

Examine.com

Muscle Gain & Exercise Performance

Medical Disclaimer & Important Note

This guide is a general health-related information product, intended for healthy adults over the age of 18.

This guide is for educational purposes only. It is not medical advice. Please consult a medical or health professional before you begin any exercise, nutrition, or supplementation program, or if you have questions about your health.

Participating in exercise activities or using products mentioned in this guide may pose risks for people in poor health or with pre-existing physical or mental health conditions.

Do not use any products or participate in any activities if you are in poor health or have a pre-existing mental or physical health condition. If you choose to participate, you do so of your own free will, and you knowingly and voluntarily accept the risks.

While we will mention major known drug interactions, it may be possible for any supplement to interact with medications or other drugs. If you are currently taking medication, consult a health professional prior to using any supplement in this guide.

Specific study results described in this guide should not be considered representative of typical results. Not all supplements provide the exact amount of compounds as listed on the label. Always investigate supplement companies, as well as the supplement itself, before purchasing anything. Herbs, rather than isolated compounds, may also have some variability from one batch to the next that can alter the efficacy.

To read the evidence supporting claims mentioned in this guide, please visit [Examine.com](https://www.examine.com).

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How to use this Guide

The team at Examine.com has been publishing research on nutrition and supplementation since March 2011. In that time, we've learned a great deal about supplements, especially how they can work together to help you with health goals.

This stack guide help you figure out which supplements can help you and which will hinder and/or be a waste of your money for your desired goals.

The following four sections present information on supplements that are relevant to *Cardiovascular & Heart Health*:

1. Base Supplements
2. Proven Options
3. Unproven Options
4. Cautionary and Overhyped Options

Base Supplements are recommended for the majority of people with this goal. They are either effective on their own or are required to boost the effects of another supplement. These are the first supplements to consider for your stack. Base Supplements are more researched and have less adverse drug interactions than options.

Proven Options are supplements that will provide a lot of benefits, but only in the right context. They cannot be recommended for everyone, but if you read the entry and find that you meet the criteria, feel free to add the supplement to your stack.

Unproven Options are another group of potentially beneficial supplements, but they lack evidence for their effects. They cannot be recommended with the same confidence as proven options. They could work or be a waste of your money - there is not enough evidence to know for sure. Keep unproven options in mind, but approach them cautiously when incorporating them into your stack.

Cautionary and Overhyped Options are supplements that are claimed to provide benefits but have been shown to be ineffective. If a supplement is deemed too risky to be used, it will also be found in this section. **Do not** add these compounds to your stack; they tend to be a waste of money or potentially harmful to your health.

Once we have explained the various supplements that you need to be aware of, the **Assembling your Supplement Stack** section will outline how different supplements can be combined, based on your objectives.

After that, we follow up with the **Stack Modification FAQ**, in which we cover common questions that may arise when assembling your stack.

Lastly, we include information on **Precautions and Troubleshooting**.

With all this combined, you should be able to identify and assemble a supplement stack best suited for your goals and objectives.

Creatine

Why you should take it

Creatine is a source of ATP, a source of energy for your cells. Supplementing creatine monohydrate increases the body's creatine stores, which are located primarily in the muscles. Creatine improves the ability of muscle cells to react to intense stressors (such as lifting weights).

Creatine has a lot of strong evidence for both its safety and its ability to improve muscular power output. It also increases anaerobic endurance by acting as fuel for your cells. Muscle cells will use creatine for energy before burning glucose, which helps your muscles perform under pressure and knock out those last few reps.

Creatine supplementation will cause a slight water weight gain in the first few weeks of supplementation, but creatine's ability to improve performance will cancel out the temporary disadvantages of increased water weight. After prolonged creatine supplementation, the water weight will be replaced with muscle.

Creatine is safe and cheap. Its only potential side-effects are nausea, cramping, and diarrhea from too large a dose. The benefits it provides for muscle growth and general physical performance make it standard in any performance enhancing supplement stack.

How to take it

The best way to supplement creatine is to take creatine monohydrate. Other forms of creatine may be more expensive, but studies have not found them to be more effective than creatine monohydrate.

If you are particularly sensitive to creatine's digestive side-effects, which include nausea and cramping, consider supplementing micronized creatine, which may be gentler on the digestive system. Creatine should be consumed with water.

The standard daily dose for creatine is 5 g a day. This is enough to improve

power output. People with more muscle mass may benefit from a higher daily dose, as much as 10 g, but this claim is not fully supported by the evidence. To supplement 10 g, split it into two doses of 5 g, taken twice a day.

