

# Ghost Gamer NON-Stim: Gaming Focus without the Jitters

written by Mike Roberto | April 27, 2022

The long-awaited day has come – *Ghost's incredible collaboration with The Teenage Mutant Ninja Turtles!* We've covered the GHOST x TMNT collab in the article linked above, and detail the story in Episode #066 with Ghost CEO Dan Lourenco and CMO Ryan Hughes on the PricePLOW Podcast, so you can get the full story on this extraordinary nostalgic partnership.

There's one last piece of the puzzle for us to cover: the *new product* launching inside of this effort! And it's one that we've been requesting for quite some time now:



## Ghost Gamer Non-Stim is available... at least for now!

**Ghost Gamer** shook the industry up, launching the sports nutrition industry's *first* clinically-dosed gaming supplement, thanks to Nutrition21's research-backed nooLVL ingredient.

Ghost Gamer has 75 milligrams of caffeine per scoop, or 150 milligrams per full two-scoop serving. This is perfect for most gaming situations – enough for some smooth energy, but not too much to get jittery – but there's just one problem: gamers are often playing late at night!

So if you're still going strong at midnight, and want some added cognitive support, but don't want caffeine, Ghost Gamer is *out*. Ghost listened to your requests, and with this TMNT collab that comes in the incredible *OOZE* flavor, they've put out **Ghost Gamer Non-Stim** – which is the same formula only without

the caffeine and theobromine!

In this article, we cover the ingredients, and give an update on nooLVL. Since our original Ghost Gamer article linked above, there have been *two* additional research studies conducted on nooLVL itself, so it's great to get a refresher. First, check availability here or head to your local GNC, and get the Donatello-graced tub while you can:

## Ghost Gamer Non-Stim – Deals and Price Drop Alerts

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## Ghost Gamer Non-Stim Ingredients

Remember, Ghost Gamer Non-Stim is the same formula as Ghost Gamer, only *without* the caffeine or theobromine! So in a single *two scoop (9.5 grams)* serving of Ghost Gamer, you get the following:

- **nooLVL (Inositol Enhanced Bonded Arginine Silicate) – 1600mg**

Of all the powerful ingredients in this formula, **nooLVL** is, hands-down, the most exciting for us.

**OOZE**

## SUPPLEMENT FACTS

Serving Size: 1 Scoop (4.75 g) / 2 Scoops (9.5 g)  
Servings Per Container: 62 / 20

Amount Per Serving	1 Scoop	%DV**	2 Scoops	%DV**
Calories	5		10	
Total Carbohydrate	~1 g	~1%	2 g	1%
Total Sugars	0 g	0%	0 g	0%
Includes 0g Added Sugars		0%		0%
Vitamin C (as Ascorbic Acid)	250 mg	279%	500 mg	544%
Vitamin D3 (as Cholecalciferol) (from VegD3®)	25 mcg	125%	50 mcg	250%
Vitamin E (as dl- $\alpha$ -tocopheryl)	7.5 mg	50%	15 mg	100%
Niacin (as Nicotinic Acid)	10 mg	63%	20 mg	124%
Vitamin B6 (as Pyridoxal-5-Phosphate)	0.85 mg	50%	1.7 mg	100%
Vitamin B12 (as Methylcobalamin)	3 mcg	120%	6 mcg	240%
Zinc (as TRAACS® Zinc Bisglycinate Chelate)	5.5 mg	55%	11 mg	100%

**GHOST™ GAMER NON-STIM**

noolVL™ (Inositol-stabilized Arginine Silicate)	800 mg	†	1600 mg	†
Theanine	500 mg	†	1000 mg	†
L-Tyrosine	500 mg	†	1000 mg	†
Cognizin® Citicoline	250 mg	†	500 mg	†
Raw Coconut (Cocos nucifera) Water Powder	250 mg	†	500 mg	†
AstraGin® (Astragalus membranaceus and Panax notoginseng) Root extracts	25 mg	†	50 mg	†

\*\* Percent Daily Values (DV) are based on a 2,000 calorie diet.  
† Daily Value not established.

