

Magnesium For Life



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Diabetes is disabling, deadly and on the rise and in certain places has reached fifty percent of local populations.



Intravenous, Transdermal,
and Oral Magnesium
Mineral Therapy



Research suggests that shortfalls in magnesium intake can seriously impair athletic performance.

Intravenous, Transdermal, and Oral Magnesium Mineral Therapy

“Magnesium is poorly absorbed orally. That is why I start off with injections. By injecting magnesium I can guarantee 100% to bring the levels up. I cannot guarantee to do this with oral magnesium,” says Dr. Sarah Mayhill who continues with, “Treating magnesium deficiency is the most difficult deficiency to correct. In evolutionary terms, magnesium was abundant in the diet and therefore no good mechanisms to conserve magnesium evolved. It appears to be poorly absorbed and easily excreted even by normal people.”

The problem with oral magnesium is that all magnesium compounds are potentially laxative. And there is good evidence that magnesium absorption depends upon the mineral remaining in the intestine at least 12 hours. If intestinal transit time is less than 12 hours, magnesium absorption is impaired, and this is the case when high doses of oral magnesium are administered. Thus it is very difficult to administer what would be considered medicinal doses orally.

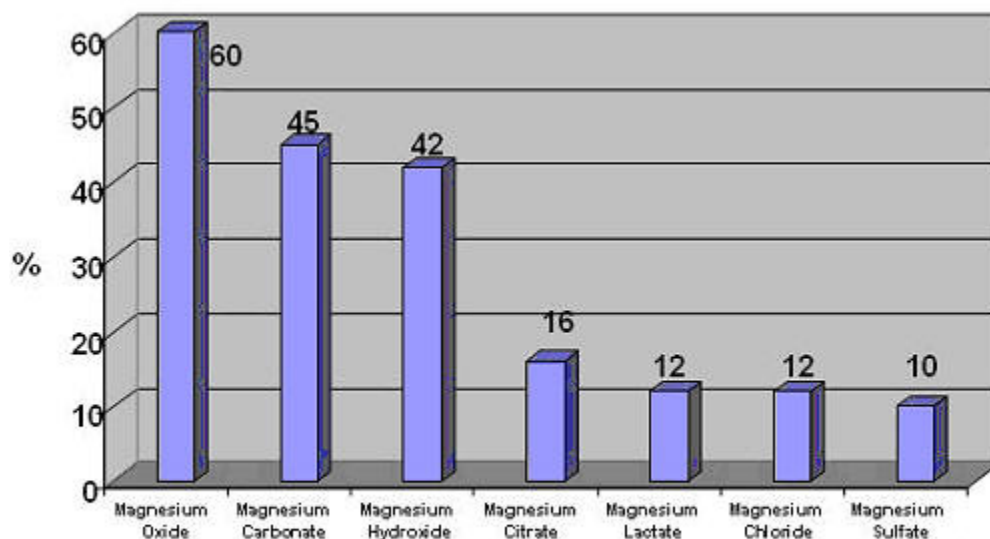
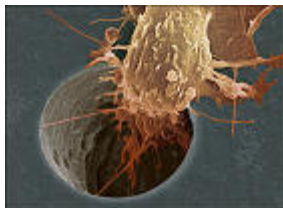


Figure 1: ■ Percent Magnesium content of oral supplements

There are many forms of oral magnesium and perhaps one is more easily utilized than the other. Oral magnesium chloride is well tolerated and gets absorbed very quickly and is



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inexpensive. Magnesium chloride hexahydrate can be purchased chemically pure from most chemical supply houses without a prescription. One of the major disadvantages of oral magnesium compositions that are currently available is that they do not control the release of magnesium, but instead immediately release magnesium in the stomach after they are ingested. These products are inefficient because they release magnesium in the upper gastrointestinal tract where it reacts with other substances such as calcium. These reactions reduce the absorption of magnesium.

Many things affect magnesium absorption from the gut. Most drugs will adversely affect how magnesium taken orally is absorbed or how quickly it will be excreted. When we think about the drugs used for children on the autism spectrum, we should be concerned about antipsychotics used for behavior control. Zyprexa, Risperdal, and others can cause hyperglycemia, which in turn causes increased excretion of magnesium taken orally. Many drugs bind with magnesium diminishing its availability in the body. Two cans of soda per day (all of which contain phosphates) also bind up a lot of magnesium by preventing absorption of magnesium ions in the GI tract. Magnesium also binds with aspartame so drinking diet sodas is not a good idea for any reason.

Magnesium supplementation is actually crucial for everyone today but we have to pay especial attention to the method of supplementation because this is critical in terms of effective body utilization. Magnesium is absorbed primarily in the distal small intestines or colon. Active uptake is required involving various transport systems such as the vitamin D-sensitive transport system. Since magnesium is not passively absorbed it demonstrates saturable absorption resulting in variable bioavailability averaging 35-40% of administered dose even under the best conditions of intestinal health. Magnesium levels in the body, presence of calcium, phosphate, phytate and protein can affect rate of absorption. These and other conditions make oral magnesium supplements intake chancy and inefficient compared to the new transdermal magnesium chloride mineral therapy that this book introduces.

