

MAGNESIUM

FORMS + FUNCTION

RELAXATION + MOOD

Magnesium Glycinate

Chelated form

- Combined with Glycine (an amino acid that helps support joint and brain health)
- Thought to provide the highest level of absorption and bioavailability
- Replenishes body's magnesium
- Muscle relaxation
- Mood & Sleep quality
- Gut friendly

PERFORMANCE + RECOVERY

Magnesium Orotate

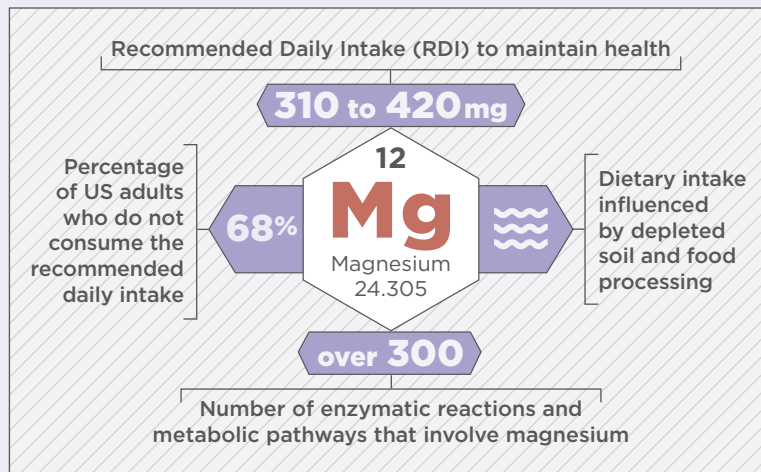
Chelated form

- Combined with orotic acid (a mineral carrier that supports cell & muscle function)
- Higher absorption and bioavailability
- Cardio function
- Helps to support healthy blood pressure and autonomic nervous system regulation
- Glucose utilization during exercise
- Athletic performance & recovery

GENERAL WELL-BEING

Magnesium Citrate

- Combined with Citric Acid (which can be found in citrus fruits)
- Good absorption
- Helps provide laxative effect as a stool softener
- Digestion, kidney function and general well-being



ENERGY

Magnesium Malate

- Combined with malic acid (which can be found in fruit)
- Good absorption
- Optimal energy production (i.e. malic acid is part of the Krebs cycle for manufacturing ATP cellular energy)
- Helps boost energy and mood

MUSCLES + NERVES

Magnesium Aspartate

- Combined with Aspartic Acid (amino acid used in protein synthesis)
- Higher absorption and bioavailability
- Healthy heart rhythm
- Muscle function
- Neurotransmitter support

HEART

Magnesium Taurate

Chelated form

- Combined with Taurine (amino acid which is used by the body to transport magnesium in and out of the cell, i.e. electrolyte balance)
- Higher absorption and bioavailability
- Cardiovascular support
- Heart function
- Vascular Health

REGULARITY

Magnesium Oxide

- Common form found in the earth's crust
- Contains highest concentration (60%) of elemental magnesium
- Supports stool softening and laxative property



What Is a Chelated Mineral?

Some forms of magnesium are **chelated**. Chelation comes from a Greek word meaning claw. When magnesium is chelated, it is held in place by a larger molecule, such as an amino acid. The amino acid or mineral carrier that is holding (chelating) the magnesium can contribute to the magnesium's utilization in the body.

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Mg
Magnesium
24.305

Magnesium (Mg) is an alkaline earth metal found in the earth's crust. In plants, it is the central ion of chlorophyll and in humans, it is the fourth most abundant mineral essential for vital physiological functions. **Regular consumption of Mg in sufficient amounts from food is required by the body.** It is absorbed by the gut, stored primarily in the bone and muscle, and excreted by the kidneys and bowel. Absorption from the diet is complex and directly depends on the individual's magnesium status. Blood serum magnesium concentrations are not a good indicator of body status since it only reflects approximately 1% of total Mg present.