**OTHER INGREDIENTS:** Citric Acid, Natural and Artificial Flavor, Malic Acid, Gum Acacia, Tartaric Acid, Silicon Dioxide, Calcium Silicate, Sucralose, FD&C Yellow #5, FD&C Blue #1, Gellan, Tree Gum (Gellan)

VEGAN FRIENDLY
  GLUTEN FREE
  SOY FREE
  SUGAR FREE

noolVL™ TRAACS® Cognizin® noolVL VegD3

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**GHOST™** X **TURTLES™**

Same ingredients as Ghost Gamer, only no caffeine or theobromine!

noolVL is an *inositol-stabilized arginine silicate* (ASI) molecule developed and patented by *Nutrition21*. The compound was originally developed as a *nitric oxide* (NO) booster. Reason being, NO has been a common target of sports-supplement science due to its ability to cause *vasoconstriction*, the process by which blood vessels dilate (expand) to pump more blood than usual, which increases the efficiency of oxygen and nutrient delivery to your muscle and brain tissue.[1]

The element of ASI that actually causes vasodilation is the **arginine**, which has long been studied for its role in boosting NO production,[2,3] and was used as the front-line NO supplement by the industry for several decades. Eventually, arginine was abandoned in favor of *citrulline*, which circumvents arginine's breakdown in a slower-metabolizing "endaround" manner. The poor bioavailability of arginine[3] is the problem that ASI was designed to solve.

It turns out that by binding arginine to silica and inositol, you can prevent arginine from breaking down in the gut by the "first pass" effect, thus improving its bioavailability.[1]

The *original* purpose of NO boosters was to enhance one's "pump" in the gym, increasing performance and recovery by improving blood flow. Eventually, researchers began to realize that NO upregulation can have significant benefits for the *brain* as well.

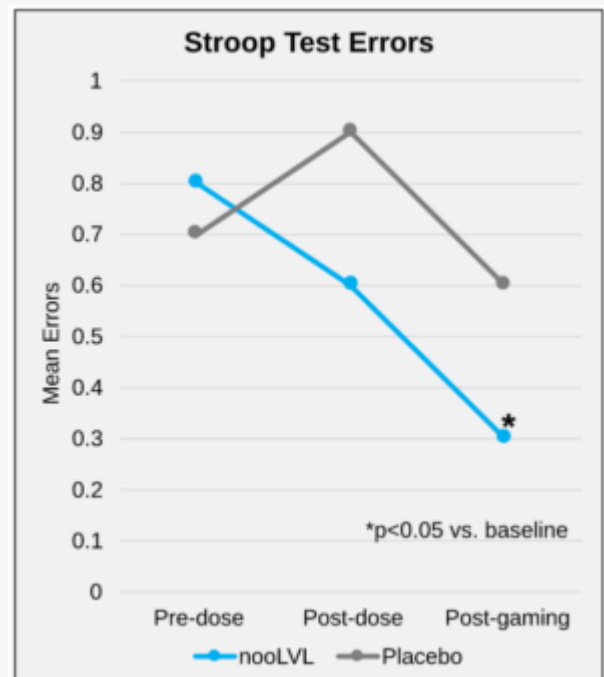
This makes perfect sense – neurons are just as dependent on healthy blood flow

as any other type of cell. Theoretically, increasing the delivery of oxygen and nutrients to neurons should benefit *brain* cells just as much as it does muscle cells.

So Nutrition21 created *nooLVL*, a form of *inositol-stabilized arginine silicate* that has an extra bit of inositol for further cognitive support.

### nooLVL Studies

Studies on nooLVL bear this theory out: In research settings, volunteers who take nooLVL have been shown to perform better than those who receive the placebo. Specifically, nooLVL supplementation seems to increase fine motor accuracy, reaction time, and decision-making in gamers who play video games more than five hours a week.[4] Additionally, the nooLVL users reported increases in *perceived energy*,[4] which is incredibly helpful in a stimulant-free supplement!



The Stroop test is a neurocognitive test where subjects must read aloud the color of the text that is printed *rather* than the actual text! It evaluates selective attention, response inhibition, and reaction time.[4] Fewer errors are better!

