

How Sulfur and MSM support **Exercise Recovery**

A deep dive into the latest research and new recommended intakes

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HUMAN NUTRITION & HEALTH



New study shows that OptiMSM® Supplementation **Improves the Body's Response to Exercise**

MSM supplementation has emerged as a breakthrough in muscle recovery, with clinical research demonstrating that a daily supplemental intake of just 1 g can significantly support the body's ability to restore itself after exercise.[1]

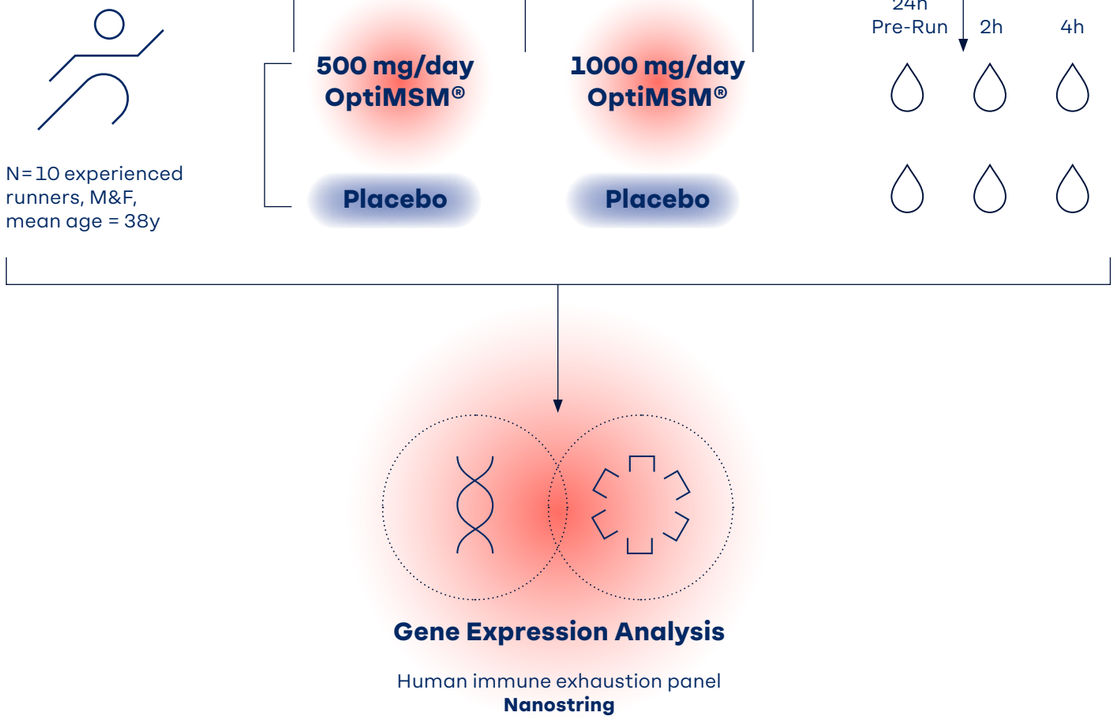
MSM has a proven record for supporting athletes and active individuals by promoting joint health and aiding post-exercise recovery. OptiMSM stands out by serving as a vital source of dietary sulfur, an element essential for maintaining joint function and boosting the body's antioxidant production, particularly glutathione after exercise.[2]

We already know what MSM does to the human body and how it is beneficial to athletes, but this new study is going deeper into the details of gene expression and how MSM optimizes/impacts/affects different genes linked to exercise and recovery.

While MSM's benefits are widely recognized in the field, emerging research offers deeper insight into how it influences gene expression and helps modulate key genes associated with exercise and recovery.

In this study, blood was drawn from athletes who completed a half marathon, a strenuous activity known to produce oxidative stress. Researchers analyzed the samples through the lens of gene expression.

