



Bulletproof Toolbox Report

The Top 11 Advanced Supplements for Increasing Biological Support

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There are a lot of things you can do to increase your performance. You'll find some of them in a series on the top five brain upgrades, the top personal upgrade series, and a ton of info about the Bulletproof Diet.

I also wrote a list of top ten [basic supplements](#) most people should be taking to stay healthy. The response has been great – it seems like a lot of people's questions were answered, but even more importantly, they asked a lot more questions. One of the questions that came up most after writing that post - part 2 of the personal upgrades series - was:

“These are great, but what supplements do you recommend for someone who wants to take it to the next level. What are the top supplements you recommend for people who want to be completely Bulletproof?”

The truth of the matter is that some supplements can take you far beyond what the ingredients in the world's most perfect multivitamin can do. I've spent years studying supplements and experimenting with them, having spent more than \$100,000 on my personal regimen over the last decade.

Today I take between 20 and 40 capsules a day, but at one point when I was all-out hacking myself, I took as many as 180 capsules a day. Extreme? Probably. But now I know which ones give me the most bang for my buck. Before I add something, I study it extensively to understand how it affects the system of the human body.

This paper will help you to know which supplements are the most powerful ones for extending your performance beyond what baseline un-supplemented humans normally do. We're not looking at correcting deficiencies – we're talking enhancing basic biological processes so they work better than they normally do in healthy people, or counteracting things that normally make healthy people weak.

You should definitely correct any deficiencies and take the basics I recommend before you start investing in these advanced supplements. Some are not cheap, but they are all effective. I am not recommending specific brands here because the physician-quality brands I use for my family and clients are mostly not available at retail.

That said, without further ado, here is the list. It's followed by a section describing each and how to use it. These are supplements I selectively use in my executive coaching practice to help people outperform.

1. Pyrroloquinoline quinone (PQQ)
2. Calcium-D-Glucarate (CDG)
3. Calcium-AEP
4. Magnesium Threonate
5. Upgraded Aging (OAA)
6. Lipase
7. Diamine Oxidase (DAO)
8. Idebenone
9. Co-enzymated B Vitamins
10. Adaptogenic Herbs
11. Anti-inflammatory Herbs

Pyrroloquinoline quinone (PQQ)

This is one of the most overlooked, and important supplements in my arsenal. Many people in the Paleo community have never even heard of it, and even I still have trouble pronouncing it. PQQ is an antioxidant, signaling molecule and coenzyme for various reactions in your body. It's especially important for sustaining mitochondrial function.

Most people have benefit from increasing mitochondrial function because most of us have suboptimal mitochondrial function today. If switching a high healthy fat Bulletproof (or Paleo) diet doesn't work right away for you, your mitochondria may be why. Mitochondria power your metabolism and brain function, and when they aren't working right, you aren't as high performance.

Neurosurgeon and epi-paleo blogger Dr. Kruse [describes](#) it as "PQQ is the tune up that the furnace needs." One of the main ways PQQ protects your mitochondria is by defending against free radicals. Unlike other antioxidants that degrade quickly, PQQ is able to quench free radicals over [and over](#) before becoming ineffective. PQQ is especially [effective](#) at eliminating the kinds of free radicals and oxidized particles that contribute to mitochondrial decline and neuron damage, and it enhances fertility. According to one [study](#), PQQ is 30-5,000 times more efficient at sustaining mitochondrial energy production than other common antioxidants like vitamin C. While it's [one study](#) questions whether PQQ is truly a new vitamin, other researchers suggest it is a new vitamin.

In general, a good starting dose for people already on the Bulletproof Diet is about 20 milligrams per day. If you're still eating on the red or yellow part of the Bulletproof Diet, aim for around 30 milligrams per day. Once you transition to eating around 50-70% of your calories from healthy fats, you can decrease the dosage to around 10 milligrams per day. I take 20.

Calcium-d-glucarate (CDG)

If you didn't learn enough about it in this [post](#), here's the skinny on calcium-d-glucarate (CDG):

I first started taking calcium-d-glucarate as a way to ensure my (then) high protein diet didn't produce excess ammonia. As a former 300 pounder who was pre-diabetic, and born with only 1 kidney, I am extra careful about ammonia and other nephrotoxins. However, CDG has a number of benefits that everyone can take advantage of. It can fight cancer, decrease LDL cholesterol, assist in protein digestion, and remove toxins and excess estrogen.

