



Magnesium (Mg, Magnesium) - description, effect on the body, the best sources of magnesium

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Abstract. The article discusses the main properties of magnesium (Mg) and its effect on the human body. A systematic review of modern specialized literature and relevant scientific data was carried out. The best natural sources of magnesium are indicated. The use of the mineral in various types of medicine and the effectiveness of its use in various diseases are considered. The potentially adverse effects of magnesium on the human body under certain medical conditions and diseases are analyzed separately.

Key words: magnesium, Mg , magnesium, benefit, harm, beneficial properties, contraindications

Magnesium (Mg) is one of the most abundant minerals in nature and the fourth most abundant mineral in living organisms. It is involved in many key metabolic reactions such as energy production, nucleic acid and protein synthesis, and oxidative reactions. Magnesium is very important for the health of the immune and nervous systems, for muscles and the skeleton. Interacting with other trace elements (calcium, sodium, potassium), it is very important for the health of the whole organism ^[1].

Foods rich in magnesium

Table 1. List of foods rich in magnesium (according to [Food+](#)).

Product	Magnesium content (mg/100 grams) ^[3]
Pumpkin seeds	592
Flaxseeds	392
Brazilian nut	376
chia seeds	355
Cashew nuts	292
Almond	270
Oatmeal	235
Dark chocolate (70-85%)	228
Buckwheat	221
Quinoa	197

White beans	190
brown rice	177
Peanut	168
Sunflower seeds	129
Whole grain wheat flour	117
chickpeas	79
Barley	79
Spinach	79
Mackerel	76
edamame beans	61
artichokes	60
Dates	54
Tuna	fifty
Lentils	47
Green pea	33
curly cabbage	33
oysters	33
Avocado	29
Salmon	29
Banana	27
Brussels sprouts	23
Raspberry	22
Broccoli	21
Asparagus	fourteen
Orange	fourteen

daily requirement

In 1993, the European Scientific Committee on Nutrition determined that an acceptable dose of magnesium per day for an adult would be 150 to 500 mg per day.

Based on research findings, the US Food and Nutrition Board established a Recommended Dietary Allowance (RDA) for magnesium in 1997. It depends on the age and gender of the person:

Life period	Age	Men: (mg/day)	Women: (mg/day)
babies	0–6 months	30 (AI)	30 (AI)
babies	7–12 months	75 (AI)	75 (AI)
Children	1–3 years	80	80
Children	4–8 years	130	130
Children	9–13 years old	240	240
Teenagers	14–18 years old	410	360
adults	19 - 50 years old	400	310
adults	51 years and older	420	320

Pregnancy	18 years and under	-	400
Pregnancy	19-30 years old	-	350
Pregnancy	31 years and older	-	360
Breast-feeding	18 years and under	-	360
Breast-feeding	19-30 years old	-	310
Breast-feeding	31 years and older	-	320

In 2010, it was found that about 60% of US adults were not getting enough magnesium in their diet. ^[4]

The daily requirement for magnesium increases in certain diseases: convulsions in newborns, hyperlipidemia, lithium poisoning, hyperthyroidism, pancreatitis, hepatitis, phlebitis, coronary artery disease, arrhythmia, digoxin poisoning.

In addition, a larger amount of magnesium is advised to use with:

- alcohol abuse: it has been proven that excessive alcohol consumption leads to increased excretion of magnesium through the kidneys;
- taking certain medications;
- breastfeeding multiple babies;
- in the elderly: several studies have shown that magnesium intake in older people is often insufficient - both for physiological reasons and because of difficulties in cooking, shopping for products, etc.

The daily requirement for magnesium decreases with poor kidney function. In such cases, an excess of magnesium in the body (primarily when taking dietary supplements) can be toxic ^[2].

The benefits of magnesium and the effect on the body

More than half of the magnesium in the body is found in the bones, where it plays an important role in their growth and maintenance of their health. Most of the rest of the mineral is in the muscles and soft tissues, and only 1% is in the extracellular fluid. Bone magnesium serves as a reservoir for normal magnesium levels in the blood.