The health status of the digestive system and the kidneys significantly influence magnesium status. Magnesium is absorbed in the intestines and then transported through the blood to cells and tissues. Approximately one-third to one-half of dietary magnesium is absorbed into the body. Gastrointestinal disorders that impair absorption such as Crohn's disease can limit the body's ability to absorb magnesium.

One of the major disadvantages of oral magnesium compositions that are currently available is that they do not control the release of magnesium, but instead immediately release magnesium in the stomach after they are ingested. These products are inefficient because they release magnesium in the upper gastrointestinal tract where it reacts with other substances such as calcium. These reactions reduce the absorption of magnesium. "When people are ill, faced with magnesium deficiency and poor digestion, what do you think the odds are of fixing that problem with oral magnesium supplementation and digestive enzymes alone?" asks Dr. Ronald Hoffman.

In his clinic Dr. Hoffman carefully measures magnesium and found that many patients with low magnesium who take just oral supplements do not normalize. Dr. Mildred Seelig, renowned researcher of magnesium, predicts it would take 6 months to normalize magnesium levels in a woman who is magnesium deficient with oral supplementation. The bottom line is that transdermal magnesium therapy speeds up the process of nutrient repletion in much the same way as intravenous methods.

*For children with neurological disorders or asthma
transdermal magnesium is like an oxygen mask.*

Dr. Mayhill tells us, "One injection of 2mls of 50% magnesium sulphate (1gm MgSO₄, or 100mgs elemental Mg or 4 millimols) will usually keep levels up for two weeks (however, some people need them more often). By the third week, levels will usually have fallen again. For some people this is the only method that has worked, but it is tedious to have to keep injecting. But the injection is painful because one is injecting a concentrated solution. It is best given at room temperature or blood heat, intramuscularly,

either into triceps or deltoid, slowly over one to two minutes. I usually use an orange needle, at least 1" long to get deep into the muscle. Magnesium is a powerful vasodilator. Even if one takes care to check the tip of the needle is not in a vein, sometimes there is such a powerful local vasodilatation that the vessels open up and an i.v. injection is inadvertently given. This does not matter much, except that the patient develops a generalised vasodilatation, feels hot and alarmed, goes red and may faint (if upright)."

Intravenous Magnesium

According to Dr. Norman Shealy the most rapid restoration of intracellular magnesium is accomplished with intravenous replacement. For most patients 10 shots, given over a two-week period, are adequate. Depending upon the patient's weight and general status, Dr. Shealy gives either 1 or 2 grams of magnesium chloride IV over a 30 to 60 minute period:

Magnesium I

- 250 cc of 0.9% Sodium Chloride
- 1 gram Magnesium Chloride
- 500 mg Calcium Chloride
- 100 mg. Pyridoxine (B-6)
- 1 gram DexPanthenol (B-5)
- 1000 mcg Cyanocobalamin (B-12)
- 6 grams Vitamin C

Magnesium II

- 250 cc of 0.9% Sodium Chloride
- 2 grams Magnesium Chloride
- 1 gram Calcium Chloride
- 100 mg. Pyridoxine (B-6)
- 1 gram DexPanthenol (B-5)
- 1000 mcg Cyanocobalamin (B-12)
- 6 grams Vitamin C

Therapy with magnesium is rapid acting, has a safe toxic-therapeutic ratio, is easy to administer and titrate. Magnesium has minimal side effects in usual therapeutic doses and has a large therapeutic index. Meaning it is so useful that it is just negligent to not use it. In reality there is no medicine like magnesium chloride when it comes to the effect it has on the life of cells.

Though giving magnesium by injection is the quickest way of restoring normal blood and tissue levels of magnesium, however for some patients the injections, while giving benefit, are just too painful to be considered for children and for long term use in adults. They are also realitively expensive because they have to be administered by a doctor. Transdermal magnesium chloride therapy is inexpensive, safe, a do-it-yourself at home technique that can easily replace uncomfortable injections in anything other than emergency room situations.

Transdermal application of magnesium is far superior to oral supplements and is in reality the best practical way magnesium can be used as a medicine besides by direct injection. Used transdermally or intravenously we have a potent natural substance that penetrates the cells with stunning result on cell biochemistry. Healing, overall energy production (ATP), skin integrity, cardiac health, diabetes prevention, pain management, calming effect on the nervous system, sleep improvement, lowering of blood pressure are among the general uses magnesium chloride can be put to. The studies coming out every day provide more evidence of the need to supply adequate magnesium to people of all ages, and in a form that will be easily absorbed.

*What a few can do with intravenous magnesium
injections everyone can do with transdermal magnesium.*

Dr. Norman Shealy has done studies on transdermal magnesium chloride mineral therapy where individuals sprayed a solution of magnesium chloride over the entire body once daily for a month and did a 20 minute foot soak in magnesium chloride also once daily. Dr. Shealy recruited 16 individuals with low intracellular magnesium levels; subjects had a baseline Intracellular Magnesium Test documenting their deficiency and another post-

Intracellular Magnesium Test after 1 month of daily soaks and spraying were analyzed. The results: Twelve of sixteen patients, 75%, had significant improvements in intracellular magnesium levels after only four weeks of foot soaking and skin spraying.