That last bit is important – we are awash in environmental estrogens, and helping your liver remove them is simply a good idea.

CDG is produced in small amounts by your body, but most of us are exposed to enough toxins that our stores are quickly depleted. Taking extra CDG can assist in the clearance of toxins that decrease your performance and contribute to cancer. Perhaps the greatest benefit of CDG is its ability to detoxify your liver. I can't tell you how many people are suffering from the effects of a sluggish liver. If your liver isn't working at full capacity – you won't be as high performance as you could be – period.



A good starting dose for most people on a high to moderate protein diet is 1000 milligrams per day. Those eating the Bulletproof Diet can probably get by with 500 mg/day, but its best to take the upper end simply to eliminate excess toxins and estrogen.

Calcium-AEP (calcium 2-amino ethyl phosphoric acid)

In 1928, a guy named Hans Nieper was born. While legend has it that he drank Bulletproof coffee instead of infant formula, he is best known for his work on fighting cancer. He believed that problems with cell membranes and nutrient availability contributed to diseases like cancer and MS. His [pioneering work](#) with calcium 2-amino ethyl phosphoric acid (CAEP) was considered revolutionary at the time, but his fame dwindled after drugs hit the market.

While most of his work was on people with cancer, MS, and other diseases, CAEP can also improve your health and performance.

CAEP is a “cell sealer” – it helps maintain the integrity of cell membranes against toxins and pathogens. It also helps transport electrolytes into your cells. Even more importantly, CAEP is needed for brain function, nerve conductance, and muscular contraction. If you don’t have enough CAEP, your brain won’t be functioning at full capacity. Other notable doctors like Dr. Atkins were known to prescribe CAEP for conditions like diabetes. Some doctors recommend injecting CAEP, but oral forms are often effective too (and less troublesome and painful).

I take CAEP mostly as a preventative supplement and to optimize electrical conductance in my nerves. There’s good evidence that it helps protect against neurological diseases, and other experts like Dr. Haltiwanger also use it in their



practice to help optimize cellular electrical conductance. I feel and perform better when taking it, which is why it's Bulletproof.

Magnesium Threonate.

You probably know about magnesium citrate (natural calm), magnesium glycinate, malate, and most of the other “ates.”

I’ve recommended and used them for years to improve my sleep and assist in mitochondrial function, but new research has shown that a certain form of magnesium called magnesium threonate can improve brain function.

In a [study](#) published in the journal *Neuron*, researchers found that giving rats magnesium threonate improved their memory and learning. The proposed mechanism was that magnesium threonate was better absorbed, and that higher magnesium levels in the brain increased neural plasticity. As the Life Extension Foundation has [written](#), magnesium threonate improves the connections between your neurons. This gives you the ability to work your brain to new levels of performance – if you give it the right training. Magnesium threonate probably won’t give you super brainpowers by itself, but it will increase the benefits you get from Bulletproof Mindware and other brain upgrades.

Bulletproof Upgraded Aging Formula

Bulletproof Upgraded Aging is a proprietary formula designed to kick-start the Krebs's cycle in your cells and enhance mitochondrial function. One of the main reasons calorie restriction works is by enhancing mitochondrial function, and Bulletproof Upgraded Aging provides many of the actual benefits of CR, without the lethargy, weakness, and irritability. CR as an anti-aging technique has been discredited and I've never recommended it, but the genetic and inflammation changes it can cause are worth noting

The main ingredient in Bulletproof Upgraded Aging is oxaloacetate (OAA). I wrote about this before in the top brain upgrades post, but here's a quick recap:

- Excess glutamate kills brain cells and hurts mental performance.
- Stress causes you to have higher than optimal glutamate levels.
- Over time, this causes brain fog, lethargy, headaches, and lower intelligence.
- Oxaloacetate lowers glutamate levels in animals and humans.
- Not only that, it converts the glutamate into fuel for neurons. It also alters gene expression in a way that protects neurons from other sources of damage.

Oxaloacetate is good for you for several other reasons too. It protects against the effects of excitotoxins like MSG, and it mimics the same longevity pathways as calorie restriction.

In studies, it normalizes blood sugar levels very quickly, even in people with compromised insulin function.

