

PRODUCT INFORMATION



GLYCINE PROPIONYL L-CARNITINE

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Carnitine has two major forms, (1) being the acetyl-L-Carnitine (ALC) form and (2) being the Propionyl-L-Carnitine (PLC) form which when glycine is bonded with PLC it produces GPLC which is Glycine Propionyl-L-Carnitine which has a very high affinity for the skeletal muscles in terms of its ability to enter and assist with reducing oxidative stress (Bescós, Sureda, Tur, & Pons, 2012). This molecule is proposed to improve nitric oxide (NO) metabolism leading to enhanced anaerobic performance and reduced oxidative stress (Bescós et al., 2012).

A randomised, double blind, crossover study on 24 resistance trained subjects examined the performance effects GPLC had on subjects performing a Wingate cycle test. The results indicated an increase in peak power during the test and lower lactate levels 14 minutes post exercise in the GPLC group compared to the placebo group (Bescós et al., 2012).

A study on the oxidative stress imposed by aerobic and anaerobic exercise was examined on 33 subjects who performed a Wingate cycle test (anaerobic) and a Bruce-treadmill protocol test (aerobic) with subjects ingesting either placebo or 4.5g of GPLC (Bloomer & Smith, 2009). The results indicated that the GPLC group exhibited lower oxidative stress markers post exercise than the placebo group (Bloomer & Smith, 2009). Furthermore other research supports the findings that NO supplements like GPLC increase time to exhaustion and vaso-



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dilation during exercise (Bescós et al., 2012; Willoughby, Boucher, Reid, Skelton, & Clark, 2011)

As carnitine is a powerful mitochondrial antioxidant, the combination with Glycine and a propionyl ester results in overall improved mitochondrial efficiency during energy production (Bloomer & Smith, 2009; Diaz-Flores et al., 2013). Therefore, the use of GPLC may increase anaerobic power and reduce the oxidative stress load as a result of intense exercise.

Bescós, R., Sureda, A., Tur, J. A., & Pons, A. (2012). The Effect of Nitric-Oxide-Related Supplements on Human Performance. *Sports Medicine*, 42(2), 99-117.

Bloomer, R. J., & Smith, W. A. (2009). Oxidative Stress in Response to Aerobic and Anaerobic Power Testing: Influence of Exercise Training and Carnitine Supplementation. *Research in Sports Medicine*, 17(1), 1-16.

Diaz-Flores, M., Cruz, M., Duran-Reyes, G., Munguia-Miranda, C., Loza-Rodriguez, H., Pulido-Casas, E., . . . Hernandez-Saavedra, D. (2013). Oral supplementation with glycine reduces oxidative stress in patients with metabolic syndrome, improving their systolic blood pressure. *Canadian journal of physiology and pharmacology*, 91(10), 855-860.

Willoughby, D. S., Boucher, T., Reid, J., Skelton, G., & Clark, M. (2011). Effects of 7 days of arginine-alpha-ketoglutarate supplementation on blood flow, plasma L-arginine, nitric oxide metabolites, and asymmetric dimethyl arginine after resistance exercise. *International Journal of Sport Nutrition and Exercise Metabolism*, 21(4), 291-299.

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