 16 and it is represented by the symbol **S**. It is bright yellow in color. On Earth, sulphur usually occurs as sulfide and sulfate minerals.



Sulfur is an essential element for all organisms and has a wide variety of functions. In plants, it is our primary source of the essential amino acid *methionine*.

A deficiency of sulphur in both plants and humans affects their growth, development, disease resistance, and performance. It also has a great impact on the nutritional quality of crops and a person's health.

Sulfur is the sixth most abundant macro-mineral in breast milk and the third most abundant mineral based on percentage of total body weight of an adult (after calcium and phosphorus respectively). Yet, it is often referred to as a trace element.

Because sulfur plays an essential role as a key component of elastin and collagen, which maintains the skin's elasticity and youthful appearance, it is often referred to as the '**beauty element**.' Sulfur is also one of the building block of *keratin*, which is a structural constituent of hair and nails.

Sulfur helps to support the formation of healthy connective tissues, overall joint health, mobility, and a normal range of motion. Sulfur also helps to reduce oxidative damage in support of a healthy immune system. In fact, compounds containing sulfur are found in all body cells, and thus, are indispensable for life.

ORGANIC SULFUR:

- Is part of the chemical structure of the amino acids such as *methionine*, *cystine*, *taurine*, and compounds such as *glutathione*
- Is essential in enzymes, hormones, nerve tissue, and red blood cells
- Is needed for the synthesis of collagen
- Forms *sulfate compounds* with *sodium*, *potassium*, *magnesium*, and *selenium*
- Enables the transport of oxygen across cell membranes
- Decreases the pressure inside the cell
- Removes fluids and toxins

- Eliminates toxic metals
- Disinfects the blood
- Regenerates, repairs, and rebuilds all the cells in the body
- Helps battle cancer
- Helps the body to resist bacteria
- Protects the protoplasm of cells
- Stimulates bile secretion
- Protects against the harmful effects of radiation, toxic chemicals, and pollution

In metabolic reactions, sulfur compounds serve as both fuels and respiratory (oxygen-replacing) materials for simple organisms.

Sulfur is an important part of many enzymes and in antioxidant molecules like glutathione and thioredoxin. It is also present in B vitamins biotin and thiamine, which is the Greek word for sulfur.

Sulfur bonds are responsible for the strength and shape of proteins that help determine their biological activity. They are crucial in human biology.

The sulfur containing amino acids (SSAs) are *methionine*, *cysteine*, *cystine*, *homocysteine*, *homocystine*, and *taurine*. They are more abundant in animal proteins than in legumes, which can be why there is often a deficiency among vegetarians and vegans. Organic sulfur, as SAA, can be used to increase synthesis of *glutathione (GSH)*, *taurine*, *S-adenosylmethionine (SAME)*, and *N-acetylcysteine (NAC)*.

MSM (Methylsulfonylmethane) is a volatile component in the sulfur cycle and another source of sulfur found in a diet. SAAs are the primary source of this vital element in the diet. Organic MSM (Methylsulfonylmethane) supplement without any fillers is also a rich source of sulfur. MSM may be effective for the treatment of allergies, pain, athletic injuries, and bladder disorders. It also thickens and strengthens thinning hair. Because it is very bitter, it is best taken in capsule form.

The therapeutic effects of *MSM* and *DMSO*, and *glucosamine sulfate* are explained by an increase in serum sulfate.

METHIONINE & SULFUR COMPOUNDS

Primary sulfur-containing compounds in humans are *methionine*, *cystine*, *homocysteine*, *cystathione*, *S-adenosylmethionine (SAME)*, *taurine*, *α -keto- γ -CH*, *thiobutyrate*, *methanethiol*, *thiamin*, *biotin*, *alpha-lipoic acid (ALA)*, *coenzyme A*, *glutathione (GSH)*, *chondroitin sulfate*, *glucosamine sulfate*, *fibrinogen*, *heparin*, *metallothionein*, and *inorganic sulfate*. Except for thiamine and biotin, all these sulfur compounds are synthesized from the sulfur containing amino acid *methionine*.

Methionine is one of the main sources of sulfur in the body. It is necessary for the synthesis of proteins as an important methyl donor. It helps prevent fatty liver disease and eventual cirrhosis through its ability to *transmethylate* to form *choline*. *Methionine* can help lower

acetaldehyde levels, which are toxic, after ingestion of alcohol. According to Stephen Parcell, ND, *Alternative Medicine Review*, *Thorne Research*, reports indicate methionine's effectiveness in the treatment of Parkinson's disease and acute pancreatitis.

