

Creatine is BROKEN.. and Your Pre Workout is to Blame.

written by Mike Roberto | January 23, 2015

At this stage in the game, we don't need to tell you that creatine is an incredible supplement. It's one of the most well-researched compounds on the market, it's safe, it's simple, and it's cheap.

But right now, the state of creatine is a *mess*... and **the big brand pre workouts are to blame.**

TL;DR

- **Creatine is great.** There's no easier way to make some gains than taking 3-5g daily.
- But it's **consistently underdosed** in most top-selling pre workout supplements.
 - This has led to too many confused consumers, many of whom are ultimately *not getting enough* of this most staple supplement.
- **Our message to consumers:** bulk creatine is crazy cheap. Make sure you're getting enough each and every day.
- **Our message to supplement brands:** do it *right* or don't do it at all.

This is a rant meant to educate and inspire.

The products that are discussed on this page are ones that we actually use and truly love. So consider this a letter of **tough love.**

Why creatine is great

In case you *aren't* up to speed, below are the reasons why it's so incredible why it's so incredible.

(Click here to skip this section if you already know about creatine and want to cut to the chase.)

- **It's one of the most well researched compounds on the market.**

There are hundreds of studies[1] documenting its beneficial use in almost any fitness context imaginable, delving into every single facet of how it works at the molecular level, and exploring how it interacts with body systems – even those completely unrelated to sports performance. Very few (if any) other

supplements on the market can claim anywhere near the volume of academic attention that creatine has received.

- **It's safe**

Furthermore, creatine has a robust safety profile. Neither acute[2] or chronic[3] studies demonstrate a side effect profile that is statistically significantly different from placebo. There is the occasional case of GI distress, but even those examples are few and far between.

- **It does *NOT* cause kidney issues**

And despite the unfounded wave of criticism of creatine, it does *not* pose a risk to kidney health in healthy individuals.

The real story is that creatine is metabolized into creatinine, elevated levels of which are often used as a *biomarker* for kidney health. What this means is that while creatine won't cause kidney problems, it can lead to a false positive due to increasing creatinine levels.

*In fact, one study even had a subject with only **one** kidney... and he had no issues! [12]*

However, on multiple occasions has still been shown to be safe under long-term consumption, so long as you have healthy kidneys with no pre-existing conditions! [3,10,11]. The studies cited here studied creatine usage from ten months to over five *years!*

In fact, one study even had a subject with only *one* kidney, and they loaded him with 20g of creatine per day for 5 days followed by 5g per day for the next 30 days, and he had no issues! [12]

Needless to say, the numerous studies performed on both humans and rats, sick and healthy, have long since put the creatine kidney question to bed. All that remain are old wives tales.

- **...and it's cheap**

Creatine is also cheap, incredibly cheap. Our top supplement deals page regularly features bulk creatine powder products as cheap as **\$.01/gram**, and is almost *always* available for **\$.015/gram**. At less than 7 cents per day, this makes creatine the single greatest bang for your buck supplement in the entire industry.

Hell, the majority of the cost of a tub of creatine isn't even the creatine itself! Putting creatine in a shipping container, sending it to a manufacturer, bottling it, and slapping a label on it is the majority of the cost of a straight pure creatine product.

This is actually part of the problem we're about to dig into – more on that later.

So what's the *real* problem we have here?

Creatine works – but the dose in your preworkout probably doesn't

But you didn't come here to hear about why creatine is awesome, you already knew that. You're here because we told you that your creatine supplement is broken, so let's get on to the main event.

The broken thing about your creatine supplement is that it's far too often **underdosed**.

