



STRESS-RELAX[®] MAGNESIUM CITRATE POWDER

Relaxes muscles and calms nerves

AN ESSENTIAL MINERAL FOR HEALTH AND VITALITY

Magnesium is an often-overlooked nutrient. It is essential for hundreds of biological processes in the human body, but the majority of people do not consume an adequate amount, and few are aware of its importance.

While some people know magnesium is important for bone health, it also plays a key role in the firing of nerve cells, energy production in all cells, and the action of muscles, including the heart and blood vessels. Research shows that people with inadequate dietary intake of magnesium may experience anxiety, irritability, depression, insomnia, fatigue, cramps, migraine headaches, constipation, osteoporosis, high blood pressure, and increased risk for heart disease.

MISSING MAGNESIUM

The National Health and Nutrition Examination Survey in the United States found 68% of adults were consuming less than the Recommended Dietary Allowance (RDA) of magnesium (King). Another American study surveyed 37,000 people and found that 75% had a magnesium intake below the RDA. On average, American males were found to be receiving only 70% of their RDA for magnesium. Studies in Germany and the United Kingdom found a similar level of dietary magnesium deficiency.

The prevalence of inadequate magnesium intake has several causes. One is the widespread use of processed foods such as white flour, and the low intake of dark, leafy greens. A more troubling cause of insufficient magnesium consumption is that the soil has been depleted of minerals by decades of industrial agricultural practices. A review of 20th century data by the Nutrition Security Institute found that in the United States the amount of magnesium in a fresh apple had plummeted from 29 mg in 1914 to only 5 mg in 1992, with similar shocking declines found in other fruits and vegetables. This trend has probably continued, leaving nutrient levels in fresh food even lower today, making it difficult to receive adequate levels of minerals even when consuming a healthy diet.

Inadequate magnesium intake gradually creates magnesium deficiency in the body. Other factors, such as stress and excessive calcium intake, can further deplete magnesium, pushing the body toward problematic magnesium deficiency. Many people consume excess calcium due to their concerns about osteoporosis. But calcium can interfere with the absorption of magnesium. Paradoxically, excessive calcium consumption can increase the risk of osteoporosis, since healthy bones require a balance of calcium and magnesium, and an imbalance contributes to bone loss.

A blood serum test cannot detect a magnesium deficiency because it is not correlated with total body magnesium. Almost

all of the magnesium in the body is in the bones or inside the cells. The cells can be deficient even when the serum level is normal (Wester). The best test is a red blood cell magnesium test which measures the level of magnesium inside those cells.

Research shows that taking a supplement can quickly restore healthy levels of magnesium, relieve anxiety and other symptoms associated with deficiency, and lower the risk of serious conditions such as heart disease. Magnesium supplements are available in several forms, but not all are easily absorbed. Natural Factors Stress-Relax Magnesium Citrate Powder is one of the preferred forms, as it is readily absorbed in the small intestines.

THE HEALTH BENEFITS OF MAGNESIUM

- Reduces the risk of heart disease
- Balances the absorption and utilization of calcium
- Supports the formation and maintenance of healthy bone matrix
- Reduces the risk of calcium deposits, such as kidney stones, in soft tissues
- Regulates nerve cell conduction
- Supports energy production inside cells
- Improves exercise endurance
- Modulates blood clotting
- Reduces stress and anxiety
- Relaxes the muscles, and calms the nerves

BALANCES CALCIUM INTAKE

Calcium and magnesium work together in the body. Both are needed to build and maintain healthy bones. Calcium is needed for muscle contraction while magnesium causes muscles to relax. Calcium stimulates nerve cells, while magnesium calms them. But magnesium and calcium are out of balance in most people's diets, due to the consumption of dairy products and the many processed foods that are now fortified with calcium. For people who take a calcium supplement without magnesium, the imbalance can be even greater. If there is too much calcium in the body, instead of going to the bones it is deposited in soft tissues and can lead to worsening osteoporosis, formation of kidney stones, arthritis, and heart disease.

A study of clotting in human blood found that if there is too little calcium in the cells, they will not aggregate, and if there is too much magnesium the cells will not aggregate even if there is sufficient calcium. The correct balance is essential for healthy blood flow. Indeed, magnesium deficiency is associated with high blood pressure, a condition that is often treated with anti-clotting drugs. But replenishing magnesium can also help. A randomized, placebo-controlled, cross-over study investigated the effect of supplemental magnesium in 42 patients with coronary artery disease, aged 59–77 years. The first group received 800 mg or

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1,200 mg of magnesium tablets each day, while the second group received a placebo. After three months there was a four-week break, then for three months group 2 received magnesium while group 1 received the placebo. The median measurement of platelet-dependent thrombosis (clotting) was significantly reduced by 35% after magnesium supplementation (Shechter, 2000).

