

# L-Citrulline

## Enhanced Athletic Performance



converted into numerous compounds needed by the body. It enhances sports performance on a cellular level.

Just as important, L-CITRULLINE supports the body in detoxification, clearing the liver from ammonia and converting it to urea for excretion. This enables the muscles to recover after exercise.

Source Naturals is pleased to bring you L-CITRULLINE, a support for liver function, performance, exercise recovery, and increased energy. It is an excellent tool for your continued health and well-being.

A little-known amino acid is an important key to enhancing athletic performance and helping the body recover after strenuous workouts.

Citrulline is a non-essential amino acid that can be synthesized from other amino acids and is then



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## Exercise and Fatigue

During intense exercise, the oxygen in the muscle is used up quickly (aerobic energy). The body then calls upon ATP, adenosine triphosphate, for continued energy (anaerobic energy).

The use of ATP causes the muscles to produce IMP (inosine monophosphate) a nucleoside, and lactic acid and ammonia. These accumulate and establish muscle fatigue; in fact, fatigue is evaluated specifically from lactic acid and ammonia levels in the muscles.

Citrulline helps the body deposit ammonia into the mitochondria of the liver cells. It is there converted to urea, channeled through the kidneys and excreted. Unconverted ammonia is toxic to the liver.

Citrulline, then, supports the athlete in two main ways: it helps the body recover from fatigue, and it helps detoxify the liver, which supports overall health.

## ATP

ATP, adenosine triphosphate, is known in biochemistry as the intracellular energy transfer. ATP transports chemical energy within cells. It also transports molecules across cell membranes and it helps synthesize macromolecules like proteins. It plays a key role in endocytosis—the process by which materials enter a cell without passing through the membrane by a folding and engulfing action, and in exocytosis—the process in

which compounds are secreted from the cell to the cell surface. ATP is formed in numerous ways via many pathways; it is the energy of the cell, and through that, it controls cell functions like respiration and signal transduction.

Supplementation with L-CITRULLINE helps the body rid itself of ammonia and recover after exercise, freeing ATP energy for other uses.

## Enhanced Performance

Few nutrients offer such a wide range of positive features for increased health and vitality. Take advantage of this powerful, life-enhancing amino acid to decrease fatigue and to support the detoxification processes of the liver, all while enhancing the overall health and well-being of the athlete.

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