



Strengthen Skin Within

Clinically proven bio-available
dietary source of sulfur.

With aging, poor diet/lifestyle and environmental insults (such as UV rays), the skin is placed under incredible stress that may offset its natural homeostasis and accelerate its aging process.

Being the barrier from our external environment it is also a direct reflection of the lifestyle we lead.

The most visible effect of skin aging occurs when there is a weakening of the extracellular matrix within the dermis (a breakdown of collagen rich connective tissue).

Visibly, the skin becomes thinner and more fragile losing its strength and resilience.

About MSM

Methylsulfonylmethane (MSM), also known as dimethyl sulfone (DMSO₂) and methyl sulfone, is an organic sulfur-containing compound that occurs naturally in a variety of fruits, vegetables, grains, and animals including humans. However, processing, heating, storage, and preparation of foods removes essential MSM sulfur.

MSM is 34% sulfur by weight, and sulfur has long been a valued ingredient in dermatology. Sulfur may contribute to the cross linking of proteoglycans/collagen (the structural framework in skin tissue) and is a building block of keratin, the chief structural constituent of hair and nails. OptiMSM[®] is featured in many major dietary supplements brands' hair, skin and nail formulas.

GRAS designated by FDA

Supports structural integrity of skin

Component of collagen & keratin
for healthy skin, hair and nails

Supports glutathione production,
primary antioxidant enzyme that
neutralizes damaging free radicals

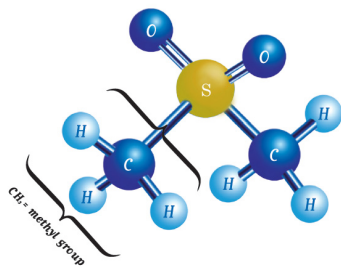
May inhibit pro-inflammatory
mediators that weaken skin structure
and resistance

Oral supplement and topical use



Chemical Formula & Characteristics

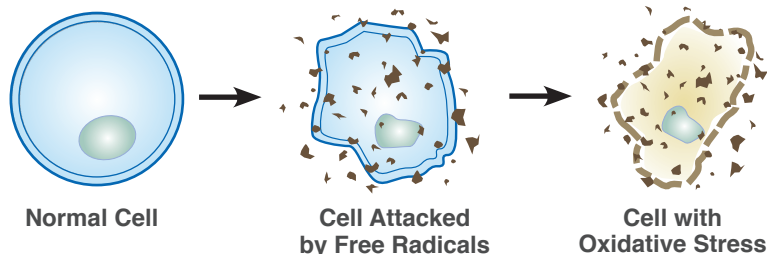
(CH₃)₂SO₂. Odorless, water-soluble, white crystalline material



Use: Oral and Topical
Suggested Dose:

Oral: 2-6 g powder

Topical: see cosmetic sheet



MECHANISM OF ACTION

As a source of bio-available sulfur¹, MSM maintains disulfide bonds that hold collagen strands in strong form and preserve the pliancy of connective tissue. By maintaining healthy collagen, cross-linking or “hardening” of the tissue is inhibited allowing for healthy dermal functioning.

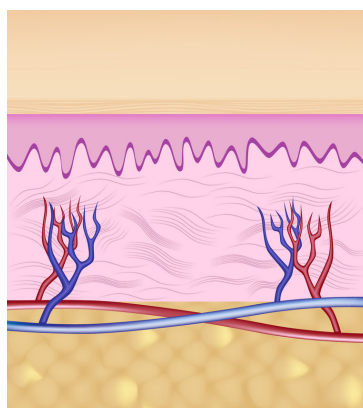
Glutathione is important to maintain a healthy skin defense against oxidative stress induced by UVR^{2,3,4}. Similar to intense exercise that creates oxidative stress and reduces glutathione levels. The skin (when exposed to UVR) also experiences an influx of oxidative stress. Although not a direct antioxidant, MSM has been shown in humans to significantly increase plasma glutathione levels⁵.

Collagen is the most plentiful protein in the body; it makes up 70% of the dry weight of human skin and is a highly flexible structure. Vitamin C is essential for the formation of collagen and sulfur active bonds (disulfide bonds) that hold collagen fibers together⁶.

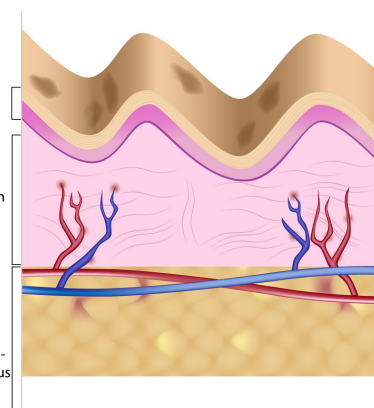
Structural deterioration that occurs within skin's connective tissue is due to progressive cross-linking of protein within collagen fibers.

Known as the “cross linking theory” the increased cross-linking defragments its natural chemical structure and causes “stiffening” or “folding” within the tissue (wrinkles).

Younger Skin



Older Skin



References

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- 2) Steenvoorden DP., et al., “The use of endogenous antioxidants to improve photoprotection.” *J Photochem Photobiol B.* (1997) Nov;41(1-2):1-10.
- 3) Beani, JC. Enhancement of endogenous antioxidant defenses: a promising strategy for prevention of skin cancers.” *Bull Acad Natl Med.* (2001);185(8):1507-25.
- 4) Verschooten L., et al., “New strategies of photoprotection.” *Photochem Photobiol.* (2006): Jul-Aug;82(4):1016-23.
- 5) Babak Nakhostin-Rooh., et al. “Effect of chronic supplementation with methylsulfonylmethane on oxidative stress following acute exercise in untrained healthy men.” *J of Pharmacy and Pharmacology* (2011): 63: 1290-1294.
- 6) Pulgilese, P. “Vitamin C in Skin Care.” *Skin Inc.* 2009. <http://www.skininc.com/skinscience/physiology/46738787.html> accessed March 25th 2012

OptiMSM® is manufactured in Bergstrom Nutrition's dedicated U.S. GMP-compliant, ISO 9001:2008 registered, FSSC22000:2010 certified facility and is GRAS-designated.

These products are not intended to diagnose, treat, cure, or prevent any disease. These statements have not been evaluated by the food and drug administration.

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