Typical Results:

Test results before and after 4 weeks of foot soaks:

	Foot Soaking		
Electrolyte Name	Before Soaking	After Soaking	Reference Range
	(mEq/l)	(mEq/l)	(mEq/l)
Magnesium	31.4	41.2	33.9 - 41.9
Calcium	7.5	4.8	3.2 - 5.0
Potassium	132.2	124.5	80.0 - 240.0
Sodium	3.4	4.1	3.8 - 5.8
Chloride	3.2	3.4	3.4 - 6.0
Phosphorus	22.2	17.6	14.2 - 17.0
Phosphorus/Calcium	3.0	3.7	3.5 - 4.3
Magnesium/Calcium	4.2	8.6	7.8 - 10.9
Magnesium/Phosphorus	1.4	2.3	1.8 - 3.0
Potassium/Calcium	17.6	26.1	25.8 - 52.4
Potassium/Magnesium	4.2	3.0	2.4 - 4.6
Potassium/Sodium	39.1	30.5	21.5 - 44.6

Intravenous as well as transdermal administration of magnesium bypass processing by the liver. Both transdermal and intravenous therapy create "tissue saturation", the ability to get the nutrients where we want them, directly in the circulation, where they can reach body tissues at high doses, without loss.

Magnesium Oil delivers high levels of magnesium directly through the skin to the cellular level, bypassing common intestinal and kidney symptoms associated with oral use. Magnesium chloride has a major advantage over magnesium sulfate because it is hygroscopic and will attract water to it, thus keeping it wet on the skin and vastly more likely to be absorbed, while magnesium sulfate simply "dries" and becomes "powdery". Magnesium Oil feels "oily" on the skin. The biggest benefit of topical/transdermal magnesium chloride administration is that the intestines are not adversely impacted by large doses of oral magnesium.

The correction of magnesium deficit is a top priority for clinicians. When magnesium chloride is understood properly (as the basic medicine it is) it will be prescribed to all patients as a foundation and support for all other therapeutic and pharmaceutical interventions. The same medicine that can be used as a treatment to limit myocardial damage in myocardial infarction can be used safely for a broad range of problems healthcare practitioners see everyday.

Dr. Walt Stoll says, "Magnesium deficiency inhibits the body's ability to absorb magnesium. This is an idiosyncrasy of magnesium. Once the intracellular level gets low enough to cause symptoms, in some people, the intestinal lining loses its ability to absorb magnesium efficiently. The magnesium IVs are to get the body over that hump so that it can be absorbed orally again." The same could be said about magnesium applied through transdermal/topical means.

In summary, magnesium is a safe and simple intervention and should be the first thing doctors recommend to their patients. Transdermal mineral therapy with magnesium chloride is the most powerful, relatively safe medical intervention we have to care for many of our patients needs. With the simple application of an oily solution on the skin or used in baths we can easily have our patients take up their magnesium to healthier levels. With patients who are deficient in magnesium (the great majority of patients are magnesium deficient) expect dramatic improvements in a broad range of conditions.

[1] Oral Magnesium Chloride, Magnesium Citrate Magnesium Gluceptate, Magnesium Gluconate, Magnesium Hydroxide, Magnesium Lactate, Magnesium Oxide, Magnesium Pidolate, Magnesium Sulfate.

[1] There are a number of factors that can prevent the uptake of minerals, even when they are available in our food. The glandular system that regulates the messages sent to the intestinal mucosa require plentiful fat-soluble vitamins in the diet to work properly. Likewise, the intestinal mucosa requires fat-soluble vitamins and adequate dietary cholesterol to maintain proper integrity so that it passes only those nutrients the body needs, while at the same time keeping out toxins and large, undigested proteins that can cause allergic reactions. Minerals may "compete" for receptor sites. Excess calcium may impede the absorption of manganese, for example. Lack of hydrochloric acid in the stomach, an over-alkaline environment in the upper intestine or deficiencies in certain enzymes, vitamin C and other nutrients may prevent chelates from releasing their minerals. Finally, strong chelating substances, such as phytic acid in grains, oxalic acid in green leafy vegetables and tannins in tea may bind with ionized minerals in the digestive tract and prevent them from being absorbed

[1] <http://ods.od.nih.gov/factsheets/magnesium.asp#en9#en9>

[1] Crippa G, Sverzellati E, Giorgi-Pierfranceschi M, et al. Magnesium and cardiovascular drugs: interactions and therapeutic role. *Ann Ital Med Int.* 1999 Jan; 14(1):40-5.

[1] Experimentally Magnesium has been shown to have a role in myocardial salvage, possibly by inhibiting calcium influx to ischaemic myocytes and/or by reducing coronary tone. It has also been shown to increase the threshold for depolarisation of cardiac myocytes, theoretically reducing the risk of malignant arrhythmia. In healthy humans it can reduce peripheral vascular resistance and increase cardiac output with no effect on cardiac work.

More on this subject is available in the book Transdermal Magnesium Therapy. [Read More...](#)

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