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Achieving Optimal Health through Transdermal Magnesium Therapy

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The words "American" and "overweight" are quickly becoming synonymous. When you consume an empty diet of sugar, refined grains and hydrogenated oils, the result is an epidemic of obesity, nutritional deficiencies and chronic illness. A large majority of overweight people are actually starving – for real nutrients. The leptin system that regulates hunger is constantly "on," begging for nutrients for survival. When the body receives empty food, it panics and stores what it can in the form of fat to stay alive and drives the appetite up. The Standard American Diet (SAD) doesn't feed our cells, it just accelerates us to an early grave. Would your patients like to spend their money on whole foods, or healthcare? Ask your patients to pay attention not to what a food tastes like, but how it makes them feel after an hour.

The US Department of Agriculture's 2010 Dietary Guidelines for Americans identified a number of key nutrients Americans may be deficient in. Since the majority of our patients live on the Standard American Diet, there are a few key symptoms to watch for that may complicate your diagnosis, when all the patient needs is some supplementation, not a drug from their physician. The most common nutritional deficiencies in our diet are calcium, Vitamin C, D, E, K, Potassium, Magnesium and Selenium.

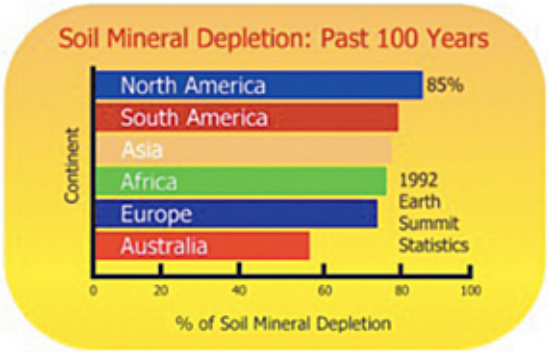
Magnesium

Let’s take a look at the value of magnesium for a variety of health challenges. Magnesium is essential for over 300 enzyme body functions including all enzymes associated with utilizing or synthesizing ATP. Deficiency of this mineral is related to a host of chronic health conditions including heart disease, strokes, cancer, migraines, asthma, diabetes, and osteoporosis. Roughly 70 percent of all Americans do not consume the RDA of Magnesium. (Recommended Daily Allowance is 420mg for adult males and 320mg for adult females.) A common symptom of magnesium deficiency is an enhanced "startle" response such as jumping when hearing an unexpected loud noise. After my patients supplement with transdermal magnesium, their startle response fades within a few weeks.

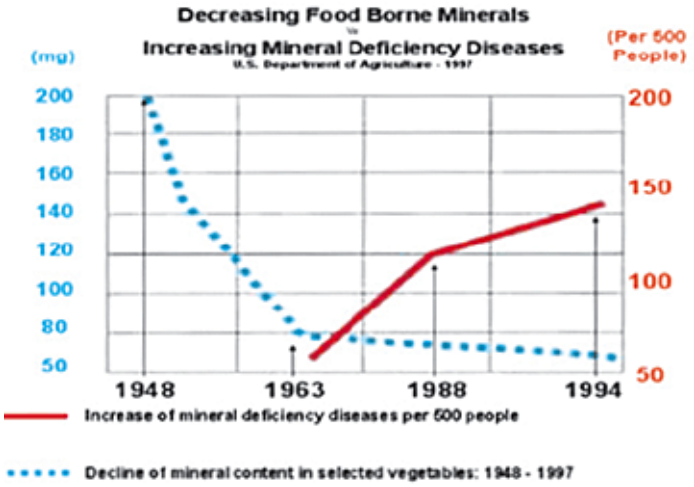
The Recommended Dietary Allowance (RDA) was developed during World War II by a committee established by the United States National Academy of Sciences in order to investigate issues of nutrition that might "affect national defense."[3] It was intended to make sure the American population was getting the bare minimum nutrition in the event of food rationing. It’s not about optimal health, but rather about avoiding health conditions related to nutritional deficiencies such as rickets, scurvy, anemia, goiter and beriberi.

Why are we magnesium deficient?

It’s not only our diet that drives this deficiency. It’s also US agri-business using the soil over and over again, depleting it of minerals, and if magnesium doesn’t exist in the soil, it won’t be available for the fruit or vegetable grown there. Results from the 1992 Earth Summit revealed that farmlands in North America were 85 percent nutrient depleted, so eating non-organic foods provide 15 percent of the nutritional value they once had 100 years ago.

