



### **Beta- Alanine Supplementation on Exercise: 2.8% performance benefit.**

Found in higher levels in chicken, but you would need a lot of it each day to get the required dosage.

Meta-analysis of 15 published manuscripts was included in the analysis. (Hobson, Saunders, Ball, Harris, & Sale, 2012)

Anaerobic glycolysis is the predominant energy source during high intensity exercise, with H<sup>+</sup> increasing when lactic acid dissociates to lactate and pH in the muscle falls. After 4mins of high intensity exercise pH is at its lowest, H<sup>+</sup> is at its highest. This acidosis of muscle (decrease in pH) results in reduced muscle force and fatigue. Beta-alanine supports carnosine levels which assists the muscle to buffer against H<sup>+</sup>. More Beta-alanine=more carnosine= decrease muscle acidosis in high intensity exercise, mainly *in fast-twitch muscle fibres*. (Harris et.al, 2006). Little H<sup>+</sup> accumulation after 30s maximal sprint, most accumulation at 4mins maximal effort. Beta-Alanine buffers against the H<sup>+</sup>.

#### ***Findings include:***

An increase in exercise capacity, not exercise performance. Capacity is maximal output; performance is time to complete an event (TT). (Hobson, et.al, 2012). This may be due to pacing strategies adopted by the participant, however maximal activity stresses the muscle homeostasis by its very nature.

Mean effect was found for exercise lasting 60-240seconds, smaller effect for exercise of >240seconds, no effect for exercise >60seconds.

Dosage- when 179g of B-Alanine is supplemented the median effect is 2.85% (-0.37 – 10.46%). A study by Hill (2007) showed after 4weeks of B-Alanine ingestion exercise outcome improved by 13%, with a further 3.2% occurring after 10weeks. Thus chronic exposure may be relevant. Can be smaller dosage over longer time or a larger dosage over a shorter time Stellingwerff (in press).

#### **Recommendations:**

Consume 179g over a given period, chronic ingestion is best.

Good for high end sustained-power.