Loading creatine means taking a high dose of creatine for a short period of time before moving down to a smaller maintenance dose, which can be taken indefinitely. This is not necessary for effective supplementation. Though loading may result in benefits appearing slightly faster, results normalize after a few weeks.

Some people are creatine nonresponders, which means creatine is unable to pass from their blood to their muscles.

More research is needed to find a proven way to circumvent creatine nonresponse. Some evidence suggests it helps to take creatine with a meal high in both protein and carbohydrates, close to the time of actual muscle contraction. If you experience creatine nonresponse, consider taking creatine with a meal either before or after a workout.

If you respond to creatine, you don't have to worry about timing supplementation, though you will probably want to take it with a meal to lower the risk of an upset stomach.

Nitrates

Why you should take it

Nitrates are a compound found in leafy green vegetables and beetroot. Nitrates break down into nitrites, which circulate in the body and are turned into nitric oxide (NO) as needed. Elevated NO levels during exercise provide a variety of benefits.

Nitrate supplementation has been shown to improve anaerobic and aerobic endurance, blood flow, and work output, resulting in increased muscle recovery between bouts of exercise. Nitrates improve the body's ability to produce adenosine triphosphate (ATP) from the food you eat. ATP is

responsible for the energy transfer that powers your muscles. High levels of circulating nitrite help the mitochondria in cells produce ATP more efficiently.

Unfortunately, selling a nitrate supplement with a dose high enough to cause these effects is not legal. This is due to the regulation surrounding sodium nitrate, a food additive frequently added to meat products.

Instead, nitrate supplementation should take place in the form of a pre-workout meal incorporating leafy greens or beetroot. Beetroot extract supplements will not provide enough nitrates to affect exercise performance.

How to take it

Nitrates are best supplemented through food products like leafy greens or beets, 60 – 120 minutes before exercise. Consuming these foods in a liquid form, such as through a shake, juice, or puree, will increase the rate of nitrate absorption, since solid food particles take longer to digest. The optimal nitrate dose is in the range of 6.4 - 12.8 mg per kilogram of bodyweight. This corresponds to approximately:

- 440 - 870 mg for a 150 lb person
- 580 - 1,160 mg for a 200 lb person
- 730 - 1,450 mg for a 250 lb person

Consuming 500 g (a little over a pound) of beets, radishes, or any leafy green vegetable, including lettuce, rocket, spinach, crown daisy, and swiss chard will provide enough nitrates for you to enjoy the benefits during your next workout. People taking the blood thinner warfarin should consult with their doctor before consuming high levels of some leafy greens, due to the [vitamin K](#) content.

Take care to avoid spitting frequently during your workout, since saliva is a necessary intermediary step in activating dietary nitrate. Mouthwash should also be avoided.

Protein

Why you should take it

Dietary protein is a term used to refer to any food or supplemental source of protein. Protein is important for muscle growth and exercise due to the mass of amino acids required to build muscle, and also due to the activity of specific amino acids like leucine which can act to promote muscle protein synthesis.

For maximal improvements in muscle growth and exercise performance, consume a sufficient amount of protein each day from food. If your food intake does not cover your protein needs, then supplemental protein such as whey or casein protein can be used.

How to take it

Dietary protein for muscle gain and improving exercise performance is not dependent on when you eat protein; the major factor at play is how much protein you consume over the course of a day. [Click here to figure out how much protein you need every day](#), and ideally protein would be spread into at least a few meals a day for ease of digestion.

The only time protein timing appears to be relevant is if working out fasted (such as exercising in the morning). In such a situation, it is advised to have some protein before you exercise. All other times see no major benefit with dietary protein timing.

Carbohydrates

Why it is a proven option

Carbohydrates, specifically sugars, are quickly absorbed by the body causing an increase in insulin levels and providing more readily usable energy. This improves physical performance, which is why you'll see athletes sipping on a sugary drink during their workout. The fewer carbohydrates you consume in your regular diet, the more effective this performance enhancing effect will be.

Carbohydrates help you perform at your best. Like [creatine](#), they provide energy for your muscles. In fact, studies have found 50 - 75 g of carbohydrates provides a benefit similar to supplementing 5 g of creatine.

A drink that provides your body with glucose or sucrose will improve anaerobic exercise performance. Anaerobic exercise is any exercise intense enough to trigger the production of lactic acid in your muscles. For example, weightlifting or sprints.

