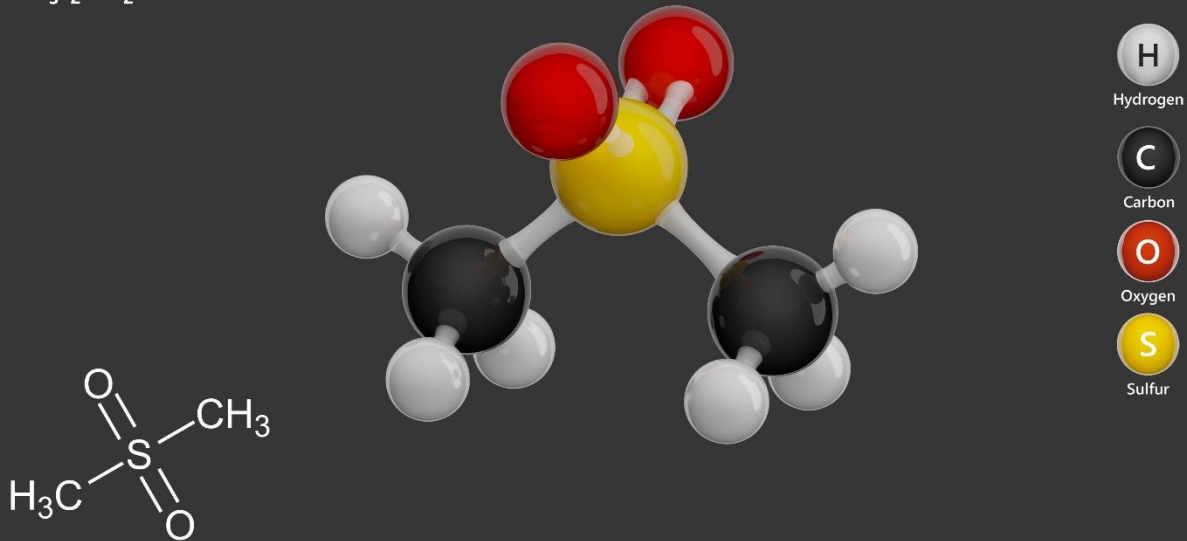


Methylsulfonylmethane
Dimethyl sulfone (DMSO₂)
 $(\text{CH}_3)_2\text{SO}_2$



MSM (Methylsulfonylmethane): Scientific Perspectives on Joint Health, Skin Wellness, and Everyday Vitality

Introduction

Methylsulfonylmethane (MSM) is a naturally occurring sulfur-containing compound found in small amounts in plants, animals, and certain foods. Sulfur is an important component of many biological structures, including connective tissue proteins and other compounds involved in normal physiological function.

Over the past several decades, MSM has been investigated for its potential role in supporting joint comfort, mobility, skin appearance, exercise recovery, and overall wellness. As a result, MSM has become a commonly used ingredient in nutritional formulations intended to support active lifestyles in both humans and companion animals.

MSM is included as an ingredient in **IRx-ZEUS®** for humans and **ActivPower ATLAS®** for dogs as part of comprehensive formulations designed to support mobility, physical function, and overall wellness.

MSM and Joint Health

The strongest body of research surrounding MSM relates to joint comfort, mobility, and musculoskeletal wellness.

Several human clinical studies have evaluated MSM supplementation in individuals experiencing age-related joint concerns and have reported improvements in measures related to:

- Joint comfort
- Physical function
- Mobility
- Quality of life
- Exercise tolerance

A randomized, double-blind, placebo-controlled study by Kim et al. (2006) reported improvements in physical function and comfort measures following MSM supplementation. Subsequent reviews have concluded that MSM may support mobility and musculoskeletal wellness, although larger studies continue to be encouraged (Butawan et al., 2017).

Researchers have proposed that MSM's role in supporting joint wellness may be related to its interaction with oxidative stress pathways and the body's normal inflammatory response.

From a nutritional perspective, MSM is most appropriately described as supporting:

- Joint comfort
- Mobility
- Flexibility
- Healthy physical activity

rather than as a treatment for arthritis or other joint diseases.

MSM and the Body's Normal Inflammatory Response

MSM has been studied for its interaction with several biological pathways associated with the body's normal inflammatory processes.

Laboratory and human studies suggest MSM may influence:

- Oxidative stress signaling
- NF- κ B pathways
- Cytokine activity
- Cellular antioxidant systems

Researchers have reported effects on biomarkers associated with normal inflammatory regulation and oxidative balance (Butawan et al., 2017).

