

# Mitochondral Injection with Amino Acids

## Amino acid combination to reduce pain perception and enhance muscle endurance

### COMPOSITION

L-Carnitine 200 mg/mL

D-Phenylalanine 4 mg/mL

L-Isoleucine 5.33 mg/mL

### ACTIONS

\* MITACHONDRAL supplements L-Carnitine plus endorphin precursors.

\* Use MITACHONDRAL as a pre-event treatment after regular supplementation with L-CARNITINE twice weekly.

\* MITACHONDRAL reduces the perception of pain, and delays lactic acid accumulation and muscle fatigue.

MITACHONDRAL is a combination of amino acids to enhance muscle endurance and reduce pain perception.

MITACHONDRAL supplies the amino acid L-CARNITINE in the same manner as L-CARNITINE injection and paste, but has the added amino acids Phenylalanine and Isoleucine. Phenylalanine is an essential amino acid which inhibits the breakdown of opiate-like substances in the brain called enkephalins. Reduced breakdown of enkephalins results in increased levels of endorphins in the brain.

Endorphins are released in response to pain, and act as natural pain killers to enable the body to cope with pain. Isoleucine is also involved in the production of endorphins. An increase in brain endorphin levels can assist performance by reducing pain associated with muscle fatigue and cramping.

L-Carnitine is essential for normal heart and skeletal muscle function. During hard exercise there is extensive loss of L-Carnitine, and this often cannot be replaced adequately from the diet alone. High levels of L-Carnitine are necessary, because L-Carnitine plays an essential role in muscle metabolism during exercise by forming the transport system which moves fatty acids into muscle cells for conversion into energy. L-Carnitine also inhibits the buildup of lactic acid in muscles, which helps delay fatigue in hard working muscles. Fatigue causes pain in muscles.

The level of L-Carnitine in muscles plays a major role in determining exercise capacity of muscle. L-Carnitine supplementation improves both sprint and endurance performance.

It increases endurance, as fat is the major energy source for endurance work. During sprinting L-Carnitine buffers lactic acid and delays fatigue. L-Carnitine supplementation increases maximum work output, and is of value especially in horses which are prone to



fatigue & Tying Up. The added amino acids reduce the perception of pain which may follow muscle fatigue and Tying Up.

### DOSAGE AND ADMINISTRATION

MITACHONDRAL is used most cost effectively at a dose rate of 15 - 25 mL by intramuscular injection in the 4 - 6 hours pre-event, as the added amino acids are not required regularly during training. Give one dose the day prior, and 4 - 6 hours before hard exercise for best effect.

Supplement with L-CARNITINE regularly 2 - 3 times weekly during training & racing. This may most appropriately be done using L-CARNITINE Paste.

HI-OCTANE liquid, AMP-5, TRIPART and COPHOS B have all been regularly combined with MITACHONDRAL.

### WARNINGS

Export Slaughter Interval (Horses): Nil

Not recommended for use with TYROPOWER paste, as phenylalanine in MITACHONDRAL will inhibit the uptake of the tyrosine from TYROPOWER.

### PRESENTATION

100 mL sterile glass multidose vial.

### STORAGE

Store below 25° C (Air Conditioning). Protect from light.

### AVAILABILITY

For General Sale (APVMA 52848)

### SEE ALSO

L-Carnitine, Panacin, Hi-Octane, Tripart, Green Amino Powder

## HANDY HINT

*MITACHONDRAL is regularly used as a pre-event treatment after L-CARNITINE has been used for regular twice weekly supplementation.*