

Axe & Sledge PUMPIES: Blood Flow to More Than Just Muscles

written by Mike Roberto | May 16, 2022

If there's one brand that can pull off a product name like *Pumpies*, it's Seth Feroce's *Axe & Sledge*. And if you assumed this would be geared towards *pumps*, you are correct!



Axe & Sledge Pumpies bring a full, clinically-tested dose of *Nitrosigine* in five capsules!

Axe & Sledge already have a popular stimulant-free pre workout supplement named *Hydraulic*, but some users love the convenience of *capsules* to stack with their powdered pre-workout, energy drink, fat burner, or coffee. That's exactly what we're getting here today:

Pumpies: Nitrosigine packed nitric oxide pump capsules

The headline in this five-capsule serving is a full dose of **Nitrosigine** from Nutrition21, an ingredient we see more research published on every year, spanning from nitric oxide generation to *cognition* improvements. After all, the *brain* needs better blood flow too – not just your *other* body parts.

It's followed by a larger-than-usual dose of VasoDrive-AP and far more. We dig into the science behind the *inositol-stabilized arginine silicate* in Nitrosigine and the rest of the formula below:

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Pumpies Ingredients

In a single 5-capsule serving of PUMPIES from Axe & Sledge, you get the following:

- **Inositol-stabilized Arginine Silicate (as Nitrosigine) – 1,500 mg**



PUMPIES

Supplement Facts

Serving Size: 5 Capsules
Servings Per Container: 20

	Amount Per Serving	%DV*
Vitamin C (as ascorbic acid)	135 mg	150%
Potassium (from Nitrosigine®)	60 mg	1%
Inositol-stabilized Arginine Silicate (as Nitrosigine®)	1,500 mg	**
VasoDrive-AP™ (Isoleucyl-prolyl-proline (IPP) and Valyl-prolyl-proline (VPP) (from hydrolyzed milk casein)	508 mg	**
Epicatechins 90% (Camellia sinensis)(leaf)	150 mg	**
Pine Bark Extract (Pinus Pinaster)	100 mg	**

* Percent Daily Values are based on a 2,000 calorie diet.
** Daily Value not established

Nitrosigine is a patented ingredient made of *arginine*, *inositol* and *potassium silicate*, [1] also known as *inositol-stabilized arginine silicate* and often abbreviated in research studies as *ASI*. Semi-essential or “conditionally essential” amino acids like *arginine* are those which our bodies produce in *limited amounts*, which is not sufficient to cover our metabolic requirements during times of illness or stress. [2]

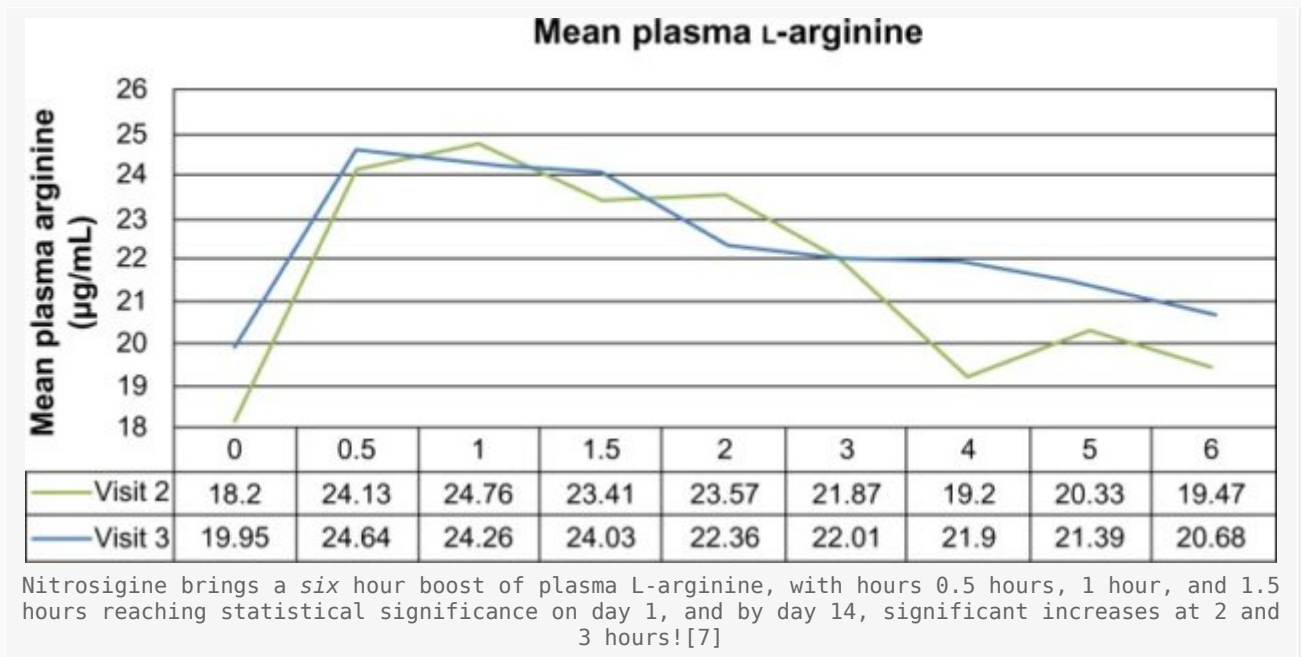
Arginine plays an important role in cardiovascular health as a *nitric oxide* (NO) booster. The only problem is that the bioavailability of pure, orally administered arginine, is not great. That’s why we have inositol and silica:

