

# Ghost Legend ALL OUT: The Strongest Legend Pre-Workout Yet

written by Mike Roberto | October 5, 2022

The *Legends* at **Ghost Lifestyle** have heard the feedback from customers loud and clear: “We want a stronger *LEGEND* pre-workout supplement!” Today, we get to see their response.

Ghost Legend is one of the best-selling pre-workout supplements on the market, developed by a team whose mantra is to “*formulate supplements for the 1% who understand ingredient science, but craft the brand’s messaging for the other 99%*”. The strategy definitely works, but when it comes to pre-workout supplements, one size just doesn’t fit all.



Some athletes want *more energy*, and that means *more caffeine*. The Legends have delivered:

## Introducing Ghost Legend *ALL OUT*

**Ghost Legend *ALL OUT*** is a *maximally-dosed* version of the *LEGEND* pre-workout supplement. At 23 grams per serving, it takes the award-winning formula to a whole new level. Consider this similar to the *MONSTARS* version of the Ghost Space Jam launch, only... *stronger!*

Inside, the *GHOST LEGEND ALL OUT* blend provides a *full yield* dose of 6 grams of *citrulline* from both L-citrulline *and* citrulline nitrate. But the *GHOST SMART ENERGY* blend is where things really get tuned up, with a massive **400 milligrams of caffeine** from a blend of *caffeine anhydrous* and *zumXR* extended release

*caffeine*. In addition, L-tyrosine and Alpha-GPC doses have been amped up, with additional energy from *theobromine* and *bitter orange*.

It's all tied together with NuLiv Science's *AstraGin* in the *GHOST ABSORPTION* blend, making for the *highest-energy* pre-workout supplement the brand has ever developed. And it's coming to GNC, for those who like to Live Well *and* live... lively.

We briefly discuss the profile below, but first, check availability and see our related videos:

## **GHOST Legend All Out – Deals and Price Drop Alerts**

### **Get Price Alerts**

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## **Ghost Legend ALL OUT Ingredients**

Legend ALL OUT is similar to previous versions of GHOST LEGEND, only... *bigger and better*. To give you a general idea, the original Legend pre-workout currently weighs in at around 16.5 grams, while *ALL OUT* clocks in at a whopping *23 grams* – in a *single* scoop.

Get ready for a *loaded*, energy-fueled workout. Let's quickly cover the three major blends below:

- **Ghost Legend ALL OUT**

This is the ergogenic support blend built to bring a massive nitric oxide pump:

- **Full Yield Citrulline – 6000 mg**



This is about as strong of a supplement you'll see Ghost make!

GHOST starts the formula off with a combination of two citrulline ingredients – **vegan fermented L-citrulline** and **N3-T citrulline nitrate**, intelligently-formulated to yield a *total* of six grams of total citrulline.

L-citrulline is an amino acid that helps increase the body's production of *nitric oxide* (NO).[1] Improved nitric oxide levels lead to an effect known as *vasorelaxation*, and a 6 gram dose of citrulline has been shown to improve athletic performance and oxygen uptake.[2]

What's unique here is that GHOST is targeting nitric oxide production through *two* pathways. On top of the 6 gram yield of L-citrulline, there's also some **nitrate** (NO<sub>3</sub>-) as well. Whereas L-citrulline works on the l-citrulline-to-l-arginine eNOS pathway,[1] nitrate can lead to increased nitric oxide production through the *nitrate-nitrite-NO* pathway.[3,4]

So with these two ingredients combined, we not only get a clinically-tested 6 gram dose of L-citrulline, we also get a solid amount of nitrate to further increase nitric oxide production.

- **Beta Alanine – 3200 mg**

**Beta alanine** is an amino acid frequently used in pre-workout supplements to assist *muscle buffering*. It combines with the essential amino acid *L-histidine* to help the body form more *carnosine*, a molecule used to buffer acids in muscle tissue.[5] With greater carnosine levels, we can see improved lactic acid buffering in order to support performance.

There have been two major meta-analyses on beta alanine supplementation: The first demonstrated that it supports performance in exercises 1-4 minutes long,[6] and the second showed that it can improve work capacity in exercises ranging from 30 seconds to 10 minutes long.[7] In the second meta-analysis, the authors concluded the following:

*“β-alanine supplementation had a significant overall ergogenic effect on exercise”.[7]*

The general goal with beta alanine is to get muscle carnosine levels to *saturation*,[8] so this is an ingredient we suggest taking daily. On non-training days when not using a pre-workout, consider using a high-quality beta-alanine supplement such as *Beyond Raw Chemistry Labs Beta-Alanine*.

- **Betaine Anhydrous – 2500 mg**



One scoop, 23 grams, 400 milligrams total caffeine – pour carefully!