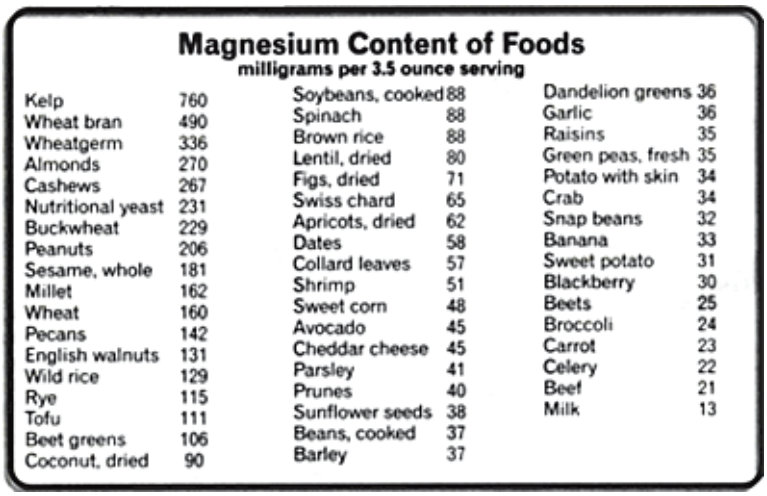


As you can clearly see, as minerals are on the decline, mineral deficiency diseases are on the rise, and will continue to rise. A 1936 US senate meeting in Congress addressed that issue stating "...unless something is done about the poor nutrient content in the soil, there will be a serious rise in degenerative diseases within 50 years..." that warning was issued over 65 years ago and today we have the worst onslaught of degenerative diseases the world has ever seen: Cancer, diabetes, heart disease, obesity, arthritis as well as infertility, autism, asthma, ADD/ADHD, etc. Compounding this problem is that there are a number of common drugs that deplete magnesium levels such as antacids, anti-inflammatories, antibiotics, birth control medication, cardiovascular meds and diuretics.



Foods containing magnesium

The table below offers some suggestions for you to recommend to your patients in addition to transdermal magnesium therapy. These must be organic to have a positive impact on magnesium levels. Note that brown rice has three times the magnesium as a sweet potato.



Magnesium Content of Foods
milligrams per 3.5 ounce serving

Kelp	760	Soybeans, cooked	88	Dandelion greens	36
Wheat bran	490	Spinach	88	Garlic	36
Wheatgerm	336	Brown rice	88	Raisins	35
Almonds	270	Lentil, dried	80	Green peas, fresh	35
Cashews	267	Figs, dried	71	Potato with skin	34
Nutritional yeast	231	Swiss chard	65	Crab	34
Buckwheat	229	Apricots, dried	62	Snap beans	32
Peanuts	206	Dates	58	Banana	33
Sesame, whole	181	Collard leaves	57	Sweet potato	31
Millet	162	Shrimp	51	Blackberry	30
Wheat	160	Sweet corn	48	Beets	25
Pecans	142	Avocado	45	Broccoli	24
English walnuts	131	Cheddar cheese	45	Carrot	23
Wild rice	129	Parsley	41	Celery	22
Rye	115	Prunes	40	Beef	21
Tofu	111	Sunflower seeds	38	Milk	13
Beet greens	106	Beans, cooked	37		
Coconut, dried	90	Barley	37		

Inflammation

Inflammation is one of the recent "buzzwords" in the medical research community. C-Reactive Protein (CRP) and Homocysteine levels, which reflect inflammation, are far better predictors of heart disease than serum cholesterol and triglycerides. Obesity, type II diabetes and cardiovascular disease are linked to chronic inflammation. What's the major cause of inflammation in the human body? Diet and stress are the two most common causes. People who eat "fast food" are almost always in a pro-inflammatory state. Fungal, viral, and bacterial infections, heavy metal toxicity, sugar, consumption of hydrogenated oils, obesity, insulin and smoking also contribute to systemic inflammation. Chronic low-level inflammation leads to insulin resistance and eventually to full blown diabetes. Magnesium breaks the chemical cascade that leads to inflammation, protecting the body from a number of chronic diseases. In the exceptionally well researched and written book "*Transdermal Magnesium Therapy: A New Modality for the Maintenance of Health*" by Dr. Mark Sircus, L.Ac., OMD, magnesium is shown to increase oxygen to the cells, protect us from cancer, stroke, heart and vascular disease, Alzheimer's, multiple sclerosis, endocrine problems, diabetes, pain, insomnia, depression and assists in detoxification. I'll address how transdermal magnesium therapy combats the top three causes of death in America today: Heart disease, malignant neoplasms (cancer), and cerebrovascular diseases (stroke).[4]