the presence of these two molecules “buffers” the arginine, preventing it from being digested before it’s absorbed, and thereby improving its bioavailability.[3]

Specifically, the ASI complex seems to inhibit *arginase*, the enzyme that breaks down arginine in the stomach.[4]

The upshot is a NO booster that’s fast-acting and long-lasting: Nitrosigine has measurable effects on NO production as soon as 30 minutes after consumption, and the effect lasts for up to six hours,[5-7] greatly outperforming standard L-arginine.[7]

The presence of extra NO in the bloodstream triggers *vasodilation*, a process where your arteries expand to allow more blood flow.[8] Because of this extra blood, vasodilation improves oxygen and nutrient delivery to your cells. That process is known for increasing athletic performance, but it *also* helps remove metabolic waste products after the conclusion of your workout—thus speeding recovery.[9]



However, the benefits of elevated NO go beyond just physical performance. Increased blood flow affects the brain as much as the muscles, and therefore comes with *cognitive* benefits as well.[10-12]

Research studies have found that in athletes, Nitrosigine supplementation can prevent short-term decline in cognitive ability that typically follows an intense workout.[10]

But its cognitive benefits are for non-athletes as well. Young men who *hadn't* recently finished a workout still registered faster *task-switching* after

Nitrosigine supplementation (meaning their multitasking improved).[11]

Greater perceived energy over time

The infographic features the Nitrosigine logo at the top left and the PRICEFLOW logo at the top right. It is divided into two columns. The left column, under the heading 'Nitrosigine® supplementation resulted in', lists two results: '11% ↑ Increase in total RBANS scores.' and '27% ↑ Increase in immediate memory scores.' The right column, under the heading 'When compared to the placebo group', lists two results: 'Significantly improved working memory performance.' and 'Maintained delayed memory scores.' Below these columns is a paragraph: 'The results align with previous findings where Nitrosigine® supplementation increased nitric oxide levels, which improved mental focus, working memory, and acuity.' At the bottom, it reads 'NEW STUDY: NITROSIGINE IMPROVES WORKING MEMORY' and 'PRICEFLOW ARTICLE'.

A new study published in late 2021 showed that Nutrition21's Nitrosigine improves working memory and cognitive function in *healthy young adults*[12]

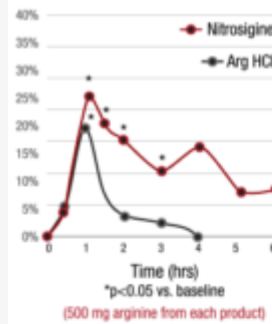
Because of NO's cognitive effects, a good NO booster like Nitrosigine can even help you find the motivation to get off the couch and go do your workout. people who take 1,500 milligrams of Nitrosigine daily have *more self-perceived energy* than people who don't![5] This effect achieved statistical significance after 72 hours of supplementation,[5] so be consistent with your Nitrosigine dose if you want the extra motivation.