Note that this study was done using *modern video games*, i.e. top-selling, competition-worthy hits like *Call of Duty*, *Madden*, and *Fortnite*. [4]

That's the study we had when Ghost Gamer originally launched in Spring of 2020. But since then, we have *two* new data-sets further backing nooLVL!

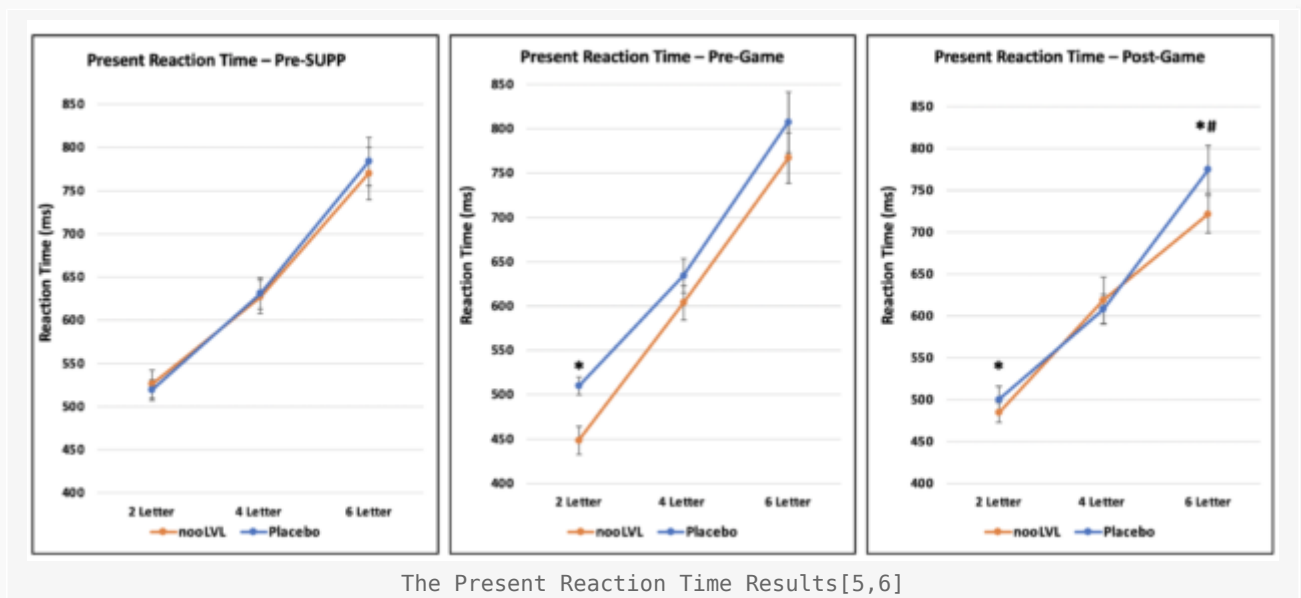
### Newer nooLVL research data since Ghost Gamer originally launched

In another double-blind, randomized, placebo-controlled study, 26 healthy

subjects with an average age of 23 were assigned to either the *nooLVL* group or placebo.[5,6] In order to eliminate as many extraneous variables as possible, the volunteers fasted overnight and were then subjected to a battery of cognitive tests while in the fasted state. They then took either *nooLVL* or the placebo and were *re-tested* 15 minutes later. *After the second test*, individuals in both groups played their favorite game for an hour. Finally, they were tested a third time after the end of the gaming session.[5,6]

Then, after a seven to 14 day “wash out” period where the subjects weren’t taking the supplements, they came back to the lab and repeated the same experiment – *this time, swapping places with the placebo group*.

Among the several tests given to these gamers was the *Sternberg Triarchic Abilities Test (STAT)*, which measures reaction time, short-term memory recall, and mental reasoning.[5,6]



The result was that the *nooLVL* group did *significantly better* than the placebo group on multiple *reaction time tests*,[5,6] and reaction time obviously being of *central* importance to anyone who’s playing a fast-paced, competitive game like *Call of Duty*.

