

The logo for CarnoSyn, featuring the brand name in a bold, italicized font. 'Carno' is in yellow and 'Syn' is in white. A yellow swoosh arches over the text. A registered trademark symbol (®) is located to the upper right of the 'n' in 'Syn'.

**CarnoSyn**<sup>®</sup>

THE SCIENTIFICALLY PROVEN,  
GLOBALLY PATENTED  
BETA-ALANINE



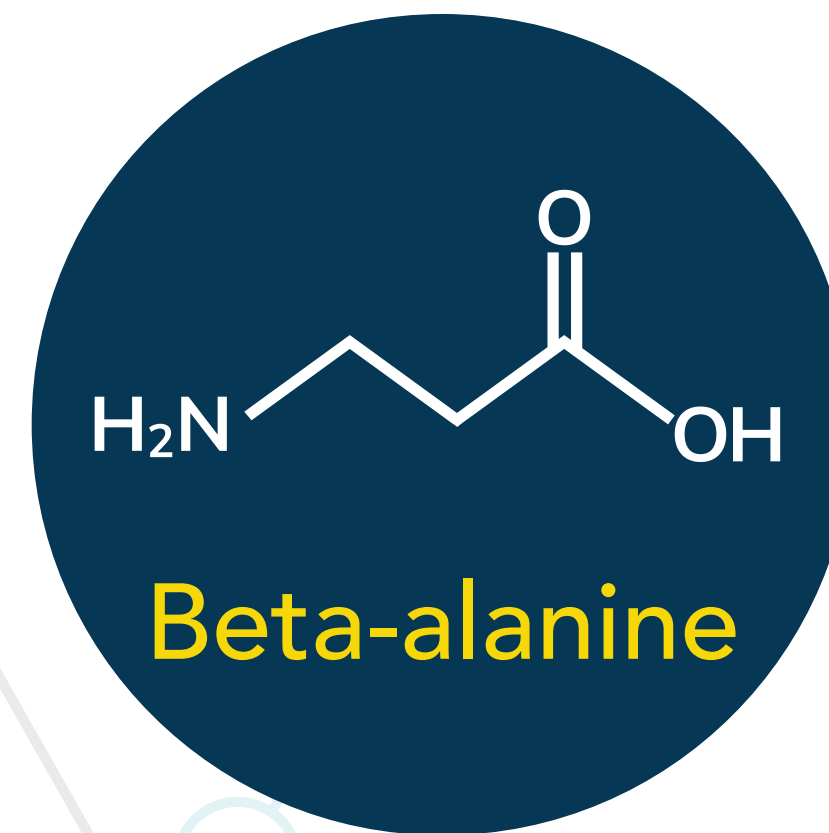
CarnoSyn<sup>®</sup> beta-alanine was made for the athlete in all of us. As the go-to ingredient for sports nutrition formulations, CarnoSyn<sup>®</sup> helps athletes build more muscle, faster. It helps every athlete gain focus, energy, and strength.

Give your brand the edge backed by science.