There's actually way more to write about Nitrosigine than we can in this article, so if you want to learn more about this crazy-awesome ingredient, go check out our previous blog post, "*Nitrosigine: The Nitric Oxide Booster That Enhances Brain Function*". You can also read about the latest cognitive-enhancement study in our article titled *Improved Working Memory from Nitrosigine in Healthy Young Adults*.

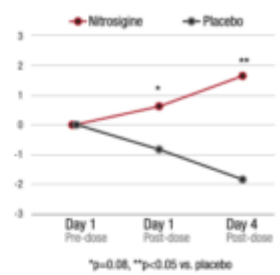
- **VasoDrive-AP – 508 mg**

Consisting of isoleucyl-prolyl-proline (IPP) and valyl-prolyl-proline (VPP), two *tripeptides* sourced from *milk casein*, **VasoDrive AP** attacks the problem of improving circulation from a different angle.

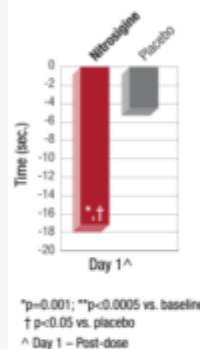
Increases Blood Arginine Levels
Comparative PK Study¹



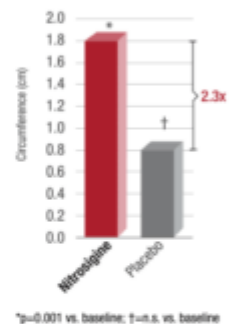
Increases Energy Levels
Change in Energy Level²



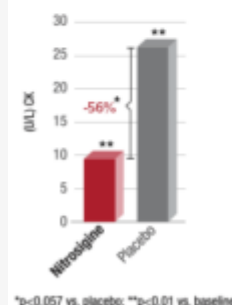
Improves Focus and Mental Acuity
Change in Time to Complete Trail Making Test B
(15 minutes after Supplementation)⁴



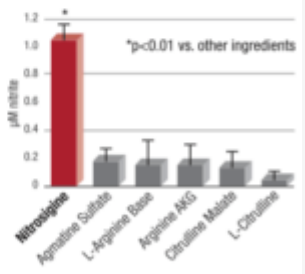
Boosts Muscle Pump
Increase in Upper Leg Pump
After Workout¹– Day 4



Combats Muscle Damage
Change in Creatine Kinase Levels After
Exercise with Supplementation³



Increases Nitric Oxide Production
Nitrosigine vs. Other Ingredients:
In Vitro Study³



§ References: 1. Komorowski J, Perez Ojalvo S. A pharmacokinetic evaluation of the duration of effect of inositol-stabilized arginine silicate and arginine hydrochloride in healthy adult males. *The FASEB Journal*. 2016;30(1):690-17. 2. Rood-Ojalvo S, Sander D, Komorowski J. The benefits of inositol-stabilized arginine silicate as a workout ingredient. *J Int Soc Sports Nutr*. 2015;12(Suppl 1):P14. 3. Kaiman D, Perez Ojalvo S, Komorowski J. Comparison of ocular nitric oxide production from various sports nutrition ingredients. *J Int Soc Sports Nutr*. 2016;13(Suppl 1):P33. 4. Kaiman D, Harvey PD, Perez Ojalvo S, Komorowski J. Randomized prospective double-blind studies to evaluate the cognitive effects of inositol-stabilized arginine silicate in healthy physically active adults. *Nutrients*. 2016;8(11):736.

† Results compared to baseline. *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.

