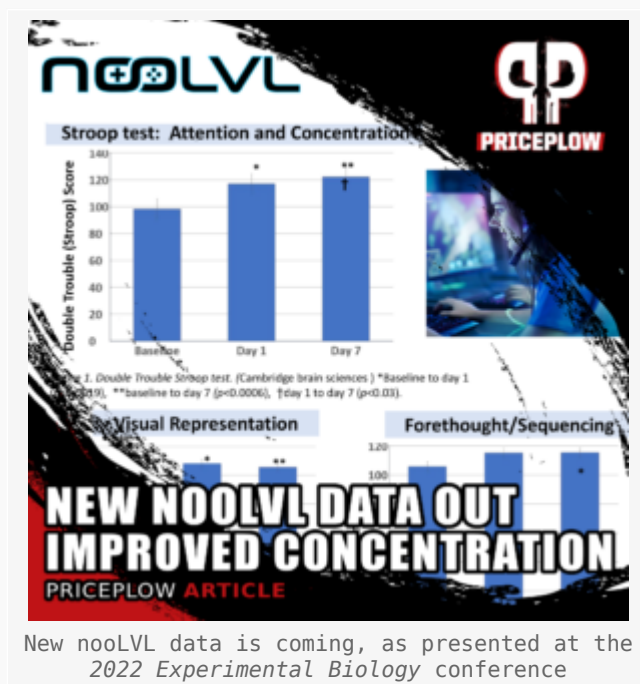


2022 nooLVL Nootropic Data Published: More Benefits for Gamers!

written by Mike Roberto | April 22, 2022
Gamers rejoice!

Exciting new research demonstrates that **nooLVL**, a nitric-oxide-mediated nootropic supplement developed by *Nutrition21*, has *significant benefits for esports gamers!*



As any gamer knows, the world of esports is *extremely competitive*. World titles are won or lost on literal milliseconds of reflex and reaction times. Anyone competing in this arena is constantly looking to sharpen their competitive edge – and that’s why Nutrition21’s new cognitive performance research is so exciting.

The 2022 nooLVL Gaming Study

The new research has now been published online,[1] but was originally presented as a poster at the prestigious *Experimental Biology 2022* meeting,[2] with a press release issued by Nutrition21 discussing the results.[3] This research is a follow-up to a successful introductory research trial published in 2019 (which also utilized gamers, yet had them playing modern video games),[4] as well as a 2021 study demonstrating improved short-term memory and reaction time.[5,6]

This article will be updated when the data is published in a journal, but we can introduce the study’s methods and results based upon the poster presentation.

The methods

For the experiment, researchers gave *nine* healthy adult male and female esports gamers 1600 milligrams per day of *nooLVL* for seven days and measured their cognitive performance using a series of computer-based tests at three different times: once at baseline, once after first dosage (day 1), and the final upon the conclusion of the study (day 7).

Among these were tests for *attention and concentration*, *visual representation*, and *spatial planning* – all crucial skills for anyone playing a fast-paced, first-person shooter (FPS) or multiplayer online battle arena (MOBA) game.

Stroop test: Attention and Concentration

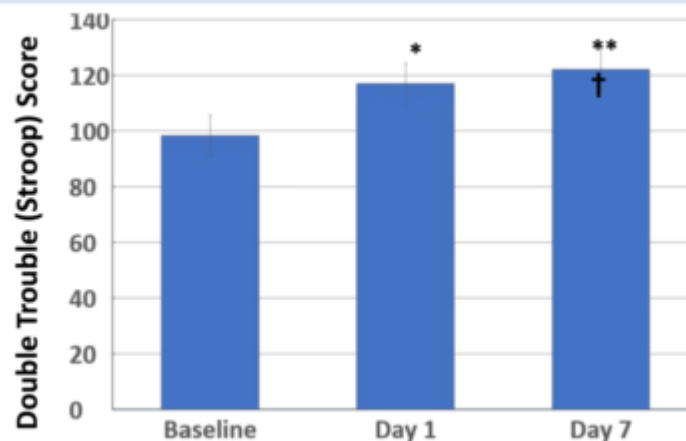


Figure 1. Double Trouble Stroop test. (Cambridge brain sciences) *Baseline to day 1 ($p < 0.0019$), **baseline to day 7 ($p < 0.0006$), †day 1 to day 7 ($p < 0.03$).

