

Magnesium L-threonate, a form of magnesium that can cross the blood-brain barrier*

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 NEUROMAG™ SPORT?

NeuroMag™ Sport features the unique, patented mineral Magtein®, which contains magnesium chelated to threonic acid (magnesium L-threonate), a metabolite of ascorbic acid found naturally in foods and human physiology. This highly bioavailable form of magnesium is formulated to promote overall magnesium status, especially brain concentrations of magnesium.* Magtein® has been shown to be superior to other forms of magnesium at entering through the blood-brain barrier (BBB).* This product is designed to support cognitive function, memory, sleep, and overall brain health.*

FORMULA HIGHLIGHTS

- Contains 145 mg of chelated magnesium from 2 g of magnesium L-threonate per serving
- Features magnesium L-threonate (as Magtein®), a highly bioavailable and chelated form of magnesium
- Gluten-free, dairy-free, soy-free; non-GMO
- NSF Certified for Sport®

CLINICAL EVIDENCE

May Support Memory*

In 2009, researchers discovered that magnesium L-threonate exists in higher concentrations in the brain and spinal cord compared to blood plasma.¹ This form of magnesium is better suited than other forms of magnesium at crossing the BBB and supporting cognition, as was first observed in rodent models.¹ In this ground-breaking study, rats exhibited greater improvements in spatial working memory and long-term memory, likely due to increased synaptic plasticity in their brains.¹ Magtein®, as featured in NeuroMag™ Sport, has been shown in more recent mouse models to increase magnesium concentrations in the brain, improving learning capacity, short- and long-term memory, working memory, and synaptic connections.¹⁻³ In humans, this unique form of magnesium appears to have similar cognitive-supporting properties.^{4,5} In a

double-blind study involving 109 healthy adults aged 18 to 65, participants were given either 2 g/day of Magtein® or a placebo for 30 days. At the end of the trial, subjects completed a “Clinical Memory Test” which assessed five categories of memory. The results revealed that the Magtein® group improved in all test categories compared to their pre-trial scores, while the placebo group saw a decline. Notably, older adults experienced greater improvement in their memory from the Magtein® than did younger adults.⁵

Another study focused on 44 adults, aged 50 to 70, who reported cognitive impairment but had neither dementia nor Alzheimer’s disease. The subjects were given either 1.5 or 2 g/day of magnesium L-threonate, based on their body weight, or a placebo for 12 weeks. Cognitive tests measuring executive function, working memory, attention, and episodic memory were administered at baseline, six, and 12 weeks. By the end of the study, those supplementing with magnesium L-threonate showed some improved cognition while the placebo group did not.⁴ The study suggests that magnesium L-threonate may help increase synapse density in the brain, which is critical for neural communication and memory retention.⁴



May Support Sleep Quality*

Quality sleep is an important lifestyle factor that influences all other aspects of health. Improving sleep can, therefore, support daytime alertness and

performance. Research points to the role of magnesium in sleep quality, and magnesium L-threonate appears to also be an especially effective form for supporting restful sleep.^{4,6,7} In a randomized controlled trial involving 80 adults who self-reported poor sleep quality, participants were given either 1 g/day of Magtein® or a placebo. Subjects completed both mood and sleep quality questionnaires, and those in the Magtein® group experienced greater improvements in both sleep, daytime alertness, and memory over the placebo at days seven, 14, and 21, and six weeks.⁶

May Support Athletic Performance and Recovery*

Magtein® supplies magnesium, which clinical research has shown can help support athletic performance and muscle health.⁸⁻¹¹ A randomized controlled trial (RCT) on 22 college-aged men and women found that those who supplemented with 350 mg/day of magnesium for 10 days experienced a reduction of 1 to 2 points on a 6-point scale of muscle soreness after completing bench press sessions compared to a non-significant reduction in the placebo group.⁸ Another study looked at the effects of magnesium on athletic performance in older adults. In this study, 139 healthy women over

the age of 65 supplemented with either 350 mg/day of magnesium or a placebo for 12 weeks. At the end of the study, they performed various strength exercises and found that those who had been supplementing with magnesium had experienced a greater improvement in muscle strength and walking speed compared to those taking the placebo.⁹

BENEFITS*

- Supports normal cognitive function and brain health^{1,4}
- May support memory^{1,4,5}
- May support sleep quality^{6,7}
- May help mitigate exercise-induced muscle soreness^{8,10}
- May support muscle mass and athletic capacity^{9,11}
- Supports magnesium status^{1,2}
- May support a balanced mood¹²

HOW TO TAKE

Take three capsules per day (divided dosing recommended).



