

**Module 14 – Pillar Four: Super Nutrients**

# Maximizing Magnesium



*Taking magnesium in several forms is the best way to maximize absorption of this miracle mineral.*

**W**hile the possibility exists that you are reading this module without having already heard more than enough from me about magnesium – I’m sure anyone who follows my work is well versed in this “miracle mineral.”

I’ll probably review some stuff you already know. But consider this “advanced magnesium” training.

In this module, I want to make sure you are absorbing enough magnesium (and thus getting the maximum benefits). Thousands of people have read my book, *The Magnesium Miracle* but I’ll be sharing with you some of my unpublished findings since the last edition.

You won’t find me promoting a lot of, what I call, celebrity supplements. I just stick with the basics. And magnesium is the most important, basic, essential mineral.

## Why Magnesium Is So Important

1. Without sufficient magnesium your body’s cells cannot absorb essential minerals (like calcium, iron and potassium). Without adequate minerals, nerves and muscles don’t function well.
2. Magnesium is essential for relaxation – without it your muscles (including your heart) will not be able to release tension. In other words, your body will end up in a state of stress – and stress is probably the underlying cause of most diseases.
3. Most people (probably you) are not getting enough magnesium – modern farming methods use mineral-depleted soil, cooked and processed foods have little magnesium and we burn it off through stress and sweat.

## Magnesium Does It All

Magnesium is a vital cofactor in numerous body processes. Taking into account all the new research on magnesium, I have a new list of magnesium’s accomplishments that surpasses the one in my book. In my book I said:

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“Magnesium’s hundreds of activities in the human body can be divided into five essential categories:

- \* Magnesium is a cofactor assisting enzymes in catalyzing most chemical reactions in the body, including temperature regulation.
- \* Magnesium produces and transports energy.
- \* Magnesium is necessary for the synthesis of protein.
- \* Magnesium helps to transmit nerve signals.
- \* Magnesium helps to relax muscles.

The expanded list of what magnesium can do is dramatically more inclusive. And I think it’s still just scratching the surface!

1. The main source of energy in all our cells is adenosine triphosphate and its chemical formula is Mg-ATP. This formula shows the critical interdependence of magnesium and ATP.
2. Transmembrane ATPases import many of the substances necessary for cell metabolism and export toxins, wastes and solutes that must be removed from cells. Without magnesium cell metabolism slows down and wastes build up.
3. Magnesium is an important membrane stabilizing agent. If our cell membranes are not stable the cell can be overrun with too much calcium, sodium and water causing edema and cell death.
4. Magnesium is required for the structural integrity of numerous intracellular proteins and nucleic acids (the base component of RNA and DNA). Without magnesium, our very genetic structure is at risk.
5. Magnesium is a cofactor or substrate for numerous important enzymes: guanosine triphosphate, phospholipase C, adenylate cyclase and guanylate cyclase. Their critical functions in the body are too numerous to outline here.
6. I originally wrote that magnesium activates more than the 325 enzymes. Recent research shows that magnesium is involved with 80% of all enzymes in the body. Since there are 1600 enzyme systems discovered thus far, that means magnesium affects 1300 of them!
7. Magnesium regulates ion channels (including calcium channels) making it responsible for the flow of electrolytes in and out of cells.
8. Magnesium is an important intracellular signalling molecule.

9. Magnesium is a modulator of oxidative phosphorylation, which transfers electrons in order to release energy in the form of ATP.
10. Magnesium activates nerve conduction.
11. Magnesium is necessary for muscle contraction
12. Magnesium transforms stored Vitamin D into active Vitamin D. If you take too much Vitamin D you can cause a relative magnesium deficiency causing noticeable symptom

### **Gauging Your Symptoms**

The following 100 factors are associated with magnesium deficiency and can help you recognize whether you are deficient or not. It can also help you eliminate reasons why you may be deficient. You can also use it as a guide, once you start taking magnesium, to decide whether or not your magnesium symptoms are improving. If obvious magnesium deficiency symptoms are not relieved, maybe you should take more. If in doubt, you can always have a consult with me.

Print up several copies of this page and put a check mark by your personal magnesium deficiency factors. Start taking magnesium. In a few weeks pull out a fresh sheet and mark it up. Compare both. If you still have a lot of symptoms remaining, increase your magnesium.

