

OptiMSM®

Clinical Studies

Efficacy
Highlights



MSM Has Proven Advantages for Joint Health

Author/ Publication	Study Design & Subject Population	Duration/ Dosage	Outcome Measures	Conclusions
Toguchi A, et al., Nutrients 2023; 15: 2995.	Randomized, double-blind, placebo-controlled trial N=88 M/F w/mild knee pain, age 20y+	12 weeks • Placebo • 2000 mg/day OptiMSM	JKOM score	• OptiMSM significantly improved overall joint health and comfort relative to placebo
Debbi EM, et al., BMC Comp Alt Med 2011; 11:50	Randomized, double-blind, placebo-controlled trial N=49 M/F w/ OA, age 45-90y	12 weeks • Placebo • 3375 mg/day MSM	WOMAC score Joint stiffness Joint pain Joint function	• MSM supplementation for 12 weeks significantly improved markers of joint function
Kim LS, et al., Osteoarthritis Cartilage 2006; 14(3): 286-294.	Randomized, double-blind, placebo-controlled trial N=50 M/F w/ OA, age 40-76y	12 weeks • Placebo • 6000 mg/day MSM	WOMAC score Joint pain Joint function Activities of daily living	• MSM supplementation significantly improved markers of joint comfort and physical function
Lubis AMT, et al., Acta Med Indones 2017; 49(2): 105-111.	Randomized, double-blind, placebo-controlled trial N=147 M/F w/ OA; mean age = 61y	3 months • Placebo • 1500 mg GS + 1200 mg CS/day • 1500 mg GS + 1200 mg CS + 500 mg MSM/day	WOMAC score VAS	• Supplementation with GS + CS + MSM significantly improves markers of joint health and comfort
Pagonis TA, et al., Int J Orthopaed 2014; 23(1): 19-24.	Randomized, double-blind, placebo-controlled trial N=100 M/F w/ OA	26 weeks • Placebo • 6000 mg/day MSM	WOMAC score Quality of life	• MSM supplementation significantly improved performance in activities of daily living and overall health-related quality of life
Usha PR & Naidu MUR. Clin Drug Invest 2004; 24(6): 353-363.	Randomized, double-blind, placebo-controlled trial N=118 M/F w/ OA; age 40-70y	12 weeks • Placebo • 1500 mg GS/day • 1500 mg MSM/day • 1500 mg GS + 1500 mg MSM/day	Joint pain Joint swelling VAS pain	• GS + MSM supplementation significantly improved functional ability of joints

MSM Has Proven Advantages for Athletes

Author/ Publication	Study Design & Subject Population	Duration/ Dosage	Outcome Measures	Conclusions
Barmaki S, et al., J Sports Med Phys Fitness 2012; 52: 170-174.	Randomized, double-blind, placebo-controlled trial N=18 healthy, active young men	10 days • 50 mg MSM / kg body weight • Avg = 3895mg • Placebo	Muscle Damage After 14km Run • Serum CK • TAC	• MSM supplementation significantly reduced muscle damage after exercise in active adults
Godwin S, et al., J Int Soc Sports Nutr 2015; 12 (suppl 1): P48 (abstract)	Placebo-controlled trial N=5 recreationally active men	28 days • 3000 mg MSM • Placebo	Inflammation After Eccentric Exercise (knee ext) • IL-6 • IL-1β	• MSM supplementation blunted the increase in the systemic levels of inflammatory cytokines (IL-6 and IL-1b) immediately after exercise
Kalman D, et al., FASEB J 2013; 27: 1076.7 (abstract)	Randomized, double-blind, placebo-controlled trial N=24 moderately exercise trained men	14 days • 3000 mg OptiMSM • Placebo	Leg Extension Exercise Post-exercise pain • VAS	• OptiMSM supplementation helped to alleviate pain that after exercise
Nakhostin-Roohi B, et al., J Pharm Pharmacol 2011; 63: 1290-1294.	Randomized, double-blind, placebo-controlled trial N=18 untrained men	10 days • 50 mg MSM / kg body weight • Avg = 3895mg • Placebo	Ox. Stress After 14km Run • Protein Carbonyl (PC) • MDA • Oxidized Glutathione • Antiox. Capacity (GSH, GSH:GSSG)	• MSM supplementation aided recovery from training by significantly reducing markers of muscle damage and improved antioxidant capacity after exercise among new athletes
Nakhostin-Roohi B, et al., Ir J Pharm Res 2013; 12(4): 845-853.	Randomized, double-blind, placebo-controlled trial N=16 untrained men	Single dose, 24h • 100 mg MSM / kg body weight • Avg = 7090 mg • Placebo	Ox. Stress After 14km Run • Protein Carbonyl (PC) • Antiox. Capacity (TAC)	• MSM supplementation significantly reduced oxidative stress and improved antioxidant capacity in new athletes
van der Merwe M & Bloomer RJ. J Sports Med 2016; 7498359.	Double-blind, placebo-controlled trial N=40 healthy, active male athletes	28 days • 3000 mg MSM • Placebo	100 Eccentric Knee Extensions Post-exercise immunosuppression • IL-6, IL-1β, TNF-α	• MSM blunts post-exercise immunosuppression (IL-6, IL-1β, TNF-α)

