When choosing a good preworkout drink it is important to understand what is contained in that drink. If you are interested in getting a "lift" from a stimulant then there are a lot of choices and you shouldn't have to spend much money. Caffeine is by far the most studied stimulant for performance and you can buy 200mg caffeine capsules for very little money. We sell 90 capsules for \$9.99. Pop a couple of those and you'll definitely wake up and feel stimulated. It's a nervous system type stimulation.

Here are some of the other factors to consider when doing a stimulant like caffeine for preworkout. Caffeine is a vasoconstrictor. That means that at some dosage it will constrict your blood vessels. If you are interested in athletic peformance you would probably want to open up your blood vessels and increase blood flow. Caffeine in higher amounts will work against you. Arginine, on the other hand, is a vasodilator. It enhances NOS production and relaxes the arterial wall. This has the effect of increasing blood flow, giving you "that pump", increasing oxygen to working muscles and removing toxins. Listed below are some of the pertinent points I've compiled from studies etc. on caffeine.

- 1) 3-6mg / kg of caffeine is optimal. More isn't better. This equates to approximately 200-400mg for a 150lb person.
- 2) Caffeine has been shown to benefit endurance more than strength.
- 3) Caffeine can have the opposite affect for some people.
- 4) Many times it will work better for those who don't drink it regularly.
- 5) It may not benefit regular caffeine consumers at all.
- 6) Caffeine has been shown to be glycogen sparing during the first 20 minutes of exercise. This could benefit runners.
- 7) "Perceived" exertion is reduced for some people. It seems easier...
- 8) Caffeine is a "banned substance" at certain volumes in the blood for NCAA, WADA and many professional organizations. 12mg/liter is the upper limit which is approximately 1000mg caffeine and can be less for some people.

As we look at the vast array of "preworkout" drinks that have been coming out it can be confusing. And there are many new stimulants being introduced that are very powerful. In general any stimulant or ingredient that acts like an caffeine or an amphetamine would be considered a vasoconstrictor. If you feel like you just took a strong stimulant you probably won't be doing your body a favor, nor will you get your best performance in the gym.

Here is a tip to help you decide if you are just getting a stimulant or if you are getting a true "ergogenic aid". Look at how many total grams of ingredients are contained in a full scoop of your preworkout drink. Is it 4 or 5 grams? If it is, you really don't have enough room for some of the true performance enhancing ingredients like arginine (to increase blood flow), creatine (to enhance your explosive energy), beta alanine (to remove lactic acid and improve endurance),

etc. Let's just assume you want a beneficial quantity of each of those ingredients, that have studies to back it up, in your preworkout.

A therapeutic dose of arginine is 3g, creatine is 5g, beta alanine is 3g. If you add up just those ingredients you have 11g of product. That doesn't include any other ingredients that may be listed. So a product with only a few grams in a scoop is mostly a stimulant made to release hormones from your adrenal glands. Continued use of stimulants over time will make less and less impact on your workout as your body becomes fatigued and doesn't respond to the stimulation after a while. Also, the vasoconstriction from those products will not allow you to reach your full potential. More stimulation is not better. It's worse.

Most supplements won't list every ingredient separately. They usually contain a "proprietary blend" and list several ingredients on that line with a milligram amount. Using the rule of thumb above you can get an idea of what companies are giving you what you need versus just a strong stimulant. Also when companies only list a " * " for each line you have no idea what they are putting in because they can put 1 millionth of a particle for that listed ingredient and still meet label claim. I would steer clear of those completely.

I hope this helps you next time you are in the market for a good preworkout drink. If you stop by the store we can show you examples of what I am talking about and help steer you in the right direction.

To your Health, Scott Herkes Owner Max Muscle Quad Cities Certified Sports Nutrition Coach