

# Magnesium for muscle cramps

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Magnesium is marketed for many indications, including muscle cramps and, for some patients, general practitioners (GPs) suggest anecdotally that it works. The question has been asked in GP peer groups: 'How effective is it for leg cramps?'

**SOME AVAILABLE BRANDS:** Clinicians, Nutra-life, Thompson's, BioBalance, MICROgenics, Good Health, Solgar, Blackmores, Nature's Own, Source Naturals, Ethical Nutrients, Radiance, TJ Clark, Skybright, Country Life/Biochem, Nature's Sunshine, Twin Lab.

**ACTIVE CONSTITUENTS:** Varies depending on the formulation but may include magnesium chloride, citrate, orotate, maleate, chelate. Available in different formulations of capsules, tablets, powders, liquids.

**MANUFACTURER CLAIMS:** Helps prevent cardiovascular disease, kidney stones, gallstones and some forms of arthritis by improving calcium removal from soft tissue, thereby reducing plaque development and stone formation. Through conditions linked to magnesium deficiency, supplementation covers indications such as asthma, some cancers, migraine onset, fibromyalgia, chronic fatigue, depression, anorexia, allergies and chemical sensitivities, attention deficit disorder, hearing loss, some eye disorders, temporomandibular joint dysfunction (TMJ), sudden infant death syndrome, premature ejaculation and scar formation. Other indications include any form of prolonged stress and conditions, such as heavy menstruation, irritable bowel syndrome, pancreatitis, hyperthyroidism and kidney disease.

**EVIDENCE FOR EFFICACY:** There are 23 Cochrane Database Systematic Reviews (CDSRs) containing the word magnesium in the title. Several papers relate to intravenous administration in the emergency setting. A CDSR on use of magnesium in muscle cramps was published in September 2012, and one pertaining to cramps in pregnancy in 2013. For idiopathic cramps (largely older adults presumed to have nocturnal leg cramps), differences in measures of cramp frequency for magnesium versus placebo were small, not statistically significant, and without heterogeneity ( $I^2=0\%$ ). In pregnancy-associated leg cramps, a single study comparing magnesium to no treatment failed to find statistically significant benefits. The two trials comparing magnesium to placebo differed in that one trial found no benefit whereas the other did for both frequency and intensity. The evidence for magnesium is stronger than for calcium or sodium in this cohort. Combinations of magnesium with other minerals and vitamins available over the counter are supported by anecdote but there is no evidence to support widespread use.

**ADVERSE EFFECTS:** Diarrhoea and abdominal cramping at therapeutic doses. Impaired kidney function may lead to dangerously high plasma concentrations of magnesium. Studies of oral magnesium intake generally describe potential side effects as similar in frequency to placebo.

**CONTRAINDICATIONS:** Limited information available. Severe renal dysfunction.

**PRECAUTIONS:** Limited information available. Changes in mental status,

## Summary Message

The literature is conflicting with regard to the effectiveness of magnesium in the setting of pregnancy-related cramps at rest. Based on supporting data, it is unlikely that magnesium supplementation provides clinically meaningful cramp prophylaxis to older adults. There is no more than anecdotal evidence to support combination magnesium and other vitamins and minerals available over the counter. Magnesium supplementation is generally well tolerated in therapeutic doses, except in renal impairment.

nausea, severe diarrhoea, appetite loss, muscle weakness, difficulty breathing, extremely low blood pressure and irregular heartbeat are signs of toxicity.

**DRUG INTERACTIONS:** Loss of magnesium in urine with loop diuretics, anti-neoplastics and antibiotics. Decreased absorption of tetracyclines. Potential toxicity if taken with magnesium-containing antacids and diuretics.

## Key references

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- Healthpost (product information). [cited 2013 May 3]. Available from: [www.healthpost.co.nz](http://www.healthpost.co.nz)
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- National Institutes of Health. Office of Dietary Supplements. Dietary Supplement Fact Sheet. [Cited 2013 May 6]. Available from: <http://ods.od.nih.gov/factsheets/Magnesium-HealthProfessional>.
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Herbal medicines are a popular health care choice, but few have been tested to contemporary standards. **POTION OR POISON?** summarises the evidence for the potential benefits and possible harms of well-known herbal medicines.