We mentioned the enormity of scientific work on creatine earlier, and want to point out something almost all of those studies have in common, so here's some excerpts from just a few studies:

Notice a trend in these successful studies:

- *“For 6 days the creatine group (n=12) ingested **5g** creatine monohydrate”*[4]
- *“Nineteen swimmers in the experimental group received creatine monohydrate **5g** with orange solution 15g, twice per day for 7 days”*[5]
- *“Subjects were randomly assigned to one of the following groups: PRE-SUPP or POST-SUPP workout supplementation of creatine (**5 grams**).”*[6]
- *“Creatine monohydrate (**10g** daily for 5 days to **5g** daily for 5 days)”*[7]
- *“The Cre group ingested **15g/day** of CrM for 7 days and **3g/day** for the remaining 49 days”*[8]

What do all of these studies have in common? **Significant dosing!**

We're talking 5g/day for the non-loading studies, or even 3g/day after being

loaded with a whopping 15 grams a day to start.

Additionally, lets see what the most esteemed academic group on the subject of sports nutrition, *ISSN*, has to say about creatine dosing in their official position stand on creatine supplementation:

*“The quickest method of increasing muscle creatine stores appears to be to consume **~0.3 grams/kg/day** of creatine monohydrate for at least 3 days followed by **3–5 g/d** thereafter to maintain elevated stores. Ingesting smaller amounts of creatine monohydrate (e.g., 2–3 g/d) will increase muscle creatine stores over a 3–4 week period, however, the performance effects of this method of supplementation are less supported.”[9]*

–ISSN, International Society Of Sports Nutrition

Again, the academic consensus appears to be that you need **3 to 5 grams per day**.

And then there's the loading debate..

Additionally, they advocate for the loading period. Now, the loading period has been subject of some level of controversy over the years, with many people pointing out how it's unnecessary and provides no appreciable benefit other than convincing you to buy more creatine.

...but creatine is so cheap the debate is no longer important

Since creatine's as cheap as it is now, loading your creatine is worth considering if you're just starting out and want to replicate the success of the aforementioned studies.

*Not because the **molecule is broken** (it very much isn't), but because the **creatine market** has been broken by **underdosed pre workouts** and **lack of consumer education***

Taking 10-20g/day for a the first week you start is only going to cost you a couple bucks. It should saturate your creatine stores quicker and help you start seeing improved gains sooner.

So what's in your popular pre workout?

Now that we've got that settled, lets take a look at the creatine content of some of the top selling preworkout products on the market today. Again, this

isn't meant to be some huge call out or insult to these companies, these products sell extremely well for a reason and are generally made by good people:

Note: The following list is now out of date, but the products discussed below are still great examples

- **Cellucor C4 Extreme and the New Cellucor C4 Formula**



We love it, but this top seller has possibly led to more creatine confusion than any other product. Relevant forum threads are cited below.

1g Creatine Nitrate (which is about 675mg of creatine) per serving.[13]
There's a two serving max recommended dose, so **1.35 grams of creatine** per max recommended serving.

Interestingly, the C4 Sport version that's sold only at Wal-Mart has a legit dose of creatine, so it could be reasonably argued that Cellucor's Wal-Mart customers are actually going to end up with better gains than their *core* customers at supplement retailers worldwide!

- **MusclePharm Assault**

1g Creatine Nitrate per serving. Most people aren't taking more than 1 scoop of this, that leaves just **675mg of creatine** per workout.

- **ProSupps Mr Hyde**

1 gram of creatine per scoop, and it has a staggering 419mg of caffeine per scoop in it, so taking more than one scoop isn't really much of a good idea.

- **EVL Nutrition ENGN**

1.25g per scoop, 2 scoop max dose, **2.5 grams of creatine** per max serving. Close... if you can handle that level of stimulants!