Sulfur compounds such as SAME, *dimethylsulfoxide* (DMSO), *taurine*, *glucosamine*, or *chondroitin sulfate*, and *reduced glutathione* may have clinical applications in the treatment of conditions such as depression, fibromyalgia, arthritis, interstitial cystitis, athletic injuries, congestive heart failure, diabetes, cancer, and AIDS.

A Japanese study (<https://www.ncbi.nlm.nih.gov/pubmed/21116101>) showed that DMSO (sulfur) protected from radiation damage at all cellular levels in the whole body. DMSO provides significant relief from pain with sore muscles, tendons, and ligaments. It is often used on race horses for good reason.

Sulfur is also required for the proper structure and biological activity of enzymes. Without sufficient sulfur, enzymes can not function properly. According to Dr. Edward Howell, author of *Enzyme Nutrition*, enzymes promote longevity.

GLUTATHIONE, SELENIUM & OTHER ANTIOXIDANTS

Glutathione, where sulfur and selenium connect, is the most important antioxidant in the body that protects from cancer-causing and cell damaging substances in our environment. In fact, the immune system can not function properly without it and other antioxidants such as vitamins C, E, and carotenoids (natural vitamin A) and vitamin D from sunshine. Vitamin D [reduces the risk of dying](#) from a viral infection. Researchers from Winthrop University Hospital in Mineola, New York found that giving supplements of vitamin D to a group of volunteers **reduced episodes of infection with colds and flu by 70% over three years.** <https://drsircus.com/flu/vitamin-d-and-the-flu/>

GARLIC, ONIONS, & ALLIUM VEGETABLES

Numerous studies in China and the *European Prospective Investigation into Cancer and Nutrition* (EPIC) <https://www.ncbi.nlm.nih.gov/pubmed/12639222> concluded that higher a intake of various sulfur rich foods (e.g. garlic, onions, scallions/green/spring onions, leaks, chives, and *allium* vegetables such as broccolini), was associated with reduced risk of many types of cancer (e.g. stomach, esophagus, colon, pancreatic, breast, prostate). The higher (10 g per day) the amount of these sulfur rich foods, the lower the risk of cancer, by as much as 50-54%. Perhaps, sulfur is main factor that makes the Mediterranean diet healthier and the Japanese live longer.

Garlic contains both *sulfur* and *selenium*, which are crucial for *glutathione* (GSH) enzyme production. This sulfur enzyme helps keep cells normal and resistant to oxyradical mutations. In addition, *selenium*, in a compound with *sulfur* (*S-methylcystine*), provides strong protection from cellular mutation and the delaying of malignancy after exposure to a carcinogen. Garlic is Nature's natural antibiotic without the side effects.

MERCURY (Hg)

Mercury is the most potent enzyme inhibitor and toxic non-radioactive element that has a great attraction to *sulphydryl* groups also known as *thiols*. When Hg binds to the *sulphydryl* (SH) groups it inactivates the sulfur. (This also applies to lead, uranium, fluoride, and

glyphosate/RoundUp). In turn, this blocks the *transsulfuration* pathways and enzyme functions, which then produce *sulfur metabolites* with **high toxicity** that are difficult for the body to handle.

According to Russian Prof. I.M. Trachtenberg: *“Thiol poisons, especially mercury and its compounds, reacting with sulfhydryls (SH) or thiols groups of proteins, lead to the lowered activity of various enzymes containing sulfhydryl groups. This produces a series of disruptions in the functional activity of many organs and tissues of the organism.”*

Most people don't realize that we are all inhaling mercury on a daily basis from various industries such as coal burning power plants, mining, municipal incinerators, crematoriums, the military industrial complex and war machine. Then, there are the big chemical companies and massive factory farms, and investment funds. In addition to this contamination many people are exposed to leaking mercury from dental amalgams and the mercury and aluminum adjuncts from vaccines.

SULFUR BINDING PROCESS & INSULIN

If the geometry of insulin has been damaged by mercury, the message that insulin has arrived to provide glucose to the cell is not received. Toxic metals such as mercury, aluminum, lead, uranium; pesticides and herbicides such as glyphosate/RoundUp; neurotoxins and endocrine disruptors such fluoride and many plastics damage the sulfur binding process.

