

The Miracle of Magnesium

By Carolyn Dean, MD, ND

Magnesium deficiency triggers or causes the following 22 conditions; the introduction of magnesium, either by a high-magnesium diet, with green drinks, or magnesium supplements, can help alleviate these conditions:

1. Anxiety and panic attacks
2. Asthma
3. Blood clots
4. Bowel disease
5. Cystitis
6. Depression
7. Detoxification
8. Diabetes, Syndrome X, and Metabolic Syndrome
9. Fatigue
10. Heart disease
11. Hypertension
12. Hypoglycemia
13. Insomnia
14. Kidney Disease
15. Liver Disease
16. Migraine
17. Musculoskeletal conditions (**heart is muscle!**)
18. Nerve problems
19. Obstetrics and Gynecology--premenstrual syndrome, dysmenorrhea (cramping pain during menses), infertility, premature contractions, preeclampsia, and eclampsia in pregnancy, lessens the risk of cerebral palsy and Sudden Infant Death Syndrome (SIDS)
20. Osteoporosis
21. Raynaud's Syndrome
22. Tooth decay

Science and medicine have both turned their backs on magnesium. Science opts out because the scientific methodology is defined by being able to test one thing at a time ending up with one result. Science finds magnesium too difficult to corral, partly because it is responsible for the correct metabolic function of over 350 enzymes in the body. The creation of ATP (adenosine triphosphate) the energy molecules of the body, the action of the heart muscle, the proper formation of bones and teeth, relaxation of blood vessels, and the promotion of proper bowel function are all under the guidance of magnesium.

Why Don't We Hear More About Magnesium?

Medicine has turned its back on magnesium because most of the funding for medical research now comes from drug companies. Magnesium is not a patented drug and therefore will not be studied by drug companies, except to try to disprove its action.

While researching my book, "[The Miracle of Magnesium](#)," I found that doctors have been prescribing magnesium for heart disease since the 1930s. A review of seven major clinical studies showed that IV magnesium reduced the odds of death by more than half in patients suffering acute myocardial infarction (heart attack). One study, LIMIT-2, developed a protocol for giving magnesium as soon as possible after onset of the heart attack and before any other drugs. If those criteria were followed, heart muscle damage was greatly reduced, and neither hypertension nor arrhythmia developed.

Magnesium and the Heart

During and after a heart attack, people can suffer the following:

- Extension of the area of heart damage as calcium floods into the muscle
- Blood clotting, which blocks blood vessels in the heart muscle
- Decreased blood flow as blood vessels go into spasm
- Arrhythmia as the areas where muscle contraction in the heart originate are damaged

Magnesium is able to:

- Dilate blood vessels
- Prevent spasm in the heart muscle and blood vessel walls
- Counteract the action of calcium, which increases spasm
- Help dissolve blood clots
- Dramatically lessen the site of injury and prevent arrhythmia
- Act as an antioxidant against the free radicals forming at the site of injury¹⁻⁴

One of the main reasons that heart drug digoxin becomes toxic is because there is not enough magnesium in the body.⁵

A drug trial called ISIS sought to disprove the effects of magnesium. In the ISIS trial the protocol was not followed in that magnesium was not the first drug given, and often it was not given for many hours or days after a heart attack was well established, causing widespread damage and blood clotting. Yet, drug reps can dutifully tell their doctor clients that ISIS proved that magnesium is worthless for heart disease!⁶ Since the LIMIT-2 and ISIS trials, another smaller trial with only 200 people who were given IV magnesium at the onset of a heart attack experienced a 74 percent lower death rate.⁷

In spite of the fact that heart drugs, mainly diuretics, have the bad habit of depleting magnesium--along with potassium and even though magnesium is absolutely required for stabilizing heart muscle activity--magnesium is not utilized properly by conventional medicine.

Magnesium's Role in a Healthy Body

A small group of international magnesium researchers, however, have continued, against all odds, to prove the importance of magnesium not only as a nutrient for thousands of body processes but also as a medicine to treat magnesium-depleted health conditions. Drs. Bella and Burton Altura are two hard-working magnesium heroes! They have performed laboratory research and clinical research to the tune of about 1,000 studies over the past 40 years. The Alturas personally confirmed that the 22 magnesium-related conditions, listed at the beginning of this article, have a solid basis in science.

Dr. Burton Altura said that during his 40 years of research he was appalled at the lack of attention given to this life-saving nutrient. He has all but given up on conventional medicine

recognizing the need for magnesium in its protocols for dozens of diseases and welcomed books such as mine to help spread the word. Without million-dollar marketing budgets that drug companies have for their latest drugs, nutrient research plods along--proving over and over again their worth but never being able to get that information out to the public.

Up to 80 Percent of Americans are Magnesium-Deficient

Another reason that Dr. Altura felt magnesium was not given its due is because there has been no lab test that will give an accurate reading of the magnesium status in the tissues. Only one percent of magnesium of the body is distributed in the blood, making a simple sample of magnesium in the blood highly inaccurate. That's why most doctors who rely on blood tests for magnesium and not magnesium deficiency signs and symptoms and realization that up to 80 percent of the population is deficient, will miss an important diagnosis.