- **Labrada PE-1**

Supplement Facts		
Serving Size: 1 scoop (~6.5g)		
Servings Per Container: 30		
	Amount Per Serving	% DV**
Calories	5	
Total Carbohydrate	1 g	<1%**
Vitamin A	400 I.U.	8%
Vitamin C	100 mg	167%
Niacin (as Niacinamide)	20 mg	100%
Folic Acid	250 mcg	63%
Vitamin B12	10 mcg	166%
Calcium	20 mg	2%
Beta-Alanine (as CarnoSyn®)	1635 mg	†
Performance-Enhancing (PE1™) Pump & Recovery Complex	1634 mg	†
Citrulline Nitrate (NO3-T™), Arginine AKG, Arginine Sulfate, Creatine Monohydrate (Creapure®) ?!?		
Performance-Enhancing (PE1™) Energy Complex	344 mg	†
Caffeine Anhydrous (154mg), Vitamin C (as Ascorbic Acid), Bitter Orange (Citrus aurantium) (Fruit) (30% Synephrine) (Advantra Z®), Niacin, Yohimbe Bark Extract (10% Yohimbine), Folate (as Folic Acid), Vitamin B12 (as Cyanocobalamin)		

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

Other Ingredients: Natural Flavors, Citric Acid, Calcium Silicate, Silicon Dioxide, Sucralose, Beet Root Powder (color), Acesulfame Potassium.

Seriously?

Another fully blended product, this time 6.5 grams per scoop, with creatine *last* in a sub-blend of four ingredients that contains 1,634mg of ingredients.

This means that due to label laws, the absolute *maximum* amount of creatine that could be in a serving of PE-1 is a mere **408mg of creatine** – but it’s likely less than that!

When you compare these doses to those used in clinical trials, most of these

products aren't even close, and these represent some of the best-selling pre workouts on the market!

To make matters worse, there's the matter of off-days, where a pre workout is typically not taken.

So why the heck do companies even bother including ineffective doses of creatine in their products when it is incredibly cheap, and incredibly useful?

Down the rabbit hole we go...

What's the big deal? Just add more!

Many consumers have read informative articles about creatine in magazines, blogs, or posts on forums, and have *some* level of quality knowledge on how much creatine you need.

Those consumers aren't who we're worried about – if you're on this page, chances are you're one of them. Most of you see the amount of creatine in a product and just dump a spoonful of extra bulk creatine into your preworkout drink and you're done with it.

It's not the well-read consumers who are missing out

The fuss is for all of the naive brick and mortar store consumers, teenagers, and novices who are new to supplements and exercise.

This group of people thinks *"oh hey, it's on the label, it must be a good ingredient and I'm set for the day"*. They might see an ad for creatine and think *"oh, I saw that on my preworkout label, I guess I've already got my creatine covered."*

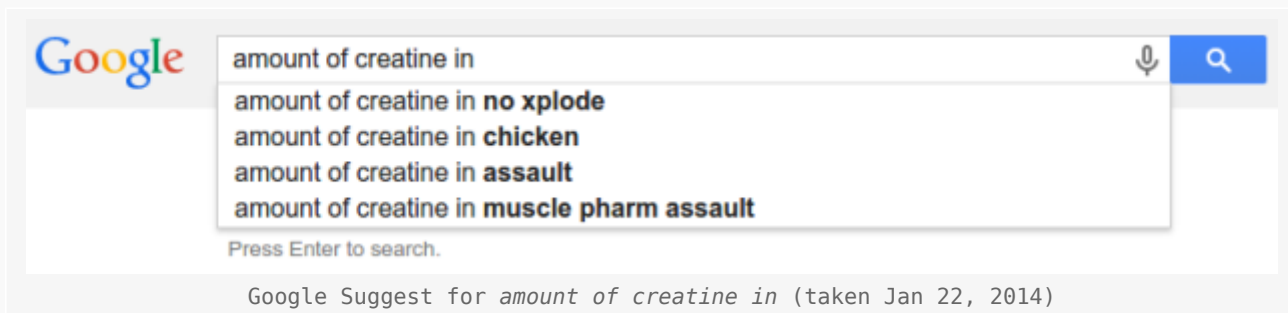
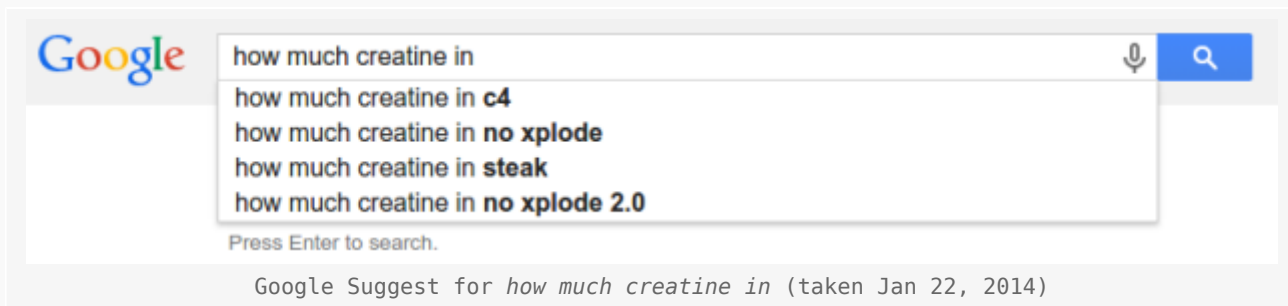
And therein lies the problem. **The users who could use it the most** are *less* likely to buy separate creatine – it's already in their mass-market preworkout (quite easily one of those listed above) – and they don't know any better, nor is anyone educating them!

