

MAGNESIUM AND PERFORMANCE/ OBESITY

Scientific Publications

Can Magnesium Enhance Exercise Performance?

Magnesium (Mg) is an essential mineral that plays a critical role in the human body. It takes part in the process of energy metabolism and **assists the maintenance of normal muscle function**. A number of studies evaluated the association between Mg status/supplementation and exercise performance and **found that the need for Mg increased as individuals' physical activity level went up. Animal studies indicated that Mg might improve exercise performance via enhancing glucose availability in the brain, muscle and blood; and reducing/delaying lactate accumulation in the muscle**. The majority of human studies focused on physiological effects in blood pressure, heart rate and maximal oxygen uptake (VO₂ max), rather than direct functional performances. **Some cross-sectional surveys demonstrated a positive association between Mg status and muscle performance**, including grip strength, lower-leg power, knee extension torque, ankle extension strength, maximal isometric trunk flexion, rotation, and jumping performance. Additionally, findings from intervention studies showed that **Mg supplementation might lead to improvements in functional indices such as quadriceps torque. Moreover, Mg supplementation could improve gait speed and chair stand time in elderly women**. This **comprehensive review** summarized the literature from both animal and human studies and aimed to evaluate scientific evidence on Mg status/supplementation in relation to exercise performance.

<https://www.ncbi.nlm.nih.gov/pubmed/28846654>

Role of Magnesium in Oxidative Stress in Individuals with Obesity

Adipose tissue is considered an endocrine organ that promotes excessive production of reactive oxygen species when in excess, thus contributing to lipid peroxidation. Magnesium deficiency contributes to the development of oxidative stress in obese individuals, as this mineral plays a role as an antioxidant, participates as a cofactor of several enzymes, maintains cell membrane stability and mitigates the effects of oxidative stress. The objective of this review is to bring together updated information on the participation of magnesium in the oxidative stress present in obesity. We conducted a search of articles published in the PubMed, SciELO and LILACS databases, using the keywords 'magnesium', 'oxidative stress', 'malondialdehyde', 'superoxide dismutase', 'glutathione peroxidase', 'reactive oxygen species', 'inflammation' and 'obesity'. **The studies show that obese subjects have low serum concentrations of magnesium, as well as high concentrations of oxidative stress marker in these individuals. Furthermore, it is evident that the adequate intake of magnesium contributes to its appropriate homeostasis in the body. Thus, this review of current research can help define the need for intervention with supplementation of this mineral for the prevention and treatment of disorders associated with this chronic disease.**

<https://www.ncbi.nlm.nih.gov/pubmed/27444303>