No other element has more of an ability to combine with other elements than sulfur. It is present in all proteins. Some of the other important biochemical containing compounds of the body are insulin, glutathione, prolactin, growth hormone, and vasopressin. Except for gold and platinum all metals combine with sulfur to form inorganic sulfides. Sulfur is crucial for detoxification, but when interfered with, it can not do its job properly.

In *New Paradigms in Diabetic Care* E-Book, Dr. Mark Sircus, Ac, OMD, DM (P)
<https://drsircus.com/shop/ebooks/new-paradigms-in-diabetic-care-e-book/>

explains that insulin's three sulfur-containing cross-linkages and the insulin receptor that has a *tyrosine-kinase-containing sulfur* bond. When toxic metals or chemicals assault and attached to any of these bonds, they interfere with the normal biological functions of the insulin molecules. If sulfur bondings are weakened by these toxic invaders the ability to facilitate the detoxification of toxic metals, effectively enable the transport of oxygen across the cell membrane; foster healthy cell regeneration; or act as the key agent in the effective utilization of amino acids. Methionine, cystine, cysteine, or taurine can not effectively function with out organic sulfur.

MAGNESIUM & SULFUR

[Dr. Raul Vergini](#) from Italy says, “Magnesium chloride has **a unique healing power on acute viral** and bacterial diseases. It cured polio and diphtheria and that was the main subject of my magnesium book. A few grams of magnesium chloride every few hours will clear nearly most acute illnesses, which can be beaten in a few hours. **I have seen a lot of flu cases healed in 24-48 hours with 3 grams of magnesium chloride taken every 6-8 hours.**” The second edition of Dr. Vergini's *Transdermal Magnesium Therapy* is available in hardcopy from Amazon.com.

While there are numerous transdermal Mg products out there, *Elektra* is a pioneer in this area. Plus, I believe they provide the finest, most effective, purest transdermal Mg products (oil, cream, lotion, & flakes):

<http://mastersofhealthmag.com/index.php/elektramagnesium/> (Elektra Mg info)

<https://www.amazon.com/elektramagnesium> (MOH Elektra shop)

In Australia go to: <https://www.elektramagnesium.com.au/>

Recommended sulfur products:

At Last Naturals MSM soap with aloe vera, camomile and calendula extracts, vitamins A,C, E, and essential oils.

At Last Naturals MSM cream moisturizer with vitamins, essential oil and herbal extracts. (NO BPA, animal testing, or animal by-products)

At Last Naturals: www.AtLastNaturals.com

Dr. Best MSM with OptiMSM 1,000 mg capsules or other reputable, non-GMO brands

DMSO Roll-On with Aloe Vera, by DMSO Inc. 1 800 367-6935

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Be sure to read **Sulfur In Human Nutrition - Part 2** in next month's issue of Masters of Health Magazine

SULFUR IN HUMAN NUTRITION - Part 2

by Lady Carla Davis, MPH

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The chemistry of sulfur (S) in soil is as complex as it is in the human body. In fact, as with humans, S is essential for many plant functions such as being:

- A structural component of protein and peptides (90% of the S absorbed)
- Active in the conversion of inorganic N into protein
- A catalyst in chlorophyll production
- A structural component of various enzymes
- A structural component of the compounds that give the characteristic odors and flavors to mustard, onion, and garlic

Plus, in legumes, S promotes nodule formation and is essential for the synthesis of oils, especially in oil crops.

In most humid tropical soils, S is predominantly supplied from the degradation of organic material. However, while most of the S in soils is found soil in organic matter, it is unavailable to plants in this form. According to Mr. Guy Sela, CEO of SMART Fertilizer Management software and an international expert in plant nutrition and irrigation, <https://www.smart-fertilizer.com/articles/sulfur/>: In order to become available to plants, the S must first be released from the organic matter and go through a mineralization process,

which is the result of microbial activity. During this process S is then converted to the sulfate form (SO₄-2), which is readily available to plants. (This is similar to the function of the microbiome in the human gut). In addition, the process is affected by the C/S (carbon/sulfur) ratio, temperature, and moisture.

The maintenance of high organic matter content in the soil increases the availability of S to the roots and decrease the rate of nutrient leaching.

LOW SULFUR SOILS

The lower the organic matter content of the soil, the more likely S deficiency is to occur.

<https://www.agry.purdue.edu/ext/corn/news/timeless/sulfurdeficiency.pdf>

Displacement and depletion of S can be caused by, high rainfall, high levels of phosphorus application, burning of crops, or fallow residues.