Insulin, which is released after carbohydrate consumption, improves the effects of nitric oxide and provides benefits for blood flow. Both of these effects contribute to peak physical performance. See the "[Nitrates](#)" section of this guide for more information on nitric oxide. Carbohydrates during exercise are not for everyone. They are beneficial during high intensity acute training (ie. bodybuilding) and long endurance events (ie. marathon training) but mild intensity and duration exercise can be sufficiently fueled by a small carbohydrate containing whole meal a few hours before the workout.

How to take it

When lifting weights, start drinking your pre-workout shake or juice about 15-30 minutes before you get to the gym. Leave yourself half of your drink to sip on during the rest of the workout.

Ideally, your carbohydrate drink should consist of mostly glucose with a bit of fructose, but a glucose and fructose mix will also work (some people find even that mixture too sweet, and should mix in maltodextrin). Aim for 50 - 75 g total, though you may need more if your workout lasts longer than 90

minutes. A sports drink is an effective way to get these carbohydrates, and usually preferred over options like soda which, due to carbonation and acidity, may cause gastrointestinal upset during exercise.

Athletes should be careful to not overdo their carbohydrate consumption, particularly before a game or competition. Too many carbohydrates at once may cause temporary refractory hypoglycemia, which is characterized by a short period of low blood sugar and could hurt sports performance. Too many carbohydrates in too little water can also cause gastrointestinal discomfort in some people. It's also very important to try new supplements and pre-workout drinks during practice before bringing them to the big game. You don't want to find out you'd be more comfortable with a lower dose when you're about to step onto the field.

The benefits of carbohydrates depend a lot on your regular diet. People with high carbohydrate diets will not see as much improvement in their workout from a carbohydrate drink. Similarly, eating a high carbohydrate meal before exercise will render a workout drink unnecessary. People that eat a low carbohydrate diet, however, will experience significant benefits.

Beta Alanine

Why it is a proven option

Beta-alanine is an amino acid. After supplementation, it binds with another amino acid, L-histidine, to create a compound called carnosine. Remember the lactic acid that your muscles produce as they try to keep up with anaerobic exercise? Carnosine will act as a buffer for acidity and delay muscle fatigue. Essentially, beta-alanine supplementation will improve your endurance.

But there's a catch. Beta-alanine only works this way for intense exercise, in which lactic acid kicks in after about a minute. Imagine running a fast lap around the track or doing a volume set of squats that feels like the longest sixty seconds of your life. Athletes that train in the 60 - 240 second range will experience the most benefits from beta-alanine supplementation.

How to take it

The standard dosage for beta alanine is in the range of 2 - 5 g. If you have a long workout planned, aim for the higher end of the range.

Beta-alanine can be taken at any time of day, but it may be better absorbed if taken with a meal.

A common side-effect of beta-alanine is paresthesia (a tingling sensation). You have probably experienced paresthesia when your leg “falls asleep.” Taking smaller doses throughout the day or using time-release capsules can help reduce the prickling sensation on the face and skin. Paresthesia is harmless, if unpleasant.

Caffeine

Why it is a proven option

Caffeine is a popular stimulant. It is well known for its ability to stave off sleep. Caffeine can also stimulate the body by increasing adrenaline or dopamine. This effect offers significant benefits for muscular power output. It's also responsible for the euphoric feeling you remember from your first-ever cup of coffee.

Unfortunately, frequent caffeine consumption will quickly dull the power-enhancing effect, though you'll still be able to stave off sleep with your morning cup of coffee. Infrequent caffeine use is the key to experiencing the stimulatory effect every time. This is also why caffeine is not recommended as a base supplement.

Caffeine, despite its common usage, is known to interact with a few pharmaceuticals. It should not be used with monoamine oxidase inhibitors (MAOIs), a type of antidepressant, and can interact with dipyridamole and tizanidine, as well as influence lithium levels.

How to take it

Caffeine is most effective when supplemented by people unused to caffeine. If you get excited after a cup of coffee, you'll probably benefit from caffeine's effects at the gym.

To supplement caffeine effectively, take 400 - 600 mg, 30 minutes before a workout, no more than twice a week. You'll probably want to save caffeine for the hardest workouts of the week.

If you begin to develop a caffeine tolerance, drop down to one dose a week. It may be necessary to stop all caffeine use for at least a month to regain caffeine sensitivity.