Visual Representation

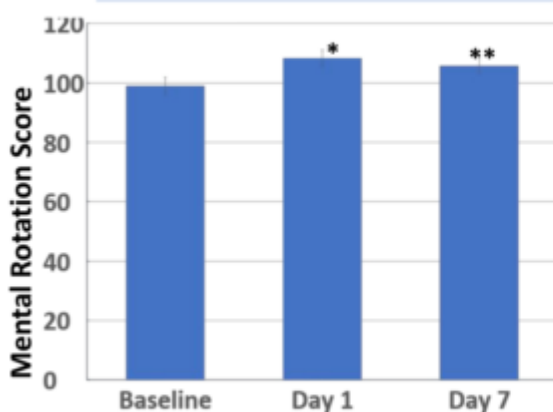


Figure 2. Mental rotations. (Cambridge brain sciences) *Baseline to day 1 $p < 0.05$, **Baseline to day 7 $p < 0.019$

Forethought/Sequencing

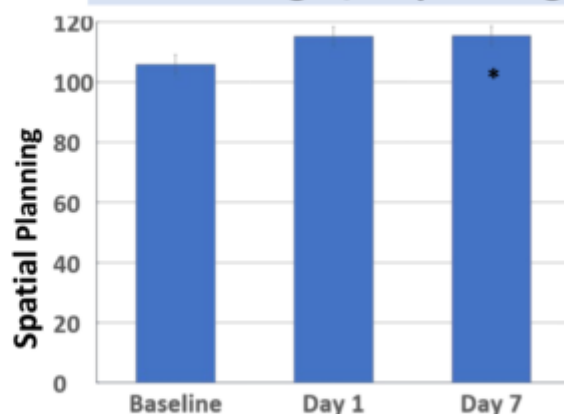


Figure 3. Spatial planning. (Cambridge brain sciences) *Baseline to day 7 $p < 0.03$.

As you can see from the data, supplementation with *nooLVL* significantly increased subjects' cognitive performance compared to baseline – in multiple domains.[2]

The three tests used in the 2022 *nooLVL* study

The poster shows that there were statistically significant improvements in *three* different computer-based tests, so let's briefly explain them below:

- **Stroop Test** – This is a challenging neurocognitive test where colors are written in text, but the colors *of* the text are randomized. The participants must read the *text* out loud, rather than the color *of* the text.

For example, *blue*, *green*, *purple* must be read as “blue”, “green”, “purple” to score perfectly. The Stroop Test becomes fatiguing over time.

In the case of the nooLVL study, significant gains were made on both the *first* day of supplementation *and* the final (seventh) day, with the seventh day further significantly outperforming the first day.[2]

These results are incredible yet unsurprising, since the original 2019 nooLVL study also saw significant improvements in the Stroop Test.[4]

- **Visual Representation** – The *Cambridge Mental Rotations Test* is a test where two boxes appear on a screen, each of which are filled with red and green squares. Participants are asked to determine whether the boxes would be identical if one of the boxes is rotated. The difficulty is increased each time a participant answers correctly.

Cambridge Brain Sciences has a video briefly demonstrating this test:

[SUBSCRIBE ON YouTube](#)

In this new nooLVL study, scores were significantly increased on the first and seventh days of nooLVL supplementation compared to baseline.[2]

- **Forethought / Sequencing** – The *Cambridge Brain Planning Test* measures the participant’s ability to plan ahead. In this test, the participant must arrange nine numbered balls into numerically-ordered slots in as few moves as possible. Both speed and accuracy are measured.

Cambridge Brain Sciences has a video of this one as well:

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In this new nooLVL study, there was a statistically significant increase from baseline to *day 7*.[2]

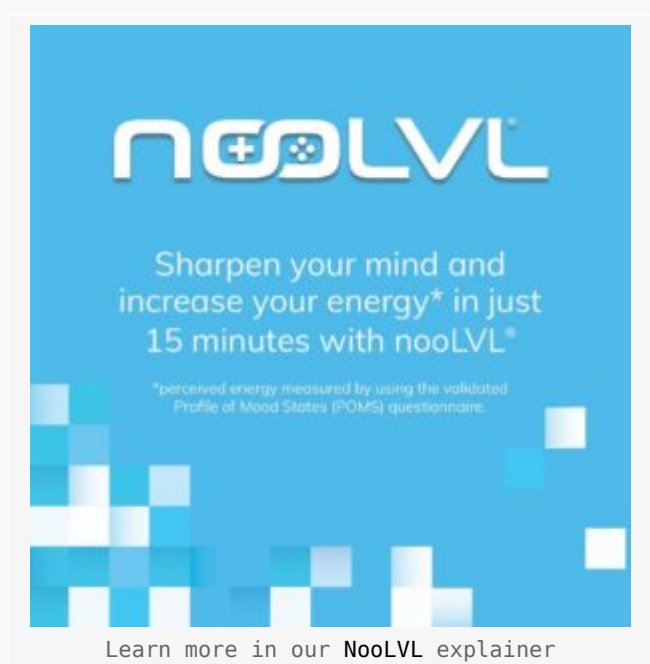
With speed and accuracy measured in these studies, it can be implied that there is relevance to gaming. The other cognitive tests in the study were not statistically significant, however.