Study Goal: To evaluate the impact of MSM supplementation on post-exercise immune response-related gene expression

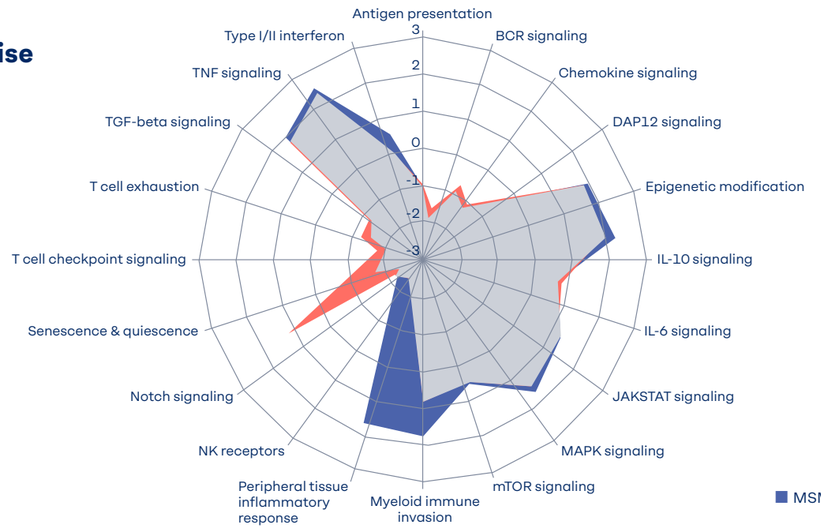


The study confirmed that OptiMSM supplementation improves the body's response to exercise, influencing specific genes associated with inflammation, oxidative stress, and recovery.

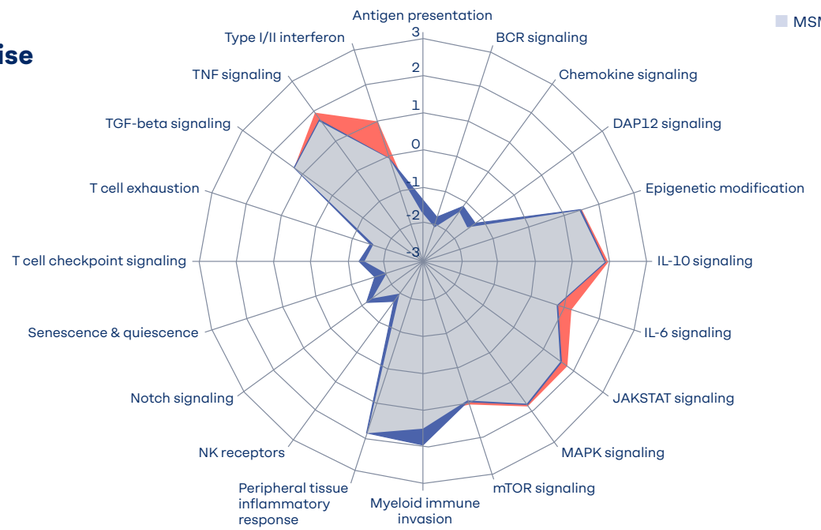
Sources:
McFarlin BK et al., Nutrients 2025; 17: 1761

OptiMSM® Supplementation **Improves the Body's Response to Exercise**

2 Hours Post-Exercise



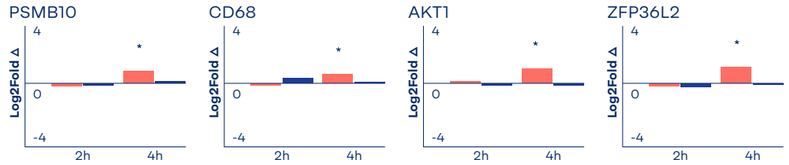
4 Hours Post-Exercise



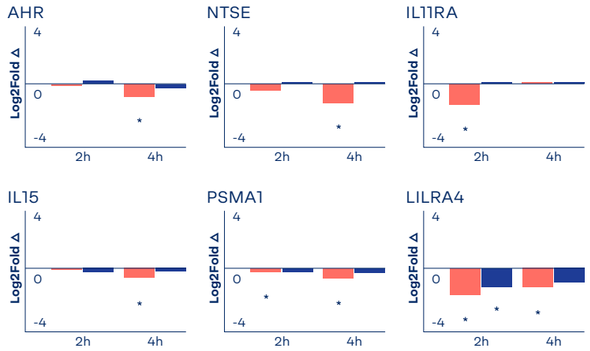
Sources:
McFarlin BK et al., Nutrients 2025; 17: 1761

