



Pharmacist Approved. Quality You Can Trust.
Wellness Without Extremes.

Cognitive Calm- Magnesium Threonate

CLINICAL APPLICATIONS

- Enhances mental focus and clarity
- Improves memory and cognition in those with age-related memory decline
- Improves sleep quality including time spent in deep and REM sleep
- Supports mental and emotional wellbeing

This product provides unique, multidimensional support to promote healthy brain function. The formula is composed of magnesium L-threonate, the only form of magnesium known to enhance delivery of magnesium into the brain. Increased intraneuronal magnesium has been scientifically demonstrated to support neuroplasticity and mental focus, and improve memory in the aging brain. Additionally, it promotes improved quality of life by supporting a balanced sleep-wake cycle and mood. This product can also help alleviate occasional nervousness and stress. This product delivers 2 g of concentrated magnesium L-threonate in only two capsules.

Overview

Magnesium is one of the most important minerals for human physiology, serving as a cofactor in over 300 enzymatic reactions. The 2013-NHANES found that 48% of the United States population consumed less than the recommended daily allowance (RDA) for magnesium.¹ A contributing factor to low magnesium intake is the significant decline of 80-90% of magnesium content in produce compared to 100 years ago.² Additionally, magnesium status can be negatively impacted by aging, certain health conditions, medications, exercise and diets high in soft drinks, caffeine, alcohol, sodium, calcium and excessive protein.^{2,3,4,5} Poor magnesium status is associated with several health concerns, such as occasional headaches, poor cognition, poor concentration, low mood, nervousness, suboptimal blood pressure and altered insulin response.^{5,6}

Magnesium and the Brain: The Threonate Difference

Magnesium status is an assessment challenge due to its tight regulation in serum.² A sufficient level of magnesium is essential for the health and function of the brain. Some of its most important functions are protecting the integrity of the blood brain barrier (BBB), serving as a cofactor for neurotransmitter synthesis, and modulating receptors.^{3,7} The transportation of magnesium into the brain is normally a restricted process due to the tight regulation of magnesium in blood. In 2010, researchers at the Massachusetts Institute of Technology (MIT) published their novel discovery of magnesium L-threonate (MgT), the only magnesium complex shown to specifically increase magnesium levels within the brain.⁴

MgT has been found to increase magnesium concentration in the cerebrospinal fluid (CSF) after only two weeks with 108-144 mg doses of elemental magnesium, three times less than the current RDA.^{8,9}

Sleep Quality

Poor sleep affects 62% of adults worldwide.¹⁰ Insufficient magnesium intake and poor sleep have been correlated in several studies.⁵ Some mechanisms to explain the connection of poor sleep with inadequate magnesium are the ability of magnesium to bind gamma-aminobutyric acid (GABA) receptors, attenuation of the stress response or its role as a cofactor in melatonin synthesis.^{5,7}

In a study of 76 adults with sleep disturbances, 1 g of MgT resulted in significant improvement of several sleep variables. Participants reported improved sleep quality, faster time falling asleep and improved time spent asleep. Additionally, they reported improved mood and mental alertness. Concomitant Oura Ring data supported their reports indicating the MgT group had better improvement of REM, light and deep sleep compared to those receiving placebo.¹¹

Mental-Emotional Health

A 2023 survey reported that 49% of adults in the United States report frequent stress.¹² Low magnesium has been found in up to 60% of people reporting long-term stress.¹³ In a study of men, the group receiving supplemental magnesium had lower levels of the stress hormone cortisol compared to those receiving placebo.

Symptoms of low mood and nervousness can occur independently of stress but are often experienced at the same time.⁵ In the brain, magnesium supports mood and emotional health by acting as a cofactor for the synthesis of dopamine and serotonin, inhibiting the release of excitatory glutamate, and binding calming GABA receptors.^{1,5}

In a study of older adults with stress and nervousness, participants who received either 1.5 or 2 g of MgT had a significant improvement in stress, nervousness and fear symptoms compared to the placebo group.¹

Memory and Concentration

Memory and mental focus are common patient concerns. In an animal model, MgT was found to increase the synaptic density and function of neurons in the brain. Additionally, treatment of hippocampal cells with MgT resulted in increased mitochondrial density and function.⁸ In a study of adults with mental focus concerns, the majority that received MgT daily demonstrated improvement in IQ and attention.¹⁴

A decline in neuronal synapses, their function and consequent atrophy of the brain are associated with impaired cognition, a process that increases with age.⁸ In a study of older adults with memory concerns, those that received 1.5 to 2 g of MgT daily demonstrated improvement in executive function, working (short-term) and episodic memory.⁹ In another eight-week study of older adults, those receiving MgT had statistically significant improvement on their MMSE (Mini-Mental State Examination) score.¹⁵

Directions

2 capsules per day or as recommended by your health care professional.