For consumer education, a balanced description would be:

MSM has been studied for its role in supporting the body's normal inflammatory balance and healthy musculoskeletal function.

MSM and Skin Wellness

Skin health has emerged as another area of scientific interest for MSM.

Several clinical studies have investigated MSM supplementation and reported improvements in measures related to:

- Skin appearance
- Skin texture
- Skin hydration
- Skin elasticity
- Visible signs of skin aging

In a randomized clinical trial, Muizzuddin et al. (2020) observed improvements in skin appearance parameters following MSM supplementation.

Researchers have suggested that sulfur-containing compounds may contribute to the normal structure and integrity of connective tissues, including those involved in healthy skin.

Current evidence supports describing MSM as:

A nutritional ingredient studied for its role in supporting healthy skin appearance and overall skin wellness.

MSM, Allergy-Related Wellness, and Respiratory Comfort

Some research has explored MSM in relation to seasonal environmental challenges.

Barrager et al. (2002) reported that MSM supplementation was associated with improvements in certain measures of upper respiratory comfort during seasonal environmental exposure.

While these findings are interesting, additional research is needed.

Preliminary studies have explored MSM in relation to seasonal wellness and respiratory comfort, although further research is warranted.

MSM and Tissue Health

Researchers have also investigated MSM in areas related to tissue recovery and cellular resilience.

Proposed mechanisms include:

- Support for antioxidant defenses
- Maintenance of connective tissue integrity
- Support for normal cellular responses to physical stress

Experimental studies have generated scientific interest regarding MSM's role in tissue wellness and recovery. However, direct evidence supporting wound-healing claims in humans remains limited.

Accordingly, it is more appropriate to state:

MSM has been studied for its role in supporting connective tissue wellness and normal recovery processes following everyday physical activity.

Healthy Aging and General Wellness

MSM has also been studied within the broader context of healthy aging and wellness.

Researchers have suggested that ingredients supporting:

- Mobility
- Physical activity
- Connective tissue integrity
- Oxidative balance

may contribute to overall quality of life as individuals age (Butawan et al., 2017).

However, there is currently no evidence demonstrating that MSM extends lifespan or directly promotes longevity.

The strongest rationale for healthy-aging applications remains its potential role in helping maintain mobility, activity levels, physical comfort, and overall wellness.

In this manner, MSM may support healthy aging by helping individuals maintain active lifestyles and physical function.

Use in Companion Animals

MSM is frequently incorporated into companion animal nutritional formulations, particularly those designed to support mobility, activity, and musculoskeletal wellness.

Within the ActivPower portfolio, MSM is included in **ActivPower ATLAS®** for dogs as part of a broader nutritional strategy supporting mobility, physical function, and quality of life.

As with human supplementation, MSM should be viewed as one component of a comprehensive wellness program that may include nutrition, exercise, veterinary care, and appropriate lifestyle management.

Safety Profile

Published research generally reports MSM to be well tolerated when used appropriately.

Reported side effects are typically mild and may include:

- Gastrointestinal discomfort
- Mild digestive upset
- Headache
- Temporary bloating

Individuals with underlying medical conditions and pet owners managing veterinary conditions should consult qualified healthcare professionals or veterinarians before introducing new supplements.

ActivPower Perspective

MSM remains one of the most widely studied sulfur-containing nutritional ingredients used in wellness, mobility, and skin-health formulations.

For this reason, ActivPower includes MSM in:

- **IRx-ZEUS®** for humans
- **ActivPower ATLAS®** for dogs

as part of comprehensive formulations intended to support mobility, physical activity, skin wellness, and overall quality of life.

The current scientific literature supports continued interest in MSM as a nutritional ingredient that may contribute to healthy movement, skin appearance, connective tissue wellness, and active living.

Selected Scientific References

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Educational Literature Disclaimer

This article is provided solely for educational and informational purposes and summarizes selected scientific literature concerning methylsulfonylmethane (MSM) and its use as a nutritional ingredient in humans and animals.

References to mobility, joint health, skin wellness, connective tissue support, healthy aging, seasonal wellness, tissue health, inflammatory balance, or scientific studies are presented for educational discussion only.

Nothing in this article is intended to diagnose, treat, cure, mitigate, or prevent any disease, injury, allergy, arthritis, psoriasis, dermatitis, wound, inflammatory disorder, or medical condition in humans or animals.

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No claim beyond the educational discussion of current scientific literature is stated or implied.