OptiMSM Supplementation **Optimizes Genetic Response to Exercise-Induced Inflammation**

Increased Expression



Decreased Expression



Increased expression of genes that:

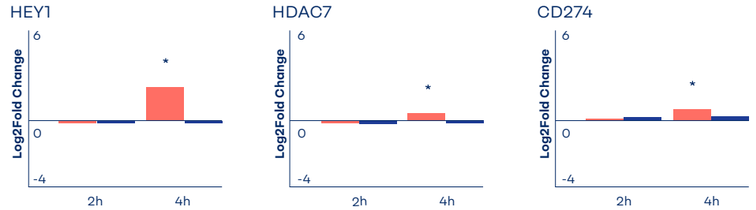
- Aid muscle recovery after exercise (e.g., AKT1, PSMB10, CD68)
- Help resolve the inflammatory response to exercise (e.g., ZFP36L2)

Decreased expression of genes that:

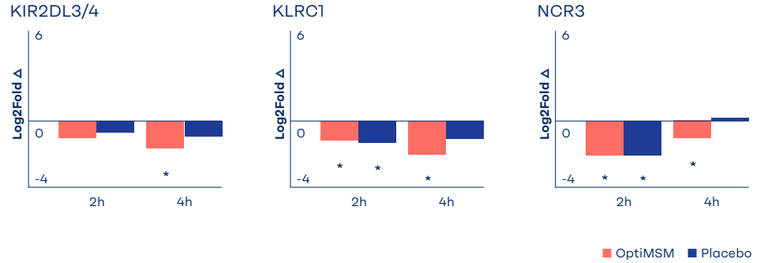
- Increase inflammation and oxidative stress post-exercise (e.g., AHR, NTSE, IL11RA, IL15)

OptiMSM Supplementation **Improves Markers of Exercise Recovery & Restoration**

Increased Expression



Decreased Expression



OptiMSM supplementation **significantly increased expression** of genes in the Notch signaling pathway (Hey1, HDAC7, CD274)

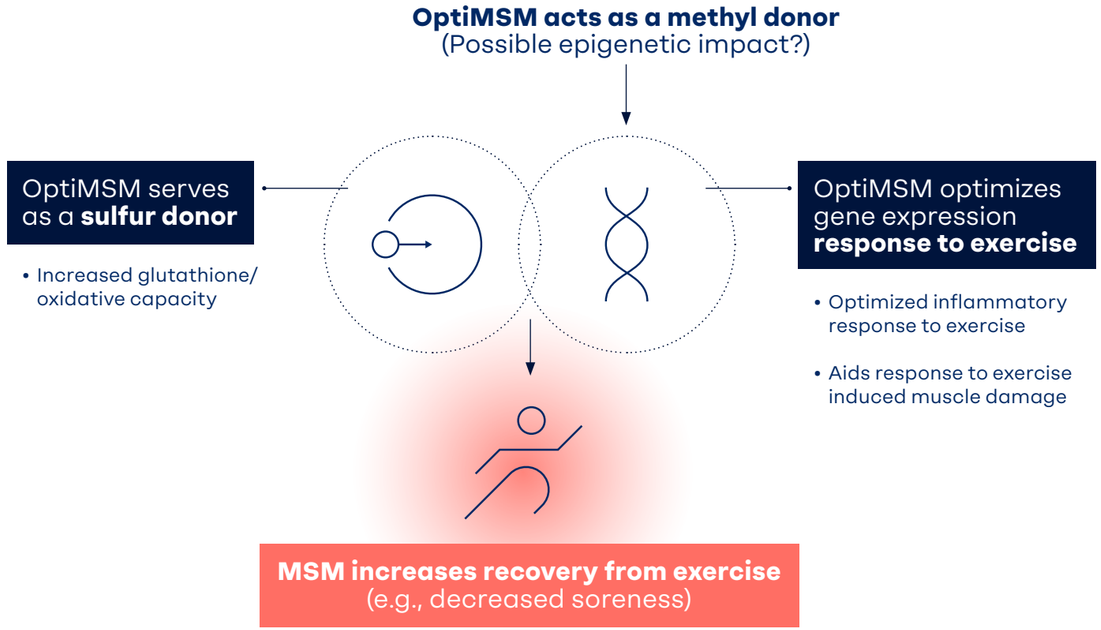
- ▶ Notch signaling helps regulate muscle cell function and repair of exercise-induced muscle damage

