

REFERENCES

1. Rania L. Dempsey, Michael R. Mazzone, Linda N. Meurer. *Journal of Family Practice*. Nov 2002 v51 i11 p945(7).
2. M. Daniel Becque, John D. Lochmann, Donald R. Melrose. *Medicine and Science in Sports and Exercise*. March 2000 v32 i3 p654(5).
3. Hyunchul Cho, Junhi Kim, Hankyung Lee, Seungyun Shin, Jongdae Yoon, Haglyeol Kim. *Research Quarterly for Exercise and Sport*. March 2001 v72 i1 pA-19.
4. Andrea Brose, Gianni Parise, Mark A. Tarnopolsky. *The Journals of gerontology, Series A*. Jan 2003 v58 i1 p11(9).
5. Anna Casey, Paul L. Greenhaff. *American Journal of Clinical Nutrition*. August 2000 v72 i2 p607S.
6. Jeffrey J. Brault, Ronald L. Terjung. *The American Journal of Physiology*. June 2003 v284 i6 pC1481(9).

CREATINE SUPPLEMENTATION BENEFITS

- Increased energy
- Enhances muscle size and strength
- Increased power output
- Increases muscular endurance
- Helps boost muscle cell volume



ROBERT SUTTON

Highland Games
Champion

"I've been using supplements for over 10 years and John Scott's Nitro is by far the best group of performance enhancing products I have ever found. Their effectiveness is unparalleled. Their quality is unwavering... and their value is unmatched."

CREATINE Micronized

Micronized Creatine by John Scott's Nitro® contains pure pharmaceutical grade, crystalline Creatine Monohydrate which has been micronized for increased surface area so the body can absorb it faster and more efficiently. Over 300 scientific studies show that supplementation with creatine monohydrate is a safe and effective way for active men and women to increase their strength and endurance. Research shows taking creatine monohydrate several times daily increases muscle stores of creatine phosphates by as much as 50%. Therefore, muscle power is maintained at a higher level for a longer length of time. This can result in significantly greater workout intensity levels and increased athletic performance.

Micronized Creatine is HPLC tested to insure a minimum 99% purity.

Supplement Facts

Serving Size: 1 heaping teaspoon (5g)
Servings per container: 100

| | Amount / Serving | %DV |
|--------------------------------------|------------------|-----|
| Micronized Pure Creatine Monohydrate | 5g | * |

* Daily Value Not Established

Suggested Use: Mix one serving into juice or water 30 minutes prior to and an additional serving immediately after physical activity.

Bodyweight 100 - 150 lbs. = mix one teaspoon (approximately 3g) in juice or water 30 minutes before and immediately after physical activity.

Bodyweight more than 151 lbs. = mix one heaping teaspoon (approximately 5g) in juice or water 30 minutes before and immediately after physical activity.

Consult your physician before starting any exercise program.

Stacking Option: To accelerate muscle growth and recovery, stack with **Micronized Glutamine™** and **GH™**.

* These statements have not been evaluated by the FDA.
The product is not intended to treat, cure or prevent disease.

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Micronized Creatine

Increase Strength

300% Better Absorption

Enhance Muscle Endurance

Promotes Lean Muscle Growth



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by **John Scott, CISSN, CNS, SPN**
Developer of John Scott's Nitro

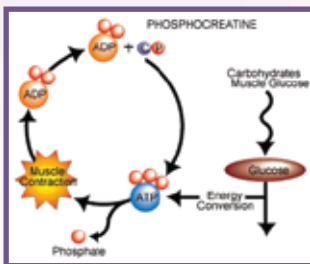
"I understand what an athlete needs because I am one."

SCIENCE PROVES CREATINE IMPROVES STRENGTH & PERFORMANCE

Creatine has become one of the most studied nutritional compounds ever. This immense body of research generally agrees that creatine supplementation is both safe and effective for improving muscular strength and power endurance. This research also suggests creatine supplementation may enhance strength and athletic performance in at least two ways; it enhances muscle power output during exercise and also helps boost ATP re-synthesis.

