

#### Creatine: The latest info on Creatine

Creatine supplementation provides an extensive list of well known benefits which include improving explosive bouts of exercise, decreasing myostatin levels and increasing muscle mass without side effects when taken properly.†

However, there is a lot to creatine that you may not be aware of. If you've heard of myostatin, then you know that it is a protein in the body discovered in 1997 that is responsible for regulating muscle growth by inhibiting it. Based on genetics, there are myostatin levels that vary from person to person that can cause one to be a world class bodybuilder and another a hard gainer.

Everyone knew that creatine helped to increase strength, but was the increase in strength what lead to the gains in muscle? Or was it something else? Researchers from Tarbiat Modares University discovered that when combined with resistance training, creatine actually helped to inhibit serum levels of myostatin! This research comes as somewhat of a surprise, but the reason it was quickly accepted by many is that myostatin also worked by inhibiting satellite cell formation. And back in 2000, researchers from the University of Wisconsin Medical School discovered that creatine does the exact opposite of that. Satellite cells are myogenic cells responsible for postnatal growth and regeneration of skeletal muscle. Stimulating these cells through training and supplementation is of the upmost importance for lifters looking to build muscle.

Another important capability of creatine is its effect on recovery from high intensity exercise. You've heard of bodybuilders neglecting the use of creatine in the past because they weren't lifting for strength or power. They felt creatine was only effective

for increasing strength (which as you've read so far, is only part of what creatine does) and it had no place in their 8-12 rep, high intensity bodybuilding program. It has long been tradition in many bodybuilding programs to use short rest periods, and because creatine takes upwards of 2 minutes to regenerate, some ill informed bodybuilders have not seen it as a necessary supplement in their regimen.

Well research begs to differ; high intensity anaerobic exercise is notorious for depleting muscle glycogen because carbohydrates are the main source of fuel for high intensity activities. Bodybuilders consume carbohydrates post exercise along with their protein to refill their muscles depleted stores of carbohydrates so they can return to the gym and lift with the same intensity. Bodybuilders may notice however that when they do heavy multi-joint lifts (like the squat, or the deadlift), or they lift at a slower pace, it takes them longer to recover. This is a result of the eccentric (lowering portion) phase of the lift which causes more muscle damage and inflammation; many experienced lifters know this already, what they may not know is that eccentric exercise also impairs glycogen replenishment!

Yet low and behold researchers from the Exercise Physiology and Biomechanics Laboratory of Katholieke Universiteit Leuven in Belgium discovered that supplementing with creatine helps preserve muscle glycogen by increasing creatine utilization during exercise (the researchers used 5g of creatine a day with no loading phase). In case you were wondering if creatine cycling was a real issue, the researchers found out the hard way as the increase in muscle glycogen they noted vanished after 5 weeks despite continued creatine supplementation. So cycling on and off creatine during your training cycles is still a good idea.

† These statements have not been evaluated by the FDA. This product is not intended to diagnose, treat, cure or prevent any disease.

KEEP OUT OF REACH OF CHILDREN. STORE IN A COOL DRY PLACE.



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14620 NW 60th Ave., Miami Lakes, FL 33014

Toll-free: 800-443-4153 • Phone: 305-593-9296 • Fax: 202-449-8275  
www.betancourtnutrition.com



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**REDUCES MYOSTATIN FOR TRIGGERING MUSCLE GROWTH†**

**POWDER  
DIETARY SUPPLEMENT**

**Net WT. 1.16lbs  
(525 G)  
105 Servings**

#### SUPPLEMENT FACTS

Serving Size: 1 scoop (5g)  
Servings Per Container: 105

Amount Per Serving	%Daily Value*
Creatine Monohydrate	5 g **

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

#### Recommended Usage:

Mix 5 grams of Creatine Micronized with water or juice either with a meal, post-workout, or pre-workout. Continue the use of Creatine on non-training days as well to maintain muscle saturation. Creatine levels will decline and return to normal after 30 days. Creatine supplementation is also important for the elderly to support lean mass and functional strength.

#### Loading & Cycling:

If you're an athlete or advanced lifter who is interested in loading creatine to increase phosphate levels quickly, use 20 grams (4 servings) a day for the first 4-5 days. Discontinue use after 4 weeks, and repeat after at least 4 weeks of discontinued use. Creatine effectiveness plateaus after 4-5 weeks of continuous use.

#### Warning:

If you are pregnant, nursing or taking any medications, consult your doctor before use. Discontinue use and consult your doctor if any adverse reactions occur.

Keep out of reach of children.

**8-57487-00328**

#### BENEFITS OF CREATINE SUPPLEMENTATION

- Increase muscle mass by stimulating satellite cells (satellite cells are 'blank' cells that aid in tissue regeneration).†
- Increase strength by elevating creatine phosphate levels.† The elevation of creatine phosphate leads to an increase in the formation of ATP, which is nature's natural energy source.
- Reduce fatigue and promote exercise recovery by reducing muscle glycogen depletion.† The higher the availability of creatine in the body, less muscle glycogen is necessary during intense strength training exercises.
- Increase muscle volume†: increased intramuscular creatine stores draw water to properly hydrate muscle and improve muscle volume.

#### FALLACIES OF CREATINE SUPPLEMENTATION

Creatine is not good for outdoor sports; this is contradictory to the research. It is normally thought that creatine can lead to dehydration and muscular cramping. However, there isn't a research proven link between cramping during athletic events and creatine use. What research has shown however is that increased hydration levels in muscle lead to your body's ability to handle higher outdoor training levels. While it is true that your water requirement will go up due to increased intramuscular water, water has the ability to regulate temperature which will be to your advantage during outdoor activities. Creatine will also aid in boosting sports performance.

**ENHANCE ATHLETIC PERFORMANCE & INCREASE ATP†**