Note: [L-Theanine](#), taken alongside caffeine, will improve attention span and focus without interfering with caffeine's stimulatory effect. It will also reduce the anxiety associated with caffeine supplementation. L-Theanine should not be supplemented by itself for performance enhancement, but it is a proven option for combining with stimulants in this stack. To supplement L-theanine, take 200 mg at the same time as caffeine.

Nitric Oxide Boosters

Why it is an unproven option

Nitric oxide boosters are a category of supplements meant to increase nitric oxide levels in the body. Some common nitric oxide boosters are [L-arginine](#), [L-citrulline](#), and [agmatine](#). Nitrates from beets and leafy green vegetables are not included in this category.

Elevated nitric oxide levels are associated with improved blood flow, muscle growth, and more efficient energy production.

Both L-arginine and L-citrulline fail to increase nitric oxide levels in the body after supplementation. L-arginine is broken down in the digestive system before it can reach the rest of the body. L-citrulline runs into an obstacle while it's being processed by the kidneys. It's supposed to be converted into L-arginine, but the process is not very effective and does not reliably raise nitric oxide levels.

Agmatine is a newer, promising supplement, but it lacks human evidence for its effects, so it cannot be recommended for improving physical performance.

Today's nitric oxide boosters are marketed based on promising initial evidence for their effects, but they are unreliable and do not effectively increase nitric oxide levels in the body. They should only be considered for supplementation if dietary nitrates are not an option. If this is the case, L-citrulline is the best option.

Note: All nitric oxide boosters can counteract the effects of [yohimbine](#), a fat burning supplement, and should not be taken together.

How to take it

The standard dose for L-citrulline is 6 g, taken 30 - 45 minutes before exercise. The majority of intestinal side-effects associated with L-arginine do not extend to L-citrulline.

The standard dose for L-arginine is 6 g, taken 30 minutes before a workout. L-arginine supplementation can cause diarrhea, so start with 3 g before

working your way up. Consuming caffeine may increase the risks of diarrhea.

The typical dose for agmatine is 500 - 1,500 mg, taken 30 minutes before a workout.

Adaptogens

Why it is an unproven option

Adaptogens are a category of supplements that prevent stress if supplemented in advance. That means they're able to reduce the mental and physical side-effects of stress, which include fatigue, depression, and anxiety.

The most popular and well-researched adaptogens are [ashwagandha](#), [Panax ginseng](#), and [Rhodiola rosea](#). Preliminary evidence suggests these supplements can lower the perception of fatigue when taken before exercise.

Much more research is needed to confirm this effect. These adaptogens have been the subject of many studies, but rarely in the context of increased muscular power output and never as a pre-workout supplement.

How to take it

To supplement ashwagandha, take 300 - 500 mg of the dry root extract 30 - 45 minutes before exercise.

To supplement *Panax ginseng*, take 200 - 400 mg, 30 - 45 minutes before exercise. The *Panax ginseng* supplement should contain 1 - 3% ginsenoside.

To supplement *Rhodiola rosea*, take 500 mg of the extract SHR-5. This dose is intended for preventing stress from an upcoming event. To supplement *Rhodiola rosea* pre-workout, take 80 - 160 mg, 30 - 45 minutes before exercise.

SHR-5 is a standardized mixture of 3% rosavins and 1% salidroside.

Branched Chain Amino Acids (BCAAs)

Why it is an unproven option

Branched chain amino acids (BCAAs) play a small role in enhancing physical performance, but marketing has blown their effectiveness out of proportion.

BCAAs do play a role in building muscle, since whenever you consume protein, you're consuming BCAAs. Many studies have also investigated whether BCAAs can play a role in improving muscular power output.

The evidence suggests that BCAAs have a very limited effect on exercise performance. BCAA supplementation was found to relieve cognitive fatigue during exercise that lasted more than two hours. This could be useful for athletes that need to maintain hand-eye coordination over a long game, like hockey or football players.

BCAAs do not increase power output, reduce fatigue, or improve muscular endurance. Dietary protein consumption has the same effect as BCAA supplementation, except that protein is more likely to cause nausea and cramping if consumed during exercise.

How to take it

To supplement BCAAs, take 10 g before exercise. BCAAs can also be added to a carbohydrate drink.

The ideal ratio for BCAA supplementation is a 2:1:1 ratio of [leucine](#), [isoleucine](#), and [valine](#), the three amino acids that make up BCAAs.

Cholinergics

Why it is an unproven option

A cholinergic is any supplement that is meant to increase the activity of acetylcholine in the brain. Acetylcholine is a neurotransmitter that is involved in memory formation and muscle contraction. Elevated acetylcholine levels result in stronger muscle contractions.