### **Magnesium Deficiency Factors**

- |                            |                         |                              |
|----------------------------|-------------------------|------------------------------|
| 1. Alcohol > 7 drinks/wk   | 22. Food cravings       | 42. Muscle problems          |
| 2. Anger                   | a. Carbohydrates        | a. Cramps                    |
| 3. Angina                  | b. Chocolate            | b. Spasms                    |
| 4. Anxiety                 | c. Salt                 | c. Twitching                 |
| 5. Apathy                  | d. Junk food            | d. Tics                      |
| 6. Arrhythmia              | 23. Gagging or choking  | e. Weakness                  |
| 7. Asthma                  | 24. Headaches           | 43. Numbness hands/feet      |
| 8. Blood tests             | 25. Heart disease       | 44. Osteoporosis             |
| a. Low calcium             | 26. Heart – rapid rate  | 45. Paranoia                 |
| b. Low potassium           | 27. High blood pressure | 46. Parathyroid (hyper)      |
| c. Low magnesium           | 28. Homocysteinuria     | 47. PMS                      |
| 9. Bowel problems          | 29. Hyperactivity       | 48. Polycystic ovaries       |
| a. Undigested fat in stool | 30. Hyperventilation    | 49. Pregnancy                |
| b. Constipation            | 31. Infertility         | a. Currently pregnant        |
| c. Diarrhea                | 32. Insomnia            | b. Preeclampsia/eclampsia    |
| d. Constipation/diarrhea   | 33. Irritability        | c. Multiple pregnancies      |
| e. IBS                     | 34. Kidney stones       | d. Postpartum depression     |
| f. Crohn's                 | 35. Medications         | e. Child with cerebral palsy |
| g. Colitis                 | a. Digitalis            | 50. Radiation therapy        |
| 10. Brain trauma           | b. Diuretics            | 51. Raynaud's syndrome       |
| 11. Bronchitis, chronic    | c. Antibiotics          | 52. Restlessness             |
| 12. Caffeine >3 per day    | d. Steroids             | 53. Sex drive low            |
| 13. Chronic fatigue        | e. Oral contraceptives  | 54. Shortness of breath      |
| 14. Cold extremities       | f. Indomethacin         | 55. Smoking                  |
| 15. Concentration poor     | g. Cisplatin            | 56. Startled easily          |

- |                         |                           |                               |
|-------------------------|---------------------------|-------------------------------|
| 16. Confusion           | h. Amphotericin B         | 57. Stressful life            |
| 17. Convulsions         | i. Cholestyramine         | 58. Stroke                    |
| 18. Depression          | j. Synthetic estrogens    | 59. Sugar intake high         |
| 19. Diabetes            | 36. Memory impairment     | 60. Syndrome X                |
| a. Type I               | 37. Mercury fillings      | 61. Thyroid hyperactivity     |
| b. Type II              | 38. Menses pain/cramps    | 62. Tingling hands/feet       |
| c. Gestational diabetes | 39. Migraines             | 63. Transplants: kidney/liver |
| 20. Fibromyalgia        | 40 Mineral supplements    | 64. Tremor of hands           |
| 21. Food intake         | a. High Calcium           | 65. Water contamination       |
| a. Limited greens       | b. High Zinc              | Flouride, chlorine, calcium   |
| b. High protein         | c. High Iron              | 66. Wheezing                  |
| c. Limited nuts/seeds   | 41. Mitral valve prolapse |                               |

### Absorption is Key

Magnesium is essential, and most of us are deficient. That should be reason enough to make sure you are not only getting enough magnesium each day...but also absorbing enough.

As with all supplements, it's not just how much you put in your mouth – but how much stays in your body and doesn't just go in one end and out the other. Your ability to absorb magnesium may be greater or less than another person. Again, part of this goes back to how abundant magnesium was in your ancestor's environment. If there was an over-abundance, your ancestors may have adapted to absorb less of it.

The other factor is the type of magnesium you are consuming. Even plant sources, we understand, may bind magnesium to its own fiber making it unavailable to you.

The point I'm getting at: Just because you are taking, let's say, 750 mg of magnesium a day — don't assume that it's enough. And don't assume that you are absorbing all of it.

I also want you to make sure you are absorbing enough magnesium at the cellular level. Maximizing your magnesium could add years to your life, dramatically increase your energy levels, improve your sleep and relieve tension...as well as producing endless beneficial side-effects by allowing you to better absorb other essential minerals. It's worth the effort and the experimentation. There are three ways you work with magnesium.

### Magnesium Citrate and Dimagnesium Malate

Citrate is the most popular form of magnesium and for many people does the job just fine. It also tastes the best. Especially if you enjoy Natural Calm's line of magnesium "just-add-water" powdered drinks. The dosage is 1-4 tsp per day where 1 tsp equals 200mg. You can get it from [VitaCost](#) at a very good price.