Nitrosigine is research-backed and “gym backed” – Image courtesy Nutrition21

Instead of triggering vasodilation by increasing NO production, VasoDrive prevents vasoconstriction (narrowing of the blood vessels) by inhibiting the angiotensin-converting enzyme (ACE).[13]

VasoDrive is good enough at preventing vasoconstriction that it significantly

reduces blood pressure in many who take it.[13]

We appreciate it when manufacturers combine ingredients for synergistic effects like this. It's a sign that the formula designers are doing real research, thinking through, and solving problems instead of just cobbling together a bunch of trendy ingredients.

- **Epicatechins 90% – 150 mg**

The **epicatechins** are a class of *flavonoid antioxidants* that occur naturally in many plants, but especially in *cocoa beans* and *Camellia sinensis* (tea).

We've all probably heard that *green tea* is really good for cardiovascular health – well, *epicatechins* are a big part of the reason why. They're known to raise NO levels in human endothelial cells,[14] which control the relaxation or contraction of your blood vessels.

In one study where researchers gave people 30 grams of dark chocolate per day, they found that the epicatechins in the chocolate raised NO levels by a whopping 54% over the course of the 15-day study period.[15]

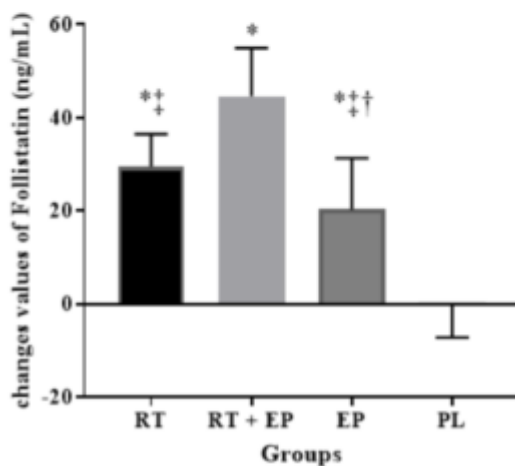
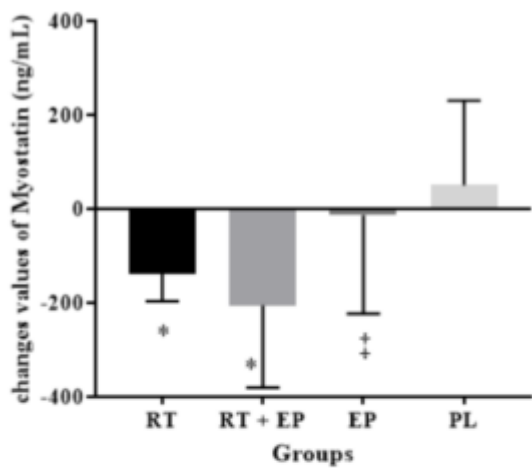
Importantly, subjects in the same study who ate *white* chocolate – which contains far fewer epicatechins than *dark* chocolate – saw *no* increase in their NO levels.[15]

So, how well does this epicatechin-driven NO boost translate into vasodilatory effects? One study that looked *specifically* at epicatechin's impact on blood flow found that it was able to relax subjects' vasculature by 15%,[16] which is a pretty significant change.

One mechanism of action by which epicatechins can raise NO levels is by inhibiting the degradation of NO – much like VasoDrive-AP, which we just discussed above.[17]

So you can see what Axe & Sledge is going for in this formula, mainly, *massive NO-boosting* from a big dose of Nitrosigine and then extending the action of that NO by preventing its breakdown with ingredients like VasoDrive and epicatechins.

Other effects of nitric oxide



This study was performed on elderly, but alongside resistance training, epicatechin had the best results on myostatin and follistatin levels! [28]

The supplement industry generally fixates on NO's ability to increase performance and speed recovery because a huge share of their market is commanded by athletes and bodybuilders. But NO has *tons of other benefits for human health* – and when writing this article, we found one example of it that was too good not to share.