Magnesium is involved in over 300 major metabolic reactions such as the synthesis of our genetic material (DNA/RNA) and proteins, cell growth and reproduction, and energy production and storage. Magnesium is important for the formation of the body's main energy compound - adenosine triphosphate - which all our cells need ^[10].

Health Benefits

- Magnesium is involved in hundreds of biochemical reactions in the body. Magnesium is needed by all cells of our body, without exception, for energy production, protein production, maintaining the work of genes, muscles and the nervous system.
- Magnesium can improve the performance of sports. Depending on the sport, the body needs 10-20% more magnesium. It aids in the transport of glucose to the muscles and in the processing of lactic acid, which can lead to pain after exercise. Studies show that supplemental

magnesium improves exercise performance in professional athletes, the elderly, and those with chronic medical conditions.

- Magnesium helps fight depression. Magnesium plays a key role in brain function and mood regulation, and low levels in the body have been linked to an increased risk of depression. Some scientists believe that the lack of magnesium in modern foods may be the cause of many cases of depression and other mental illnesses.
- Magnesium is beneficial for people with type 2 diabetes. Studies show that 48% of people with type 2 diabetes have low levels of magnesium in their blood. This can lead to a weakening of insulin's ability to control blood sugar levels. Another study found that people with type 2 diabetes who took high doses of magnesium every day experienced significant improvements in blood sugar and hemoglobin levels.
- Magnesium helps lower blood pressure levels. According to the results of one study, people who took 450 mg of magnesium per day experienced a significant reduction in systolic and diastolic blood pressure. It should be noted that the results of the study were observed in people with high blood pressure, and did not lead to any changes in people with normal blood pressure levels.
- Magnesium has anti-inflammatory properties. Low magnesium intake is associated with chronic inflammation, which is a factor in aging, obesity, and chronic disease. Studies show that children, the elderly, people who are obese, and people with diabetes have lower blood levels of magnesium and elevated markers of inflammation.
- Magnesium may help prevent migraines. Some researchers believe that migraine sufferers are more likely to suffer from magnesium deficiency than others. In one study, supplementing with 1 gram of magnesium helped get rid of an acute migraine attack faster and more effectively than conventional medication. In addition, foods rich in magnesium can help reduce migraine symptoms.
- Magnesium reduces insulin resistance. Insulin resistance is one of the main causes of type 2 diabetes. It is characterized by a weakened ability of muscle and liver cells to properly absorb sugar from the blood. Magnesium plays a critical role in this process. In addition, high insulin levels lead to an increase in the amount of magnesium excreted in the urine.
- Magnesium helps with PMS. Magnesium helps with PMS symptoms such as water retention, abdominal cramps, fatigue, and irritability ^[5].

digestibility

In the face of increasing magnesium deficiency, the question often arises: how to get enough of it from the daily diet? Many do not know that the amount of magnesium in modern products has decreased significantly. For example, vegetables contain 25-80% less magnesium, and when processing pasta and bread, 80-95% of all magnesium is destroyed. Magnesium sources, once widely consumed, have declined in the past century due to industrial agriculture and dietary changes. The foods most rich in magnesium are beans and nuts, green leafy vegetables, and whole grains such as brown rice and whole wheat. Given current eating habits, one can understand how difficult it is to reach the recommended 100% daily intake of magnesium. Most foods that contain high levels of magnesium are consumed in too small quantities.

Magnesium absorption rates also vary, sometimes as low as 20%. Magnesium absorption is influenced by factors such as phytic and oxalic acids, medications taken, age and genetic factors.

There are three main reasons why we don't get enough magnesium from our diet:

1. industrial food processing;
2. the composition of the soil in which the product is grown;
3. changes in eating habits.

Food processing essentially breaks down plant food sources into components for ease of use and to reduce spoilage. When grain is processed into white flour, the bran and germ are removed. When processing seeds and nuts into refined oils, the products are overheated and the magnesium content is deformed or removed by chemical additives. Refined grains remove 80-97 percent of magnesium, and refined flours remove at least twenty nutrients. Only five of these are added back when "enriched" and magnesium is not one of them. In addition, when processing food, the number of calories increases. Refined sugar loses all the magnesium. Molasses, which is removed from sugar cane during refining, contains up to 25% of the daily value of magnesium in one tablespoon. There is no sugar at all.