Not to be confused with beta alanine, **betaine anhydrous** is another popular pre-workout ingredient that serves multiple purposes. It's also known as *trimethylglycine*, containing three methyl groups that serve as *methyl donors* for critical processes in the body.[9] Betaine also functions as an *osmolyte*, supporting improved water balance and cellular hydration within the body.[10]

Research has shown that a 2.5 gram daily dose – the amount we have here in GHOST LEGEND ALL OUT – can lead to:

- Improved athletic performance[11-14]
- Increased muscle mass gains[15,16]
- Greater fat loss and body recomposition[17]

With this research, it's no surprise that we see betaine in so many pre-workout supplements, this one included.

## • Ghost Smart Energy

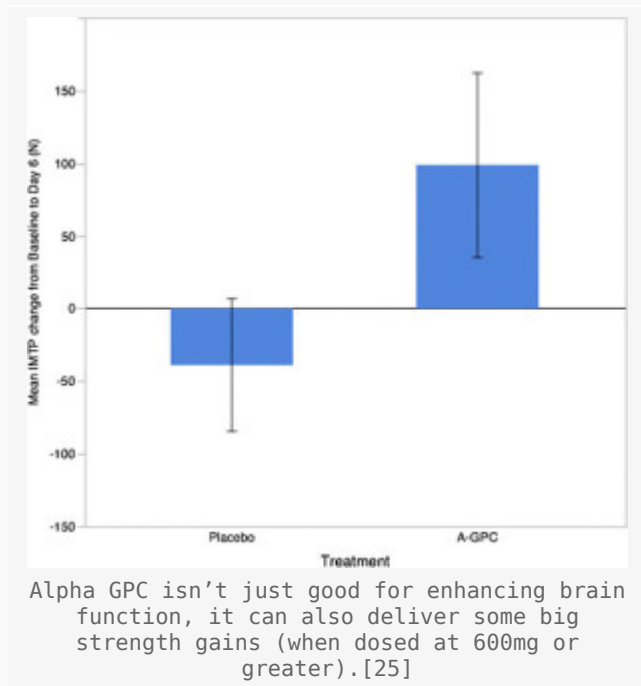
We've never seen a Ghost energy blend like this! Before diving in, it's important to note that a *single* scoop of LEGEND ALL OUT has a whopping **400 milligrams of caffeine**, some of which comes in *extended-release* fashion. If you're unsure of your stimulant tolerance, test with half of a scoop to assess.

### • L-Tyrosine (Vegan Fermented) – 2000 mg

**L-Tyrosine** is an amino acid that's used to improve focus and energy levels by supporting the production of catecholamine neurotransmitters like *dopamine* and *noradrenaline*. [18] It's been shown to mitigate stress and enhance performance in military research. [19,20]

What's impressive here in LEGEND ALL OUT is that GHOST *doubled* their standard dose – LEGEND has a gram, but they took its tyrosine to the next level with the ALL OUT version.

### • Alpha-GPC (Alpha-Glyceryl Phosphoryl Choline 50%) (delivering 300mg Alpha-GPC) – 600 mg



**Alpha-GPC** is a highly-bioavailable form of *choline*, a B-vitamin that's crucial to the structural integrity of cell membranes.[21] It's the precursor to *acetylcholine*, a neurotransmitter that supports learning, working memory, and inter-neuron communication.[22] Animal models show that Alpha-GPC is able to cross the blood-brain barrier.[23]

In one study published in 2008, a 600 milligram dose of alpha-GPC showed significantly improved leg strength and post-exercise serum growth hormone compared to placebo.[24] Another study published in 2015 showed that the same 600 milligram dose taken over the course of six days was effective at increasing lower body force production.[25]

- **Caffeine – 400 mg (from 300 mg Caffeine Anhydrous and 139 mg zumXR Extended Release Caffeine [delivering 100mg caffeine])**

GHOST's customer base (known as *Legends*) wanted more **caffeine**, and they sure got it here! The whopping total caffeine yield of *400 milligrams* is well beyond anything the brand has ever released.

Anyone considering taking LEGEND ALL OUT should know how caffeine affects them at this point. It blocks the adenosine receptor, promoting wakefulness, increasing neural activity in the brain, and reducing feelings of fatigue.[26,27] Additionally, it can increase the release of dopamine, leading to its feel-good effects.[28]

Caffeine has been shown to improve physical exercise performance in both aerobic *and* anaerobic exercises and sports.[29]



What's unique here is the fully-disclosed blend, where zumXR Extended Release Caffeine is utilized to prolong the energy generated from the pre-workout. This, along with theobromine (the next ingredient), leads us to suggest you not to use this pre-workout *too* close to bedtime – understand your caffeine cut-off time!