There's even more to the actual way magnesium works. It exists in the body either as active magnesium ions or as inactive magnesium complexes bound to proteins or other substances. A magnesium ion is a group of atoms that is missing an electron, which makes it excitable as it searches to attach to something that will replace its missing electron.

Magnesium ions constitute the most physiologically active fraction of magnesium in the body; they are free to join in biochemical body processes and are not attached to other substances.⁸ Most clinical laboratories only assess total "serum" magnesium, which mixes up both active and inactive types.

The Alturas took it upon themselves to develop and research a method that would test specifically for magnesium ions. It came about in 1987 and is called the Blood Ionized Magnesium Test. Its accuracy has been confirmed countless times with sensitive digital imaging microscopy, atomic absorption spectroscopy and the magnesium fluorescent probe. With this test it is now possible to directly measure the levels of magnesium ions in whole blood, plasma and serum using ion-selective electrodes.⁸ The Alturas have used the ionized magnesium test in hundreds of research trials on dozens of different conditions proving, for example, that the 22 conditions listed above are related to magnesium deficiency.⁹⁻¹⁵

Unfortunately, I'm not able to tell you that the ionized magnesium test is readily available. The Alturas do ionized magnesium tests at their laboratory at SUNY in New York and the testing equipment is available through an outside manufacturer to interested labs. (I've included the Altura contact information, below.)

How to Get Enough Magnesium

How do I get enough magnesium is a question that I'm frequently asked. If there is enough magnesium in the soil where green leafy vegetables, nuts, and seeds are grown then we have a chance to obtain magnesium from our diet. Organic foods may have more magnesium, but only if farmers replenish their soil with magnesium-rich fertilizers. Most fertilizer used on factory farms relies heavily on nitrogen, phosphorous, and potassium to make plants grow

and appear healthy.

However, if magnesium and other minerals and micronutrients are not introduced the plants may look good but are not packed with the nutrition we need. Growers should be required to use top-quality fertilizers and should test their crops for the long list of nutrients we need to stay healthy.

In general, to get as much magnesium as possible in the diet, eat plenty of organic leafy green vegetables, nuts and seeds every day. Adding green drinks to your menu will help you achieve a higher magnesium status. However, if you are suffering from the following symptoms you may need supplemental magnesium:

muscle twitches, tics, or spasms	"Charlie horse" (the muscle spasm that occurs when you stretch your legs)	insomnia or restless sleep	stress	back pain
headaches, cluster headaches, migraines	stiff and aching muscles	bones and joints that need continued chiropractic treatment	weakness	hypoglycemia
diabetes	nervousness	hyperactivity	high blood pressure	osteoporosis
PMS	constipation	angina	kidney stones	aging
depression	heart attack	irregular heartbeat	attention deficit disorder	aggressive behavior
chronic fatigue syndrome	stroke	anxiety	confusion, muscle weakness	hiccups
	high-strung	exhaustion from exercise	seizures	

The Calcium-to-Magnesium Ratio

Supplementing with magnesium must also take into account the balance between calcium and magnesium. Finland, which, from 1973 to 1999 had the highest recorded incidence of heart attack in middle-aged men in the world, also has a high calcium-to-magnesium ratio in the diet at 4 parts calcium to 1 part magnesium.¹⁶⁻¹⁷ Americans in general have a high calcium-to-magnesium ratio in their diet and consequently in their bodies; the U.S. ratio is 3.5-to-1. Our dietary emphasis on a high calcium intake without sufficient magnesium and

because of the excessive emphasis on women taking high doses of calcium for osteoporosis, we are creating more imbalances between the two minerals.

Some researchers predict that the American ratio of calcium to magnesium is actually approaching 6-to-1, yet, the recommended dietary ratio of calcium to magnesium in the United States is 2-to-1. Current research on the paleolithic or caveman diet shows that the ratio of calcium to magnesium in the diet that our bodies evolved to eat is 1-to-1.¹⁸ In order to offset the deficiency magnesium induced by excess calcium and to treat the above 22 conditions, people may find it necessary to ingest one part magnesium to one part calcium in supplement form for a period of months to a year. Stabilization on a healthy diet including green drinks may be possible after that time.

The most common sources of magnesium are oxide, citrate, glycinate, and malate. People use oxide and citrate if they suffer from constipation to take advantage of magnesium's laxative effect. Glycinate seems to cause little diarrhea and is the best choice for people who already have loose stools. Magnesium malate has been promoted for people with fibromyalgia to help break up lactic acid that seems to be part of the fibromyalgia picture.

Dr. Carolyn Dean is a medical doctor and naturopathic doctor. She is a writer, researcher, and health advocate. She is the lead author on [Death by Medicine](#) and a health advisor to yeastconnection.com and curesnaturally.com. She has written several health books including "[The Miracle of Magnesium](#)". Her Web site is carolyndean.com. The Miracle of Magnesium is written for both the lay public and practitioners. It is packed with hundreds of journal references that will convince doctors of the importance of magnesium and its efficacy in dozens of conditions--before reaching for the prescription pad.

Resources

Blood Ionized Magnesium Test

Drs. Bella and Burton Altura. State University of New York, Health Science Center at Brooklyn, New York, New York 11203, USA. (718) 270-2194 or (718) 270-2205.

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