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PERSONAL HEALTH

A Dietary Mineral You Need (and Probably Didn't Know It)

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Published: May 18, 2004

A health-conscious woman asked me the other day whether she should be taking magnesium with her calcium. I thought not, but that was before I had examined the many studies defining the role of this too-often-ignored mineral nutrient.

Magnesium is important to nearly every function and tissue in the body, from the heart to the bones and nearly everything in between. It plays a critical role in a vast array of acute and chronic diseases. Some 350 enzyme functions depend on it, including the enzyme that generates energy for every cell in the body.

But studies strongly suggest that when it comes to magnesium, most of us may be running on less than a full tank.

Magnesium is readily available in foods that form the basis of a healthful diet - whole grains, fruits, dark-green leafy vegetables and nuts. But the highly processed foods that most Americans live on are sorely lacking in the mineral. The latest national studies found that as many as three-fourths of Americans do not consume enough to avoid the adverse effects associated with chronic magnesium deficiency.

Furthermore, a critical balance has to be achieved between calcium and magnesium to assure proper use of both minerals. The millions of Americans taking calcium supplements could be at risk of distorting this balance, even if their calcium supplement contains magnesium.

Few patients have their magnesium level checked, and even if they do, a simple blood test fails to measure the amount of biologically active magnesium, according to studies by Dr. Burton M. Altura and Dr. Bella T. Altura, who study the physiology and pharmacology of magnesium at the State University of New York in Brooklyn.

Dr. Altura developed a test for the active form, ionized serum magnesium, which helped her and other researchers uncover latent magnesium deficiencies that have been linked to more than a dozen diseases, even though total magnesium levels in the blood are normal.

How Magnesium Promotes Health

Still, few doctors are aware of the many health problems that can cause a magnesium deficiency, as well as the role of magnesium in diseases, including heart disease, hypertension, diabetes, asthma, obesity, infertility, migraine, muscle pains, premenstrual syndrome and traumatic stress.

Experts who study this nutrient believe insufficient magnesium may be a primary factor in the relationship between heart disease and cardiac risk factors like high blood pressure, abdominal obesity, diabetes and stress. Magnesium deficiency may even have played a role in the increase in heart attacks and strokes reported among menopausal participants in the Women's Health Initiative studies, said Dr. Mildred S. Seelig of Decatur, Ga. Dr. Seelig explained that the women in the study were undergoing hormone replacement therapy, and that magnesium counters the possible blood clots caused by estrogen in such therapy.

Dr. Seelig is 83 and has spent 35 years studying the role of magnesium in health. She is retired but still an adjunct professor at the University of North Carolina, and is an author of "The Magnesium Factor" (Avery Penguin Putnam, 2003), which she wrote with Dr. Andrea Rosanoff, a nutritionist in Hawaii who has spent 17 years studying magnesium.

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Dr. Seelig said she believed that the relative lack of attention paid to the mineral reflects that it is "cheap as dirt, not well taught in medical schools, and few companies can make enough money on it to prompt them to fund research."

Causes of Deficiency

A long list of conditions can result in a magnesium deficiency. In addition to poor diet, the intake or absorption of magnesium can be affected by dieting for weight loss; consumption of "soft" water, which lacks minerals; intestinal diseases; alcoholism; and bypass surgery for obesity.

Large amounts of magnesium can be lost as a result of prolonged exercise, lactation, excessive sweating and chronic diarrhea; as a result of the use of drugs like diuretics, digitalis and the cancer drugs cisplatin and cyclosporine; and because of disorders like kidney disease, an overactive thyroid or parathyroid, low blood levels of potassium and high urine levels of calcium.

Chronic magnesium deficiencies can cause muscle twitching, cramps and weakness; seizures, dizziness, irritability, restlessness, delirium, personality change, apathy and depression; and abnormal heart rhythms, spasms of the coronary arteries, anemia, blood clots, abnormal blood pressure and even sudden death.

Magnesium therapy has proved beneficial in treating bronchial asthma and migraine headaches. Dr. Altura said intravenous treatment with the mineral was more effective at preventing migraines than costly prescription drugs. Italian studies showed that magnesium can "ameliorate tremendously" the symptoms of premenstrual syndrome, he said.

Stroke patients and victims of cardiac arrest who were resuscitated have recovered better if given magnesium immediately after the incident, Dr. Seelig said. And Dr. Altura found that people with diabetes needed less medication to control their blood sugar and blood fats when treated for six months with oral magnesium.

The goal should be a ratio of calcium to magnesium of two to one, Dr. Altura said. So if you consume 800 milligrams of calcium a day, you should also consume 400 milligrams of magnesium. For women taking 1,200 milligrams of calcium daily, 600 milligrams of magnesium are needed to maintain a proper physiologic balance.

Start With Diet

Correcting nutrient shortfalls should always start with diet, especially in this case, when the best sources of the needed nutrient are foods that should be regularly consumed as part of an overall health-preserving diet. Among foods relatively rich in magnesium are whole-grain breads and cereals like 100 percent bran, oats, Cheerios and Wheaties; legumes like tofu, soybeans and lima beans; vegetables like spinach, corn and broccoli; fruits like dates, raisins and bananas; and nuts like almonds, cashews, peanuts, walnuts and pecans.

Drinking water, too, can be a significant source of dietary magnesium, assuming that the water supply is "hard," that is, rich in minerals. Water supplies in much of the country are hard. But in the Southeast they are soft.

The differences can be enormous; there are 400 milligrams of magnesium in a liter of water in the upper Great Lakes region, while only 6 milligrams in some southeastern areas. Water for drinking should never be softened, and certainly not distilled. Soft water has been linked in several locations to an increased risk of heart disease and cardiac deaths.

For people who cannot fulfill their magnesium needs through diet, an inexpensive supplement can fill in the gap. Magnesium is known for its laxative effect. So it is best to start slowly and gradually increase the dose to about 250 milligrams a day, the experts suggest. For those bothered by loose stools, Dr. Seelig recommends Maginex by Geist, a supplement that seems to be free of this side effect. Another option is to take magnesium separately from calcium, with a meal that contains protein to enhance absorption.

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