The Story of Magnesium

Fast facts

• Magnesium, is an abundant mineral in the body

• Magnesium is a cofactor in more than 300 enzyme systems that regulate diverse biochemical reactions in the body, including protein synthesis, muscle and nerve function, blood glucose control, and blood pressure regulation.

• Magnesium is required for energy production, oxidative phosphorylation, and glycolysis.

• Assessing magnesium status is difficult because most magnesium is inside cells or in bone. The most commonly used and readily available method for assessing magnesium status is measurement of serum magnesium concentration, even though serum levels have little correlation with total body magnesium levels or concentrations in specific tissues.
**Hypomagnesia (Magnesium deficiency)**

Symptomatic magnesium deficiency due to low dietary intake in otherwise-healthy people is uncommon because the kidneys limit urinary excretion of this mineral. Early signs of magnesium deficiency include:

- Loss of appetite
- Nausea
- Vomiting
- Fatigue
- Weakness.

As magnesium deficiency worsens, numbness, tingling, muscle contractions and cramps, seizures, personality changes, abnormal heart rhythms, and coronary spasms can occur. Severe magnesium deficiency can result in hypocalcemia or hypokalemia (low serum calcium or potassium levels, respectively) because mineral homeostasis is disrupted.

**Groups at Risk of Magnesium inadequacy**

The following groups are more likely to be at risk of magnesium inadequacy because they typically consume insufficient amounts due to medical conditions or medications that either reduce magnesium absorption from the gut, or increase losses from the body.

- People with gastrointestinal diseases.
- Type 2 diabetes.
- Alcohol dependence
- Metabolic syndrome
- Older adults

Magnesium can help to manage symptoms and conditions such as migraine headaches, asthma, osteoporosis, hypertension, restless leg syndrome and premenstrual tension.

**Metabolic syndrome** is a cluster of conditions—increased blood pressure, a high blood sugar level, excess body fat around the waist and abnormal cholesterol levels occurring together, increasing your risk of heart disease, stroke and diabetes.

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**Hypermagnesia (Magnesium toxicity)**

Severe toxicity can cause muscle weakness and difficulty breathing. Changes in mental status might also occur, including confusion and lethargy. Elevated magnesium levels can throw off the balance of other minerals in the body, especially calcium, which can cause additional symptoms.

It is important to talk to your Dr before taking supplements especially if you are on: prescription medication; have kidney disease; heart disease; are pregnant or breastfeeding; or have allergies.

**Magnesium rich foods**

It is always preferable to get sufficient nutrients from food rather than supplements, as approximately 30% to 40% of the dietary magnesium consumed is typically absorbed by the body. However, if you have a high fat diet, your capacity to absorb magnesium from your food will be reduced.

Magnesium rich foods include:

- Leafy green vegetables such as spinach
- Nuts and seeds; pumpkin seeds, sesame seeds, brazil nuts, cashews, pine nuts, peanuts, pecans, and walnuts
- Fish; Mackeral, sardines, salmon
- Beans and lentils; soybeans, white beans, french beans, black-eyed peas, kidney beans, chickpeas, lentils and pinto beans
- Grains; brown rice, quinoa, bulgur, wheat germ, buckwheat, millet, whole wheat pasta, barley and oats
- Dried fruit; figs, prunes, apricots, dates and raisins
- Others; avocados, bananas, dark chocolate, seaweed and tofu

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