For many of our readers and gamers, this alone is probably enough information to

try this ingredient. But continue to read on: we're going to briefly explain what nooLVL is and why it works.

nooLVL's Context and Background

PricePLOW has previously covered Nutrition21's dietary supplement ingredient named *Nitrosigine*, which is a patented complex of *arginine*, *inositol*, and *potassium silicate*, also known as *inositol-stabilized arginine silicate (ASI)*. The purpose of Nitrosigine is to increase the production of *nitric oxide (NO)* by efficiently delivering *arginine*, an NO precursor, to the bloodstream.[7] It's marketed as a pre-workout supplement ingredient, given its ability to increase blood flow, which results in increased muscle pump and non-stimulated, perceived energy.



The genesis for this ingredient originated by the observation that *pure arginine* is not particularly bioavailable. It mostly gets broken down in the gut during the "first pass effect" and then metabolized before it can reach the intestinal wall where the arginine itself could be absorbed into the bloodstream.[7]

By bonding arginine with inositol and silicate, it's *buffered* and spared from metabolism during first pass. Mechanistically, when arginine bonds with these molecules, **the combination inhibits *arginase*, the specific enzyme that breaks down arginine in the gut.**[8]

If you're interested in reading more about *Nitrosigine*, check out our long-form article,

Nitrosigine: The Nitric Oxide Booster That Enhances Brain Function. Researching Nitrosigine and the benefits of NO, Nutrition21 began to notice that the NO-induced blood flow improvements also led to *cognitive* benefits.[9-13]

Nutrition21 identified the need for a cognitive performance nootropic ingredient for gamers that works fast without the addition of caffeine. In response, they introduced nooLVL, a complex of bonded arginine silicate with an optimized dose of inositol. In 2019, Nutrition21 was the first company to publish a clinical study in gamers on its nooLVL ingredient with benefits for focus, reaction time and perceived energy.[4]

What Does Nitric Oxide Have to Do with Cognition?

When nitric oxide is released into the bloodstream, it triggers a process called *vasodilation* in which the arteries and capillaries expand and increase the rate of blood flow throughout the human body.[14]



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

Increased blood flow means more efficient oxygen and nutrient delivery to tissues throughout the body – *all of* the tissues, including the *brain*. [14]

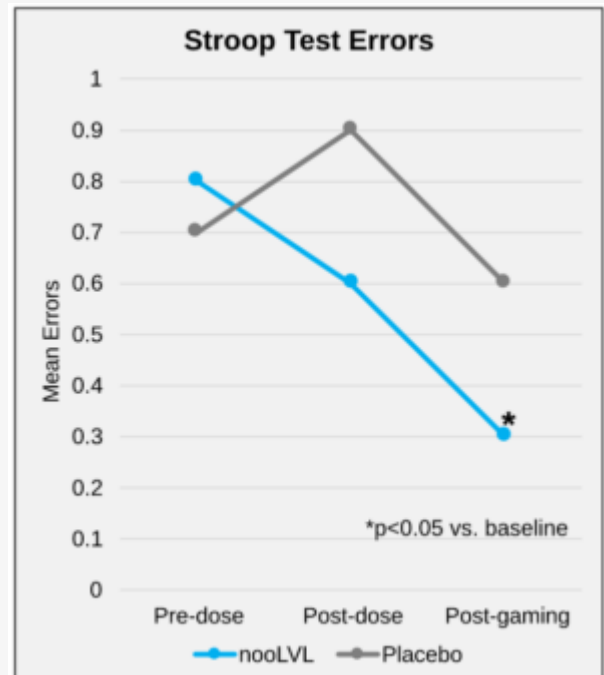
This led to the long-standing theory that NO boosters could be used as nootropics [15] (a *nootropic* being a supplement that enhances cognition). And there has been a lot of research on this topic in recent years.

What is nooLVL?

nooLVL is a patented complex of bonded arginine silicate with an additional optimized dose of Inositol. nooLVL is a non-stimulant ingredient that boosts cognitive performance in esports. nooLVL works FAST (in 15 minutes!) and safely delivers increased perceived energy, without negatively affecting heart rate or

blood pressure.

Although NO boosters have been studied for their cognitive effects for quite some time, those studies were traditionally run on patients with advanced cognitive decline.[15] Researchers have consistently found that, yes, boosting NO in this population can indeed offset symptoms of some cognitive diseases, helping restore people with cognitive impairment to baseline.[15]



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!