The soil in which food is grown also has a huge impact on the amount of nutrients contained in these products. Experts say that the quality of our crops is declining significantly. For example, in America, the content of nutrients in the soil has decreased by 40% compared to 1950. The reason for this is considered an attempt to increase productivity. And when crops grow faster and bigger, they are not always able to produce or absorb nutrients in time. The amount of magnesium decreased in all foods - meat, grains, vegetables, fruits, dairy products. In addition, pesticides destroy organisms that provide plants with nutrients. The number of vitamin-binding bacteria in the soil and earthworms is reduced [6].

In 2006, the World Health Organization published data that 75% of the adult population consume a magnesium-deficient diet [7].

Useful Food Combinations

- **Magnesium + vitamin B6.** Magnesium, found in nuts and seeds, helps regulate blood pressure, prevents hardening of blood vessels, and maintains a regular heart rhythm. Vitamin B6 helps the body absorb magnesium. To increase your magnesium intake, try eating foods such as almonds, spinach; and for higher amounts of vitamin B6, opt for raw fruits and vegetables, such as bananas.
- **Magnesium + Vitamin D.** Vitamin D helps regulate blood pressure and improves heart health. But in order for it to be fully absorbed, it needs magnesium. Without magnesium, vitamin D cannot be converted to its active form, calcitriol. Good sources of vitamin D are milk and fish, combined with spinach, almonds, and black beans. In addition, calcium is required for the absorption of vitamin D [8].
- **Magnesium + vitamin B1.** Magnesium is essential for the conversion of thiamine to its active form, as well as for some thiamine-dependent enzymes.
- **Magnesium + potassium.** Magnesium is needed for the absorption of potassium in the cells of the body. And a balanced combination of magnesium, calcium and potassium can reduce the risk of stroke [9].

Magnesium is an essential electrolyte and is needed in combination with calcium, potassium, sodium, as well as phosphorus and many trace elements contained in mineral and salt compounds. It is highly regarded among athletes, usually in combination with zinc, for its effect on strength endurance and muscle recovery, especially when combined with adequate fluid intake. Electrolytes are important to every cell in the body and absolutely essential for proper cellular function. They are very important in allowing cells to generate energy, to regulate fluids, providing minerals needed for excitability, secretory activity, membrane permeability and overall cellular activity. They generate electricity, contract muscles, move water and fluids in the body, and are involved in a variety of other activities.

The concentration of electrolytes in the body is controlled by various hormones, most of which are produced in the kidneys and adrenal glands. Sensors in specialized cells in the kidneys monitor the amount of sodium, potassium, and water in the blood.

Electrolytes can be excreted from the body through sweat, feces, vomit, and urine. Many gastrointestinal disorders (including gastrointestinal absorption) cause dehydration, as do diuretic therapy and severe tissue injury such as burns. As a result, some people may experience hypomagnesemia, a lack of magnesium in the blood.

Cooking rules

Like other minerals, magnesium is not affected by heat, air, acids, or mixing with other substances ^[10].

In official medicine

- High blood pressure and heart disease

The results of clinical studies using magnesium supplements for the treatment of abnormally high blood pressure are conflicting. Long-term clinical trials are needed to determine if magnesium has any therapeutic benefit in people with hypertension. However, magnesium is essential for heart health. This mineral is especially important for maintaining a normal heart rhythm and is often used by doctors to treat arrhythmias, especially in people with congestive heart failure. However, results from studies using magnesium to treat heart attack survivors have been inconsistent. While some studies have reported reduced mortality as well as reduced arrhythmias and improved blood pressure, other studies have shown no such effects.

- Stroke

Population-based studies show that people with low magnesium in their diets may have a greater risk of stroke. Some preliminary clinical evidence suggests that magnesium sulfate may be useful in the treatment of stroke, or temporary circulatory failure in an area of the brain.

- Preeclampsia

This is a condition characterized by a sharp increase in blood pressure in the third trimester of pregnancy. Women with preeclampsia may develop seizures, which are then called eclampsia. Magnesium given intravenously is a treatment to prevent or treat seizures associated with eclampsia.

