
MAGNESIUM Fact Sheet [G]

Bottom Line:

Magnesium supplementation is purported to improve symptoms of ADHD, insomnia, or anxiety, but supporting or convincing evidence is lacking, and most get the magnesium they need from their diet.

FDA Indications:

None.

Off-Label Uses:

Anxiety; ADHD; insomnia.

Dosage Forms:

Capsules, tablets, softgels, chewables, oral liquid: 100 mg, 250 mg, 400 mg, 500 mg.

Dosage Guidance:

- Anxiety: 100–400 mg daily.
- ADHD: Magnesium aspartates and lactates 6 mg/kg/day (in children).
- Insomnia: Take 100–400 mg daily, one hour before bedtime.

Cost: \$

Side Effects:

- Most common: Well tolerated, although higher doses may cause loose stools and diarrhea.
- Serious but rare: Excessive intake can lead to symptomatic hypermagnesemia, which presents as hypotension, nausea, vomiting, and bradycardia.
- Pregnancy/breastfeeding: Considered relatively safe.

Mechanism, Pharmacokinetics, and Drug Interactions:

- Essential mineral used in the human body, as a cofactor.
- Excreted in urine; t_{1/2}: unknown.
- Drug interactions generally unlikely.

Evidence and Clinical Pearls:

- Magnesium supplements are formulated as various salts (citrate, chloride, gluconate, aspartate, oxide, pidolate, and orotate) or combined with other ingredients (eg, multivitamin).
- Used most often to prevent or treat deficiency or as a laxative. It is sometimes used for pregnancy-induced leg cramps or restless legs syndrome.
- An overview of 18 studies in adults suggested magnesium had a beneficial effect on subjective anxiety; however, they were all poor-quality studies, and the review recommended better controlled trials.
- In kids, it may be used for treating anxiety. Magnesium is frequently mentioned in treatment of anxiety in autism; however, research beyond case reports is lacking.
- Also considered “insufficient reliable evidence to rate” is magnesium’s role in children with ADHD. Preliminary data (no randomized placebo-controlled trials) suggest supplementation may improve hyperactivity in children with ADHD who have low magnesium levels.
- Several studies in older adults have shown benefits of magnesium for insomnia. The studies were of low quality, however.
- Since the studies don’t support efficacy of magnesium for these indications, keep in mind that the recommended daily allowance of magnesium for adults is 310–420 mg when considering dosage for supplementation. Many common foods provide magnesium without supplementation, including almonds, avocados, brown rice, cashews, chia seeds, milk, peanuts, pumpkin seeds, soy milk, spinach, and whole wheat bread.

Fun Fact:

In 1618, a farmer in Epsom, England had cows who were refusing to drink from a local well. It turned out the water had a bitter taste but healed scratches and rashes. Thus was the birth of the magnesium compound: epsom salts (MgSO₄·7H₂O).