

Magnesium (citrate)

HIGHLY BIOAVAILABLE MAGNESIUM[†]

Magnesium citrate is a chelated form of magnesium designed for improved absorption to support health and wellness.[†]



Promotes healthy cardiovascular function[†]



Helps with calcium metabolism and bone mineralization[†]



Provides support for cognitive and neuromuscular function[†]



Supports the metabolism of carbohydrates, amino acids and fats for energy production[†]



WHO IS THIS SUPPLEMENT FOR?

- Patients with occasional constipation
- Patients with low intakes of magnesium-rich foods (leafy green vegetables, legumes, nuts and whole grains). Nearly half (48%) of Americans fail to meet the estimated average requirement for magnesium (255-350 mg). Elderly and adolescents tend to have lower magnesium intakes
- Patients with cognitive, cardiovascular or neuromuscular health needs
- Individuals experiencing occasional stress
- Patients taking certain medications

MECHANISMS OF ACTION

Enzyme cofactor. Magnesium plays a crucial role for over 300 enzymatic reactions. It serves as a cofactor in numerous biochemical pathways, including those involved in energy production, protein synthesis and muscle and nerve function. Magnesium activates the enzymes necessary for numerous physiological functions, including neuromuscular contractions, cardiac function and the regulation of the acid-alkaline balance in the body.²⁻⁵

Bowel function. The unabsorbed fraction of magnesium citrate exerts a mild osmotic effect in the intestine, helping to hydrate and soften the stool.⁶

Neurotransmission. Magnesium plays essential roles in neuronal communication (neurotransmission), supporting the function of GABA, which has calming and relaxing effects, while moderating the excitatory function of glutamate.⁷⁻¹⁰ Accordingly, higher dietary magnesium intakes are associated with healthy responses to stress, positive mood and emotional well-being.¹¹⁻¹⁵

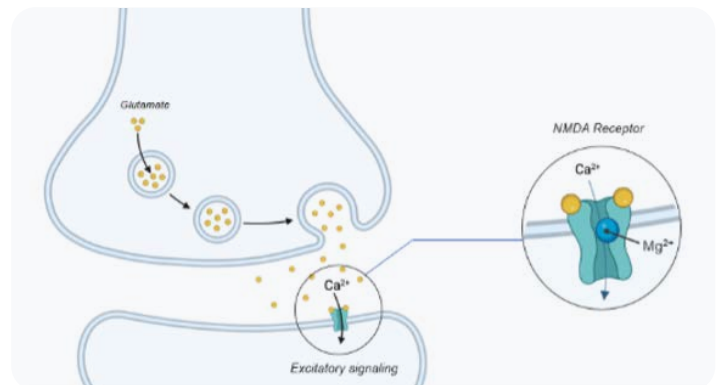


Image created with BioRender.com

Magnesium binds to glutamate (NMDA) receptors, inhibiting the calcium influx that mediates excitatory neurotransmission.

Cardiovascular health. Magnesium supports endothelial function by maintaining cytokine balance, nitric oxide bioavailability and vascular smooth muscle relaxation.¹⁶

[†]This statement has not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.



800.753.2277 | PureEncapsulationsPro.com

Pure Encapsulations is a registered trademark.

pure
encapsulations®

RESEARCH HIGHLIGHTS†

Improved Bioavailability

In human volunteers, magnesium citrate was found to be significantly more bioavailable than magnesium oxide following both acute and chronic supplementation.¹⁷

Cardiovascular Health Support

Adequate magnesium intake helps to maintain healthy blood pressure already within the normal range. In a meta-analysis of 34 trials involving 2028 participants, magnesium supplementation, at a median elemental daily dose of 368 mg for a median duration of 3 months, provided significant vascular relaxation support.⁷

Metabolic Health

Magnesium plays an important role in maintaining healthy insulin sensitivity. Supplementation with 250 mg elemental magnesium for 3 months resulted in a significant decrease in HbA1C (8.32 to 7.96%, p < 0.001), insulin (15.56 to 12.18 µIU /mL, p < 0.001) and HOMA.1R (6.16 to 4.44, p < 0.001).¹⁹ Another study of 2,582 adults found that those with the highest magnesium intake had 37% lower risk of metabolic impairment during a seven year follow-up. Risk among subjects with the highest intake was 53% of those with the lowest intake.²⁰

Change to Mood & Relaxation

In an open-label, randomized crossover trial of 126 adults, supplementation with 248 mg of elemental magnesium per day for 6 weeks resulted in a clinically significant net improvement in mood and relaxation, assessed by PHQ-9 scores (improvement by -6.0 points (CI -7.9, -4.2; P<0.001) and GAD-7 anxiety scores (-3.9 points; CI -4.7, -3.1), respectively.¹⁴

	MEN	WOMEN
Recommended Dietary Allowance (RDA)	400-420 mg	310-320 mg
Estimated Average Requirement (EAR)	255-350 mg	

Nearly half (48%) of Americans fail to meet the EAR for Magnesium, an amount that is estimated to meet the needs of 50% of healthy individuals.²¹

CHOOSE THE RIGHT MAGNESIUM FORM FOR YOUR PATIENTS

PATIENT	BEST FORM OF MAGNESIUM	BENEFITS	DELIVERY FORMS AND ELEMENTAL DOSE PER SERVING
Patients experiencing occasional constipation	Magnesium citrate	Works as a mild osmotic laxative High bioavailability, aids in digestion and absorption. Good for patients with digestive issues or needing quick absorption.	Capsule (150 mg) Liquid (215 mg) Gummy (150 mg) Taste-free powder (250 mg)
Patients needing general magnesium repletion and/or muscle health support	Magnesium citrate-malate	Same as magnesium citrate, but less laxative effect Provides malate, a key intermediate in energy metabolism	Capsule (120 mg)
Patients with sensitive GI tracts needing general magnesium repletion	Magnesium glycinate	High bioavailability, but gentle on the digestive system Ideal for relaxation and stress relief Excellent tolerability makes it ideal for higher dose regimens	Capsule (120 mg) Liquid (165 mg/ 2 tsp)
Patients looking for cognitive and brain health support	Magnesium L-threonate	Promotes cognitive function, learning ability and working memory†	Capsule (72 mg)

†This statement has not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.



