
MAGNESIUM Fact Sheet [G]

BOTTOM LINE:

Magnesium supplementation may improve symptoms of ADHD or anxiety in children with a deficiency, but supporting or convincing evidence is lacking.

PEDIATRIC AND ADULT 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.

PEDIATRIC DOSAGE GUIDANCE:

- Anxiety: Max 65 mg/day for kids 1–3 years; max 110 mg/day for kids 4–8 years; max 350 mg/day for kids >8 years.
- ADHD: Magnesium aspartates and lactates 6 mg/kg/day.

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.

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:

- 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.
- 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.
- 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.
- Although the Natural Medicines database deems magnesium “insufficient reliable evidence to rate,” one study suggests that elemental magnesium 300 mg/day (adults, mostly women) combined with hawthorn and California poppy (not available in the US) may be useful in the treatment of mild to moderate anxiety.
- 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.

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 ($MgSO_4 \cdot 7H_2O$).