

There are five gremlins which can affect your performance negatively: lactic acid accumulation; ineffective fat transportation; dehydration; muscle breakdown; and destabilising agent accumulation.

Sensible training practices (see diagram) can limit their occurrence, however, L-Carnitine and other ergogenics may also enhance our training and racing performance. But as with all supplements it needs to be used in an informed way.

The first practical research (as far as we are concerned) was published in 1976 by Suzuki *et al.* Results suggested that carnitine was excreted from the body in greater amounts on exercise days.

Three years later Eclache and a team from France presented data that race pace performance (80%VO<sup>2</sup> max or approximate Olympic distance speed) was significantly increased by L-Carnitine supplementation (4,800 mg/day for 21 days).

Two important experiments followed: Lennon *et al* in 1983 presented data which indicated that males and females cycling at 55% VO<sup>2</sup> max (the fat burning training zone) significantly reduced their muscle carnitine levels. A research group from the University of Milan, Italy, headed by Marconi, then studied six long distance walkers using 2,000 mg/day for 14 days L-Carnitine supplementation.

Their data suggested

# The uses and abuses of supplements

This month Joe Beer sheds some light on L-Carnitine and how it can be used

that VO<sup>2</sup> max may increase by as much as 12% (the average was 6%). This was especially significant as the athletes were of national class.

Following these discoveries. Sahlin (1990) published research data from the Kavolinska Institute in Sweden which illustrated that increasing exercise level (40%, 75% and 100% VO<sup>2</sup> max or 'fat burn', 'tempo' and 'Elvis' levels of exertion) used greater amounts of L-Carnitine.

Siliprandi *et al* three years ago showed that using L-Carnitine significantly decreases lactic acid build-up and improves the ability to maintain high intensity exercise.

On average lactate dropped 1mmol, or to put it another way, power increased over 20% for the same amount of lactate build-up. The results showed that the athletes' blood had less lactic acid content at all levels of

exercise when taking the L-Carnitine as opposed to a placebo. So, you either go faster at your new higher lactate threshold or you produce less lactate (and more fat) at submaximal speeds.

L-Carnitine decreases lactate, enhances fat metabolism, reduces protein breakdown, and protects the membrane destabilising agents. A reduction in protein breakdown and protective measures against destabilising agents means quicker recovery and less chance of strength loss caused by endurance or strenuous training.

## CAUTIONARY TIPS

However, the following cautionary tips should be taken into account.

- \* More is not better. Use supplements as directed
- \* Take the recommended dose one hour before you are due to exercise. However, you must

do the training, supplements are not instead of good training or a good diet, they merely ensure specific micronutrients are available to the body.

If you only train three or less times a week, make it four or five before you consider performance enhancing supplements.

\* Ensure the brand you use is safe and not an attempt to produce a similar product using inferior ingredients. Saving money (as with all products) usually involves cheaper and less effective raw materials. Two brands which are recommended are: Activ-8 by BioNova and Weider L-Carnitine. Never buy from an unknown manufacturer.

\* Always store supplements safely, especially if you have inquisitive children.

\* Always listen to your body. Never overtrain just because you are taking a course of nutritional supplements. Take one rest day in any seven to ten day period, or if there is more than a 10% increase in your rest or exercise pulse rate.

\* You are not different to other athletes. You must train, you must do things slowly, you must not over-supplement. Your health is central to your quality of life.

Go for a personal best, but don't do anything likely to make the rest of your life a personal worst. **220**

### Sensible training practices

KNOW AND MONITOR YOUR HEART RATE

ENSURE HEART RATE IS BELOW 70% OF MAXIMUM

REGULARLY DRINK GLUCOSE POLYMER ENRICHED BEVERAGES

USE ANTIOXIDANTS - VITAMINS C AND E TO HELP PREVENT MUSCLE WEAKENING

### Regular L-Carnitine supplementation produces:

GREATER POWER AND ENDURANCE

EFFICIENT USE OF GLYCOGEN, LOWER BODY FAT STORES ->

EFFECTIVE COOLING

QUICKER RECOVERY AND RELAXED MUSCLES