Heart Disease

Emergency rooms routinely use magnesium sulfate before, during and after cardiac arrest. One of the most important actions of magnesium is its vasodilating effects, improving the blood supply to ischemic areas and reducing infarct size.[5] The results of a recent study in the United Kingdom of over 2,300 patients with

suspected acute myocardial infarction showed that magnesium reduced mortality by a stunning 24 percent. It was a randomized, double blind, placebo controlled study using magnesium sulphate (8mmol over 5 min followed by 65mmol over 24 hours) vs. physiological saline as the placebo. The outcome measure was 28-day mortality. The researchers' conclusion was "Intravenous magnesium sulphate is a simple, safe and widely applicable treatment. Its efficacy in reducing early mortality of myocardial infarction is comparable to that of thrombolytic or antiplatelet therapy."[6]

A 1995 study showed that the in-hospital survival rate of heart attack patients was 75 percent higher for those who received IV magnesium compared to those given conventional therapy. Even though the hospitals were using Magnesium Sulphate, the chloride form of magnesium salt is best because it can be taken orally, injected or used transdermally. The major problem with taking any form of magnesium orally is that it is poorly absorbed, and speeds up colon motility leading to diarrhea. (Prunes are high in magnesium.) If your patient has a family history of heart disease or is suffering from atrial fibrillation, angina or has had a heart attack in the past, you should strongly consider adding transdermal magnesium therapy to your treatment plan. Why wait until they have a heart attack when you can offer a prophylactic approach that's safe, well-tolerated, and is beneficial for a broad spectrum of health conditions?

Cancer

Let's begin with a simple definition of cancer as the uncontrolled replication of abnormal cells. What causes cell abnormalities? Carcinogens – broken down into biological, physical and chemical agents. However, the simplest view of cell abnormality is when its "parent" DNA has been damaged and the new mutated cell is "born" without apoptosis (programmed cell death). In theory, cancer cells can live forever, unlike red blood cells that live for about 90 days. Magnesium assists the body in DNA/RNA transcription and repair through ATP.[7] Low magnesium levels have been associated with a number of neoplasms. Does this mean that supplementing with transdermal magnesium will protect you from cancer? A study of 25 patients with head and neck cancer were compared to 25 healthy controls and the cancer patients had considerably lower serum magnesium levels compared with the control group.[8] This would lead me to believe the answer to that question is yes.

Since two of the most common cancers in America are prostate and breast cancer, let's look at the data. In a recent study performed at Vanderbilt University Medical Center, researchers found that low blood magnesium levels were associated with a high-grade prostate cancer, and that the ratio of calcium to

magnesium also played a critical role.[9] Isn't it an interesting coincidence that another group of researchers found that high serum Ca/Mg can lead to increased development in breast cancer in postmenopausal women?[10] The researchers assert that "magnesium is essential for DNA duplication and repair and Mg deficiency favors DNA mutations leading to carcinogenesis." Heavy metal toxicity is also linked to cancer growth. Dr. Russell Blaylock, known for his work in autism, asserts that low magnesium levels cause an increase in oxidation while reducing glutathione – one of the only antioxidant molecules in your body known to bind to and remove mercury.

Stroke

More than 80 percent of strokes are due to a cerebral infarction – the remainder are due to a hemorrhage. Timing is key in survival since the most positive outcomes are when treatment is administered within a few hours of the event. Unfortunately, since magnesium is a naturally occurring substance, pharmaceutical companies can't patent it and therefore can't make any money and do not promote it to physicians. Another issue is choosing something whose molecules are small enough to pass the blood/brain barrier (and magnesium salts meet that requirement). The most common treatment is TPA (Tissue Plasminogen Activator) but imaging must be performed first to confirm a clot, and it must be administered within three hours of the stroke where the majority of stroke victims do not act immediately upon presentation of symptoms. TPA is contraindicated for hemorrhagic strokes.

On the bright side, in Los Angeles, Calif., a trial named "FAST-MAG" (Field Administration of Stroke Therapy) has EMTs pushing magnesium intravenously in response to receiving a stroke victim. So far, the results are promising with feedback of being easy to administer, safe and potentially effective.[11] A recently published study evaluating 58,615 healthy Japanese aged 40-79 years based on a food questionnaire over a period of 15 years showed that "Dietary magnesium intake was inversely associated with mortality from hemorrhagic stroke in men and with mortality from total and ischemic strokes, coronary heart disease, heart failure and total cardiovascular disease in women." The researchers' conclusion was that those with high magnesium levels had a greatly reduced chance of mortality from cardiovascular disease, especially for women.[12]

A meta-analysis was performed last year on dietary magnesium intake and the risk of stroke. The authors searched NIH PubMed and EMBASE from 1966-2011 and found seven prospective studies with 6,477 cases of stroke and 241,378 participants that were eligible for the meta-analysis. Their results demonstrated

that magnesium intake was inversely associated with risk of ischemic stroke, but not intracerebral hemorrhage or subarachnoid hemorrhage.[13] It appears that magnesium supplementation is not only effective for post-stroke victims, but supplementation will benefit those who may otherwise be prone to strokes. Magnesium supplementation reduces systemic inflammation, assists in heavy metal detoxification, protects DNA against damage, and positively effects vasodilation to prevent heart attacks and strokes. It's also known to be amazing for migraine treatment and prevention.

