CURCUMIN COMPLEX

Highly bioavailable curcumin formula for superior absorption

This information is provided for the use of physicians and other licensed health-care practitioners only. This information is intended for physicians and other licensed health-care providers to use as a basis for determining whether to recommend this product to their patients. This medical and scientific information is not for use by consumers. The dietary supplement products offered by Designs for Sport are not intended for use by consumers as a means to diagnose, treat, cure, prevent, or mitigate any disease or other medical condition.

WHAT IS CURCUMIN COMPLEX?

Curcumin Complex is a highly bioavailable proprietary blend of three bioactive curcuminoid compounds: curcumin, bisdemethoxycurcumin (BMC), and demethoxycurcumin (DMC), along with turmeric oil. Curcuminoids are derived from turmeric (*Curcuma longa*), which is traditionally used both as an herbal remedy and spice. It is most well-known for its role in supporting a healthy inflammatory response but may be especially supportive of athletes looking to support the health of muscles, promote recovery, and support vascular function.¹² Design for Health's proprietary EvailTM emulsification technology is designed to enhance the bioavailability and absorption of bioactive ingredients.

FORMULA HIGHLIGHTS

- Provides 400 mg of curcuminoids per serving
- Contains a blend of three well-researched, targeted curcuminoids
- Formulated with the Evail[™] emulsification technology that includes medium-chain triglycerides and quillaja extract for enhanced bioavailability and absorption
- Gluten-free, dairy-free, soy-free; non-GMO
- NSF Certified for Sport[®]

Curcumin Complex is a potent formula containing three bioactive, extensively researched curcuminoids. Curcuminoids have been extensively researched for their potential to support human health. DMC has been shown to support a healthy inflammatory process through its support of healthy cytokine function.* BMC has been shown to support cellular function and certain signaling pathways related to neurological health and a healthy response to oxidative stress.* Curcumin has been shown to exhibit a wide range of actions to support cellular health, cardiovascular function, healthy metabolism, and healthy neuro-inflammatory reponses, along with helping to mitigate the adverse effects of oxidative stress.* All of these benefits may be supportive for athletes' performance and their overall wellness.*

MAY HELP MITIGATE MUSCLE SORENESS AND DAMAGE*

Curcumin may help support healthy inflammatory responses by promoting muscle health post-exercise.^{13,4} Intense exercise can increase the production of reactive oxygen species (ROS), free radicals, or reactive nitrogen species (NOS).⁵ In the long term, exercise-induced oxidative stress can play a healthy role in the body by stimulating muscle regeneration and increasing the endogenous antioxidant system capacity.^{5,6} However, in the short term, exercise-induced oxidative stress may exceed the body's antioxidant status capacity, causing damage to cells and tissues and unhealthy inflammatory responses. This can impair normal muscle contraction, leading to muscle fatigue and reduced athletic performance. Muscle damage can lead to soreness, which is uncomfortable and can potentially interfere with performance until it resolves.7 A double-blind, randomized trial examined the effects of curcumin supplementation on delayed onset muscle soreness (DOMS) in a group of 19 healthy men. Participants supplemented 2.5 g twice daily of curcumin for 2 days before and 3 days after eccentric leg exercises, followed by a 14-day washout period. The results showed that at 24 and 48 hours post-exercise, those supplementing with curcumin led to moderate-large reductions in pain during exercise, along with reductions in inflammatory markers IL-6 and C-reactive protein (CRP) compared to taking the placebo, suggesting that curcumin helps promote a balanced inflammatory response associated with exercise-induced muscle damage.4



SUPPORTS EXERCISE PERFORMANCE AND RECOVERY*

Curcumin may help to attenuate the adverse effects of oxidative stress and the heightened inflammatory response associated with intense exercise.³ As seen in one double-blind, randomized study, 17 healthy men supplemented with either a placebo or 2.5 g 2 times per day of curcumin for two days before a single-leg jump performance and for three days after. The results showed that those taking curcumin experienced greater mitigations in muscle soreness, an inflammatory marker of muscle damage (creatine kinase), and increased jump height compared to the placebo group.⁴ Curcumin may help support healthy muscles, allowing athletes to return to training and experience improved performance sooner.⁸ A double-blind, randomized, placebo-controlled trial (n = 63) explored the effects of highly concentrated

curcumin supplementation (200 mg/day) on muscle function and recovery after exercise-induced muscle damage over eight weeks compared to low (50 mg) concentration or a placebo. After a strenuous downhill run, the high curcumin group experienced less performance decline and muscle soreness at 24 and 48 hours post-exercise compared to the other groups.⁸