Other people prefer just to pop a tablet. One tablet that I recommend is [Magnesium w/SRT](#). They offer high quality dimagnesium malate in a sustained release form, which improves absorption and minimizes the laxative effect. The dosage is 4-6 tablets a day where 1 tablet equals 125mg.

Make sure you are taking enough magnesium citrate or dimagnesium malate until your bowels just start to become a little loose. Never take enough to cause diarrhea. You totally defeat your purpose by doing that because then you're just flushing out magnesium. So, don't take a full day's supply all at once. Take it 2-3 times per day with the last dose being at night to help

you sleep. To avoid the laxative effect, you can put magnesium citrate powder in your drinking water and sip through the day.

If you're already very regular with your bowel movements, then these forms of magnesium might not be for you. You might be able to handle a little but probably not get enough to meet your needs before the laxative effect kicks in. If you're prone to diarrhea, then you might just have to forget about powders and pills if splitting your dosage and taking small amounts several times a day doesn't help. There are other forms of magnesium for you.

Once you find your maximum dosage of magnesium citrate or dimagnesium malate, don't make the mistake of stopping there. Just because your bowels are loose doesn't mean your body cells are getting enough.

In terms of how many bowel movements...don't go beyond 2-3 a day. Make sure they are "well-formed" (much like a ripe banana). If they are loose and watery, you are probably losing magnesium and other nutrients from your food and supplements.

**Note:** You can usually take magnesium with or without meals.

### Magnesium Oil

Magnesium oil is an excellent way to get extra magnesium without any laxative effects (and, therefore, higher absorption).

Magnesium oil really isn't "oily" at all. It's made of supersaturated magnesium chloride in distilled water. I recommend you mix it with more water, coconut or sesame oil and massage over your entire body; allow it to absorb for about 30 minutes and then you can shower it off or leave it on. My favorite magnesium oil is [Ancient Minerals](#).

Apply as much as your skin feels "comfortable" with. To give you a precise amount, that would be about ½ to 1 teaspoon. Too high a concentration or applying too much can result in a mild redness of the skin. Occasionally people with very sensitive skin may not be able to handle much at all and have to dilute the magnesium oil considerably.

As with your bowels, don't assume that just because your skin has had enough, that your body has maximized its magnesium levels. Next, I strongly recommend you at least try...

### Pico-Ionic Magnesium

Scientists have found that minerals pass into your body's cells through extremely tiny channels – measured in picometers (which is about 5 billionths of a meter). And that's the key to getting the right magnesium in the right place – at the right time.

Pico-Ionic is a form of magnesium that's small enough in size that it acts at the cellular level and is ionically charged to allow it to be attracted to the cells that require it. Mineral ions are readily available in a liquid base but not in tablets or capsules. The fluid disperses the mineral compounds into its two ionic forms. Magnesium chloride is a mineral salt crystal in its dry state and becomes magnesium ions and chloride ion when dissolved and dispersed in liquid. That's usually all it takes to make an ion.

I was actively seeking a form of magnesium that was fully absorbed at the cellular level and did not have any laxative effect. Magnesium has a wonderful failsafe mechanism that prevents it from building up in the body – the laxative effect. What's not absorbed into the blood stream after a dose of magnesium goes through the kidneys into the urine and also through the intestines and into the toilet. My problem was that any form of magnesium in pills or powder gave me a

fairly immediate laxative effect. This meant I wasn't able to get enough magnesium into my blood and cells to effectively fight my magnesium deficiency symptoms before it exploded out the other end!!

Sorry, a bit dramatic, but that's what happens to a certain percentage of magnesium users.

When I began using the right type magnesium I finally found relief from all my magnesium deficiency symptoms (heart palpitations, charley horses, insomnia, muscle twitching) with no laxative effect.

When I first encountered this type of magnesium, it was in a form called angstrom magnesium. Angstrom is simply a word that stands for a unit of length that is equal to one-tenth of a nanometer (0.1nm), 100 picometers, or 1/10,000,000,000 (one ten billionth) of a meter ( $1 \times 10^{-10}$  m). Its symbol is Å, in honor of the Swedish scientist Anders Jonas Ångström who first named it.

I chose to call the form of magnesium that I recommend Pico-Ionic to bring it into the better known scientific metric system and to stay away from the word – nano – which has become synonymous with nanotechnology. Pico-Ionic magnesium came out of my search for a more concentrated form of angstrom magnesium. The angstrom form I was using had 3,000 ppm (parts per million) at a dosage of 45mg per TBSP and came in 32 ounce bottles. I had to choke back 6 TBSP 2-3 times a day of a very metallic and bitter liquid to get what I required. I spent two years working with various forms of magnesium to find one that was 100% absorbed and could fit in a capsule!