For maximum effectiveness, it's best to take oxaloacetate with vitamin C, as the two ingredients work synergistically. I believe that oxaloacetate is such a breakthrough that I did the same thing I did when I got tired of low performance coffee – I made my own version. Bulletproof Upgraded Aging is a product of thorough testing, and I consider it a vital part of my supplement regimen because it addresses four main problems with cognitive function, blood sugar, and aging in a single pill. While not cheap, from my perspective, it's an affordable supplement because it replaces four other expensive pills.

Lipase

I used to recommend lipase just for people who got stomach upset when starting the Bulletproof Diet, but I've seen it improve the performance of people who didn't even mention feeling bad. Lipase is the enzyme that digests fat in your body.

Most of the people starting the Bulletproof Diet are amazed at the high fat content, around 50-70% of calories. Some people are not used to eating optimal levels of fat, so bile production is chronically sluggish, and the pancreas and liver don't manufacture enough lipase. You need lipase and bile salts to break down fats.

If you've been on a low-fat diet, your gall bladder down-regulates bile production. When you switch to a high fat diet, it takes anywhere between a few days and a few weeks for your bile and lipase production to naturally increase again. If you have a hard time digesting fat at first, lipase helps while your body adapts to the new level of high fat intake.

However, you shouldn't stop taking lipase with meals even as your body gets used to digesting fat without it. There is a metabolic burden to manufacturing enzymes in the body. By supplementing with additional enzymes like lipase, you free up the metabolic manufacturing capability of the body to manufacture repair enzymes instead of digestive enzymes.

The biohacker secret to using lipase is bigger than that. I take lipase on an empty stomach at night to help my body break



down very long chain fats and branched chain fats which are implicated in many brain disorders like Alzheimer's, and I take one capsule with my Bulletproof coffee in the morning.

Using a quality lipase supplement that is not derived from the toxic mold species *Aspergillus* is ideal.

Diamine oxidase (DAO)

Also known as histaminase, DAO is the main enzyme needed to break down histamine. Histamine is a biogenic amine that's found in lots of coffee, wine, fermented fish, cheese, and other foods where fermentation happens in the presence of protein. Histamine can trigger allergic reactions in many people and high levels of it are deadly. For others, it might just give you a headache or brain fog. Either way, histamine usually causes some form of performance decline. It is a neurotransmitter as well as an immune molecule.

The liver produces DAO in small amounts, but lots of people don't make enough to handle today's mass produced, higher amine foods. When you run out of DAO, even small amounts of histamine can cause problems. By taking DAO with meals, you can help your body eliminate excess histamine and keep it from damaging your cognitive performance as a neurotransmitter or an inflammation-causing allergy booster. DAO is also a marker of intestinal health, at least in [rats](#). As you learned in the series on why the Bulletproof Diet works, intestinal health is a major factor in your overall performance. DAO can improve your gut function, which makes you Bulletproof in many ways.

If you can guzzle fermented fish sauce and large amounts of soy sauce with no decline in mental performance for several hours, you probably won't benefit from this supplement. If you have hives or other auto-immune conditions, it's worth trying for sure.



I take one capsule with restaurant meals.

Idebenone

Idebenone is an analogue of CoQ10 with some unique benefits. It was first used as a smart drug for people with Alzheimer's disease, and other [research](#) has shown it works as a potent antioxidant.

Some studies have shown that it improves the structure of brain cells, and others have found that it can increase serotonin production. In one [study](#), Idebenone was able to improve markers of memory and learning in humans. Other [studies](#) have shown that it improves learning and memory in mice. It acts to increase mitochondrial function. Although it's slightly more expensive, Idebenone is better absorbed than most forms of CoQ10. This means it's better able to power your cells and optimize cognitive performance. The best supplement in the world is useless if you don't absorb it. Idebenone can help improve your mental performance, fight aging and cognitive decline, and protect against free radical damage.

As an added bonus, idebenone doesn't turn into a pro-oxidant in low oxygen conditions, but CoQ10 does. If you're a diver, have sleep apnea, or fly a lot, this is the mitochondrial energizer for you.

Co-enzymated B vitamins.

B vitamins are needed for optimal mental performance, muscle function, nerve conduction, and many other reasons. [Studies](#) have even linked attention deficit disorder with B vitamin deficiencies. Most people don't get enough B vitamins, and this is [especially true](#) for vegans and vegetarians (animal foods are the best sources of B vitamins, and vitamin B12 is only found in animal flesh).