Additionally, remember that this is a large dose of caffeine, and isn't intended for beginners. If unsure of your caffeine tolerance, begin with half of a scoop or run a tub of the original LEGEND first.

- **Theobromine – 100 mg**

**Theobromine** is a metabolite of caffeine, and a related member of the *methylxanthine* class of alkaloids. Its effects are similar to those of caffeine, but more mild and longer-lasting due to its longer half-life.[30]

With both theobromine and zumXR Extended Release Caffeine (discussed above), GHOST LEGEND ALL OUT is designed to last longer, while also reducing caffeine crashes.

- **Bitter Orange (*Citrus aurantium*) Fruit extract – 60 mg**

Also known as *citrus aurantium*, **bitter orange** fruit extract contains numerous metabolites and flavonoids with several metabolic benefits.[31] Of its flavonoids are *flavones*, *flavanones*, and *flavonols* that have various health-promoting properties, and there are also phenylethylamine alkaloids shown to improve metabolic rate and energy expenditure.[32]

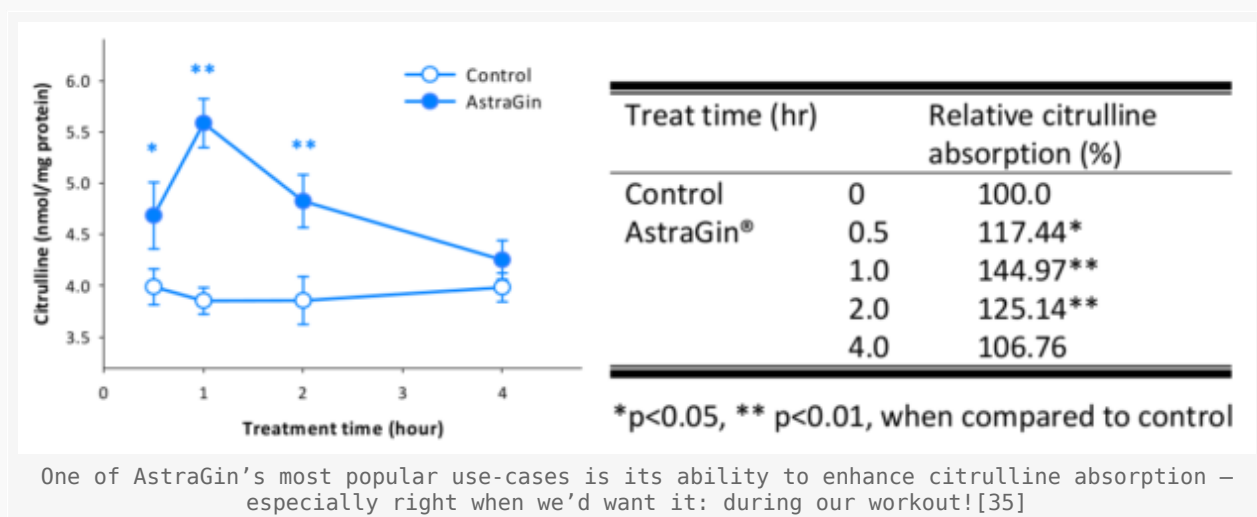
While we're not sure what GHOST's bitter orange is standardized for, pre-workout supplements are generally formulated for energy and metabolic rate improvement, so we can likely expect it to be geared in that direction.

## • GHOST ABSORPTION

### • AstraGin (Astragalus membranaceus and Panax notoginseng) Root extracts – 50 mg

Finally, **AstraGin** is a popular ingredient from *NuLiv Science*, developed to improve the absorption of the rest of the formula. AstraGin is extracted from *astragalosides* and *ginsenosides*, which are botanical compounds from *astragalus* and *ginseng* (respectively) that provide various health benefits.[33,34]

Internal data from NuLiv Science shows an increased uptake of amino acids and vitamins, including L-citrulline, which is here in LEGEND ALL OUT:[35]



We often see AstraGin in 25 or 50 milligram doses, and as you could have guessed, with this formulation, we have the upper end of that range.

## Flavors available

GHOST is well-known for their incredible flavor profiles, and it should be no different here:





## Conclusion: Go ALL OUT

Ghost Legend ALL OUT is about as strong of a supplement that we're going to see come from the brand. In fact, it clocks in at nearly *twice* the caffeine of the original LEGEND formula they originally launched in 2016. Times have certainly changed, but GHOST is great at changing with them.

As the partnerships continue – recent launches include the *Ghost Whey OREO Birthday Cake* celebration, *Space Jam* (whose Monstars formula was quite similar to this), and the *Teenage Mutant Ninja Turtles* collaboration – it's great to see that the Legends are listening to what the customer base (or at least *part* of the customer base) wants.

With more options, customers of all sizes and stimulant-tolerances win!

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