I still haven't found it but in the meantime the Pico-Ionic form I use is 50,000 ppm and comes in 8oz bottles at a dosage of 250mg per 4 mls. And it doesn't have a bad taste! Do the math and you find that Pico-Ionic magnesium is over 16 times more powerful, and even with reducing it's bottle size to ¼ of the angstrom bottles, it's still 4 times more powerful.

I was so thrilled with this product that I'm private-labeling it under the name [Pico-Ionic Magnesium Solution](#). It's taken me over 3 decades but I'm finally getting into the product business with Pico-Ionic Magnesium and RnA Drops.

Back to my story. I learned about angstrom magnesium immediately after the publication of the second edition of *The Magnesium Miracle* (2007). So I wasn't able to write about it in that book. It's still difficult to write about this type of magnesium and it's successor, Pico-Ionic magnesium because there is so little research associated with it. It's not a patented product and thus doesn't have the funding from either government or the drug industry to do large clinical trials. But what it does have is a mounting array of clinical cases that speak to its tremendous ability to reverse magnesium deficiency and suffering.

### **A Revealing Story**

The following case history illustrates the importance of absorption of the right type of magnesium.

One client (I'll call her Susan) is a dialysis patient. Her kidneys have failed completely. She requires a machine to clean her blood. She barely urinates. Dialysis machines, however, are very poor at cleaning out excess minerals. Dialysis patients usually go on a strict diet where they limit their intake of potassium, sodium and phosphates to avoid build up in their bloodstream. No dietary restrictions, however, are given about magnesium — because there is so little available in our diet it's difficult to overdose.

(Just to clarify: If your kidneys function properly, dietary “overdosing” on essential food minerals is not a problem — you will simply urinate them out. Better too much than too little.)

Now, on her own, Susan started taking magnesium citrate. About 700mg a day because she felt she had classic magnesium deficiency symptoms: muscle cramping, insomnia, irritability, fatigue. She began to feel welcome relief once she went on the magnesium citrate.

A week later, however, her condition worsened. She started to become very weak, nauseous, sleepless, and suffered horrible headaches. She felt awful.

Her nurse ran a blood test and found that her magnesium levels were dangerously high. (Again, if your kidneys work fine, then this will not happen to you. Magnesium is one of those minerals that will be released by your kidneys and your bowels when there is too much.)

But Susan wasn't really taking all that much magnesium. Only 700mg of magnesium citrate. Less than she probably needed. That's when she got in touch with me. I suspected that her body cells were not absorbing all the magnesium citrate. The rest was left circulating in her blood stream, unable to pass through her kidneys into her bladder.

We immediately took her off the magnesium citrate. The symptoms all went away in a few days. We then tried Pico-Ionic magnesium. This type of magnesium has been broken down to 5 billionth of a meter in width. Within the next few days she felt much better, her magnesium deficiency symptoms went away and her blood work showed that her magnesium levels were fine – no excess build up.

In Susan's case, Pico-Ionic magnesium absorbed a lot better than the magnesium citrate. The evidence is in the blood work.

### **Is There Such A Thing As Too Much?**

Personally, I'm require a lot of magnesium but I get an immediate laxative effect from powders and pills. So, I take 1-1.5 tsp of Pico-Ionic magnesium each day, in three divided doses. I find that any more brings no extra benefit.

Because of the high absorption of Pico-Ionic magnesium there is no laxative effect... so just work up to the level that feels beneficial. Start with ¼ tsp and work up to 1 tsp per day. That may be all you require. If you're not sure if it's making a difference, reduce and see how you feel. Life is dynamic, sometimes you need less, some days you need more (e.g. depending on what you ate or how rested you are). So aim for just a little more than you think you need, but not much more.

When I don't have enough magnesium my legs cramp up when I'm swimming or my heart starts throwing off extra beats. You'll soon find your own way of deciding how much you need.

Also, keep in mind, that as your body's cells build up their magnesium stores, the better you will be able to absorb more magnesium — thus reducing your need for magnesium. So, you're not going to need more magnesium over time, but less.

### **This Could Change Your Life**

I'm not prone to say things are life-changing too quickly. But maximizing your magnesium levels can truly improve every function in your body. I get emails from people every day confirming this.

Imagine if every night you sit down to read a book and are squinting and struggling with the print. Then one day someone points out you are only using a 40-watt light bulb. You replace it

with a 100-watt light bulb and suddenly it is so easy to read. Comparably, before maximizing your magnesium intake, it's like reading in the dark.