The big question which has been studied recently is: Can NO boosters like Nitrosigine and nooLVL help *healthy* subjects, perhaps by *boosting* cognition *above* baseline?

With this third nooLVL-based study (and others discussed in our Nitrosigine article linked above) answer appears to be yes:

The previous nooLVL studies

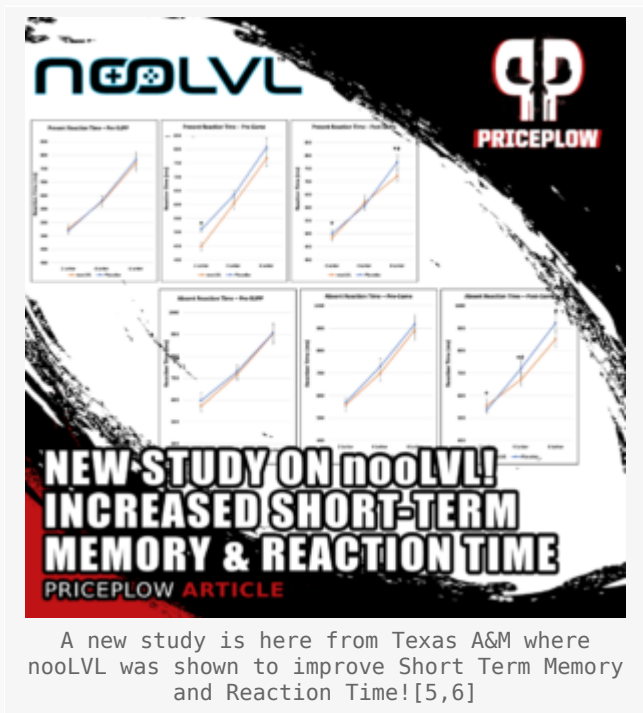
There have been two prior studies specifically performed on nooLVL:

1. The original nooLVL study was published in October 2019, and recruited gamers to play modern games.[4] In this trial, after seven days of supplementation, the nooLVL test group performed cognitive tests significantly better after just 15 minutes of supplementation, and also after 60 minutes of serious gaming (playing modern games such as Fortnite, Call of Duty, and Madden).

This trial is covered in detail in our main *nooLVL* article.

2. In 2021, *nooLVL* was shown to improve short-term memory and reaction time in 26 experienced gamers just *15 minutes* after the first dose.[5,6] This was a double-blinded, placebo controlled crossover study that had a 7-14 day washout.

This trial is covered in detail in our article titled *nooLVL Increases Short-Term Memory and Reaction Time: New Study Published*.



With the new data in 2022, it makes for the *third* successful research trial on nooLVL, and is one that employs tests that are relevant to gamers, further reinforcing the ingredient's usage in the hot gaming supplement market.

Why does nooLVL have extra inositol?

Traditionally, NO boosters have been used to give bodybuilders and athletes a better *pump* (the swelling of skin and muscle tissue associated with vasodilation triggered by exercise) so that they could recover faster and better (as well as the cosmetic size benefits and experiential feel).

Once Nutrition21 identified the *nootropic* potential of NO boosters, they set out to create nooLVL. So what's the purpose of the extra *inositol* inside?

Inositol is a type of *carbohydrate* that helps facilitate the action of neurotransmitters in the brain. It also helps keep cellular membranes intact and optimally functional.[16,17] To get a better sense of inositol's role in cognition, consider what happens in cases of *inositol deficiency*: extreme cognitive dysfunction.[18]

But we don't just supplement with inositol to avoid deficiency: *extra* inositol can boost levels of both dopamine and serotonin in our brains,[17] helping to promote *efficient neurotransmission*. No wonder it helps people with *gaming*, a very demanding mental task.

Conclusion: nooLVL Data Keeps Coming



The bottom line is that there are solid research studies showing that inositol-stabilized arginine silicate has significant nootropic activity – and the research on *nooLVL*, which has increased inositol over Nitrosigine, continues to push the data further. With this latest study, combined with the prior two *nooLVL*-based studies, we feel extremely confident recommending nooLVL as a cognitive-enhancing supplement ingredient to gamers and pretty much anyone engaged in demanding mental work. This is especially the case for tasks that require high levels of cognitive flexibility or spatial awareness.

This decade, Nutrition21 has *really* solidified itself as the de-facto research leaders in the dietary supplement space. A year hasn't gone by where we *haven't* seen a new study, and we're excited to see what more they discover about their own ingredients moving forward.

You can subscribe to our news feed below to stay up-to-date on all research and new dietary supplement ingredients from Nutrition21:

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