OptiMSM supplementation **significantly decreased expression** of genes involved in inflammatory cell function after exercise (e.g., KIR2DL3/4, KLRC1, NCR3)

- ▶ OptiMSM supplementation reduced the systemic inflammatory response to exercise

Sources:
McFarlin BK et al., Nutrients 2025; 17: 1761

New study underlines mechanism of action of **MSM in Exercise and Recovery**



Why It Matters Now

These scientific advancements hold significant value for sports nutrition product development. The global sports nutrition market is projected to reach $78.3 billion USD by 2030[9], with Millennials and Gen Z driving demand for science-backed, convenient recovery solutions.[9]

Key Benefits Consumers Seek*

*Nutrition Business Journal survey targeting consumers, aged 20-70, who purchase sports nutrition or active lifestyle products, completed Feb 2024, n = 1,069; powered by the Suzy online platform

28%
want healthy muscle/tissue

19%
want faster recovery

19%
seek joint support

What Benefits Does MSM Provide for **Athletes?**

Essential for cellular health to support exercise recovery [2,3]
Acts as a methyl donor and supports exercise recovery [1,3]

Demonstrating benefits at **1000 mg/day**:

OptiMSM supplementation improves exercise recovery

OptiMSM supplementation supports post-exercise muscle recovery

OptiMSM supplementation improves the antioxidant capacity after exercise

MSM's proven ability to support muscle recovery and reduce soreness after exercise makes it a compelling ingredient for new formulations targeting both athletes and active everyday consumers.[1] The research supports a practical, accessible daily dose, making MSM easy to incorporate into mainstream products.[1] Notably, 82 percent of consumers now seek clearer product labels and stronger scientific validation, making MSM's robust clinical research and regulatory status a key differentiator.[10]

OptiMSM®

Why Choose **OptiMSM®?**

OptiMSM® **Over 30 Years the Leading MSM Brand**

OptiMSM®, a premium branded form of MSM (methylsulfonylmethane), delivers proven benefits for joints, skin, and hair.

Purest MSM

OptiMSM is the trusted, industry-leading brand in MSM
A pioneer in the field of sulfur nutrition for over 30 years. OptiMSM is pure, safe and only MSM on the market to receive an FDA GRAS No Objection letter. It is made in the USA through a 4-stage distillation process, allowing for 99.9 % purity.

Scientifically Researched

OptiMSM has clinically proven bioavailability and efficacy for Joint, Sports and Beauty from Within
OptiMSM's efficacy has been researched in multiple clinical studies across several health benefit areas.

Commercial Simplicity

OptiMSM is a versatile ingredient, easy to incorporate into a wide variety of applications
It can be utilized in many forms, from tablets and capsules to powders and gummies.

Movement. Beauty.
Optimize Your Potential.

OptiMSM®

Speak to our experts about OptiMSM® or learn more at OptiMSM.com

References:

1) McFarlin BK et al., Nutrients 2025; 17: 1761 (https://www.mdpi.com/2072-6643/17/11/1761).
2) Institute of Medicine, 2005. Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate.
3) Kalman D, et al., FASEB J 2013; 27: 1076.7 (abstract).
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5) Nakhostin-Roohi B, et al., Ir J Pharm Res 2013; 12(4): 845-853.
6) Simpson P, Benjamin R. J Clin Exp Dermatol Res 2022; 13(5): 1000622.
7) Debbi EM, et al. BMC Comp Alt Med 2011: 11-50.
8) Nutrition Business Journal survey, Feb 2024.
9) VynZ Research, "Sports Nutrition Market Size, Share | Forecast 2030" (link).
10) Innova Market Insights, 2025.

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