### How to Make it Happen

1. Each day increase your dosage of magnesium citrate or dimagnesium malate until your bowels become slightly loose.
2. Make sure you are briefly and gently massaging into your skin as much magnesium oil as you feel comfortable with (to a maximum of 1 tsp), each day after you shower.
3. Once you've maximized your magnesium citrate or dimagnesium malate intake, begin taking 18mg of angstrom magnesium. Increase by 18mg each day until you don't feel any extra benefit.
4. Stay at that level for 30 days then try reducing your intake of angstrom magnesium until you feel like you are losing the benefit.
5. Continue taking the citrate or dimagnesium malate, the oil and the angstrom magnesium six days a week. One day a week you can skip it (if you feel comfortable doing so) to allow your body to get rid of any excess.
6. Dividing up your magnesium dosage throughout the day is best. If you take it twice a day, do it in the morning and 30 minutes before going to bed. This is especially beneficial if you need help sleeping.

### Questions and Answers

***Do I need to take all three — the magnesium citrate, the magnesium oil and the angstrom liquid ionic magnesium?***

Possibly. It really depends on your body. What I'm recommending is that you experiment with all three.

All three are additional ways of getting magnesium (rather than from food). They make up for what we've done to our food supply. I suspect none of them do as good a job as our ancestors received from eating a diet naturally rich in magnesium.

So, by combining all three practices, you're more likely to get the full benefits of magnesium. The magnesium citrate or dimagnesium malate may do a better job of supplying the lining of the GI Tract. The magnesium oil may absorb better into the cells of your skin and into your nervous system. The angstrom may work better for nourishing the rest of your body at the cellular level.

You can easily combine the angstrom liquid ionic magnesium (which doesn't taste great) with the magnesium citrate drink (which tastes delicious).

And, as I mentioned, the magnesium oil can easily be combined with a daily oil massage.

Of course, if you're prone to loose bowels, than you can omit the magnesium citrate and dimagnesium malate altogether and just focus on the magnesium oil and the angstrom minerals. If your skin is too sensitive for the magnesium oil, then you're left with just the angstrom magnesium.

Listen to your body, experiment with all three, and see what works for you. Some people may feel comfortable staying with one of the three choices of magnesium and that's perfectly acceptable too.

***Is there any way I can just get my magnesium from foods?***



Yes, there is. Juicing lots of collard greens – which are rich in magnesium – is one way to get a high dose. The magnesium content may explain much of the well known benefits of collard juices.

Frozen bananas, cacao (chocolate) and coconut milk make a magnesium-rich dessert. It may sound bizarre but if I put 5 TBSP of cacao in this dessert recipe instead of the usual 3 TBSP, I can get loose stools because of the magnesium!

Nuts and seeds – especially sunflower seeds — are very rich in magnesium. In next week's module I'll show you how to select and prepare nuts and seeds so you can extract the maximum benefit from them (while making them more tasty and easy to digest). I even put them in my green drinks for a nutty taste.

If you are going to go the food route you probably should make sure you eat these foods at least six days a week. For example, you really should juice those collards every day and/or eat plenty of nuts and seeds.

And, even then, I would recommend you at least try adding some Pico-Ionic minerals to your diet to see if you feel even better. (You obviously won't need as much.)

Everything, essentially, comes down to how magnesium-rich the soil was that your produce came from. If it's magnesium depleted, even the darkest collard greens will be low in this essential mineral.

### Until Next Week

Remember, if you don't think you can do EVERYTHING that I outline in the Future Health Now! modules, don't worry. I don't expect you to! Even if you just do 20% you'll probably see 80% of the results you are looking for. There are endless options in Future Health Now! but fanaticism is not one of them!

Enjoy this module, enjoy magnesium and don't forget to send me your magnesium miracle stories. Because I know you will have them! To read more about magnesium, get a copy of [The Magnesium Miracle](#). Actually, most people buy several copies because they keep lending them out to friends and family. It's well-researched and fully referenced so your doctor can read it and learn what she/he missed in medical school!

### Coming Up In Module 15

Next week I'll be reviewing the placebo path to superior health in *Placebo Power*, our next Mind Over Matter Pillar. Phenomenally, in double-blind studies, placebos often produce the desired results 80% of the time. If you think something is working...then it can be so. I show how to put the power of the placebo into effect in your life so that everything positive you do, say or think enhances your health and happiness.

*If you have any questions about this module email me at [help@drcarolyndean.com](mailto:help@drcarolyndean.com)*



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