Unproven Options (cont.)

Cholinergic supplements include [CDP-choline](#), [alpha-GPC](#), and [huperzine-A](#).

Cholinergic supplements are not well-researched in the context of muscular power output. There is no strong evidence to suggest cholinergic supplements are able to increase power output.

Preliminary evidence shows that alpha-GPC supplementation can increase power output, but this result has yet to be replicated. CDP-choline may be able to improve cognition and attention span, but more evidence is needed to confirm this effect.

Huperzine-A cannot be recommended for supplementation because its long-term health effects are unknown.

How to take it

To supplement CDP-choline, take 250 - 500 mg, 30 - 45 minutes before exercise. Do not take more than 1,000 mg of CDP-choline at once.

To supplement alpha-GPC, take 300 - 600 mg, 30 - 45 minutes before exercise.

Cautionary & Overhyped Options

Testosterone Boosters

Testosterone boosters would greatly benefit exercise performance, if they actually worked. Unfortunately, all of the testosterone boosters on today's market have little to no effect on testosterone levels after supplementation.

Though these compounds are not recommended for supplementation, they are also not associated with the side-effects attributed to a steroid cycle. Some herbs claiming to boost testosterone, including [*Tribulus terrestris*](#), [maca](#), and [fenugreek](#) enhance libido, which can translate to increased confidence and energy in the gym. The influence of confidence on workout performance has not been scientifically assessed, but if these supplements improve your power output due to improved energy and mood, they may have a role to play in your stack.

Sodium Bicarbonate

Sodium bicarbonate, also known as baking soda, is a performance-enhancing supplement that can improve muscular endurance.

Sodium bicarbonate can cause severe stomach upset if supplemented improperly. Keep in mind, one dose is 300 - 400% of the daily recommended sodium intake. Sodium bicarbonate supplementation has a similar effect to beta-alanine supplementation, but taking both at once will not be more effective than beta-alanine by itself.

Due to sodium bicarbonate's side-effects, it should not be included in any stack.

β-Hydroxy β-Methylbutyrate (HMB)

β-Hydroxy β-Methylbutyrate (HMB) is a product of leucine. It is thought to have an anti-catabolic effect on muscles, meaning it may be useful for preventing muscle loss during a fat loss diet or extreme caloric restriction.

HMB may also play a role in building muscle, but it has a history of being supplemented alongside food and exercise with no significant effect on muscle mass or power output.

HMB may be effective at preserving muscle mass, but further research is needed before it can be recommended specifically for exercise performance.

Glutamine

Glutamine is an amino acid that plays an important role in muscle cells. In fact, in vitro studies – done in the test tube or a petri dish – require glutamine to keep the cell alive. When glutamine is added to cells, it increases muscle protein synthesis.

The problem is getting glutamine to muscle cells in the first place. After ingestion, glutamine does not reach the muscle cells. Instead, it's taken up by the intestines and liver, which releases glutamine to other tissues in the body on an as-needed basis.

Though glutamine supplementation will benefit the digestive system and liver, it will not reach the muscles and cause an increase in muscle protein synthesis. Glutamine is not recommended for a performance-enhancing supplement stack.

Assembling Your Supplement Stack

The following outlines how to incorporate this supplement stack into your daily nutrition habits.

Incorporating Base Supplements

The base supplements in this stack include creatine monohydrate (5 - 10 g), dietary nitrates (500 g of a chosen vegetable).

Incorporating Supplement Options

For weightlifters that want to improve muscle growth and function

In addition to the base **creatine** (5 g) taken with any meal of the day, base **nitrate** (500 g of the chosen vegetable) taken with a pre-workout meal, take **caffeine** (400 - 600 mg) 30 minutes before a strenuous workout, no more than twice a week. After using this stack for a month, consider adding a cholinergic like **alpha-GPC** (300 mg) or **CDP-choline** (1,000 mg) taken alongside the caffeine and L-theanine combination.

At any time you take caffeine, you can take **L-theanine** (200 - 400 mg) alongside for improved attention and focus.

For creatine nonresponders

If you are a nonresponder, **creatine** (5 g) should be taken during a pre- or post-workout meal high in protein, alongside 500 g of a vegetable containing **nitrate**. **Carbohydrates**, **caffeine**, and **L-theanine** can be supplemented as described above.

Assembling Your Supplement Stack (cont.)