Key Functions of Magnesium

- Regulates cellular function by facilitating transport of other minerals into and out of cells (i.e. calcium, sodium, potassium)
- Mediates muscle contraction and relaxation (i.e. transports calcium out of cell after muscle contraction helping to regulate calcium channel)
- Helps create and maintain body structures (i.e. bones, muscle tissue, cell membranes, DNA chromosomes)
- Helps promote healthy immune function
- Supports normal heart rhythm and regulates vascular tone and blood pressure
- Regulates healthy platelet aggregation for supporting normal blood viscosity
- Regulates stress hormones (i.e. cortisol)
- Involved in hormone production (i.e. melatonin, progesterone, estrogen)
- Metabolizes blood sugar and affects insulin for restoring energy to muscles
- Converts Vitamin D into usable form
- Precursor to neurotransmitter (i.e. converts tryptophan into serotonin)
- Helps support nerve conduction
- Modulates release of histamine to help support bronchial dilation for normal lung function
- Helps digest proteins, carbohydrates, and fats
- Assists in detoxification
- Relaxes smooth muscle (i.e. uterus and bladder)
- Helps provide nutritive support for brain and eye health
- Helps support bowel peristalsis



Common Sources of Magnesium

- Leafy greens (spinach)
- Nuts & seeds (almonds, pumpkin, sunflower, sesame)
- Beans (black or kidney)
- Avocados
- Dietary supplements



Increased Magnesium Requirement

- Magnesium deficiency
- Low Vitamin D levels
- Sleep deprived
- Poor diet
- Alcohol drinker
- Coffee drinker
- Smoking
- PMS
- Menopause
- Restless legs and muscle tension
- Chocolate and salt cravings
- Excessive sweating (i.e. electrolyte maintenance)
- High stress, hyperactivity, irritability
- Malabsorption (i.e. IBS, Crohn's Leaky Gut)
- Anti-acid use (i.e. Mg needs normal acidic stomach pH to be soluble for absorption)
- Older adults (i.e. absorption is reduced by 30% and magnesium storage in bones decreases)

Synergistic Nutrients Required for Magnesium to Function:

Vitamin D

Vitamin K2

Calcium

REFERENCES]

- <https://www.ncbi.nlm.nih.gov/pubmed/15930481>
- <https://ods.od.nih.gov/factsheets/Magnesium-HealthProfessional/>
- <https://www.ncbi.nlm.nih.gov/pubmed/20152124>
- <https://www.ncbi.nlm.nih.gov/pubmed/14518352>
- <http://lpi.oregonstate.edu/mic/minerals/magnesium>
- <https://www.organicnewsroom.com/magnesium-supplements/>
- <https://www.ncbi.nlm.nih.gov/pubmed/26281202>
- <https://www.ncbi.nlm.nih.gov/pubmed/15523949>
- <https://www.ncbi.nlm.nih.gov/pubmed/5109259>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4455825/>
- <https://www.ncbi.nlm.nih.gov/pubmed/11794633>
- <https://www.ncbi.nlm.nih.gov/pubmed/14596323>
- <https://www.ncbi.nlm.nih.gov/pubmed/16366126>
- <https://www.ncbi.nlm.nih.gov/pubmed/15523949>
- <https://www.ncbi.nlm.nih.gov/pubmed/23121635>
- <https://www.ncbi.nlm.nih.gov/pubmed/22364157>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4586582/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5637834>
- <https://getfitjillianmichaels.com/chelated-magnesium-chelated-mean-1181.html>
- <https://www.ncbi.nlm.nih.gov/pubmed/9794094>
- <https://www.ncbi.nlm.nih.gov/pubmed/16542786>
- <https://www.bodybuilding.com/fun/jrod10.htm>
- <https://www.livestrong.com/article/457970-magnesium-oxide-vs-magnesium-citrate-tablets/>
- http://www.kumc.edu/school-of-medicine/integrative-medicine/the-benefits-of-magnesium.htmlhttps://www.consumerlab.com/answers/what-is-the-benefit-of-magnesium-orate-compared-to-other-forms-of-magnesium/magnesium_orate