Interestingly, the *nooLVL* group outperformed placebo to a *greater* extent on the *present* reaction time, meaning that they were especially good at recalling something that had only recently been learned.[5,6] This is similar to working memory.

In a more recent study, researchers gave nine healthy gamers a 1,600 milligram dose of *nooLVL* for a whole week, and measured their cognitive performance at baseline (before supplementation), after the first dose (day 1) and at the end of the study period (day 7).[7]

The tests given were designed to measure *attention, concentration, visualization, and spatial planning.*

### Stroop test: Attention and Concentration

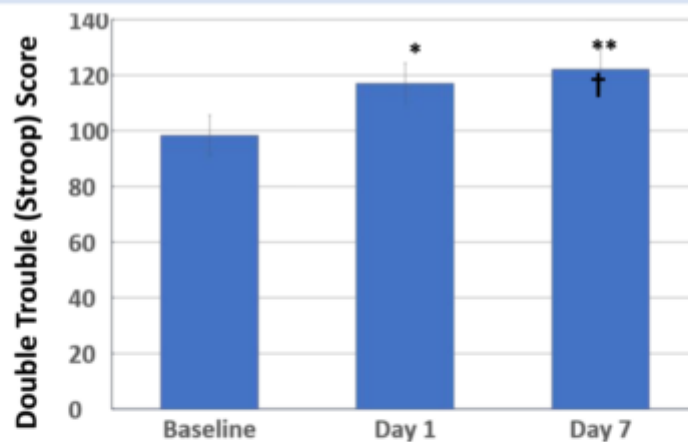


Figure 1. Double Trouble Stroop test. (Cambridge brain sciences) \*Baseline to day 1 ( $p < 0.0019$ ), \*\*baseline to day 7 ( $p < 0.0006$ ), †day 1 to day 7 ( $p < 0.03$ ).

### Visual Representation

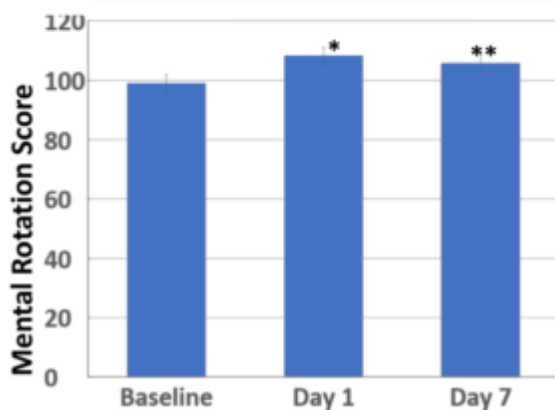


Figure 2. Mental rotations. (Cambridge brain sciences) \*Baseline to day 1  $p < 0.05$ , \*\*Baseline to day 7  $p < 0.019$