Bones need twice as much calcium as magnesium. However, in the cells the opposite ratio is required. Since about half the body's magnesium is in the bones and half is in the cells, these two requirements are roughly equivalent. For this reason, a Canadian doctor who specializes in nutrition has recommended that a person's magnesium intake, through diet and supplementation, should equal their calcium intake (Dean).

RESTORES HEALTHY MAGNESIUM LEVELS

Magnesium is involved in over 300 biochemical processes in the human body, making adequate magnesium intake essential for health and vitality.

Magnesium is involved in energy production inside every cell, and magnesium supplementation has been shown to improve endurance during exercise. A multicentre, multinational, randomized, double-blind, placebo-controlled trial enrolled 187 patients with coronary disease, aged 42–83 years. They received 387 mg of magnesium citrate or a placebo each day. After six months, those in the treatment group had significantly increased intracellular magnesium levels, and a 12% improvement in exercise duration, compared with no change in the placebo group. Those receiving magnesium also had less chest pain after exercise and reported an overall improvement in quality of life (Shechter, 2003).

Magnesium plays important roles in neuron function. A recent joint study by the Massachusetts Institute of Technology and Tsinghua University in Beijing found magnesium supplements help boost brainpower. Supplemental magnesium given to rats caused an increase in the magnesium level in the brain, and the rats showed improvements in learning ability, working memory, and short- and long-term memory. There was significant enhancement of spatial and associative memory in both young and old rats. Detailed analysis by the University of Toronto showed improvements in the functioning of the synapses between neurons (Slutsky).

The researchers are now conducting clinical trials into magnesium's effectiveness in age-related cognitive decline in humans.

CALMS THE SYMPTOMS OF ANXIETY AND STRESS

Modern life is stressful for many people, and inadequate magnesium intake can heighten this stress. Magnesium plays an important role in the stress response inside the body's cells. Normally there needs to be a high ratio of magnesium to calcium inside cells. But when a life event triggers the release of stress hormones, calcium floods into the cells, reversing the magnesium/calcium ratio. As the stress hormones subside, calcium leaves the cells, and magnesium is again the more abundant element. But if the level of magnesium in the cells is low to begin with, the stress response is prolonged as more calcium must leave before the normal ratio is restored.

For people who are magnesium deficient, the ability to deal with stress is compromised. Fortunately, the research shows that supplements can restore magnesium levels inside cells and relieve the symptoms of stress and anxiety. A double-blind, randomized, placebo-controlled trial done in France involved 264 patients, 81% women, with a median age of 45 years. All had generalized anxiety disorders of mild-to-moderate severity (scoring 16–28 on the Hamilton Anxiety Scale). After 90 days, the patients receiving magnesium experienced a statistically significant reduction in anxiety according to all three measurements used – the Hamilton scale, a somatic score, and patient self-assessment (Hanus).

Magnesium also plays an important role in the central nervous system, regulating neurotransmitter metabolism and modulating the sensitivity of nerve receptors, including those involved in the “fight or flight” stress response. A study using rats found that magnesium deficiency led to impaired function in several neurotransmitters. The same study found that administering magnesium supplements reversed the deficiency status and restored nerve functioning back to the same normal level as the control group (Spasov).

DOSAGE

Add 1 scoop of powder to ½ cup of hot water, stirring well. Add an additional ½ cup of cold water or juice and drink. Take once daily or as directed by a health care practitioner.

SAFETY

Magnesium has been shown to be safe at recommended dosages. If diarrhea occurs, reduce the dosage.

Pregnancy and lactation: Safe for pregnant and lactating women.

Children: Suitable for children 4–6 years of age at one-quarter of the adult dose; children 7–10 at half the adult dose; and children 11 and over at three-quarters of the adult dose.

Drug interactions: Magnesium can interfere with absorption of tetracycline antibiotics. Magnesium may interact with blood-thinning drugs. If you are using these medications, consult a health care practitioner prior to using magnesium citrate.

Contraindications: Those with kidney disease should consult a health care practitioner prior to using magnesium citrate.

Natural Factors Stress-Relax Magnesium Citrate Powder is an effective way to meet your body's daily magnesium requirement. It calms the symptoms of anxiety and stress, balances the absorption and utilization of calcium, and reduces the risk of heart disease.

KEY REFERENCES

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