DRUG-INDUCED NUTRIENT DEPLETIONS

Proton pump inhibitors & H2 receptor antagonists.

Long-term use of proton pump inhibitors (PPIs) may reduce plasma magnesium levels. The PDR advises practitioners to supplement with magnesium as needed.²⁴ This may also occur with other acid-reducing drugs, such as H2-receptor blockers (cimetidine, ranitidine and famotidine).

Thiazide diuretics. Thiazide diuretics increase urinary magnesium excretion. This may increase dietary magnesium requirements. A cross-sectional analysis of 9820 subjects, the use of thiazide diuretics was associated with lower serum magnesium concentrations.²⁵

Metformin. Long-term use of metformin is associated with increased excretion of magnesium.²⁶

POTENTIAL DRUG INTERACTIONS

Bisphosphonates. Magnesium supplements may reduce the intestinal absorption of alendronate (Fosamax) and possibly other orally administered bisphosphonates, when both are taken at the same time.²²

Tetracycline antibiotics. Magnesium supplements may bind to tetracycline antibiotics, forming poorly absorbed, insoluble complexes that may diminish drug absorption.²³

To check whether a medication may have clinically significant interactions with [nutrients and] ingredients based on doses commonly used in dietary supplements, visit our [Drug-Nutrient Interaction Checker](#).

Supplement Facts

1-4 capsules daily. Consume with food.

Each (size 00) vegetarian capsule contains:

Magnesium (as magnesium citrate) 150 mg

Other ingredients: vegetarian capsule (cellulose, water), ascorbyl palmitate

Vitamins & Minerals



Magnesium (citrate)

Quantity

Order Code

180

MC1

90

MC9

Visit PureEncapsulationsPro.com/quality for more information on our GMO policy.



Certified Gluten-Free by the Gluten-Free Certification Organization, gluten.org

REFERENCES

- Blancaquert L, et al. *Nutrients*. 2019 Jul 20;11(7):1663.
- Orchard TS, et al. *Am J Clin Nutr*. 2014 Apr; 99(4): 926-933.
- Dahle LO, et al. *Am J Obstet Gynecol*. 1995 Jul;173(1):175-80.
- Fuentes JC, et al. *Congest Heart Fail*. 2006 Jan-Feb;12(1):9-13.
- Minich DM, et al. *Altern Ther Health Med* 2007 Jul-Aug;13(4):62-5.
- Gröber U, et al. *Nutrients*. 2015 Sep 23;7(9):8199-226.
- Thukral C, et al. *J Clin Gastroenterol*. 2019 Jan;53(1):34-39.
- Poleszak E, et al. *Pharmacol Rep*. 2008 Sep-Oct;60(5):655-63.
- Hou H, et al. *Mol Neurobiol*. 2020 Jun;57(6):2539-50.
- Kirkland AE, et al. *Nutrients*. 2018 Jun 6;10(6):730.
- Jacka FN, et al. *Aust N Z J Psychiatry*. 2009 Jan;43(1):45-52.
- Singewald N, et al. *Neuropharmacology*. 2004 Dec;47(8):1189-97.
- Macian N, et al. *Nutrients*. 2022 May 17;14(10):2088.
- Tarleton EK, et al. *PLoS One*. 2017 Jun 27;12(6):e0180067.
- Pickering G, et al. *Nutrients*. 2020 Nov 28;12(12):3672.
- Houston M. *J Clin Hypertens (Greenwich)*. 2011 Nov;13(11):843-7.
- Walker AF, et al. *Magnes Res*. 2003 Sep;16(3):183-91.
- Zhang X, et al. *Hypertension*. 2016 Aug;68(2):324-33.
- ELDerawi WA, et al. *Nutrients*. 2018 Dec 26;11(1):44.
- Hruby A, et al. *Diabetes Care*. 2014 Feb;37(2):419-27.
- U.S. Department of Agriculture, Agricultural Research Service. Usual Nutrient Intake from Food and Beverages, by Gender and Age, What We Eat in America, NHANES 2013-2016; 2019.
- Prescriber's Digital Reference; Alendronate. <https://www.pdr.net/drug-summary/Fosamax-alendronate-sodium-352.4609>
- Prescriber's Digital Reference; Doxycycline. <https://www.pdr.net/drug-summary/Doxycycline-doxycycline-24308>
- Lehault WB, Hughes DM. *Fed Pract*. 2017 Feb;34(2):19-23.
- Kieboom, BC, et al. *Pharmacoepidemiol Drug Safety*. 27(11), 1166-1173.
- Bouras H, et al. *Can J Physiol Pharmacol*. 2020 Jun;98(6):400-411.

The Drug-Nutrient Interaction Checker is supported by a license from PEPID, LLC.

*This statement has not been evaluated by the Food & Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.



800.753.2277 | PureEncapsulationsPro.com

Pure Encapsulations is a registered trademark.

pure
encapsulations®