Administration of transdermal magnesium

Magnesium "oil" is made by mixing flakes of magnesium chloride with purified water (why the makers coined the term "oil" is beyond me). Dr. Norm Shealy states that it may take a year to return to normal cellular levels of magnesium versus six weeks using transdermal magnesium therapy. Dr. Shealy's Biogenics Magnesium Lotion Spray contains approximately 275mg of elemental magnesium in 10 sprays. The directions recommend applying 10 sprays twice a day. Experts in this therapy suggest applying it to your forearms, underarms, abdomen or anywhere there is relatively "thin" skin. Transdermal application delivers the medicine/substance through the skin and right into the bloodstream and is one of the best ways of administering medicines quickly and effectively, while avoiding the "first pass" effect of the hepatic portal system. Fick's law of membrane permeability states that the amount of solute to be absorbed is based on: 1. The concentration of the applied dose, 2. The surface area you apply it to, and 3. How long it is in contact with the membrane/skin. Magnesium oil is applied to the skin's surface and then diffuses out of its vehicle (water) into the stratum corneum. In the stratum corneum a reservoir of magnesium is built and diffuses through the stratum spinosum. At this point, it can be metabolized and binded to receptors to exert its effect. Finally magnesium is delivered into subcutaneous fat, the circulatory system and achieves systemic absorption.

You can mix it with your favorite liniment and apply it directly where your patient has pain ("magnesium massage'). Optimally, the patient should take magnesium orally in addition to transdermally for the best outcome. The major problem, as I stated earlier in this article is that dosing at pharmacologic levels has been challenging due to adverse intestinal effects. Dr. Jay Cohen suggests ramping up from 250mg to 500mg per day to as much as 600mg to 5000mg per day in divided doses. The patient will slowly increase their tolerance to the magnesium and maintain normal bowel movements. Vitamin B6 increases the amount of magnesium that can enter the cells, so these nutrients can be taken together. Conversely, magnesium will "compete" for absorption with calcium and it's best to supplement with calcium along with oral magnesium.

Why is Epsom Salt excellent for sore, tight muscles? It's magnesium sulfate! If your patient is suffering from plantar fasciitis, have them soak their foot in a high concentration of Epsom Salt or spray and rub magnesium chloride directly on the area of discomfort. Results are immediate.

Contraindications to magnesium therapy

The information I've presented provides a compelling argument to offer this amazing nutritional support not only to your patients, but to yourself as well. Transdermal magnesium therapy is well tolerated, and any excess magnesium will be excreted from your body, unless you have impaired kidney function or severe renal insufficiency. Since magnesium oil is essentially a salt solution, spraying it on a cut or broken skin will sting. Some of my patients complain of a slight tingling or itching sensation, although I haven't experienced it personally. Children may be sensitive and beginning with a conservative dosage or diluting the solution would be appropriate if there's any skin rash or itching. Dr. Sircus warns in his book that "Magnesium toxicity can occur in people with hypothyroidism, those using magnesium containing medication such as antacids, laxatives, cathartics, and those with certain types of gastrointestinal disorders, such as colitis, gastroenteritis, and gastric dilation, which may cause an increased absorption of magnesium."[14] Magnesium may have a negative interaction with Amiloride, Calcium Acetate, Dexamethasone, Misoporstol, Spironolactone and Triamterene. My online resource shows a large number of drugs that magnesium may make less effective such as Warfarin, Tetracycline and Doxycycline.[15] Please consult a trusted reference on potential interactions before recommending magnesium supplementation to your patients on multiple pharmaceutical drugs.

Final Thoughts

The beauty of this therapy is that it's well within our scope of practice, regardless what state you practice (for those licensed states, that is…) and dovetails wonderfully with our approach to whole health. If you plan on stepping forward and incorporating this therapy in your practice, I strongly recommend you read Dr. Mark Sircus' book to introduce yourself to the myriad of conditions magnesium is known to treat.

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Bill Reddy serves on the Executive Committee of the Integrated Healthcare Policy Consortium (IHPC), and has supported the AOM profession on a state and national level. He practices in Annandale, Virginia.

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