

# magnesium

## – ESSENTIAL FOR LIFE

by Milton Teske, MD

### The color of life on this earth is green.

The sky and sea are blue, but on land wherever there is life we find the earth is covered with green. Meadows and prairies are covered with a thick carpet of green grasses and plants of a thousand varieties. Hills, mountains and rain forests are all covered with trees and shrubs all clothed in various shades of green. This green is from a complex molecule we call **chlorophyll**.

Chlorophyll is a large, complex, ring-shaped molecule with an atom of magnesium at its active center. This molecule uses the magnesium to absorb blue and red light but it cannot absorb green light. Thus all the green light passes through the leaf or is reflected off of it giving it its green color.

But the energy contained in the blue and red light that it absorbed is transformed into chemical energy. A high-

energy electron is passed through a complex chain of reactions that split water molecules releasing oxygen. (This oxygen is the only source for all the oxygen in the air that sustains every form of animal life on this planet including our own.) But this light energy is then stored in high-energy chemical bonds in sugars and amino acids and many other organic molecules essential for all life on this earth.

The magnesium at the center of this life-sustaining miracle will thus be found in very high concentrations in the **leaves** of plants. It will also be concentrated in the **seeds** of plants where it is stored so that the new sprouting plant will have plenty of magnesium to make its own chlorophyll to get its new start in life. These leaves and seeds thus become the best source for the magnesium that is

also so essential for the function of the human body.

Unfortunately, 75% of Americans do not consume even the FDA recommended minimum intake of magnesium in their diet. And of those who do, many other factors often deplete the magnesium, leaving the vast majority of Americans with an inadequate supply of magnesium in their bodies.

### Magnesium Inside Us

We use magnesium in every one of our cells for a multitude of different functions. There are over 300 enzymes that require a magnesium atom to be added as an essential part for them to function. Without the added magnesium, these enzymes are a worthless, non-functioning mass of protein. Magnesium closely interacts with phosphate, and is thus an essential part of all enzymes that control the production and function and handling of DNA and RNA in every cell. Without adequate magnesium, it becomes very difficult for these cellular control mechanisms to function properly.

ATP, the molecule of energy inside every cell, is not free floating but is actually chelated to an atom of magnesium. Thus, a depletion of magnesium in the cell depletes the availability of cellular energy.

### Magnesium and the Heart

Magnesium is necessary for all muscles to work properly. This includes that most important muscle in the center of your chest — the heart. A deficiency of magnesium can cause a worsening of

congestive heart failure. It can cause or worsen cardiomyopathy. It can cause coronary vasospasm and acute chest pain and heart attacks. It can lead to cardiac arrhythmias and sudden cardiac death. Doctors will frequently infuse 2g of magnesium sulfate IV to a heart attack victim to try to stabilize the myocardial membranes. Most all heart patients are seriously depleted in total body magnesium.

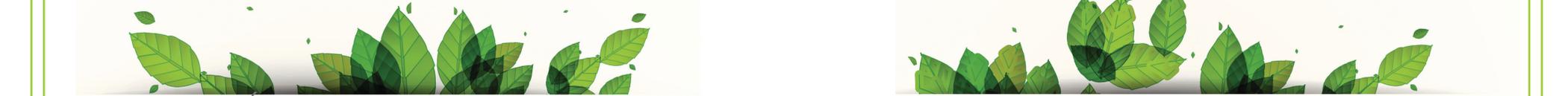
### Hypertension

The smooth muscle cells in the walls of blood vessels require a steady supply of magnesium to function properly. The contraction and relaxation of these muscles controls the blood pressure and the flow and distribution of blood throughout the body. Magnesium deficiency contributes to and worsens high blood pressure.

Incidentally the most common drug prescribed for high blood pressure (hydrochlorothiazide) is one of the worse culprits in depleting magnesium from the body by causing seriously large amounts of magnesium to be lost into the urine. All of the “water pills” have this effect on magnesium. Many other drugs also have a negative effect on total body magnesium levels.

### Diabetes

Persons with type two diabetes are universally found to be very low in total body magnesium. One large study showed that significant magnesium supplementation could help protect against type two diabetes and other studies have shown the benefits of magnesium in controlling blood sugar and insulin sensitivity in



patients with diabetes and pre-diabetes.

## Fibromyalgia

Clinical studies have shown that magnesium can reduce the pain and tenderness associated with fibromyalgia. It can improve the muscle strength and function associated with many muscular diseases as well. One of the symptoms of significant magnesium deficiency is muscle spasm and cramping or tremors. If you have muscle spasms it could be a magnesium deficiency.

## Insomnia and the Brain

Magnesium is necessary for the proper function of the neurons in the brain and many brain functions will improve when total body magnesium deficits are corrected. One notable effect is seen on insomnia with many finding complete restoration of sound sleep. Magnesium helps both with falling asleep and then with staying asleep and normal deep sleep brain wave functions. For those who suffer from restless leg syndrome, magnesium can stop the muscle twitching or cramping that can interfere with sleep as well. Those suffering from migraine headaches have lower levels of magnesium than those who don't have these headaches.

There have been many studies that have shown the beneficial effects of magnesium on improving memory and learning. Magnesium L-threonate, a type of magnesium supplement, has been shown especially helpful in crossing the blood-brain barrier and supplying magnesium to the neurons in the

brain. A condition sometimes occurring in late pregnancy called eclampsia can start with hypertension and progress into seizures. It is best treated with IV magnesium.

## Asthma

Almost every day in the ER where I work I will give an IV infusion of magnesium to a patient with a severe asthmatic attack with quite beneficial results. Low levels of magnesium have been found to be associated with an increased risk of developing asthma in both children and adults.