In a 2016 study from the journal *Diabetes and Vascular Disease Research*, scientists reported that when they gave epicatechins to mice whose mitochondria had been damaged by diabetes, *the mitochondrial function of the diabetic mice increased over the course of the whole study period*, coming close to the mitochondrial function of the *control mice*! [18] In the conclusion to their study, the authors specified that epicatechins' effect on *nitric oxide synthase*, the enzyme responsible for producing NO, was what drove the improvement in mitochondrial function. [18]

Mitochondrial function is *so unbelievably important* for ALL aspects of health, and mitochondrial damage *so devastating*, that this is a *great* illustration of

how we need to think about second- and third-order effects when trying to optimize our health and nutrition. Impaired circulation caused by NO deficiency isn't *just* bad for your arteries and veins, but it can actually damage your body at the *cellular level*.

- **Pine Bark Extract (*Pinus pinaster*) – 100 mg**



Chock full of antioxidant *phenols*[19,20] with similar effects to epicatechins, **pine bark extract** is another potent NO booster. Much like epicatechins, it works by directly stimulating *endothelial nitric oxide synthase*, also known as eNOS,[19,20] the enzyme that actually synthesizes NO (hence the name).

Pine bark has been shown to inhibit *matrix metalloproteinases* (MMPs),[21] enzymes that are involved with post-injury tissue remodeling, and are linked to fibrosis (stiffening) of lung tissue.[22] When MMPs get out of control, they can ultimately *weaken arterial walls* by making them stiff and unresponsive to changing cardiovascular demands.[23] So theoretically,

inhibiting MMPs via pine bark supplementation could help keep your arteries supple, youthful, and strong.

A small body of research suggests that, due to its positive effects on vascular health, pine bark extract can help prevent neurological problems that are caused by chronic inflammation.[20]

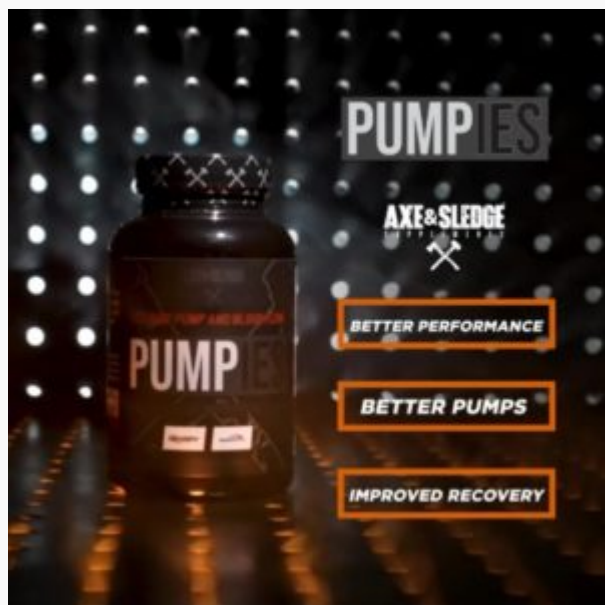
- **Vitamin C (as ascorbic acid) – 135 mg (150% DV)**

We all know **vitamin C** as a famous antioxidant and immunity booster, but the total number of uses for this incredible nutrient is *huge*.

Among other things, vitamin C can be used to stimulate *nitric oxide synthase*, the enzyme that produces NO.[24] Moreover, it may also *increase the bioavailability of NO*,[25] meaning that your body can use *more* of the NO your body produces.

Although the role of NO in cardiovascular function can be complicated – under some circumstances the compound can actually *contribute* to oxidative stress[26]. It's true that in general, oxidative stress is linked to a decline in NO production.[27] So if you want to keep your cardiovascular system in top shape, increasing your intake of antioxidants like vitamin C is almost always a good idea.

Pumpies for the pumps



Most other brands couldn't pull off a name like "Pumpies", but Axe & Sledge is definitely unlike most other brands. Seth Feroce has crafted a solid Nitrosigine-based nitric oxide supplement here.

Over the years, we've seen quite a bit of research on Nitrosigine (and its nootropic counterpart, *nooLVL*) as well as epicatechin. One thing not to miss is the huge dose of VasoDrive-AP here, which is double what we *generally* see.

This is quite a solid pump supplement, and five capsules isn't too much to handle to achieve the effects. If you're a coffee-drinker, enjoy energy drinks, are on a fat burner, or have a high-stim pre-workout supplement that needs a bit of help in the nitric oxide department, you may have found your next stack.

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