The Anabolic Pump Protocol: Top 6 Blood Flow Supplements

By David Barr

Let's be honest: getting a big muscle pump looks and feels damn good. But vanity aside, it also has a spectacular side effect…anabolism! If you want to start maximizing your pump *now*, keep reading, because you're about to discover the best supplements for doing just that.

Pump or Pageantry?

We all know that the pump is that amazing, albeit temporary, increase in muscle size we get while training. But what is it and how can we use it to achieve our goals? This muscle-swelling phenomenon is actually a localized increase in muscle blood flow used to deliver more nutrients and clear away waste. To understand why this is a big deal, consider the following:

Greater Nutrient Delivery = Muscle Growth, Recovery, and Strength

Greater Waste Removal = Greater Training Capacity and Strength

Muscle Memory In A Pill?

If you've ever taken a layoff from training then you're probably already familiar with the idea of muscle memory. Upon your return to training, after the requisite muscle shrinkage (atrophy), it becomes far easier to build the muscle back up to its original size –it's as though the muscle "remembered" the larger volume and wanted to get back there.

According to my colleague and training expert Nick Nilsson, one theory behind this experience is the idea of *fascial stretching*. Although an entire article could be written on this topic alone –and in fact Nick has developed a brilliant training manual called Muscle Explosion that covers it in depth- we'll just cover the 3 basics here:

A) Fascia is tough connective tissue that surrounds our muscle

B) This tissue may be "tight" and subsequently restrictive to muscle growth

C) Stretching our fascia could give our muscle room to grow, spurring on anabolism

So not only does the pump look and feel great, we can actually use it to increase our muscle size, strength, recovery, and performance! Because of this, the supplement market has been flooded with products claiming to help you maximize this effect. Now in order to sort through the confusion, let's cover some of the most effective supplements to achieve the anabolic pump.

Key Point: Given the common and erroneous application of patient population data, the supporting research for these products is based on healthy individuals.

1. Fish Oil

Although I'm pretty tight-lipped about explicitly recommending supplements, there's no doubt that if there is one that you should be using, it's fish oil. There's been plenty written on the health benefits of this supplement, so for the sake of this article, all you need to know is that this stuff works –and yes that's intentionally ambiguous.

As far as the muscle pump is concerned, research has shown that the essential fatty acids in fish oil (DHA and EPA) can improve muscle blood flow *during exercise* (16)! This is great for us because, as we've just discussed, that's the exact time when we need the blood flow to be maximized for anabolism.

2. Glycine Propionyl-L-Carnitine

If you're not currently using carnitine, you probably will be by the end of the year. Carnitine is going to be BIG in 2009. I've been writing about carnitine, in the form of Carnitine Tartrate, for a while now for its potential to boost performance and muscle androgen receptor content (1).

But there's a new kid on the block and it has a unique study to support its efficacy. Known as Glycine Propionyl-L-Carnitine (GPLC) (sold under the trade name Glycocarn) this stuff was tested in resistance-trained athletes, which helps make it directly applicable to us! This is a rare find, and any time research is performed using our specific subgroup, we need to pay attention.

During handgrip exercise, similar to high rep resistance training, the GPLC group showed significantly elevated markers of NO production (2). This means that although blood flow wasn't directly measured, it was almost certainly likely stimulated.

In fact, as one of only two supplements that I publicly recommend (neither of which I am paid to discuss), I think you'd be pleasantly surprised with the blood flow improvement from GPLC use.

3. Vitargo

As one of the first, if not the most vocal, champion of pre-workout supplementation, I'm pleased to report that this next supplement is likely the most powerful. Vitargo is a patented carbohydrate extract and a powerful stimulator of insulin (13), which is known to be a key signal for muscle blood flow (3).

In fact, the highest supplemented blood flow recorded to date was due to pre-training carbohydrate and amino acid ingestion (14). Oh, and you may also be interested in the fact that it also resulted in the highest levels of muscle protein synthesis observed following any supplement or food. Not bad, huh.