MSM Has Proven Advantages for Beauty

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Author/ Publication	Study Design & Subject Population	Duration/ Dosage		Outcome Measures	Conclusions
Anthonavage M, et al., Nat Med J 2015; 7(11): 1-10.	Randomized, double-blind, placebo-controlled trial N=20 F, age 35-59y	16 weeks • Placebo • 3000 mg/day OptiMSM	OptiMSM	Skin wrinkles Skin firmness Skin texture	• OptiMSM supplementation significantly reduces the appearance of lines and wrinkles, and leads to improvements in the appearance of crow's feet, skin firmness, tone, and texture.
Guaitolini E, et al., J Clin Aesthet Dermatol 2019; 12(4): 40-45.	Randomized, single-blind, placebo-controlled trial N=50 F, age 40-65y with skin chronoaging and/ or photoaging	60 days • Placebo • Intervention (200 mg HA + 500 mg L-carnosine + 400 mg MSM/day)	OptiMSM	Skin hydration Skin elasticity Sebometry	• Supplementation with the intervention formulation significantly improved skin hydration and elasticity, and significantly reduced the depth of wrinkles.
Muizzuddin N & Benjamin R. Nat Med J 2019; 11(11): 1-8.	Double-blind clinical trial N=63 F, age 35-59y	4 months • 1000 mg/day OptiMSM • 3000 mg/day OptiMSM	OptiMSM	Hair condition assessment Nail condition assessment	• OptiMSM supplementation significantly improved the appearance and condition of hair and nails. Supplementation with 3000 mg/day provided greater benefits compared to 1000 mg/day.
Muizzuddin N & Benjamin R. Int J Vitam Nutr Res 2022; 92(3-4), 182-191.	Double-blind, placebo-controlled trial Part I: n=20 F, age 35-59y Part II: n=63 F, age 35-59y	Part I: 4 months • Placebo • 3000 mg/day OptiMSM Part II: 4 months • 1000 mg/day OptiMSM • 3000 mg/day OptiMSM	OptiMSM	Parts I & II: Facial wrinkles Skin roughness	• OptiMSM supplementation provided significant benefits for skin health, including a reduction in the appearance of facial wrinkles (crow's feet), with differences observed as early as 8 weeks.
Simpson P, Benjamin R. J Clin Exp Dermatol Res 2022; 13(5): 1000622.	Randomized, double-blind, placebo-controlled trial N=58 F, age 41-65y	12 weeks • Placebo • 1000 mg/day OptiMSM • 1000 mg OptiMSM + 2500 mg HFC/day	OptiMSM	Skin wrinkles Skin elasticity	• OptiMSM supplementation, with or without HFC, significantly improved skin smoothness in as early as 6 weeks • OptiMSM + HFC supplementation significantly improved skin elasticity
Benjamin R, et al., Nat Med J 2023; 15(10).	Single group intervention study N=41 M/F, age 19-60y, w/telogen effluvium hair loss	120 days 1000 mg/day OptiMSM	OptiMSM	Hair count Hair diameter Self-assessment	• OptiMSM supplementation significantly improved hair growth and thickness of hair follicles. Additional data needed to confirm effect.

MSM Has Proven Bioavailability

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Author/ Publication	Study Design & Subject Population	Duration/ Dosage		Outcome Measures	Conclusions
Bloomer RJ, et al., J Nutr Food Sci 2019; 9:1	Randomized intervention trial N=45 adult M/F	16 weeks • 1000 mg OptiMSM • 2000 mg OptiMSM • 3000 mg OptiMSM	OptiMSM	Plasma MSM	• OptiMSM significantly elevated serum MSM concentrations, with peak concentrations reached within 4 weeks
Kalman DS & Hewlings SJ. EC Nutrition 12.11 (2018): 6840695.	Randomized, open-label, crossover, pharmacokinetic trial N=6 healthy adult M	4 hours • 1000 mg OptiMSM • 2000 mg OptiMSM • 3000 mg OptiMSM	OptiMSM	OptiMSM Pharmacokinetics • Cmax • Tmax • MSM AUC	• OptiMSM significantly elevated serum MSM concentrations within 45 minutes of supplementation
Miller L, et al., Nutrients 2021; 13, 3620.	Randomized, double-blind, placebo-controlled trial N=22 overweight/obese M/F	16 weeks • Placebo • 3000 mg OptiMSM	OptiMSM	Serum MSM	• OptiMSM supplementation significantly improved serum MSM concentrations, with the first measurement recorded at 4 weeks and persisting through 16 weeks

Thanks

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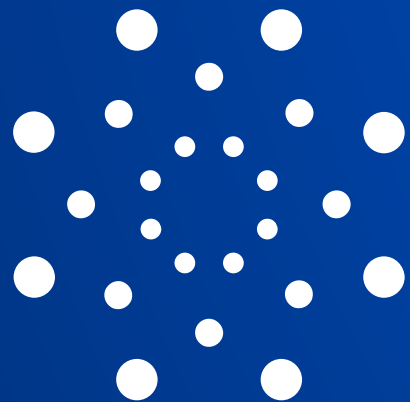
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Balchem Corporate Headquarters
5 Paragon Drive
Montvale, NJ 07645 | U.S.

[balchem.com](https://www.balchem.com)



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