Supplement Facts

Serving Size 3 capsules
Servings Per Container 30

Amount Per Serving	% Daily Value	
Magnesium (from 2 g Magtein® Magnesium L-Threonate)	145 mg	34%

145 MG MAGNESIUM PER SERVING

SUPPORTS NORMAL COGNITIVE FUNCTION*

HIGHLY BIOAVAILABLE CHELATED MAGNESIUM*



SOY-FREE



GLUTEN-FREE



DAIRY-FREE



0 GRAMS SUGAR



NON-GMO



HIGHLY ABSORBABLE*

*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.

Magtein® is a registered trademark of Magceutics®, Inc. and is patented under U.S. Patents 8,178,118; 8,142,803; 8,163,301; and other pending patents. Magtein® is distributed exclusively by AIDP, Inc.

NEUMAG-DS

References

1. Slutsky I, Abumaria N, Wu LJ, et al. Enhancement of learning and memory by elevating brain magnesium. *Neuron*. 2010;65(2):165-177. doi:10.1016/j.neuron.2009.12.026
2. Sun Q, Weinger JG, Mao F, Liu G. Regulation of structural and functional synapse density by L-threonate through modulation of intraneuronal magnesium concentration. *Neuropharmacology*. 2016;108:426-439. doi:10.1016/j.neuropharm.2016.05.006
3. Jia S, Liu Y, Shi Y, et al. Elevation of brain magnesium potentiates neural stem cell proliferation in the hippocampus of young and aged mice. *J Cell Physiol*. 2016;231(9):1903-1912. doi:10.1002/jcp.25306
4. Liu G, Weinger JG, Lu ZL, Xue F, Sadeghpour S. Efficacy and safety of MMFS-01, a synapse density enhancer, for treating cognitive impairment in older adults: a randomized, double-blind, placebo-controlled trial. *J Alzheimers Dis*. 2016;49(4):971-990. doi:10.3233/JAD-150538
5. Zhang C, Hu Q, Li S, et al. A Magtein®, magnesium L-threonate, -based formula improves brain cognitive functions in healthy Chinese adults. *Nutrients*. 2022;14(24):5235. doi:10.3390/nu14245235
6. Hausenblas HA, Lynch T, Hooper S, Shrestha A, Rosendale D, Gu J. Magnesium-L-threonate improves sleep quality and daytime functioning in adults with self-reported sleep problems: a randomized controlled trial. *Sleep Med X*. 2024;8:100121. doi:10.1016/j.sleepx.2024.100121
7. Zhang Y, Chen C, Lu L, et al. Association of magnesium intake with sleep duration and sleep quality: findings from the CARDIA study. *Sleep*. 2022;45(4):zsab276. doi:10.1093/sleep/zsab276
8. Reno AM, Green M, Killen LG, O'Neal EK, Pritchett K, Hanson Z. Effects of magnesium supplementation on muscle soreness and performance. *J Strength Cond Res*. 2022;36(8):2198-2203. doi:10.1519/JSC.0000000000003827
9. Veronese N, Berton L, Carraro S, et al. Effect of oral magnesium supplementation on physical performance in healthy elderly women involved in a weekly exercise program: a randomized controlled trial. *Am J Clin Nutr*. 2014;100(3):974-981. doi:10.3945/ajcn.113.080168
10. Tarsitano MG, Quinzi F, Folino K, et al. Effects of magnesium supplementation on muscle soreness in different types of physical activities: a systematic review. *J Transl Med*. 2024;22(1):629. doi:10.1186/s12967-024-05434-x
11. Welch AA, Kelaiditi E, Jennings A, Steves CJ, Spector TD, MacGregor A. Dietary magnesium is positively associated with skeletal muscle power and indices of muscle mass and may attenuate the association between circulating C-reactive protein and muscle mass in women. *J Bone Miner Res*. 2016;31(2):317-325. doi:10.1002/jbmr.2692
12. Noah L, Dye L, Bois De Fer B, Mazur A, Pickering G, Pouteau E. Effect of magnesium and vitamin B6 supplementation on mental health and quality of life in stressed healthy adults: post-hoc analysis of a randomised controlled trial. *Stress Health*. 2021;37(5):1000-1009. doi:10.1002/smi.3051