# THE CARNOSINE BREAKTHROUGH

## About Carnosine

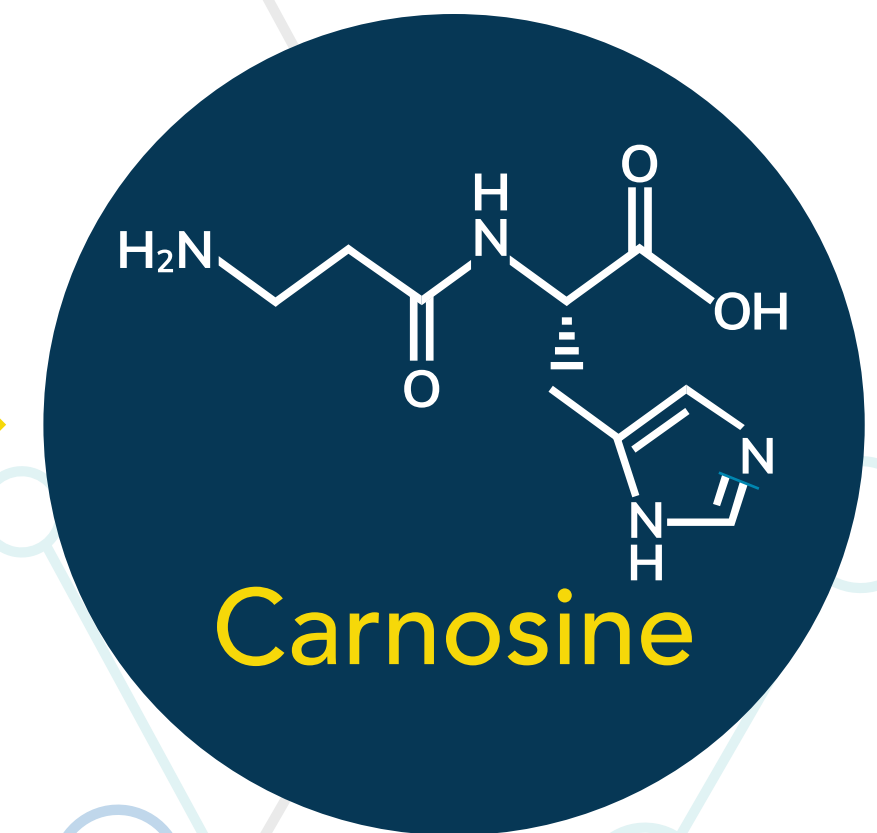
Carnosine is a powerful antioxidant that's naturally produced in the body. It's made up of two amino acids: **beta-alanine** and **histidine**.



+



→



As we age, our carnosine levels decrease. This is problematic because, as you'll learn, **carnosine provides performance benefits** for sports nutrition.

# THE BREAKTHROUGH

In the process of his groundbreaking research on creatine, Dr. Roger Harris came to understand the significance of carnosine. He also discovered that ingested beta-alanine is critical to form new carnosine. Since then, beta-alanine and carnosine have been studied extensively and found to be extremely beneficial to both athletes and adults of all ages.

At Natural Alternatives International, Inc. (NAI), we're helping share this knowledge so people can lead healthier and more fulfilling lives. As the sports nutrition market continues to expand and evolve, consumers are becoming savvier—and more demanding. CarnoSyn<sup>®</sup> provides brand partners with a true product differentiator—an NDI and self-affirmed GRAS status ingredient that delivers real results.

# HOW BETA-ALANINE WORKS

## How Does Beta-Alanine Work?

Beta-alanine is a non-proteogenic amino acid that's naturally produced in the body, and also found in foods such as certain meats and fish. It combines with the amino acid histidine to form a dipeptide called carnosine. Over time, carnosine buffers the pH decline that causes the onset of muscle fatigue and failure, while building endurance and improving recovery. pH buffering helps delay or even prevent muscular fatigue and it is critical for cells to function properly.

These statements have not been evaluated by the Food and Drug Administration.  
This product is not intended to diagnose, treat, cure or prevent any disease.



# HOW BETA-ALANINE FUNCTIONS IN THE BODY

Beta-alanine is considered to be the rate-limiting step in muscle carnosine synthesis (Bauer & Sculz, 1994; Harris et al., 2006).

Thus, the primary goal of beta-alanine supplementation is to increase carnosine content in the skeletal muscle thereby enhancing intracellular buffering capacity, enabling a greater tolerance of sustained anaerobic activity. Using beta-alanine supplements helps to enhance carnosine levels in the body by up to 80%.

During exercise and training, the following happens to the carnosine in the body:

## How CarnoSyn<sup>®</sup> Works

CarnoSyn<sup>®</sup> beta-alanine

Peptide bond

Histidine

Carnosine

Buffering action

Hydrogen ions (pH decline)

# THE ONLY PROVEN & PATENTED BETA-ALANINE



## THE ONLY NDI-STATUS BETA-ALANINE

In 2019, CarnoSyn® beta-alanine established New Dietary Ingredient (NDI) status. Becoming an NDI ingredient reaffirms our commitment to deliver the highest-quality solutions to athletes and brand partners, and further distinguishes CarnoSyn® from generic forms of beta-alanine with questionable quality and effectiveness.



## GENERALLY RECOGNIZED AS SAFE

With self-affirmed GRAS status, you can be confident that CarnoSyn® is a safe and effective ingredient. Self-Affirmed GRAS status allows opportunities within the dietary supplement and food & beverage industries.