MAY SUPPORT NORMAL BLOOD FLOW*

Supporting endothelial health and function is important for athletes and the general population alike, as healthy blood flow supports cardiovascular function in athletic performance and progressively declines with age.⁹ Curcumin may improve blood flow and vascular endothelial function.^{10,11} A controlled trial compared eight weeks of curcumin supplementation (150 mg/ day) and aerobic exercise on vascular endothelial function in 32 post-menopausal healthy women. The participants experienced significant and comparable improvements in endothelial function from aerobic exercise and curcumin without aerobic exercise as seen in flow-mediated dilation.¹⁰

BENEFITS*

- Helps to mitigate delayed onset muscle soreness (DOMS)^{1,3,4}
- Helps support muscle performance following exerciseinduced muscle damage^{4,8}
- Supports a healthy inflammatory response^{1,3}
- Supports vascular function^{2,10}

HOW TO TAKE

Take I softgel per day with a meal.



*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

CE4060-DS



References

- 1. Basham SA, Waldman HS, Krings BM, Lamberth J, Smith JW, McAllister MJ. Effect of curcumin supplementation on exercise-induced oxidative stress, inflammation, muscle damage, and muscle soreness. *J Diet Suppl.* 2020;17(4):401-414. doi:10.1080/19390211.2019.1604604
- 2. Santos-Parker JR, Strahler TR, Bassett CJ, Bispham NZ, Chonchol MB, Seals DR. Curcumin supplementation improves vascular endothelial function in healthy middle-aged and older adults by increasing nitric oxide bioavailability and reducing oxidative stress. *Aging*. 2017;9(1):187-208. doi:10.18632/aging.101149
- Fernández-Lázaro D, Mielgo-Ayuso J, Seco Calvo J, Córdova Martínez A, Caballero García A, Fernandez-Lazaro CI. Modulation of exercise-induced muscle damage, inflammation, and oxidative markers by curcumin supplementation in a physically active population: a systematic review. *Nutrients*. 2020;12(2):501. doi:10.3390/nu12020501
- 4. Nicol LM, Rowlands DS, Fazakerly R, Kellett J. Curcumin supplementation likely attenuates delayed onset muscle soreness (DOMS). *Eur J Appl Physiol.* 2015;115(8):1769-1777. doi:10.1007/s00421-015-3152-6
- 5. Powers SK, Jackson MJ. Exercise-induced oxidative stress: cellular mechanisms and impact on muscle force production. *Physiol Rev.* 2008;88(4):1243-1276. doi:10.1152/physrev.00031.2007
- 6. Higgins MR, Izadi A, Kaviani M. Antioxidants and exercise performance: with a focus on vitamin E and C supplementation. *Int J Environ Res Public Health*. 2020;17(22):8452. doi:10.3390/ijerph17228452
- Stožer A, Vodopivc P, Križančić Bombek L. Pathophysiology of exercise-induced muscle damage and its structural, functional, metabolic, and clinical consequences. *Physiol Res.* 2020;69(4):565-598. doi:10.33549/physiolres.934371
- 8. Jäger R, Purpura M, Kerksick CM. Eight weeks of a high dose of curcumin supplementation may attenuate performance decrements following muscle-damaging exercise. *Nutrients*. 2019;11(7):1692. doi:10.3390/nu11071692
- 9. Gates PE, Boucher ML, Silver AE, Monahan KD, Seals DR. Impaired flow-mediated dilation with age is not explained by L-arginine bioavailability or endothelial asymmetric dimethylarginine protein expression. *J Appl Physiol (1985)*. 2007;102(1):63-71. doi:10.1152/japplphysiol.00660.2006
- 10. Akazawa N, Choi Y, Miyaki A, et al. Curcumin ingestion and exercise training improve vascular endothelial function in postmenopausal women. *Nutr Res.* 2012;32(10):795-799. doi:10.1016/j.nutres.2012.09.002
- 11. Oliver JM, Stoner L, Rowlands DS, et al. Novel form of curcumin improves endothelial function in young, healthy individuals: a double-blind placebo controlled study. J Nutr Metab. 2016;2016:1089653. doi:10.1155/2016/1089653