

# bioteen™

Teen Health



## MAGNESIUM

PRODUCT OVERVIEW



## MAGNESIUM

Magnesium is one of those minerals that just seems to be able to do it all. Not only is it a cofactor for more than 300 enzyme systems that regulate many of your biological processes but it's also needed for energy production and bone health (to name only a few). Not all teen's get enough magnesium from their diet, especially if they are picky eaters. Because magnesium is found in fibre rich foods like spinach (and other green leafy vegetables) as well as legumes, nuts, seeds, and whole grains, if your teen is not hitting the recommended intake for these foods, then they may be lacking.

At Bioteen, we encourage a food-first approach but when your teen falls short, we are there to help fill in the gaps. That's why we created Bioteen's Magnesium. A combination of magnesium malate and magnesium glycinate that is easily absorbed and used by the body.

Let's take a look at how meeting your magnesium requirements for the day can affect health.

### **Bone density**

Magnesium is well known as a bone health mineral. Bone formation is a delicate balance of building up and breaking down and magnesium appears to influence the activity of both osteoblasts (which build up bone) as well as osteoclasts (which breaks bone down). In addition to this, magnesium also affects the concentrations of the parathyroid hormone and active vitamin D. Both of these have a role to play in calcium regulation, which is also a well-known bone mineral. Several population based studies have shown that there is a positive association between magnesium intake and improved bone density in both men and women, cementing the proposed relationship with bone health (&).

### **Energy support**

Magnesium is involved in energy production in several ways. For example, carbohydrates and fats are broken down by the body to yield energy through a number of magnesium dependent chemical reactions. In addition to this, ATP (adenosine triphosphate), which is the main energy source in the cell, needs to bind to magnesium in order to become biologically active (^). Without magnesium, we wouldn't be able to derive energy from the foods we eat, and our cells wouldn't be able to access energy in the form of ATP.



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### Supports metabolic health

Many metabolic derangements, like obesity and type 2 diabetes, cause low grade inflammation. This may not seem like a problem, but the basis of many diseases is inflammation. Having a magnesium deficiency promotes inflammation in two ways, directly and through directing the intestinal microbiota's structure and composition ([1](#)). A deficiency can also impair insulin secretion and because magnesium plays an important role in glucose metabolism, a deficiency may play a role in increasing risk for type 2 diabetes ([2](#)).

### Detoxification

Although the body is very good at detoxifying itself (using organs like the liver, kidneys, lungs and skin), having a magnesium deficiency may impair some of these well-oiled processes. Magnesium has been shown to have antioxidant properties, helping to reduce damage from unstable toxin intermediates that are formed in the detoxification process ([3](#)).

### Magnesium and sleep

Sleep is one of those things that you just can't go without. Not sleeping enough can have far reaching consequences and may increase inflammation and lead to immune system dysfunction. Magnesium may help to regulate sleep because it acts as an N-Methyl-D-aspartate (NMDA) antagonist (meaning it reduces its action) and a y-aminobutyric acid (GABA) agonist (which means it enhances its action). This is important because NMDA receptors are activated by excitatory neurotransmitters and GABA receptors are activated by inhibitory neurotransmitters. In addition to this, it has been suggested that magnesium helps to increase melatonin (sleep hormone) and reduce cortisol (stress hormone), both of which play an important role in a good night's sleep.

### Magnesium and mood (specifically PMS)

As magnesium is a GABA agonist, which is an inhibitory neurotransmitter, it helps to produce feelings of calm which may be helpful for those struggling to wind down. In addition to this, some research suggests that magnesium and calcium levels are often lower in women who suffer from PMS and it is hypothesised that correcting these deficiencies will have a knock on effect on mood ([4](#)).



**MAGNESIUM**

**The bottom line**

Magnesium is a very important mineral that has multiple functions in the human body. Many people are not eating a diet rich in magnesium, and although this should be your first port of call, meeting these food targets may not be feasible for everyone. Magnesium supplementation has been shown to improve magnesium status and can be used to close the gap between what your teen is getting and what your teen needs.

4. Taghiabadi M, Arab A, Rafie N, Askari G. Beneficial role of calcium in premenstrual syndrome: A systematic review of current literature. International Journal of Preventive Medicine. 2020;11(1):156.



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