If S deficiency is misdiagnosed as a N (nitrogen) deficiency, the application of N fertilizer will make the S deficiency worse.

Pollution, Al from chemtrails, toxic metals, mining, GMOs, and use of pesticide, herbicides such as glyphosate, and agriculture chemicals, in soils everywhere are contributing to a deficiency of sulfate S and elemental S.

Low S soils are found throughout the Western United States, especially in the Pacific NW, and now in the Great lakes region. Modern farming methods producing higher crop yields, in the past 15 years have worsened this S deficiency significantly. In other words, more S is being removed from high crop yields than is being deposited.

Symptoms of S deficiency show up as light green to yellowish color in the leaves. Also, deficient plants are small, and their growth is retarded. (Same as in humans).

Plus, the more acidic the soil, the more S uptake is reduced.

https://www.spectrumanalytic.com/support/library/ff/S_Basics.htm

This in turn, means our plant sources of S are deficient. When humans and animals consume plants or grains that are deficient in S, they too will be deficient in S.

Chemicals such as glyphosate/RoundUp and fluoride interfere with the function of S and thus play havoc with our health in numerous ways.

GOOD NUTRITION BEGINS IN THE SOIL

The value of this vital element has recently been given more attention by the brilliant work of MIT senior research scientist, Dr. Stephanie Seneff. The link below provides a transcript of one of her many interviews. It reveals details of why sulfur is so vital for every body function and the elimination of the many toxic chemicals we are all being exposed to on a daily basis. <https://blog.daveasprey.com/transcript-dr-stephanie-seneff-glyphosate-toxicity-lower-cholesterol-naturally-get-off-statins-238-3/>

Dr. Seneff says, “The beneficial actions of *ogano sulfur compounds* (*isothiocyantes*, *diallyl sulfide*, *allicin*) found in garlic, onions, scallions, leaks, broccoli, and other sulfur vegetables are well known.”

When it comes to producing a healthy, sustainable food supply and maintaining soil health, organic, permaculture, and biodynamic agriculture are the most sustainable ways to farm. There are numerous organizations and individuals that are passionate about healthy food and soil. Below is a list of a few of them. Others can be found in every issue of Masters of Health Magazine. <http://MastersOfHealthMag.com>

Ronnie Cummins is Founder and Director of the Organic Consumers Association (OCA), a non-profit, US-based network of more than two million consumers dedicated to safeguarding organic standards and promoting a healthy, just, and regenerative system of food, farming, and commerce. Cummins also serves on the steering committee of Regeneration International and OCA's Mexican affiliate, Vía Orgánica. To learn more about the wonderful work Ronnie and OCA are doing go to:
<https://www.organicconsumers.org/>

Another champion for seed, soil, and food health is **Dr. Vandana Shiva, PhD**, Indian Physicist, Scientist, Warrior, Mother, Food Sovereignty Advocate, Environmentalist, Social Activist and recipient of the 1993 Right to Livelihood Award (Alternative Nobel Peace Prize); Author of *Who Feeds the World*, *Earth Democracy*, *Soil Not Oil*, *Water Wars*, *Stolen Harvest*, and numerous other books.

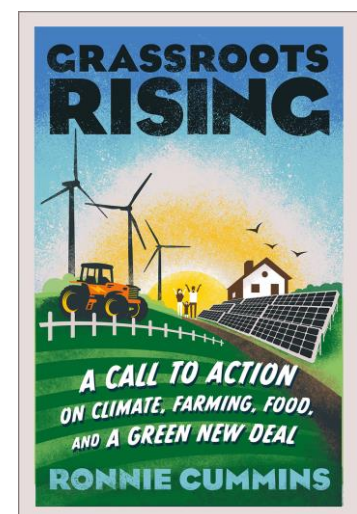
I highly recommend reading all of her books.
<http://www.vandanashiva.com/>