### Forethought/Sequencing

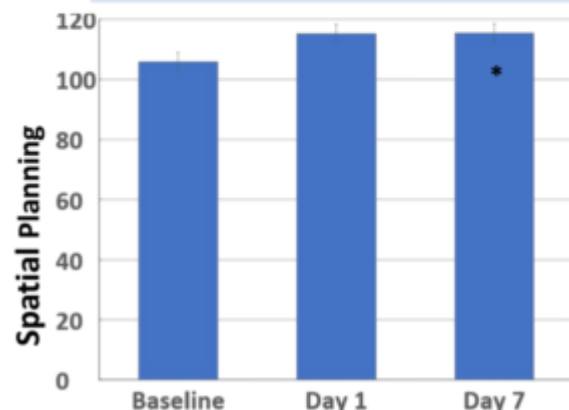


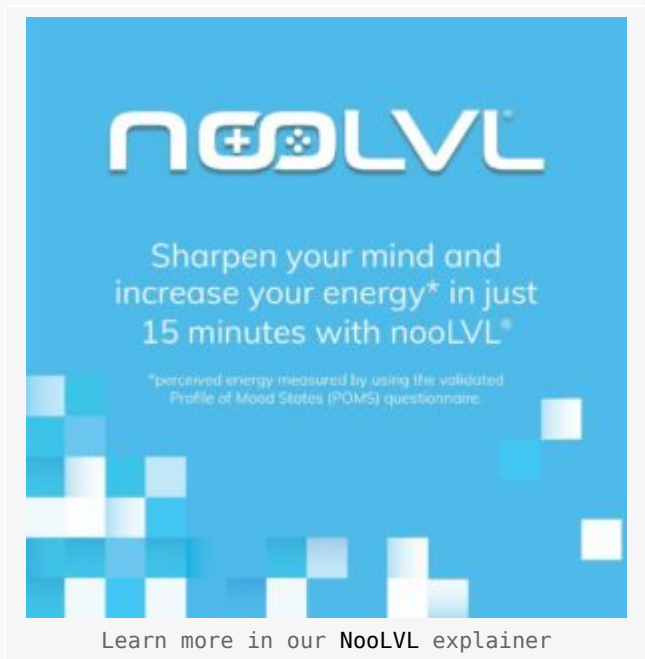
Figure 3. Spatial planning. (Cambridge brain sciences) \*Baseline to day 7  $p < 0.03$ .

nooLVL helped gamers improve scores on tests for attention and concentration, visual representation, and spatial planning, sometimes after a *single use*. [7]

As you can see, the administration of nooLVL *significantly increased the gamers' scores in all three categories of cognitive function.* [7]

### nooLVL vs. Nitrosigine: Why Extra Inositol?

Those of you who have read our previous posts on *Nitrosigine*, another ASI ingredient from Nutrition21 (used in the *Ghost Legend* pre workout), have probably noticed that this description sounds really familiar. And indeed, Nitrosigine and nooLVL are similar, with one key difference: *nooLVL in Ghost Gamer has more inositol than Nitrosigine.*



So when it comes to Nitrosigine, the inositol is really kind of an afterthought: it's primarily there to help buffer the arginine silicate, which does the heavy lifting by boosting NO. But in nooLVL, the inositol dose is large enough that it's designed to have significant *nootropic* effects in its own right.

Inositol is an essential sugar that naturally concentrates in human brain tissue, which is why supplementing inositol has such significant effects on cognitive performance. Among its many roles in the brain are regulating the balance of water in cells, helping repair and maintain cellular membranes, and facilitating cell-to-cell communication.[8,9] In the next section, we focus on the role that inositol plays in the *phosphatidylinositol (PI) cycle*. [9]

### **The Phosphatidylinositol Cycle**

The PI cycle helps neurons interpret signals they send to each other,[9] which is crucially important for global cognition, but especially for the fine and gross motor skills, reaction times, decisions, and mechanical accuracy that gaming demands of players.



Fronted by Nutrition21's nooLVL, Ghost Gamer can help you take your skills to the next level!

The bottom line is that if your inositol levels are suboptimal, your neurons won't be able to do any of this as maximum efficiency.

Inositol also helps govern *dopaminergic* and *serotonergic* neurotransmitter systems,[10] so unsurprisingly, inositol deficiencies have been linked to the onset of depressive and anxious disorders – best that gamers do their best to avoid those for obvious reasons.

Nitrosigine, nooLVL, and ASI are quite extensive subjects, as is nitric oxide support. If you want to read more about these subjects, check out our long-form articles:

- *nooLVL:Next-Level Gaming: Focus Supplement Ingredient for Gamers!*
- *Inositol: Why It's Added to nooLVL For Increased Gaming Performance*

In the nooLVL article linked first, we also keep a running list of all studies revolving around the ingredient – there may be more published by the time you see this article. You can also see our *Nitrosigine* article, whose cognitive data also applies to Ghost Gamer.

- **Taurine – 1000mg**





**Taurine** is another ingredient in Ghost Gamer that's commonly seen in athletic supplements, and has been for quite a while. Formulators like it because the organic compound can increase athletic endurance.[11] Taurine's role as an *osmolyte*,[12] a substance that regulates the fluid content of the body's cells, is probably part of the reason why it has positive effects on athleticism. It also plays a role in the production of *bile salts* and helps regulate intracellular calcium levels[12], which is crucial for muscular contraction.