They're essentially giving up cheap and easy gains because they've been lulled into a false sense of security.

Confused customers for no good reason

Don't believe it? Go look at any supplement discussion forum and you'll see just how right we are.[14,15,16,17,18]

Google suggests a similar situation:



Underdosing creatine or putting it into a proprietary blend simply creates confusion amongst users.

Above, even some of those asking above are intermediate-level lifters, trying to figure out what's going on. Consider how many people *didn't* care to get on a forum, or didn't even *realize* they weren't getting a good dose!

The last thing the supplement industry should be doing is confusing the hell out of their new and hopefully eventually repeat customers – especially when it's the most effective and one of the cheapest ingredients on the market!

So why is this happening?

As we've said a couple of times, bulk creatine is cheap, so it's not like you're being shortchanged on it because your supplement manufacturer wants to save 10 cents per tub on creatine. But we've got a explanations of what's at play here:

1. Cheap concentrates and real estate



**DO IT RIGHT
OR DON'T DO IT
AT ALL**

Our overall feelings in less than 10 words

Creatine might be cheap, but most preworkouts these days are ‘concentrated’ small scoop products, and in a 5 gram scoop, putting 3g of creatine in is just too much real estate to invest.

This is an entirely valid point, but it begs the question of *why include creatine at all if you’re not going to include an effective dose?*

2. Marketing recognition

Because **everyone recognizes creatine**, and products with it seem to sell better than products without.

Teenagers, casual exercisers, and people that are generally naive about supplements see creatine on the label and think ‘oh yeah, I’ve heard about creatine, awesome, this product includes it’.

It’s not about putting in effective doses of creatine, it’s about just getting it on the label for recognition purposes. Look no further than the Labrada PE-1 product above to see this in action.

3. Upselling opportunities (creatine products)

Companies want to sell you another ‘creatine’ product in addition to your preworkout. The economics of the supplement market are changing. People want to buy cheaper preworkout products so in today’s market, concentrates are king.

If you look at the random sampling of products we listed before, you’ll conveniently find an add on creatine SKU in most of their product lines

(Cellucor Cor-Performance Creatine, MusclePharm Creatine). Companies know if they can convince people to buy one product (their preworkout), then it makes those people far more likely to buy their other products (their creatine).

Unfortunately, the sales volume of something like Cor-Performance Creatine aren't even in the same ballpark as the volume of C4, so this add-on approach clearly isn't reaching most consumers.

If they made it clear on their products that you should be taking additional creatine, this wouldn't really be a problem. But most of them don't, leaving uninformed buyers in the dark about the fact that they aren't taking enough creatine!