For people exercising longer than an hour and requiring both alertness and endurance (ie. sports)

In addition to the base **creatine** (5 g) taken with any meal of the day, **nitrate** (500 g of the chosen vegetable) taken during a pre-workout meal, and **carbohydrates** (50 - 75 g) consumed steadily during the sport or exercise, add **BCAAs** (10 g) to your drink. **Beta-alanine** (5 g) is another option.

For people using high intensity training (HIT) or similar intense exercise

In addition to the base **creatine** (5 g) taken with any meal of the day, **nitrate** (500 g of the chosen vegetable) taken during a pre-workout meal, and **carbohydrates** (50 - 75 g) during the workout, add **beta-alanine** (5 g), and an **adaptogen**.

Other Options

A 500 g vegetable dose of nitrates can be replaced with 6 g of **L-citrulline**, which can be supplemented through L-citrulline malate.

People with high levels of muscle mass can increase the **creatine** dose to 10 g.

Adaptogens have not been shown to negatively interact with any compound listed in this guide. They can be added to any stack if mental fatigue is a problem during or after a workout.

How do I add supplements to my stack that are not covered in this guide?

Before adding a new supplement to your stack, supplement your current stack for a few weeks to determine if you need to make a new addition. If you want to make multiple changes to your stack, pick one supplement to add at a time. Identify the stack change that you think will be the most effective, and do your research:

1. Use [Examine.com](https://www.examine.com) to determine if that supplement would have a negative interaction with your current stack. Talk to your doctor about including a new supplement in your stack.
2. Introduce the new supplement at half of the regular dose.
3. After a week with the new supplement, slowly increase the dose to the recommended dose if you are not experiencing the effects you want.

Stacks are intended to be synergistic, which means taking two supplements together may provide more effects than the supplements by themselves. New supplements should be added carefully, since even low doses can be powerful if other supplements in your stack improve their effects.

Can I modify the recommended doses?

If a supplement has an established advised dosage range, stay within that range. If a supplement has a recommended dose, and not a range, stay within 10% of that dose. Halving or doubling an advised dose could be ineffective or even dangerous.

The safest way to add dietary supplements to your life is one at a time. If you are considering purchasing several supplements, purchase only one and add the others after a week or two of supplementation. This will limit the risk of new supplements, and it will also make it easier to figure out what supplements are providing you with your newfound benefits.

I thought caffeine and creatine negated each other, why are they in the same stack?

There is a lot of conflicting evidence surrounding creatine and caffeine. Some studies show that they cancel each other out, while one study even found a synergistic relationship between the two supplements. Further research is needed to determine the mechanisms through which creatine and caffeine interact.

If you are new to creatine and caffeine supplementation, use creatine for a few weeks before supplementing caffeine to determine if caffeine negatively affects your strength.

What if I am a creatine nonresponder?

See the 'How to Take' section for [creatine](#) for advice on supplementing creatine as a nonresponder. You can still take advantage of creatine's other health benefits by supplementation, though you won't experience benefits for muscular power output.

I have an iron stomach and never felt nauseous from supplements, do I still need to take precautions to avoid gastrointestinal upset and nausea?

If you have never had an issue with nausea or vomiting, you may have an easier time supplementing larger doses of certain supplements. In general, it is not a good idea to disregard the warnings on supplements.

Do I need to take L-theanine alongside caffeine?

L-Theanine does not need to be added to caffeine, but it will increase focus and concentration if supplemented alongside. It does not need be supplemented on days that you don't take caffeine.

Precautions & Troubleshooting

The safest way to add dietary supplements to your life is one at a time. If you are considering purchasing several supplements, purchase only one and add the others after a week or two of supplementation. This will limit the risk of new supplements, and it will also make it easier to figure out what supplements are providing you with your newfound benefits.

Be aware that core-intensive exercises, supplementing on an empty stomach, and dietary protein can increase the risks of stomach upset, nausea, and vomiting. Any stack that prevents the user from maximally exerting themselves in the gym due to nausea is counterproductive.

To reduce the risks of stomach upset, take supplements with a small meal with a higher than average carbohydrate content and moderate amounts of water. Increasing the time between supplementation and the beginning of the workout can also reduce the risk of nausea.

Athletes should ***never*** take a supplement for the first time before a game or competition. Always use the supplement during a practice first. It's much easier to take a seat on the bench to calm your stomach when you don't have to worry about compromising your results.

Stack components are rarely studied together, so if you think you are experiencing an unwanted side effect, cease supplementation and reintroduce supplements one at a time.