Taurine naturally concentrates in the brain, eyes, muscle and organs.[12,13]

When it comes to gaming, taurine's role in the development of the eye's *photoreceptors* is important,[12] as is its ability to protect neurons against stress-induced damage or death.[12] Since staring at screens for a long time can increase your risk of headaches, eye problems and stress, taurine increases your chances of going the extra mile in your online competitions.

Taurine also facilitates communication between neurons. And taurine deficiencies have been linked to neurological problems and learning disabilities.[13] Supplementation is good for preventing these, especially because our brains don't seem to make much taurine on their own.[13]

- **L-Tyrosine – 1000 mg**

Much like taurine, **tyrosine** is found in high concentrations in human brain tissue. It's a precursor to the world-famous neurotransmitters dopamine, adrenaline, and noradrenaline,[14] which surely need no further introduction. By increasing neurotransmitter levels, tyrosine supplementation can

potentially optimize communication between neurons, leading to improvements in overall cognitive function.



Studies on tyrosine attest to its capacity for improving mood, cognition, focus, athletic performance and resilience to stress.[14]

Here we have the superior **L-tyrosine** form, which has much better bioavailability than the alternative form (N-Acetyl L-Tyrosine).

A mere 100 milligram dose of the highly bioavailable L-tyrosine can measurably boost tyrosine levels for up to seven hours after ingestion, making it an excellent option for anyone who wants to effectively raise their tyrosine levels.[15-18]

So, as you can probably imagine, a 1000 milligram dose is quite potent, indeed.

- **Cognizin Citicoline – 500mg**

**Cognizin Citicoline** is a special formulation of **choline** that is designed for *maximum bioavailability*. You may also see it written as *CDP-Choline*.

The primary function of choline is to help repair and maintain *membranes* in all your body's cells.[19] It's also an *acetylcholine precursor*, which is a

big deal because acetylcholine is centrally implicated in learning and memory consolidation.[20] In fact, we often call it “the learning neurotransmitter” because it’s so efficacious in helping people assimilate new information and acquire new skills.

When acetylcholine levels are increased, your cognition will almost certainly benefit as a result. A variety of skills may improve, including learning, memory, balance and coordination.[21,22]

<b>SUPPLEMENT FACTS</b>				
Serving Size: 1 Scoop (4.75 g) / 2 Scoops (9.5 g)				
Servings Per Container: 40 / 20				
Amount Per Serving	1 Scoop	%DV**	2 Scoops	%DV**
Calories	5		10	
Total Carbohydrate	<1 g	<1%	2 g	1%
Total Sugars	0 g	†	0 g	†
Includes 0g Added Sugars				
		0%		0%
Vitamin C (as Ascorbic Acid)	250 mg	278%	500 mg	556%
Vitamin D (as Cholecalciferol) (from VegD3®)	25 mcg	125%	50 mcg	250%
Vitamin E (as dl-alpha-tocopheryl)	7.5 mg	50%	15 mg	100%
Niacin (as Nicotinic Acid)	10 mg	63%	20 mg	125%
Vitamin B <sub>6</sub> (as Pyridoxal-5-Phosphate)	0.85 mg	50%	1.7 mg	100%
Vitamin B <sub>12</sub> (as Methylcobalamin)	3 mcg	125%	6 mcg	250%
Zinc (as TRAACs® Zinc Bisglycinate Chelate)	5.5 mg	50%	11 mg	100%
<b>GHOST® GAMER NON-STIM</b>				
nootVL® (Inositol-Enhanced Bonded Arginine Silicate)	800 mg	†	1600 mg	†
Taurine	500 mg	†	1000 mg	†
L-Tyrosine	500 mg	†	1000 mg	†
Cognizin® Citicoline	250 mg	†	500 mg	†
Raw Coconut (Cocos nucifera) Water Powder	250 mg	†	500 mg	†
AstraGin® (Astragalus membranaceus and Panax notoginseng) Root extracts	25 mg	†	50 mg	†

\*\* Percent Daily Values (DV) are based on a 2,000 calorie diet.  
† Daily Value not established.