## Osteoporosis

60% of the magnesium in the body is incorporated into the bones of the skeleton. Magnesium, along with calcium and vitamin D, and many other factors are all essential for strong bone development and maintenance.

## Magnesium Depletion

Although 75% of us do not eat enough magnesium in our food, many who do eat the recommended amount are still seriously deficient because of magnesium depletion.

## Sodas and Absorption

Because sodas are high in phosphates that interact with magnesium, you can eat a meal high in magnesium and then follow it with a soda, and the phosphates in the soda will bind up the magnesium in the food, and the result is that you will absorb no magnesium from that meal.

## Stomach Acid is Essential

Good levels of hydrochloric acid in the stomach are essential for the digestion and absorption of magnesium. Anything that interferes with this process will lead to lower body magnesium levels. Even drinking a large glass of water with a meal can dilute out this acid. But by far, the worst today is the use of antacids and acid blocking drugs. Today we consume

huge amounts of Mylanta and Maalox for heartburn and indigestion as well as many acid blocking drugs. Tagamet, Zantac, Pepcid, Protonix, and many more, once prescription drugs, now most are available over the counter without a prescription. These medications block the production of stomach acid and effectively block the absorption of magnesium from our foods.

## Calcium Supplements

Calcium and magnesium use the same receptor mechanism in the intestines for absorption. So taking a calcium supplement can bind up all the sites blocking out the absorption of magnesium, further increasing magnesium depletion. If

you must take a calcium supplement, it should be one that also contains magnesium at either a 2:1 (Ca:Mg) ratio or 1:1 ratio as some now recommend. Calcium and magnesium have equal and opposite effects in

nerves and muscles and are both necessary in the proper proportions to counter balance each other for ideal function. (Green leaves have both calcium and magnesium in the proper proportions and are an

excellent supplement for both.)

## Caffeine

Coffee, tea and many sodas contain caffeine that acts as a diuretic and will cause a large amount of magnesium to be lost from the body into the urine.

## Pastries, Cake, Cookies, Candies & Other Desserts

All of these desserts made with refined sugar and white flour contain zero magnesium. But because they all require the expenditure of vitamins and minerals in their digestion and utilization in the body they are actually anti-nutrients. Anti-nutrients are the empty foods we eat that actually consume more nutrients

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than they supply and thus cause nutrient deficiencies in us. So if you are regularly eating of these foods you are depleting your body's supply of magnesium.

## Stress Hormones

Stress releases into the blood the stress hormones cortisol and epinephrine. These hormones flooding the body after a physically or emotionally stressful event or continuously because of anxiety, guilt or resentment also cause the kidneys to dump large amounts of magnesium into the urine resulting in further magnesium depletion.

## Restoration

Of course the answer to most diseases is to come back to the original diet as given by God to man in the garden of Eden, a diet full of magnesium as well as every other essential nutrient. And of course we must eliminate as far as possible the refined, processed, empty, anti-nutrient foods that this world would have us eat. And remember that so many of the drugs that are prescribed by modern medicine

are powerfully disruptive to the complexity and natural functioning of the human body that God designed.

As we prepare for heaven, let us leave the disease-causing dietary habits of this world of sin and transition to the diet of heaven.

But let us take a closer look at an often underappreciated gift given to us by God at the very first entrance of sin into this world. *"And you shall eat the green herb of the field"* Genesis 3:18. Here we find a powerful remedy prescribed for us by our Great Physician. In the green leaves of the plants of this world we find extremely high levels of many essential vitamins as well as high levels of magnesium. The guilt and stress of sin upon the human race would be a powerful magnesium depleting force upon the human body. And here we find from the very beginning, God points us to the healing remedy — a powerful magnesium supplement. While many herbs have powerful medicinal qualities as well, we must not overlook the powerful restorative force found in replenishing our depleted magnesium stores.

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Serum magnesium levels only measure what is in the serum (0.3%). They do not measure total body magnesium levels (the other 99.7%). And so you cannot rely on a blood test to know the magnesium level in your body. If you have any disease symptoms we have talked about (or any of the hundreds more you can find on an Internet search) you are probably deficient. If your diet is less than ideal or if you have any of the depleting forces we have described, you are probably deficient. Consider supplementing your diet to restore magnesium.

## Green Smoothies

There are many magnesium supplements available, and if you choose a supplement I would recommend one of the chelated forms: magnesium citrate, magnesium glycinate, magnesium malate, magnesium L-threonate etc. as they are much more absorbable. But I would like to rather recommend God's original prescription of green leaves. There are so many to choose from: kale, spinach, parsley, mustard greens, beet tops, cilantro, chard, collards, lettuces, and so many more and each in so many varieties. Fresh salads and steamed greens should be part of our daily diet.

But in these last years of earth's history when disease is at its highest levels, we have yet another gift: the green smoothie! To make these herbs even for palatable, make them into a green smoothie. Fill your Vitamix blender half full of fresh fruit and then half full of greens, then add water or fruit juice and liquefy. Adding a quart of green smooth-

ie to your daily diet can have a truly transforming effect on your health. Liquefying the greens makes the nutrients more readily available for absorption and the fruit makes it sweet to the taste, and it is all totally fresh and raw. And magnesium is only one of thousands of life giving compounds found in these leaves. It only takes a couple of minutes to make, only a couple minutes to rinse the blender, and it is quick and easy to drink making this truly a "fast food." The internet is full of stories of people totally transforming their lives and healing all manner of disease by adding green smoothies to their lives. Some will even start with a week or a month of green smoothie fasting — eating nothing but green smoothies. All report increased energy and a real boost in their emotional status. Most probably don't realize they are just following God's original healing prescription for the results of sin on our physical health. It is God's plan that there not be one sick one among His children.

Drink a green smoothie! Restore your magnesium, and give yourself a fresh start on life as God meant it to be!



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