So how many people out there are only getting 1-1.5g creatine per workout day, if that?



4. More upselling (platform sales)

And finally, there's some companies that break up their creatine dose between numerous peri-workout products. With a gram or two each in their pre, intra, and post workout products.

If you ask them about how much creatine is in their preworkout, they'll just refer you to their other products in hopes you buy more.

We're really not a big fan of this practice, companies shouldn't be trying to

force brand loyalty by making you buy 2-3 full formula products just to get a full dose of seven cents worth of creatine.

And at this point, you can see that *creatine is broken*.

Not because the *molecule* is broken (it very much isn't), but because the creatine *market* has been broken by underdosed pre workouts, lack of consumer education, and a new unwillingness to buy separate creatine products, as cheap as they are.

It's not the end of the world, but it sure is a lame way to limit a beginner's gains. And those beginner gains are what got most of us hooked here in the first place!

So who's doing it right?

Alright, we've done our fair share of complaining about people doing it wrong, time to give you some product recommendations for top ranked preworkouts that aren't afraid to sell you a product loaded with *fully* dosed creatine.

- **NutraBio Pre Workout**

Supplement Facts

Serving size: 1 scoop (28.70 grams)
Servings per container: 20

	Amount Per Serving	% DV
Vitamin C (as ascorbic acid USP)	150mg	250%*
Vitamin B3 (as niacin)	30mg	150%*
Vitamin B6 (as pyridoxine HCl)	50mg	2500%*
Vitamin B12 (as methylcobalamin)	150mcg	2500%*
Calcium (Calci-K®)	95mg	10%*
Phosphorus (Calci-K®)	89mg	8%*
Magnesium (Creatine MagnaPower®)	40mg	10%*
Sodium	60mg	2%*
Potassium (Calci-K®)	80mg	2%*
Power, Strength & Endurance Complex (14.4g)		
L-Leucine (naturally fermented - vegan)	3.5g	†
CarnoSyn® Beta-Alanine (HPLC)	3.2g	†
PharmaPure™ Creatine Monohydrate (micronized, HPLC)	3g	†
Betaine Anhydrous (trimethylglycine, HPLC)	2.5g	†
DL Malic Acid	1.7g	†
Creatine MagnaPower® (Magnesium Creatine Chelate)	500mg	†
Nitric Oxide Pump Matrix (7.75g)		
L-Citrulline (fermented) (Kyowa Quality™)	6g	†
Agmatine Sulfate	1g	†
Nitrosigine® (inositol-stabilized arginine silicate)	750mg	†
Focus & Stim Matrix (2.65g)		
L-Tyrosine (HPLC)	1.5g	†
Choline Bitartrate (VitaCholine®)	500mg	†
Caffeine	350mg	†
Caffeine Anhydrous (HPLC) (250mg)		
Infinergy™ (as 133mg di-caffeine malate yielding 100mg caffeine)		
TheaPure™ L-Theanine (HPLC)	300mg	†
Huperzine A (from 10mg huperzia serrata leaf standardized extract)	100mcg	†
Electrolyte & Hydration Optimizer (2.71g)		
Taurine (HPLC)	2g	†
Calcium Potassium Phosphate Citrate (Calci-K®)	525mg	†
Sodium Phosphate	189mg	†

* Percent Daily Values (DV) are based on a 2000 calorie diet.

† Daily value (DV) not established.

Other Ingredients: Flavoring (natural & artificial flavors 575mg, sucralose 220mg, acesulfame potassium 30mg), Spirulina 50mg (color).

Behold the NutraBio PRE Workout Ingredients – v5! You may even be able to get *two* solid workouts out of this packet!

NutraBio PRE Workout – Deals and Price Drop Alerts

Get Price Alerts

Get PRE Workout Price Alerts
Get NutraBio alerts
Get Pre Workout Supplements price drops

Also get hot deal alerts

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Label above. Enough said!