## 55+ SCIENTIFIC STUDIES

Over 55 clinical studies support the athletic performance benefits of CarnoSyn® beta-alanine. CarnoSyn® was proven to increase muscle carnosine and increase performance when athletes dosed with at least 3.2-6.4 grams of CarnoSyn® per day over a 28-day period.

/ THE ONLY PROVEN & PATENTED BETA-ALANINE



## 20 GLOBAL PATENTS



**Backed by years of scientific research, CarnoSyn® is the only patented beta-alanine on the market.**

CarnoSyn® is the only beta-alanine imported and sold in the U.S. licensed under NAI's growing portfolio of U.S. and foreign patents. Ultimately, this ensures that any future advancements in sports nutrition research and technology related to beta-alanine will continue to benefit sports nutrition brands, athletes and adults of all ages around the world. Patents issued globally include:



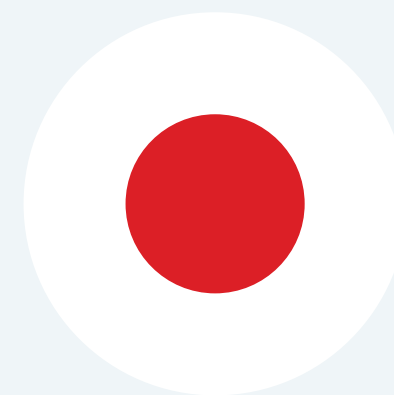
USA



CANADA



S. KOREA



JAPAN



EUROPE



CHINA

/ THE ONLY PROVEN & PATENTED BETA-ALANINE

# ONLY **CARNOSYN**<sup>®</sup> PASSES THE TEST.

- 1) Certified by national and international agencies to be safe and effective
- 2) Proven by science to enhance athletic performance
- 3) Guaranteed banned substance free
- 4) NDI and self-affirmed GRAS status
- 5) Patented

**GET THE  
FACTS.**

**CARNOSYN**<sup>®</sup>

**VS.**

**GENERIC**



## ARE YOU UNDERDOSING?

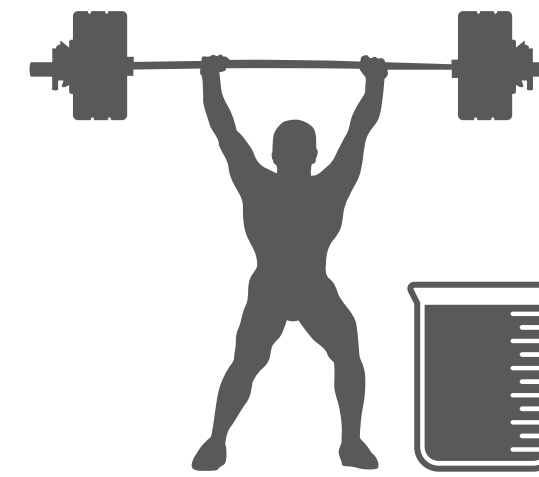


### THE MAGIC NUMBER

# 3.2g

Years of scientific studies show that taking at least 90 grams of beta-alanine over a 28-day period increases the working capacity of muscles to help you build more muscle, faster. That means taking an average of 3.2 grams per day, at a minimum, to get the edge over the competition. And to maintain the right level of muscle carnosine, CarnoSyn<sup>®</sup> beta-alanine should be taken every day—not just on workout days.

Getting results with beta-alanine is simple—if you take the right amount. Many athletes and sports nutrition brands are unaware of how much beta-alanine should go into their formulations. Here's what you need to know:



### STEP IT UP TO

# 6.4g

Studies prove that increasing beta-alanine intake to 179 grams over 28 days (an average of 6.4 grams per day) can significantly amplify muscle performance, and further demonstrate that dosing even more CarnoSyn<sup>®</sup> results in exponentially increased gains. Put simply, the more CarnoSyn<sup>®</sup> your formulation contains, the better results you will see.

# LOADING AND DOSING

## Two Ways to Get Results

CarnoSyn® beta-alanine is available in two different forms—instant release and sustained release—offering two ways to dose. SR CarnoSyn® offers the same benefits as instant release CarnoSyn® but in an advanced delivery system that allows for increased dosing for faster results. When used in tandem, the combination of instant release powder and sustained release tablets give athletes the ability to stack their dosing for higher quantities of beta-alanine.

