

Magnesium Supplements: Using the right salt form to meet the patient needs

Question from the clinic: I have a patient that has a low magnesium level due to prolonged use of a PPI, who also could benefit from something that help them relax at night... does one of the different salt forms work better than others to help them relax AND improve their magnesium level?

Quick Answer: Yes! Magnesium Glycinate has evidence to support it's use to help aid in sleep. Keep reading to see the different salt forms and matching indications.

Magnesium is an essential mineral that plays a crucial role in many biochemical reactions that support bodily functions like muscle and nerve function, and converting food into energy. It is vital for bone health, brain function, weight management, digestion, and is critical to synthesize and activate vitamin D.

Clinically, I have found it to be the “missing element” or the “secret sauce” to help stabilize blood pressure and/or blood sugar in persons struggling with controlling their levels despite several therapies. I also use it for GLP-1-RA induced constipation to keep bowel movements regular.

Review: Who may need Magnesium supplementation?

- Risk Factors for magnesium deficiency:
 - Malabsorption conditions: Crohn's, celiac disease
 - Alcohol abuse
 - Type 2 diabetes and/or insulin resistance
 - Older age
 - Chronic migraines
 - High STRESS
- People taking medications that deplete Magnesium from the body:
 - **Proton Pump Inhibitors:** When used for > 1 year, these drugs cause a MAJOR decrease in absorption, and a supplement is recommended
 - Diuretics and corticosteroids: Increase magnesium excretion in the urine
- Signs of deficiency:
 - Fatigue, poor appetite, paresthesia, muscle cramps

Foods RICH in Magnesium:

- Foods with FIBER:
 - Seeds (pumpkin, chia), Nuts (almonds, cashews, peanuts), Spinach/dark green leafy vegetables, cereal, soymilk, beans (black, kidney), edamame, potatos, brown rice, yogurt,

Choosing Supplements:

If your only goal is to increase the levels of magnesium and reduce the deficiency, it is important to choose a product with a high bioavailability that is well absorbed. Too much magnesium is likely to cause GI effects (diarrhea, nausea, stomach cramps), as the body will try to filter out any excess.

The current RDA for adults is: 310-320 mg for adult women, and 400-420mg for adult men.

The Tolerable Upper Intake Level (UL) for magnesium is 350 milligrams per day – this is the maximum daily intake unlikely to cause harmful effects.

The table below indicates the different salt forms and the amount of elemental magnesium per dose for your information.

Anecdotally, my go-to magnesium supplements based on 35 years of clinical experience:

- The most easily absorbed forms: Magnesium Citrate, Glycinate
- To help with sleep: Magnesium Glycinate
 - a. Well-absorbed, less GI distress
 - b. Can enhance relaxation, calmness, sleep muscle recovery, improve mood. Commonly included in mixes that regulate blood sugar
- To help with constipation: Magnesium Citrate
 - a. Well-absorbed - increases gut motility for a laxative effect
 - b. Also has data for anxiety, blood pressure, blood sugar, and vitamin D level stabilization
- To help anxiety, pain: Magnesium L-Threonate
 - a. Highly bioavailable, higher retention rate
 - b. Some analgesic activity, reduces opioid-induced constipation
- To help with tight/sore muscles: TOPICAL Magnesium sulfate (Epsom Salts), or creams with Magnesium Oxide

Magnesium Salts: Uses, Elemental Magnesium Content, and References

Magnesium Salt	Common Use(s)	Notes	Elemental Mg per Typical Dose
Magnesium citrate	- Bowel prep - Constipation - Supplementation	- Better absorbed than oxide - Often used in liquid form	~125–200 mg per 1 tsp (liquid) ~100–150 mg per capsule
Magnesium chloride	- Supplementation	- Good bioavailability - Gentler on stomach	~60–65 mg per 500 mg tablet
Magnesium glycinate	- Anxiety - Sleep - Mg deficiency	- Chelated form - Highly absorbable - Very well tolerated	~100–125 mg per 1,400 mg tablet
Magnesium hydroxide	- Antacid - Laxative	- Used in “milk of magnesia” - Can cause diarrhea	~500 mg per 5 mL (milk of magnesia)
Magnesium L-Threonate	- Brain health, anxiety - Cardiovascular support	- Crosses the blood-brain barrier - Analgesic action	~144 mg per 2,000mg
Magnesium lactate	- Deficiency, sensitive GI	- Well absorbed - Common in slow-release	~84 mg per 2 tablets (ML 84®)
Magnesium malate	- Fatigue - Fibromyalgia support	- May support energy metabolism - Chelated form	~75–100 mg per 1,250 mg tablet
Magnesium orotate	- Cardiovascular health - Sports medicine use	- Alternative use - Expensive	~31 mg per 500 mg capsule
Magnesium oxide	- Constipation relief - Magnesium deficiency	- Very high Mg by weight (~60%) - Low bioavailability (~4%)	~242 mg per 400 mg tablet
Magnesium sulfate	- Eclampsia/seizures (IV) - Hypomagnesemia - Laxative (oral Epsom salts)	- Low oral absorption - IV use common in hospitals	~60 mg per 1 gram
Magnesium taurate	- Cardiovascular support	- Contains taurine - Often used in functional medicine	~50 mg per 500 mg capsule

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