• MTS Clash

No rant would be complete without finding a way to involve Marc Lobliner! His cult-favorite pre workout supplement, *Clash*, has had five grams of creatine since the beginning.

Note that this is with *two* scoops, which brings the caffeine level to a reasonable 250mg. At two scoops per workout, you'd be left with 20 workouts per tub.



We didn't talk to Marc aobu this blog post, but we're pretty confident he's got an opinion on the subject. But **actions speak louder than words**, and class has a full 5g creatine per 250mg-caffeine-dose serving.

MTS Nutrition Clash – Deals and Price Drop Alerts

Get Price Alerts

Get Clash Price Alerts Get MTS Nutrition alerts Get Pre Workout Supplements price drops

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• Optimum Nutrition Gold Standard Pre Workout

A very recent foray into the preworkout game by ON, this product has 3 grams per scoop, with a max serving of 2 scoops. That means you're getting **3-6 grams** of creatine per workout, right in line with what you want.

Optimum Nutrition Gold Standard Pre Workout – Deals and Price Drop Alerts

Get Price Alerts

Get Gold Standard Pre Workout Price Alerts Get Optimum Nutrition alerts Get Pre Workout Supplements price drops

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Want to keep your underdosed concentrate? Just add bulk creatine

If you like the preworkout you're already taking, but it's either underdosed with creatine, or omits it entirely, you're in luck. Quite a few companies sell large containers of standalone creatine at very affordable prices.

Here's a few examples from reliable companies:

- **NutraBio Creatine Monohydrate**

The only one you'll find in sports nutrition (as of time of updating this post in 2019) that actually publishes third-party lab tests!



NutraBio Creatine Monohydrate – Deals and Price Drop Alerts

Get Price Alerts

Get Creatine Monohydrate Price Alerts
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- **Optimum Nutrition Micronized Creatine**



Optimum Nutrition is one of the biggest companies in the industry, and while their standalone creatine isn't as cheap as some of the others, they are virtually never out of stock, 100% trusted, and available on pretty much every supplement website.

Optimum Nutrition Micronized Creatine Monohydrate – Deals and Price Drop Alerts

Get Price Alerts

Get Micronized Creatine Monohydrate Price Alerts Get Optimum Nutrition alerts Get Creatine Monohydrate price drops

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If you wait to buy one of the above products on sale in a 1000g container, you can sign up for price drop alerts and find yourself close to a *year's* worth of creatine for nearly \$10.

But even at regular prices, if you're buying a preworkout, protein, and/or other supplements every month anyway, you've got almost nothing to lose adding a creatine product to your supplement mix.

Do it right, or...

To sum up our feelings, it's gotten to the point where we feel that a company should either do it *right* (like the products listed above), or not do it at all.

Our **Top 10 Pre Workout Supplements** list has many well-dosed ones. There are

dozens of others, so take a look at your situation, and ask yourself, “Am I getting at least 3g per day? What about off days?”

The industry’s double-standard

One last note. We find it interesting that nearly *no* stimulant-free pre workout pump supplements contain any creatine. This is a growingly popular category, and these pump products are almost *always* geared towards the muscle-building market.

So why isn’t creatine in the stim-free products that are universally marketed towards those who’d actually use the ingredient, while so many concentrates marketed for “everyone” do get underdosed creatine?

The answer to that question might be the rationale for this whole mess.

Our guess is this: On top of the upsells mentioned above, it comes from a form of laziness. Rather than *educate* the average consumer on why they should get efficacious amounts, some brands lazily figured, “*Oh, these people aren’t going to buy bulk creatine, so ~1g is better than nothing.*”

And while that may be “correct”, but that doesn’t make it **right**.

Long story short.

If nothing else, it might be time to go get a cheap tub. \$15 worth will last you the majority of the year, and creatine is simply too good and too cheap to half-ass.

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