

THE MAGIC OF MAGNESIUM

Magnesium is an essential mineral that plays a vital role in optimum health and performance. This is because muscle contraction and relaxation, energy production, nerve function, cardiac activity, blood pressure regulation, hormonal interactions, immunity, bone health, and the synthesis of proteins, fats and nucleic acids – all require magnesium.

For athletes, the requirement for magnesium may rise as training loads increase.

Magnesium activates enzymes known as ATPases, which in turn are needed to generate ATP (adenosine triphosphate). When ATP is broken down, energy is released for muscle contraction. When intensity is high, or workouts are long and arduous, ATP needs to be synthesised quickly. A deficiency in magnesium can slow or limit energy production, which is not great news for a hard working athlete. As a result, fatigue, lethargy, a reduction in power, and muscle twitches or even cramps, can hinder athletic progress.

Aside from being used in the production of energy, magnesium can also assist performance by reducing accumulation of lactic acid, as well as the perception of fatigue during strenuous exercise through its action on the nervous system.

Given that magnesium is predominantly stored in bone – and sufficient quantities are critical for overall bone health – chronic deficiencies may have implications for bone mineral density in the long term. Athletes need to be aware of this link as these sorts of deficiencies coincide with other nutrient and energy deficiencies that might stem from simply not eating sufficient quantity or quality to match their training needs.



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For most athletes, fatigue is a constant companion of most training days, weeks and months. It's easy to explain away fatigue or muscle cramps, lowered immunity, and even altered heart rates, or depressive moods when under high training load. All these symptoms are likely multi-faceted and need a holistic approach to manage – but they could also be due to nutrient deficiencies – including magnesium.

Magnesium is not produced by the body, so it needs to be ingested daily. The best sources of magnesium rich foods include:

- Spinach
- Cocoa
- Black beans
- Avocado
- Pumpkin seeds
- Almonds
- Whole grains.

Most of us don't eat enough of these foods, so deficiencies are actually pretty common. For an athlete with a magnesium deficiency, it is easy to see how correcting it would lead to performance benefits. While there might not be additional benefits from higher doses of magnesium, it's fair to say that hard working athletes are more likely to be losing significant amounts through sweat and increased metabolism – making it harder to

meet sufficient levels through diet alone.

Amongst athletic circles, magnesium is a pretty widely used supplement, particularly when it comes to assisting with muscle relaxation, recovery and promoting good quality sleep. These effects are likely a result of magnesium's action on the nervous system.

In addition to a sub-par diet lacking in a variety of fresh, whole foods – which can lead to deficiencies – glycaemic index issues, physical stress or illness can also all affect absorption. Plus, some medications and supplements can also impact magnesium and its absorption. If you do have a magnesium deficiency, it's worth discussing with your doctor or a good sports dietitian, to work out if there are other factors to consider, in addition to eating more magnesium-rich foods or a good quality supplement.

If you supplement with magnesium, it's worth investing in a quality one. Magnesium supplements include both inorganic and organic compounds – and some are more bioavailable than others – meaning they are better absorbed and utilised by the body. Around 350-400mg is the standard recommended amount. ♦