Taking a B vitamin is a great way to improve your mental performance or just give you more energy. In fact, even your gut bacteria [need B vitamins](#), so not consuming enough can have a wide range of health consequences. However, regular B vitamins are not very well absorbed.

In order to be of use to your cells, they have to be in their active forms – they have to be paired with the right coenzymes, and depending on your health status and genetic makeup, you may not make some of the co-enzymes you need, or it may be metabolically difficult for your physiology. This is why I recommend a co-enzymated B vitamin supplement. This gives you all the benefits of B vitamins, except in a more absorbable and powerful form, and they don't build up in your system like non-co-enzymated B vitamins can.

Adaptogenic herbs

Although adaptogens go largely unnoticed in the western cultures, the Soviets tested them throughout the cold war, the Chinese have been using them for centuries, and they are widely used in Japan.

Adaptogens have stress-protecting and stress normalizing effects because they help your adrenal glands create a stronger hormonal response when your system is stressed, and then shut it down faster when the stress stops. For chronic stress (job stress, overtraining, etc.) adaptogens maintain hypothalamic receptor sensitivity, which significantly delays adrenal exhaustion.

In Bulletproof terms, they help stay resilient while you kick more ass for longer. Quite literally – Chinese soldiers took traditionally took adaptogens right before battle.

If your cortisol is high, adaptogens help [lower it](#). If your cortisol is low, adaptogens help [raise it](#). Adaptogens can also increase your resilience against aging, stress, and anxiety, and even physical injury. Some can even [improve](#) your mental performance. One [study](#) found that Rhodiola, one of the most Bulletproof adaptogens can help with problems like, “decline in work performance, sleep difficulties, poor appetite, irritability, hypertension, headaches, and fatigue... developing subsequent to intense... intellectual strain.”

Different adaptogens work through [different mechanisms](#), but most of the effects are through the nervous system or gene

expression. In contrast to stimulants like cocaine and amphetamines, adaptogens don't make you addicted and have few to no side effects. Some of the top Bulletproof adaptogenic herbs are:

- Rhodiola rosea
- Ginseng (Asian, Siberian, American species)
- Eleutherococcus senticosus is the Siberian species that is strongest
- Ashwaganda
- Astragalus
- Licorice root
- Schisandra

Your dose and responsiveness may vary to each, but they can help you do – and be – more than you thought possible, without incurring the physiological cost of stress.

Anti-inflammatory herbs

I consider anti-inflammatory herbs my “pickup truck” of supplements. They’re good for a wide range of uses, they’re reliable, they’re cheap, and they almost always give you the results you want.

Inflammation is a major problem for almost everyone. Whether you ‘re eating a low quality diet, not sleeping well, under stress, or suffering from a disease(s), anti-inflammatory herbs can be a lifesaver. My most recent need for them came when I got ice burns on 15% of my body in a cold thermogenesis experiment. I carry two anti-inflammatory herbs with me wherever I travel: ginger and turmeric.

These two supplements have been [extensively studied](#), and the research is supported by my own experiences. Anti-inflammatory herbs have been [shown](#) to fight the effects of aging, improve symptoms of erectile dysfunction, reduce the risk of cancer, and even help treat depression. Other [studies](#) have shown that anti-inflammatory herbs can help fight cognitive decline and improve mental performance. I feel better, think faster, and can handle more work when taking them.

One important thing to remember about anti-inflammatory herbs is that they are [often changed](#) by your gut flora. If you don’t have the right microbes in your gut, you won’t get the same kinds of benefits from your supplements. This is another reason eating the Bulletproof Diet is so important.

Another anti-inflammatory herb is low toxin coffee like [Upgraded Coffee](#). Two compounds in coffee, cafestrol and kawehol, have potent anti-inflammatory effects specifically in the brain, but you already knew that if you read the blog.

Finally, I sometimes use a few Chinese herbs that turn off an overactive innate immune response, although they're too specialized to make the top 11 list.

Conclusion

If you want to optimize your body to help it do more than it could with proper nutrition alone, it helps to take the right supplements. This list contains some of the most powerful, high impact supplements I've found in the last decade. If you want to function at your very best, and live a long time doing it, you owe it to yourself to explore this list as time and finances allow.