As a pump supplement, there are three reasons it's important:

i) It enters the blood faster than any carbohydrate available, and subsequently gives a giant insulin spike (13).

ii) It does so quickly enough to prevent any kind of bloating or GI discomfort that accompany other carbs –we know that this is KEY before a set of heavy squats (10, 12, 13).

iii) In spite of the rapid absorption and subsequent insulin spike, there is no blood sugar crash with Vitargo. This may be due to a biphasic response of rapid absorption followed by a steady blood sugar level (10, 13). Whatever the case, ensuring that you don't crash during training (as I hav… I mean, as a friend of mine has done in the past) is another critical benefit.

There are other advantages, like muscle cell volumization and glycogen resynthesis, but this is an article about optimizing the muscle pump so we'll leave it there for now. Again, this is a University research backed product, and I receive no financial compensation for putting my "tell it like it is" reputation on the line with this recommendation. It's a risk well worth taking.

4. Vitamin C

Probably the easiest supplemental way to boost training blood flow is also the cheapest, and most widely available. Vitamin C is widely recognized as a potent antioxidant, and it seems to extend this effect to the nitric oxide (NO) molecule. After all, NO is a great vasodilator, but its also highly reactive and subsequently very short lived. If we could protect our NO in such a way that it would not be broken, and essentially wasted, we're more likely to have it actually do its job i.e. *getting us pumped*.

There are several studies to show that this is in fact what vitamin C does (4, 5, 6)! Now if this doesn't sound good enough, think about the fact that you'll already be increasing NO levels from the other supplements discussed here. If Vitamin C can potentiate their effects we could be looking at a synergistic combination.

5. EGCG

Just like fish oil, green tea is a hot topic right now because of its numerous health benefits (11, 18). The most discussed aspect of green tea is its EGCG content. This powerful substance, known as a catechin, is thought to confer many of the effects of green tea by itself. In fact, infusion of EGCG into arteries has been shown to increase muscle blood flow (9). As you might expect, it did so though NO elevation.

Now we don't have direct data to show that green tea is going to prime your pump, but given its numerous benefits and low cost, there's little doubt that it's a product you want to use.

6. Caffeine

There are a couple of reasons why you may be surprised to see caffeine on this list. Perhaps most notably because it's a drug, not a supplement. Also, for you more science savvy-types, you probably recognize caffeine as a powerful vasoconstrictor –meaning that it actually *reduces* blood flow!

If you're like me and have been wary of the blood flow reduction that accompanies caffeine use, you'll be happy to learn that this effect is overridden by exercise (7, 8, 17). In other words, caffeine may reduce blood flow at rest, but exercise is such a powerful stimulator of NO that there's no negative effect from the drug.

Better yet, caffeine may actually potentiate the effects of other blood flow stimulators! One study showed that caffeine ingestion actually boosted the hyperemic effect brought about via infusion of acetylcholine (15).

This means that in addition to being the most powerful performance booster around, caffeine may also enhance the effects of other blood flow stimulator supplements.

The Anabolic Pump Protocol

1 Hour Pre-Workout

2mg/kg caffeine (beginner), 4mg/kg (intermediate), 6mg/kg (advanced)

10 Minutes Pre-Workout

2g GPLC
35g Vitargo
250mg Vitamin C

Throughout The Day

250mg Vitamin C
4-6 Cups Green Tea
10-15g (high quality) Fish Oil

Conclusions

We know that stimulating the muscle pump isn't just a great feeling; it also serves to maximize anabolism. By using the Anabolic Pump Protocol, you'll be sure to notice a difference in your very next workout!

Raise your expectations. Raise The Barr!

David Barr is widely recognized as an industry innovator and Mythbuster, most recently for his work on developing The Anabolic Index. As a strength coach and scientist, he brings a unique perspective to the areas of diet, supplementation, and training. His research experience includes work for NASA at the Johnson Space Center, as well as studying the effect of protein on muscle growth in the now famous muscle metabolism lab at the Shriner's Burns Institute. He holds certifications with the NSCA as well as USA Track and Field, and is the Official supplement consultant for Super Human Radio. He can be contacted through his website: http://www.RaiseTheBarr.net.

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