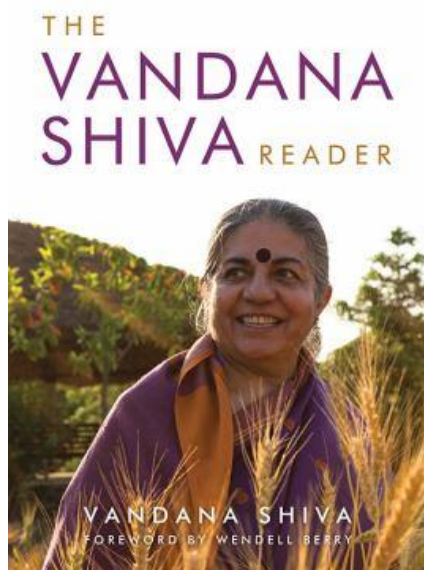
Join the Network for **Poison-free Food & Farming**: Creating Poison-free Food and Farming – Rejuvenating Biodiversity, Growing Organic – [Sign the Pledge](https://navdanyainternational.org/publications/pledge-for-poison-free-food-and-farming/)
<https://navdanyainternational.org/publications/pledge-for-poison-free-food-and-farming/>
or:
<https://seedfreedom.info/campaign/call-to-action-for-poison-free-food-farming/>

More about the wonderful work Dr. Shiva is doing can be found at the links below:
[Navdanya International@NavdanyaInt](mailto:Navdanya_International@NavdanyaInt)
<https://twitter.com/NavdanyaInt/status/1197849922437025794>
· Nov 22, 2019

Free download of the new report "The [#FutureOfFood](#), [#FarmingWithNature](#), [#CultivatingTheFuture](#)" @ <http://bit.ly/FutureOfFood2019>
[@drvandanashiva](#)

[The Future of Food – Farming with Nature, Cultivating the Future](#)
[The report brings together international experts and gathers evidence of global resistance against the industrial agrifood system, as well as examples of good ecological practices among farmers, lo...](#)
navdanyainternational.org





Neal Kinsey, owner of Kinsey Agriculture Services, Inc. that specializes in soil fertility management, teaches farmers how to make the transition from chemical to organic farming. Neal was trained and certificated as an agronomist by Dr. William A. Albrecht, Prof. Emeritus of Soils, University of Missouri/Columbia. Neal was also the recipient of the 2003 ACRES USA Eco-Agriculture Achievement Award. Plus, he was featured in the September 2017 Issue of Masters of Health magazine: <https://view.joomag.com/masters-of-health-magazine-september-2017/0397670001502897207?short>

Rebuilding Soil Fertility, by Neal Kinsey:
<http://www.kinseyag.com/rebuildsoilfert.html>
 Neal Kinsey's *Hands on Agronomy*
<http://www.kinseyag.com/handsonagronomy.html>

Marjory Wildcraft, Founder of the Grow Network, and *Grow Your own Groceries* DVD series,

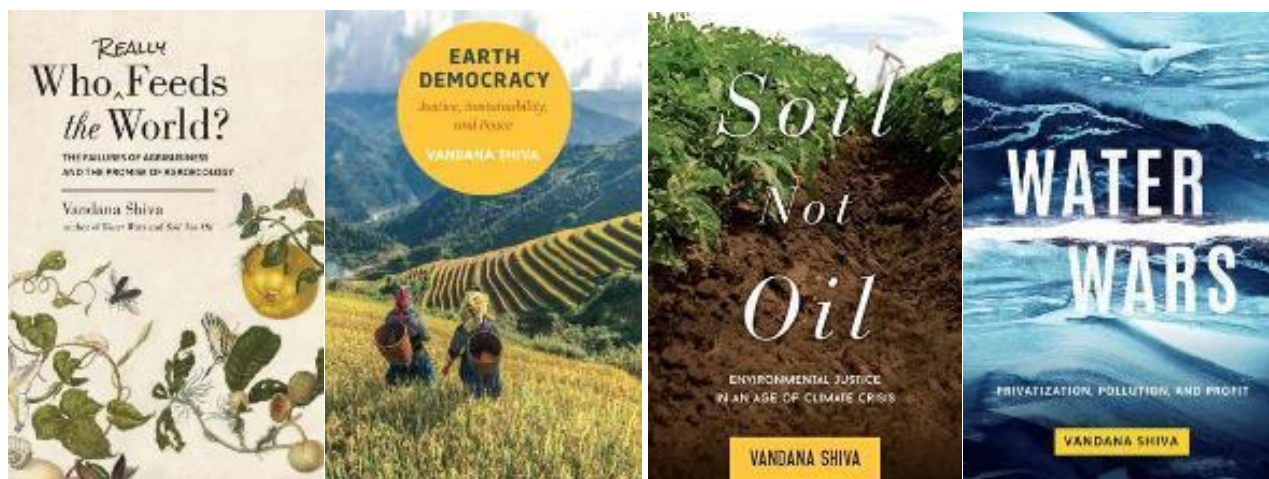
has regular section in each issue of *Masters of Health Magazine*.