- Diabetes

Type 2 diabetes is associated with low levels of magnesium in the blood. There is evidence from a clinical study that a higher dietary intake of magnesium may protect against the development of type 2 diabetes. Magnesium has been found to improve insulin sensitivity, reducing the risk of type 2 diabetes. In addition, magnesium deficiency in diabetics can lower their immunity, making them more vulnerable to infections and disease.

- Osteoporosis

Deficiencies in calcium, vitamin D, magnesium, and other micronutrients are thought to play a role in the development of osteoporosis. Adequate intake of calcium, magnesium, and vitamin D, combined with overall good nutrition and exercise during childhood and adulthood, is the primary preventive measure for men and women.

- Migraine

Magnesium levels tend to be lower in people with migraines, including children and adolescents. In addition, some clinical studies show that magnesium supplements can reduce the duration of migraines and the number of medications taken.

Some experts believe that oral magnesium may be a suitable alternative to prescribing medication for people who suffer from migraines. Magnesium supplements may be a viable option for those who cannot take medication due to side effects, pregnancy or heart disease.

- Asthma

A population-based study has shown that low dietary magnesium intake may be associated with the risk of developing asthma in children and adults. In addition, some clinical studies show that intravenous and inhaled magnesium may help treat acute asthma attacks in children and adults.

- Attention deficit/hyperactivity disorder (ADHD)

Some experts believe that children with Attention Deficit/Hyperactivity Disorder (ADHD) may have mild magnesium deficiency, which manifests itself in symptoms such as irritability and decreased concentration. In one clinical study, 95% of children with ADHD were deficient in magnesium. In another clinical study, children with ADHD who received magnesium showed a significant improvement in behavior, while those who received only standard therapy without magnesium showed worse behavior. These results suggest that magnesium supplements may be beneficial for children with ADHD.

- constipation

Magnesium intake has a laxative effect, relieving conditions during constipation ^[20].

- Infertility and miscarriage

A small clinical study of infertile women and women with a history of miscarriage found that low magnesium levels can impair fertility and increase the risk of miscarriage. It has been suggested that one aspect of fertility treatment should be magnesium and selenium.

- Premenstrual Syndrome (PMS)

Scientific evidence and clinical experience show that magnesium supplements can help relieve symptoms associated with PMS, such as bloating, insomnia, leg swelling, weight gain, and breast tenderness. In addition, magnesium can help improve mood in PMS. ^[4].

- Stress and sleep problems

Insomnia is a common symptom of magnesium deficiency. People who are low in magnesium often experience restless sleep, frequently waking up during the night. Maintaining healthy magnesium levels often results in deeper, more restful sleep. Magnesium plays an important role in supporting deep restorative sleep by maintaining healthy levels of GABA (the neurotransmitter that regulates sleep). In addition, low levels of GABA in the body can make it difficult to relax. Magnesium also plays a key role in regulating the body's response system to stress. Magnesium deficiency is associated with increased stress and anxiety ^[21].

During pregnancy

Many pregnant women complain of cramps and vague abdominal pain that can result from a magnesium deficiency. Other symptoms of magnesium deficiency are palpitations and exhaustion. All of them, as such, are not yet a cause for concern, but, nevertheless, you should listen to the signals of your body and, possibly, get tested for magnesium deficiency. If a severe magnesium deficiency occurs during pregnancy, the uterus loses its ability to relax. Consequently, spasms occur, which can cause premature contractions - and lead to preterm labor in severe cases. With magnesium deficiency, the balancing effect on the cardiovascular system stops and the risk of developing hypertension in pregnant women increases. In addition, magnesium deficiency has been suggested to be a cause of preeclampsia and increased nausea during pregnancy.

In folk medicine

Folk medicine recognizes the restorative and calming effect of magnesium. In addition, according to popular recipes, magnesium has diuretic, choleric and antimicrobial effects. It prevents aging and inflammatory processes ^[11]. One of the ways magnesium enters the body is through the skin. It is applied by rubbing a magnesium chloride compound into the skin in the form of an oil, gel, bath salts, or lotion. An effective method is also a foot bath with magnesium chloride, since the foot is considered one of the most absorbent surfaces of the body. Athletes, chiropractors, massage therapists apply magnesium chloride to painful muscles and joints. This method not only provides the medical effect of magnesium, but also the benefits of massaging and rubbing the affected areas ^[12].

