

# Supplementation: Magnesium

Hey, everyone. In this presentation, we're going to talk about supplementing with magnesium. Magnesium is vital to the human body. Over 300 enzymes need it, including every enzyme involved with ATP and enzymes involved in DNA and RNA production. It plays an important role in bone health, and most of the body's magnesium is stored in bone. Magnesium helps transport ions across the cell membrane surface.

Most Americans, unfortunately, don't get enough magnesium, though there are certain conditions that make magnesium deficiency more likely, such as digestive disorders such as IBD and GERD, especially if they are taking PPIs; renal disorders; alcoholism; and older age. Median intake is well below the RDA of 400 to 420 mg per day for adult men and 310 to 320 mg a day for adult women. It can be difficult to get enough magnesium in the diet for a couple of reasons. The soil level of magnesium has declined, and anti-nutrients such as phytates, which are present in many foods that contain higher levels of magnesium, inhibit the absorption of magnesium.

Magnesium deficiency can cause several symptoms, such as muscle cramps, heart arrhythmias, tremor, headaches, and acid reflux. It is also associated with increased risk of heart disease, hypertension, metabolic syndrome, type 2 diabetes, migraines, premenstrual tension syndrome, asthma, and hypothyroidism. Given magnesium's vital role in the body, it is easy to see why deficiency can cause such widespread problems. If your patient has any of these conditions, they'll likely benefit from magnesium supplementation.

**500-700 mg/day from  
food and supplements**

Unless your patients are actively aware of their magnesium intake, whether through supplements or diet, it's fairly safe to assume that they're not getting enough. I think the optimal range is about 500 to 700 mg per day from a combination of food and supplements, so that exceeds the RDA,

which again is just the dose required to avoid acute deficiency, and it's not such a high dose that it would be expected to cause any toxicity symptoms.

So, let's first talk about magnesium in food, and then we'll move on to supplementation after that.



Food sources of magnesium include nuts and seeds. Pumpkin seeds in particular and almonds are good sources of magnesium, but again, the phytates that are present in nuts inhibit the absorption of magnesium. One way around that is to encourage patients to soak nuts and seeds and then dry them before consuming them. The soaking breaks down the phytic acid and allows for better absorption, so with almonds, for example, they could be soaked overnight and then put in a dehydrator or roasted at a low temperature such as 150 or 170 degrees before they're consumed.



Other foods that are high in magnesium include dark leafy greens such as spinach and chard; molasses is a rich source of magnesium; dark chocolate; and bananas. Now dark chocolate cacao does have phytic acid, but the process of making chocolate actually breaks down some of that phytic acid, so dark chocolate is perhaps one of the best easy sources of magnesium that doesn't require any preparation.



Legumes can also be a good source of magnesium, at least on paper and provided the patient tolerates legumes, but just like nuts, they contain phytic acid, so they need to be soaked prior to consumption in order to make the magnesium in them more bioavailable.



Given that a lot of people will need to supplement to reach adequate magnesium intake, the average American gets less than 250 mg per day from the diet, so that is well below the RDA for both men and women. People on more nutrient-dense diets such as Paleo probably do get closer to the RDA, so in those cases, you may only need to supplement with 100 to 200 mg a day. I prefer chelated forms of magnesium, which are better absorbed, such as magnesium glycinate or magnesium malate.

## **Interferes** with absorption of following drugs

Digoxin (heart medication)

Nitrofurantoin (antibiotic)

Certain anti-malarial drugs

Bisphosphonates (osteoporosis)

Magnesium has been shown to be better absorbed with a higher protein intake, so make sure that patients aren't skimping on protein. Magnesium may also interfere with the following drugs, so use caution if your patient is on any of these: digoxin, which is a heart medication; nitrofurantoin, which is an antibiotic; certain antimalarial drugs; bisphosphonates used to treat osteoporosis; and then you should be on the lookout for magnesium deficiency for any patients who are taking PPIs, which reduce the absorption of magnesium; Lasix; and other diuretics, which are magnesium wasting.



**WARNING:**  
**May cause loose stools.**

Too much magnesium will tend to first manifest as loose stool. That is one of the first side effects that you can see, and, of course, magnesium is used as a laxative for this reason. If a patient is experiencing very loose stools, that is a sign that he may need to reduce his dose of magnesium.



Okay, thanks for watching. In the next presentation, we'll discuss vitamin K2.