

# AISSPORTS SUPPLEMENT FRAMEWORK

## BETA-ALANINE GROUP A



Carnosine is a muscle protein that plays an important role in buffering the acid build up that results from intense exercise. Carnosine is made up of two amino acids: beta-alanine and histidine. Beta-alanine supplementation increases muscle carnosine levels, boosting muscle buffering, delaying fatigue and improving performance.



- > Available in powder or tablet/ capsule forms
- > Slow-release capsules may help to facilitate better retention, further increasing muscle carnosine levels
- > The tingles that can occur post-ingestion are often lessened by use of slow-release capsules

**Beta-alanine supplementation is required multiple times a day for at least 4 weeks to achieve meaningful increases in muscle carnosine levels**

## BENEFITS OF SUPPLEMENTATION



**INTRACELLULAR BUFFER**  
(remove acids in muscle)



**FATIGUE RESISTANCE**



**IMPROVE PERFORMANCE**

## WHEN TO CONSIDER ITS USE



Short (30 secs to 10 minutes), sustained high intensity sports e.g. rowing, track cycling, swimming, middle distance running



Sports that involve repeated high intensity efforts e.g. resistance training team sports, racket sports



In the weeks preceding a period of training where training intensity is prioritised, or prior to competition blocks



When high intensity efforts are undertaken within or at the end of endurance exercise



As an alternative to acute sodium bicarbonate loading if gut upset is an issue

## HOW TO USE IT

Studies have used a variety of beta-alanine supplementation protocols to increase muscle carnosine over various loading periods.

### Loading dose:



3.2g beta-alanine/ day for a minimum of 8 weeks  
OR  
6.4g beta-alanine/ day for a minimum of 4 weeks

### Maintenance dose:



1.2g beta-alanine/ day thereafter

*WASHOUT: It takes approximately 2 weeks for muscle carnosine to decrease post supplementation*

**To be consumed in divide doses at main meals to further enhance uptake and better manage tingles**

- > The response between individuals can vary significantly, perhaps in part due to baseline muscle carnosine levels and/or training status.
- > Trained individual may experience smaller benefits from beta-alanine. This can still be worthwhile for athletes where small benefits can have a meaningful impact on results.



# BETA-ALANINE

## FOOD FIRST?

> 'Food first' principles should apply to all supplements. Although carnosine is found in red meat, chicken and fish, diet alone is not enough to increase muscle carnosine to levels required for a performance benefit.

E.g. Supplementation loading plan:



= 6.4g beta-alanine (split into 3 - 4 even doses with meals)

Breakfast:



+  1600mg beta-alanine

Snack (largest):



+  1600mg beta-alanine

Lunch:



+  1600mg beta-alanine

Dinner:



+  1600mg beta-alanine

## CONCERNS & CONSIDERATIONS



Substantial investment given the long period of supplementation required.



Beta-alanine and sodium bicarbonate may work together to increase buffering capacity.



Inclusion in pre-workout supplements may give you a 'buzz', but amount is too small to have any effect on performance.



More research is required to see if both histidine and beta-alanine supplementation can further boost muscle carnosine.



Doses >1000mg carry a higher risk of tingles, which can be managed by slow release forms.



Athletes who follow a plant-based diet may have lower levels of muscle carnosine.



All supplements have a doping risk of some kind. Some supplements are riskier than others. Athletes should only use batch-tested supplements. The Sport Integrity Australia app provides a list of more than 400 batch-tested products. ([www.sportintegrity.gov.au/what-we-do/supplements-sport](http://www.sportintegrity.gov.au/what-we-do/supplements-sport)).

While batch-tested products have the lowest risk of a product containing prohibited substances, they cannot offer you a guarantee. Before engaging in supplement use, you should refer to the specific supplement policies of your sport or institute and seek professional advice from an accredited sports dietitian ([www.sportsdietitians.com.au](http://www.sportsdietitians.com.au)). Athletes are reminded that they are responsible for all substances that enter their body under the 'strict liability' rules of the World Anti-Doping Code.