PRODUCT DATA KLEAN ATHLETE® 2/2020

# Klean Magnesium

### DESCRIPTION

Klean Magnesium provides support for muscle cells by participating in protein synthesis and energy metabolism for peak performance and optimal recovery.<sup>‡</sup>

## **INDICATIONS**

- Supports muscle function, relaxation, and recovery time<sup>‡</sup>
- Supports protein synthesis and cellular energy production<sup>‡</sup>

### FUNCTIONS AND MECHANISM OF ACTION

Magnesium is a mineral with a fundamentally important physiological function that plays an essential role in a wide range of cellular reactions. Magnesium is involved in protein synthesis and energy metabolism to maintain muscle contraction and relaxation. The magnesium-adenosine triphosphate (Mg-ATP) molecule provides the energy used in physical activities. The utilization and distribution of magnesium is regulated by exercise, which in the presence of abundant magnesium may decrease oxygen requirements by muscle cells to enhance physical movements. During exercise, lactate accumulation may result in muscle fatigue, affecting physical performance. In a clinical study, healthy individuals who supplemented with magnesium showed an improvement in exercise performance by decreasing lactate accumulation. Furthermore, researchers have reported that magnesium supplementation enhanced muscle strength due to its involvement in protein synthesis. Interleukin-6 (IL-6) is a cytokine that is released by contracting muscles during strenuous exercise, with levels peaking post-exercise. Elevated circulating concentrations of IL-6 is associated with increased muscle soreness and reduced muscle function. In a clinical study, magnesium supplementation moderated IL-6 concentrations and muscle soreness 24-72 hours after exercise. Therefore, magnesium may improve muscle recovery time to enhance athletic readiness and performance.‡

Magnesium glycinate is a chelate mineral complex that increases the bioavailability of magnesium in the glycinate form. The chelated complex is easily soluble in water and directly absorbed by the intestinal cells, without needing further protein or chelation like other magnesium formats. As a neutral complex, magnesium glycinate can move freely through cells without disrupting mineral and ion balance within cells.<sup>‡</sup>

## **FORMULA (#KA202599)**

Other ingredients: Hydroxypropyl methylcellulose (vegetarian capsule), and ascorbyl palmitate

Gluten-free, Non-GMO

# SUGGESTED USE

Adults take 1-4 capsules daily with a meal or as directed by a health professional.

### **WARNING**

If you are pregnant, nursing, have any health condition or taking any medication, consult your health professional before using this product.

Keep out of the reach of children.

### STORAGE

Store in a cool, dry place, away from direct light. Keep out of reach of children.

### REFERENCES

Siebrecht S. OM & Ernahrung. 2013 Jan; Nr. 144.

Sun-Edelstein C, Mauskop A. Expert Rev Neuother. 2009;9(3):369-79.

Nielsen FH, Lukaski HC. Magnes Res. 2006;19(3):180-9.

Zhang Y, Xun P, Wang R, Mao L, He K. Nutrients. 2017;9(9). pii: E946.

Brilla LR, Haley TF. J Am Coll Nutr. 1992;11(3):326-9.

Santos DA, Matias CN, Monteiro CP, et al. Magnes Res. 2011;24(4):215-9.

Bohl CH, Volpe SL. Crit Rev Food Sci Nutr. 2002;42(6):533-63.

Lukaski HC. Can J Appl Physiol. 2001;26 Suppl:S13-S22.

Buchman AL, Keen C, Commisso J, et al. J Am Coll Nutr. 1998; 17: 124-7

Kawabe N, Suzuki M, Machida K, Shiota M. Jap J Phys Fitness Sports Med 1998; 47: 221-30.

Zorbas YG, Kakurin VJ, Afonin VB, et al. Kidney Blood Press Res. 1999;22(3):146-53.

Golf SW, Bender S, Gruttner J. Cardiovasc Drugs Ther. 1998;12 Suppl. S2:197–202.

Cheng SM, Yang LL, Chen SH, et al. Eur J Appl Physiol. 2010 Jan;108(2):363-9.

Ishii H, Nishida Y. J Phys Ther Sci. 2013;25(12):1637-42.

Cinar V, Nizamlioglu M, Mogulkoc R. Acta Physiol Hung. 2006 Jun;93(2-3):137-44.

Veronese N, Berton L, Carraro S, et al. Am J Clin Nutr. 2014 Sep;100(3):974-81.

Kass LS, Poeira F. J Int Soc Sports Nutr. 2015 Apr 24;12:19.

Hennigar SR, McClung JP, Pasiakos SM. FASEB J. 2017 Sep;31(9):3719-3728.

Fischer CP. Exerc Immunol Rev. 2006;12:6-33.

Clarkson PM, Hubal MJ. Am J Phys Med Rehabil. 2002 Nov;81(11 Suppl):S52-69.

Steward CJ, Zhou Y, Keane G, et al. Eur J Appl Physiol. 2019 Dec;119(11-12):2617-2627.

# For more information on Klean Magnesium, visit kleanathlete.com

<sup>‡</sup>These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

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