In scientific research

- A new method for predicting the risk of preeclampsia. Australian researchers have developed a way to predict the onset of an extremely dangerous pregnancy disease that kills 76,000 women and half a million children every year, mostly in developing countries. It is a simple and inexpensive way to predict the onset of preeclampsia, which can lead to complications in women and children, including maternal brain and liver injury and preterm birth. The researchers assessed the health status of 593 pregnant women using a special questionnaire. Combining measures of fatigue, heart health, digestion, immunity, and mental health, the questionnaire yields an overall "sub-optimal health score." Next, the results were combined with blood tests that measured calcium and magnesium levels in the blood. Researchers were able to accurately predict the development of preeclampsia in almost 80 percent of cases ^[13].
- New details about the mechanism of protection of cells from infections with the help of magnesium. When pathogens enter cells, our body fights them using various methods. Researchers at the University of Basel were able to show exactly how cells control invading pathogens. This mechanism causes magnesium deficiency, which in turn limits bacterial growth, the researchers report.
When pathogenic microorganisms infect the body, the defense system immediately begins to fight the bacteria. To avoid "encounter" with immune cells, some bacteria invade and multiply inside the body's own cells. However, such cells have different strategies to keep intracellular bacteria under control. Scientists have found that magnesium is critical for bacterial growth inside host cells. Magnesium starvation is a stress factor for bacteria, which stops their growth and reproduction. Affected cells restrict the supply of magnesium to these intracellular pathogens, thus fighting infections ^[14].
- New treatment for heart failure. Studies show that magnesium improves a form of heart failure that was previously untreated. In their scientific paper, scientists from the University of Minnesota found that magnesium can be used to treat diastolic heart failure. "We found that cardiac mitochondrial oxidative stress can cause diastolic dysfunction. Since magnesium is an essential element for mitochondrial function, we decided to try a supplement as a treatment," explained the study leader. "It eliminates the weak cardiac relaxation that causes diastolic heart failure."

Obesity and diabetes are known risk factors for cardiovascular disease. Researchers found that magnesium supplementation also improved mitochondrial function and blood glucose levels in subjects ^[15].

In cosmetology

Magnesium oxide is often used in skin care products. It has absorbent and mattifying properties. In addition, magnesium reduces the number of acne and inflammation, skin allergies, and also supports the function of collagen. It is found in many serums, lotions and emulsions.

The balance of magnesium in the body also affects the condition of the skin. Its deficiency leads to a decrease in the level of fatty acids in the skin, which reduces its elasticity and hydration. As a result, the skin becomes dry and loses its tone, wrinkles appear. Starting to take care of a sufficient amount of magnesium in the body should be after 20 years, when the level of the antioxidant glutathione reaches its peak. In addition, magnesium supports the health of the immune system, which helps fight against the harmful effects of toxins and pathological organisms on skin health ^[16].

Weight regulation

Although magnesium itself does not directly affect weight loss, it has a great influence on a number of other factors that contribute to weight loss:

- positively affects the metabolism of glucose in the body;
- reduces stress and improves sleep quality;
- charges cells with the energy necessary for sports;
- plays a key role in muscle contraction;
- helps to improve the overall quality of training and endurance;
- supports heart health and rhythm;
- helps fight inflammation;
- improves mood ^[17].

Magnesium harm and warnings

Signs of a magnesium deficiency

Magnesium deficiency in healthy people who eat a balanced diet is quite rare. The risk of magnesium deficiency is increased in people with gastrointestinal disorders, kidney disorders, and chronic alcoholism. In addition, absorption of magnesium from the digestive tract tends to decrease and urinary excretion of magnesium tends to increase with age.

Although severe magnesium deficiency is rare, it has been experimentally shown to manifest as low serum calcium and potassium levels, neurological and muscle symptoms (eg, spasms), loss of appetite, nausea, vomiting, and personality changes.

Several chronic diseases - Alzheimer's disease, type 2 diabetes mellitus, hypertension, cardiovascular disease, migraines and ADHD - have been associated with hypomagnesemia ^[4].