OTHER INGREDIENTS: Citric Acid, Natural and Artificial Flavors, Malic Acid, Gum Acacia, Tartaric Acid, Silicon Dioxide, Calcium Stearate, Sorbitol, DL-Calcium Phosphate, Yellow Oxide, FD&C Blue #1, Gamma-Tree Nut (Botanical).

If we have a choline deficiency, a range of terrible health problems can result, including cognitive dysfunction, organ damage, and non-alcoholic fatty liver disease (NAFLD).[23]

Getting enough choline can be challenging, especially for vegans and vegetarians, since it predominantly occurs in animal foods. So if your diet falls into the mostly plant-based category, you should especially consider choline supplementation.

Studies that examine citicoline specifically have found that it significantly improves focus, attention and mental energy.[24,25] Its components, *choline and uridine*, work together to enhance blood flow to the brain and stabilize mitochondrial function, in addition to the usual benefits associated with choline supplementation.[26,27]

All in all, citicoline is generally the *feel-good* form of supplemental choline, which we often attribute to its ability to boost dopamine levels.[28]

- **Raw Coconut Powder – 500mg**

After a few hours of intense gaming, you could very easily wind up dehydrated simply by virtue of the fact that you’ve been so focused on your game it never occurred to you to grab a drink.



Dehydration is something you definitely want to avoid as a gamer because it is linked to cognitive impairment, brain fog and mental fatigue.[29,30]

That's where **raw coconut powder** comes in. Drinking plain water is generally not the most optimal way to rehydrate, since most water is largely devoid of electrolytes. In certain instances, it can actually have a counterproductive effect.

Since coconut is naturally high in electrolytes – coconut water and coconut milk have long been used as sports-drink alternatives, Adding it to Ghost Gamer is a great way to help support rehydration.

In fact, some research has even found that coconut water is just as good for whole-body rehydration as the carbohydrate-electrolyte sports drinks that are specifically marketed for that purpose.[31]

- **AstraGin (Astragalus Membranaceus and Panax Notoginseng) Root Extracts – 50mg**

**AstraGin** from *NuLiv Science* is a great way for you, the consumer, to maximize the *bang* you get for your *buck*. This extract of the *Astragalus membranaceus* and *Panax notoginseng* plants actually *increases the absorption of other ingredients* by upregulating transporters in the small intestine.[32] It can also help support your gut health in general by maintaining the integrity of the gastrointestinal lining and keeping inflammation down.[32]

- **Vitamin C (as Ascorbic Acid) – 500mg (556% DV)**

Staring at screens for hours on end can be pretty bad for your eyes, both from the strain of focusing on such a close object and the large amount of *blue light* emitted from most monitors.



Supplementing with **vitamin C** can potentially help prevent this from causing eye damage. Although it's typically thought of as an immune-boosting vitamin, research has also shown that getting enough vitamin C can lower your risk of developing *cataracts*.<sup>[33]</sup> This isn't really surprising since vitamin C is a potent antioxidant, and the eyes are particularly sensitive to oxidative stress.

Vitamin C also plays a central role in managing the *adrenal system*, as the adrenal cortex has one of the highest concentrations of vitamin C in the body.<sup>[34]</sup> Gaming can be pretty stressful, with large amounts of *adrenaline* being released during competitive play, and your adrenal glands will actually *secrete vitamin C in response to stress*,<sup>[35]</sup> opening the door to possible vitamin C depletion over time. So vitamin C supplementation can possibly help prevent the "adrenal fatigue" that comes with chronic stress.

- **Vitamin D (as Cholecalciferol) (from VegD3) – 50mcg (2000 IU) (250% DV)**



Since gamers typically spend lots of time indoors and out of the sun, **vitamin D** deficiency is a big concern for this population, especially since it's tough to get enough of the right kind of vitamin D from food alone.