With two ways to dose—CarnoSyn® instant release and SR CarnoSyn® sustained release—there is a wide array of applications available to reach a growing consumer marketplace.

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# STACK IT!

Get the daily dose of 3.2-6.4 grams of CarnoSyn® beta-alanine in one of three ways:



Part of a  
pre-workout or  
post-workout



A stand-alone  
product in a  
single dose or  
multiple doses



A combination of  
pre/post formulations  
and stand-alone  
products

CarnoSyn® makes it simple to stack. With CarnoSyn® instant release beta-alanine and SR CarnoSyn® sustained release beta-alanine, loading/stacking combinations can be individually tailored to optimize results.


# TURNKEY PRIVATE LABEL AND CUSTOM FORMULATION

Adding SR CarnoSyn® sustained release beta-alanine to your product line couldn't be easier. We offer SR CarnoSyn® tablets as a turnkey program.

LEARN MORE

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# PUT YOUR BRAND ON IT



**YOUR TEXT HERE**

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**Supplement Facts**  
Serving Size 2 tablets  
Servings Per Container 60

	Amount Per Serving	% Daily Value*
Beta-alanine (as SR Carnosyn®)	1,600 mg	*

\*Daily Values not established.

**LOGO**

**DIRECTIONS**

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**INGREDIENTS**

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**YOUR TEXT HERE** **PATENTED** **COUNTRY OF ORIGIN**

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**120 Tablets**

**COMPANY NAME HERE**  
ACD Address Name  
Street Name  
NO: 00546  
Phone: (000) 000-0000  
companyweb.com

**BARCODE**



## Claims & Clinical Study References

All Clinical Studies were conducted with an efficacious dosage of 3.2g+/day.



Increase strength



Delay fatigue



Enhance mental focus



Improve endurance

- Increase working & exercise capacity
- Increase muscle strength
- Improve muscle endurance
- Speed recovery from intense exercise
- Enhance the buffering capacity of muscle
- Elevate muscle carnosine levels

- Decrease acidosis
- Delay fatigue during workout
- Enhance mental focus
- Improve speed
- Enhance exercise training
- Improve overall muscle performance

## / CLAIMS & CLINICAL STUDY REFERENCES

1.  $\beta$ -alanine supplementation improves YoYo intermittent recovery test performance. [Publisher full text](#)
2. Short-duration beta-alanine supplementation increases training volume and reduces subjective feelings of fatigue in college football players. [Abstract](#)
3. Beta-alanine and the hormonal response to exercise. [Abstract](#)
4. Exercise-induced oxidative stress: the effects of  $\beta$ -alanine supplementation in women. [Abstract](#)
5. Effect of Beta-Alanine Supplementation on 800 m Running Performance. [Abstract](#)
6.  $\beta$ -Alanine supplementation elevates intramuscular carnosine content and attenuates fatigue in men and women similarly but does not change muscle l-histidine content. [Abstract](#)
7.  $\beta$ -alanine supplementation improves isometric endurance of the knee extensor muscles. [Abstract](#)
8. Additive effects of beta-alanine and sodium bicarbonate on upper-body intermittent performance. [Abstract](#)
9. Effect of  $\beta$ -Alanine, with & without Sodium Bicarbonate, on 2000m Rowing Performance. [Abstract](#)
10. Influence of training status on high-intensity intermittent performance in response to  $\beta$ -alanine supplementation. [Open Access](#)
11. The Effects of Beta-Alanine Supplementation on Physical Working Capacity at Heart Rate Threshold. [Abstract](#)
12. The effect of  $\beta$ -alanine supplementation on cycling time trials of different length. [Abstract](#)
13. Metabolic consequences of  $\beta$ -alanine supplementation during exhaustive supramaximal cycling and 4000-m time-trial performance. [Abstract](#)
14. Beta-alanine supplementation enhances judo-related performance in highly-trained athletes. [Abstract](#)
15.  $\beta$ -alanine supplementation improves tactical performance but not cognitive function in combat soldiers. [Open Access](#)
16.  $\beta$ -Alanine ingestion increases muscle carnosine content and combat specific performance in soldiers. [Open access purchased by NAI](#)
17. Twenty-four Weeks  $\beta$ -alanine Supplementation on Carnosine Content, Related Genes, and Exercise. [Abstract](#)
18.  $\beta$ -Alanine Supplementation Improves Throwing Velocities in Repeated Sprint Ability and 200-m Swimming Performance in Young Water Polo Players. [Abstract](#)
19. Four Weeks of  $\beta$ -alanine Supplementation Improves High-Intensity Game Activities in Water Polo. [Abstract](#)
20. Distinct Effects of Repeated-Sprint Training in Normobaric Hypoxia and  $\beta$ -Alanine Supplementation. [Abstract](#)
21.  $\beta$ -Alanine supplementation augments muscle carnosine content and attenuates fatigue during repeated isokinetic contraction bouts in trained sprinters. [Abstract](#)
22. Additive Benefits of  $\beta$ -Alanine Supplementation and Sprint-Interval Training. [Abstract](#)
23. The ergogenic effect of beta-alanine combined with sodium bicarbonate on high-intensity swimming performance. [Abstract](#)
24. The effect of  $\beta$ -alanine and NaHCO<sub>3</sub> co-ingestion on buffering capacity and exercise performance with high-intensity exercise in healthy males. [Abstract](#)
25. Effects of twenty-eight days of beta-alanine and creatine monohydrate supplementation on the physical working capacity at neuromuscular fatigue threshold. [Abstract](#)
26. Effects of  $\beta$ -alanine supplementation on the onset of neuromuscular fatigue and ventilatory threshold in women. [Abstract](#)
27. Influence of  $\beta$ -alanine supplementation on skeletal muscle carnosine concentrations and high intensity cycling capacity. [Abstract](#)
28. Kinetics of Muscle Carnosine Decay after  $\beta$ -alanine Supplementation: A 16-Week Washout Study. [Abstract](#)
29. Carnosine Alleviates Knee Osteoarthritis and Promotes Synoviocyte Protection via Activating the Nrf2/HO-1 Signaling Pathway: An In-Vivo and In-Vitro Study. [Abstract](#)