Signs of excess magnesium

Side effects from excess magnesium (such as diarrhea) have been observed with magnesium supplementation.

Individuals with impaired kidney function are at a higher risk of side effects when taking magnesium.

Elevated levels of magnesium in the blood ("hypermagnesemia") can lead to a drop in blood pressure ("hypotension"). Some of the effects of magnesium toxicity, such as lethargy, confusion, abnormal heart rhythms, and worsening kidney function, are associated with severe hypotension. As hypermagnesemia progresses, muscle weakness and difficulty breathing may also occur.

Interaction with medications

Magnesium supplements may interact with certain medications:

- antacids can impair the absorption of magnesium;
- some antibiotics affect muscle function, like magnesium - taking them at the same time can lead to muscle problems;
- heart medications may interact with magnesium's effect on the cardiovascular system;
- when taken simultaneously with drugs for diabetes, magnesium can lead to a risk of low blood sugar;
- care should be taken when taking magnesium with drugs to relax muscles;

When taking any medications and dietary supplements, you should consult your doctor ^[20].

Literature

1. Costello, Rebecca et al. Magnesium. Advances in nutrition (Bethesda, Md.) vol. 7.1 199-201. Jan 15 2016, doi:10.3945/an.115.008524
2. Jennifer J. Otten, Jennifer Pitz Hellwig, and Linda D. Meyers. "Magnesium." Dietary Reference Intakes: The Essential Guide to Nutrient Requirements. National Academies, 2006. 340-49.
3. AA Welch, H. Fransen, M. Jenab, MC Boutron-Ruault, R. Tumino, C. Agnoli, U. Ericson, I. Johansson, P. Ferrari, D. Engeset, E. Lund, M. Lentjes, T. Key, M. Touvier, M. Niravong, et al. "Variation in Intakes of Calcium, Phosphorus, Magnesium, Iron and Potassium in 10 Countries in the European Prospective Investigation into Cancer and Nutrition Study." European Journal of Clinical Nutrition 63.S 4 (2009): S101-21.
4. magnesium. Nutri-Facts, [source](#)
5. 10 Evidence-Based Health Benefits of Magnesium, [source](#)
6. Magnesium in the Diet : The Bad News about Magnesium Food Sources, [source](#)
7. World Health Organization. Calcium and Magnesium in Drinking Water : Public health significance. Geneva: World Health Organization Press; 2009.
8. 6 Best Nutrient Pairings for Your Heart, [source](#)
9. Vitamin and Mineral Interactions: The Complex Relationships of Essential Nutrients, [source](#)
10. Vitamins and Minerals : a brief guide, [source](#)
11. Valentin Rebrov. Pearls of traditional medicine. Unique recipes of practicing healers in Russia.
12. Magnesium connection. Health and Wisdom, [source](#)
13. Enoch Odame Anto, Peter Roberts, David Coall, Cornelius Archer Turpin, Eric Adua, Youxin Wang, Wei Wang. Integration of suboptimal health status evaluation as a criterion for prediction of preeclampsia is strongly recommended for healthcare management in pregnancy: a prospective cohort study in a Ghanaian population. EPMA Journal, 2019; 10(3):211 DOI:10.1007/s13167-019-00183-0
14. Olivier Cunrath and Dirk Bumann. Host resistance factor SLC11A1 restricts Salmonella growth through magnesium deprivation. Science, 2019 DOI: 10.1126/ science.aax 7898

15. Man Liu, Euy-Myoung Jeong, Hong Liu, An Xie, Eui Young So, Guangbin Shi, Go Eun Jeong, Anyu Zhou, Samuel C. Dudley. Magnesium supplementation improves diabetic mitochondrial and cardiac diastolic function. JCI Insight, 2019; 4(1) DOI: 10.1172/jci.insight.123182
16. How magnesium can improve your skin – from anti-ageing to adult acne, [source](#)
17. 8 Reasons to Consider Magnesium for Weight Loss, [source](#)
18. Magnesium Facts, [source](#)
19. Elements for Kids. Magnesium, [source](#)
20. magnesium. Are there any interactions with other medications? [source](#)
21. What you need to know about magnesium and your sleep, [source](#)

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Magnesium - description, benefits and sources

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