So if that's you, then you're definitely going to want to supplement with vitamin D because a deficiency in this crucial prohormone can lead to osteoporosis, depressive disorders, type II diabetes, fibromyalgia, chronic fatigue syndrome, neurodegeneration, cancer, and high blood pressure.[36]

Vitamin D is also crucial for regulating mood and immunity, protecting the brain against toxins, and optimizing muscular function.[36]

So there's really no aspect of performance that vitamin D doesn't support – good luck being a top gamer if you're deficient in this key nutrient. With Ghost Gamer, the Legends at Ghost do their part in making sure this doesn't happen.

- **Vitamin E (as dL-alpha-tocopheryl) – 15mg (100% DV)**

**Vitamin E** is another powerful antioxidant that is often co-administered with vitamin C because of the synergistic effects these two vitamins can have.

A deficiency in vitamin E will compromise immunity, the brain, and eyes, eventually leading to degeneration of the entire central nervous system and myopathy.[37]

On the other hand, people who consume adequate amounts of vitamin E have a lower risk of heart disease, dementia, cancer, and eye diseases, including

macular degeneration and cataracts (mentioned above).[37]

One of the synergistic effects that link vitamin E and vitamin C is helping *reduce one's levels of stress and anxiety*[38] – again, an especially important benefit for someone who is continually being subjected to high-stakes, high-stress situations that occur in competitive gaming.

- **B-Vitamins**



Fronted by Nutrition21's nooLVL, Ghost Gamer can help you take your skills to the next level!

Ghost Gamer includes the following B vitamins, which are important cofactors in *cellular energy production*:

- **Niacin (as Nicotinic Acid) – 20mg (125% DV)**
  - **Vitamin B6 (as Pyridoxal-5-Phosphate) – 1.7mg (100% DV)**
  - **Vitamin B12 (as Methylcobalamin) – 6mcg (250% DV)**
- **Zinc (as TRAACS Zinc Bisglycinate Chelate) – 11mg (100% DV)**

The *TRAACS zinc bisglycinate chelate* form of **zinc** is among the most *bioavailable forms of zinc on the market today*.

Zinc is crucial for immunity, but it's also important for cellular metabolism,



DNA synthesis, protein synthesis and cell division.[39]

Again, with gaming being so stressful on your eyes, zinc's status as an antioxidant that can delay onset of age-related eye diseases like macular degeneration is especially important.[39] It has these effects partly because of its ability to protect the retina from oxidative damage.[39]

So what is TRAACS? It's *zinc* bound to the amino acid *glycine*, which *drastically* increases the absorbability of the mineral (since our intestines are highly adapted for absorbing amino acids).

In head-to-head comparisons with other forms of zinc, like zinc oxide or zinc gluconate, zinc glycinate wins hands down.[40]

## Flavors available

Gamer Non-Stim originally launched in the *OOZE* flavor for the TMNT collab, but we're hoping that over time, you'll see it in some *other* flavors below once those limited-edition tubs are gone:

## Stim-Free Gaming Power



Dan Lourenço and Ryan Hughes of Ghost invite Team PricePLOW to Chicago to launch the TMNT Collab, and talk about the future of collabs on the PricePLOW Podcast

One of the greatest parts of the research on nooLVL (as well as its nitric oxide “base predecessor” Nitrosigine), is that both have been demonstrated to lead to improved *perceived energy*.[4,41] nooLVL is the same as that ingredient – only



with a bit more inositol – so the data can apply here as well. And that ultimately means that we may get some energetic benefits from Ghost Gamer Non-Stim, even without the caffeine!

Gamers play at all kinds of crazy hours around the clock. Many of those times, they want some caffeine. But some of the time, they *don't*. It's nice to have an incredible nootropic-fueled option for those late-night gaming benders, or when you're already a Ghost Energy drink or two deep.

With the power of nooLVL and Ghost Gamer's cognitive-supporting blend, you can now get the best of all worlds, and get it in an absolutely delicious flavor.

What's next from Ghost Gaming? We're not exactly sure, but we hear something *seriously big* is coming. Stay tuned to PricePLOW's Ghost supplement news alerts below:

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