She is passionate about building deep community resilience, restoring heirloom genetics in gardens and livestock and the return to natural medicine across the United States.

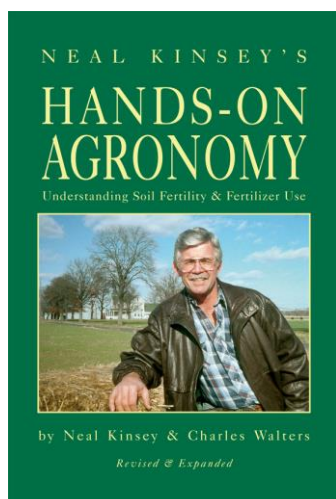
<https://thegrownetwork.com/>

POLLUTANTS & TOXIC CHEMICALS

When industries or farmers do not operate or farm in harmony with Nature and pollute our environment, soil, and food supply with toxic chemicals; and when scientists try to control



Nature with GMOs, a series of genetic defects occur. Sometimes they don't show up until the next generation or later. But, show up they do; and they are devastating. When will they learn from the horrific effects of paraquat/agent orange; DDT, glyphosate, and other pesticides; asbestos; DES; thalidomide; mercury; amalgam; neurotoxins; endocrine disruptors; x-rays and other forms of radiation; EMFs? The list is endless!



Toxic metals, industry pollutants, fluoridation, pharmaceuticals and other drugs, agriculture chemicals, pesticides, herbicides, plastics, EMFs, radiation, energy production, mining, and CSG all play havoc with the biological functions of agriculture, our environment, human biology, reproduction, genetics, children's health, our lives, economies, and the natural world. Surely, government leaders and regulators can connect the dots. Perhaps, they choose not to because of conflicts of interest (PAC money from industries) and greed. All the more reason to get industry money out of politics.



The people behind these corporations and industries that are depleting and disrupting soil nutrients, polluting our environment, and making us, our children, and future generations sick are the same people profiting from a system of sickness-care instead of real health-care. And, why such silence from the media? Because they are all profiting from this corrupt, unsustainable racket of sickness care. The time for them to be held accountable is long overdue!

THOSE RESPONSIBLE

Governments, medical boards, health agencies, regulators, and the dental bureaucrats have a lot to answer for. A good start would be to prosecute those responsible for all the harm they have knowingly caused and continue to cause because of greed and conflicts of interest. The current law suits against Monsanto/Bayer are an indication of the changes taking place. If elected/selected government decision makers pass laws and mandates that impact our health, our children, and future generations, they need to take courses in human biology and biochemistry and be held accountable.

SYMPTOMS of SULFUR DEFICIENCY: (Dr. Mark Sircus Newsletter, June 2012)

- Allergies
- Blood Sugar problems
- Brittle nails and hair
- Dermatitis and eczema
- Fatigue and sluggishness
- Hair loss and slow hair growth
- Inability to digest food
- Joint Problems like arthritis
- Parasitical infestations
- Poor growth of fingernails
- Premature aging of skin (Note: fluoride destroys
- Collagen and interferes with sulfur processes)
- Skin problems and rashes
- Skeletal and growth problems
- Varicose veins and poor circulation
- Various types of cancer

S is often deficient in vegan athletes, children, and patients with HIV.

CHAMPION ORGANIZATIONS:

Learn from and support these wonderful organizations working tirelessly on our behalf.

<https://www.organicconsumers.org/>

<https://www.momsacrossamerica.com/>
<https://childrenshealthdefense.org/>
<http://fluoridealert.org/>
<https://fluoridefreeaustralia.org/>
<https://www.global-energy-parliament.net/>
<http://www.navdanya.org/site/>
<https://navdanyainternational.org/>
<https://seedfreedom.info/>
<https://thegrownetwork.com/>
<http://anh-usa.org/>
<https://growfoodfilm.com/blog/>

RECOMMENDED SULFUR PRODUCTS

At Last Naturals MSM soap with aloe vera, camomile and calendula extracts, vitamins A,C, E, and essential oils.

At Last Naturals MSM cream moisturizer with vitamins, essential oil and herbal extracts. (NO BPA, animal testing, or animal by-products)

At Last Naturals: www.AtLastNaturals.com

Dr. Best MSM with OptiMSM 1,000 mg capsules or other reputable, non-GMO brands

DMSO Roll-On with Aloe Vera, by DMSO Inc. 1 800 367-6935

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