Does Not Contain

Gluten, corn, yeast, artificial colors or flavors.

Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts ^{V1}		
Serving Size 2 Capsules Servings Per Container 30		
	Amount Per Serving	% Daily Value
Magnesium (as Magnesium L-Threonate)	144 mg	34%
Magnesium L-Threonate (Magtein®)	2 g	*
* Daily Value not established.		

Other Ingredients: Hypromellose (Natural Vegetable Capsules) and Magnesium Stearate.

References

1. Hewlings S and Kalman D. A Randomized, Double-Blind, Placebo-Controlled, Comparator Trial Evaluating Magtein® Magnesium Supplement on Quality of Life as Related to Levels of Stress, Anxiety, Fear and Other Indicators. *EC Nutrition* 17.3 (2022): 07-14

2. Workinger J, Doyle Robert, Bortz J. Challenges in the Diagnosis of Magnesium Status. *Nutrients*. 2018;10(9):1202. doi:https://doi.org/10.3390/nu10091202

3. de Baaij JHF, Hoenderop JGJ, Bindels RJM. Magnesium in man: implications for health and disease. *Physiological*

reviews. 2015;95(1):1-46. doi:https://doi.org/10.1152/physrev.00012.2014

4. 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:https://doi.org/10.3390/nu14245235

5. Pickering G, Mazur A, Trousselard M, et al. Magnesium status and stress: The vicious circle concept revisited. *Nutrients*. 2020;12(12):3672. doi:https://doi.org/10.3390/nu12123672

6. Volpe SL. Magnesium in Disease Prevention and Overall Health. *Advances in Nutrition*. 2013;4(3):378S383S. doi:https://doi.org/10.3945/an.112.003483

7. Maier JAM, Locatelli L, Fedele G, Cazzaniga A, Mazur A. Magnesium and the Brain: A Focus on Neuroinflammation and Neurodegeneration. *International Journal of Molecular Sciences*. 2023;24(1):223. doi:https://doi.org/10.3390/ijms24010223

8. 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:https://doi.org/10.1016/j.neuropharm.2016.05.006

9. 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. *Journal of Alzheimer's Disease*. 2015;49(4):971-990. doi:https://doi.org/10.3233/jad-150538

10. The *Global Pursuit of Better Sleep Health*; 2019. <https://www.usa.philips.com/c-dam/b2c/master/experience/smartsleep/world-sleep-day/2019/2019-philips-world-sleep-day-survey-results.pdf>

11. 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 Medicine X*. 2024;8:100121-100121. doi:https://doi.org/10.1016/j.sleepx.2024.100121

12. Inc G. Americans Sleeping Less, More Stressed. Gallup.com. Published April 15, 2024. <https://news.gallup.com/poll/642704/americans-sleeping-less-stressed.aspx>

13. Akarachkova ES, Shavlovskaya OA. The role of magnesium deficiency in the formation of clinical manifestation of stress in women. *Problems of Women Health*. 2013, 8, 57.

14. Surman C, Vaudreuil C, Boland H, Rhodewalt L, DiSalvo M, Biederman J. L-Threonic Acid Magnesium Salt Supplementation in ADHD: An Open-Label Pilot Study. *Journal of Dietary Supplements*. 2020;18(2):119-131. doi:<https://doi.org/10.1080/19390211.2020.1731044>
15. Wroolie TE, Chen K, Watson KT, et al. An 8-week open label trial of L-Threonic Acid Magnesium Salt in patients with mild to moderate dementia. *Personalized Medicine in Psychiatry*. 2017;4-6:7-12. doi:<https://doi.org/10.1016/j.pmip.2017.07.001>