# GET CARNOSYN® VERIFIED

You may already be using CarnoSyn® in your sports nutrition formulations, but do you use the right quantity to give your customers the results that will keep them coming back for more? Brands who want to deliver the performance benefits of CarnoSyn® beta-alanine to their customers must include the proper daily dosage in their formulations. That's why we recommend our brand partners provide a minimum of 3.2 grams per day via a standalone product or a stack.

Brands that include the proper dose of CarnoSyn® in their formulations will gain a true differentiator from the competition and achieve CarnoSyn® -Verified status, where they will be featured on CarnoSyn®'s social media platforms and Find It pages, making them instantly visible to consumers searching for products that contain the proper dose of CarnoSyn®.

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VISIT OUR BRAND PARTNER PORTFOLIO

# CARNOSYN® TESTIMONIALS



**Rachel Baker**

MS, RD, CSSD, LDN Manager, Nutrition Content & Services

“CarnoSyn beta-alanine is a well-known sports ingredient that many consumers have grown to expect over the years. That coupled with a scientific portfolio makes it a no-brainer for some of our key sports performance innovations here at GNC.”

**K A G E D**

**Kris Gethin**

Chief Executive Officer

“I believe scientifically-backed ingredients are very important to brands and consumers because that proves the efficacy, the safety, the purity of that product. Overall, the values that CarnoSyn brings to our brand is authenticity and quality.”



**Greg Tetzlaff**

Head of Product Content & Industry Influencers

“Nutrabort formulates with CarnoSyn because it’s the most premium, most studied, and most scientifically researched beta-alanine on the market.”



**Bryan Morin**

Sports Brand Manager

“Here at NOW Sports, we choose to formulate with CarnoSyn beta-alanine because it’s the safest, highest quality, most effective product on the market. Working with CarnoSyn has helped legitimize us as a top sports nutrition brand.”



# ADDITIONAL RESOURCES

We hope you enjoyed this overview of CarnoSyn® and we've compiled a list of additional resources to your right.

For anything else, please don't hesitate to contact your sales representative.

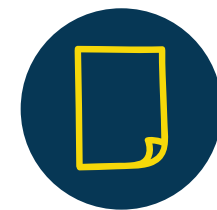
**Elisa Benussi**  
**Executive Assistant**  
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Watch the CarnoSyn® Formulation [FAQs video](#)



Read more by visiting the [CarnoSyn® website](#)



Browse our [blog](#)



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