WHAT IS CREATINE AND ATP?

The body synthesizes creatine from the amino acids arginine, glycine, and methionine. Creatine is stored in the human body as creatine phosphate (CP), also known as phosphocreatine. CP is used to synthesize the high energy compound ATP (Adenosine TriPhosphate) from ADP (Adenosine DiPhosphate) by donating a phosphate molecule. ATP is the anaerobic compound the muscles use to fuel muscle contraction / work. The energy is created to fuel the contractions by breaking the chemical bond between two of the three creatine phosphate molecules. The resulting diphosphate molecule is re-synthesized into a triphosphate by attaching another creatine phosphate back to it in a cyclical pattern. The average person's body contains approximately 120 grams of creatine stored as creatine phosphate. Certain foods, such as beef, herring and salmon, are fairly high in creatine. However, a person would have to literally eat several pounds of these foods everyday to equal what one could obtain from just a single teaspoon of powdered creatine. Creatine is commonly commercially available in the form creatine monohydrate. The vast majority of research to date has been performed using creatine in monohydrate form. These studies, as stated before, have shown it to have positive effects on muscle mass, strength and performance. Creatine monohydrate is believed to have a very high absorption rate of over 90%, making it easy to study.



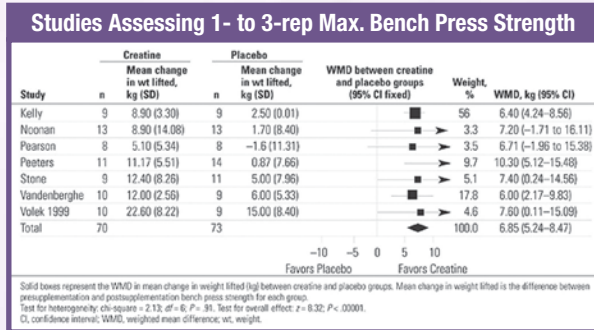
WHY DOES CREATINE IMPROVE STRENGTH & PERFORMANCE?

A greater stock pile of CP means ATP can be recharged faster. Therefore, more work can be performed. This is why creatine has been so successful for athletes. This is especially true for people who perform short-duration explosive sports, such as sprinting or weight lifting. In other words, any intense anaerobic exercise stresses the ATP energy system. The research confirms this hypothesis and has shown that oral supplementation of creatine can increase the total body pool of CP, leading to greater generation of energy for anaerobic forms of exercise.

THE RESEARCH

Perhaps the most compelling research was a meta analysis published in the "Journal of Family Practice" of sixteen original studies to determine if oral creatine supplementation improves strength.¹ The conclusion was a resounding yes. This was a very comprehensive study which reviewed over 500 research articles to pick sixteen that met the strict criteria for controlled clinical trials. This carefully performed analysis showed that creatine improved absolute strength in the following measurements:

- The creatine supplemented group showed an increase in 1-3 repetition maximum bench press strength that was 6.85kg greater than the placebo group.
- The creatine supplemented group showed an increase in 1 rep maximum squat strength that was 9.76kg greater than the placebo group.
- The creatine supplemented group showed an increase in skeletal muscle creatine concentration by 16-50%.



A correlation can be inferred from this that the increase in skeletal muscle creatine concentration may be directly proportional to the greater strength levels. It also suggests that the greater the amount of muscle or muscle groups involved, the greater the overall strength increase over the non-

supplemented group. This is evidenced by the fact that the squat, which involves a much greater amount of muscle or muscle groups versus the bench press, resulted in a 42% greater increase in strength.

There are myriad studies that show similar results that creatine improves strength and athletic performance. This increase in strength happens very quickly as well. Most studies found this increase occurred after as little as four to six weeks. For example, a six-week study published in *Medicine and Science in Sports and Exercise* (2000) showed that creatine supplementation led to greater arm flexor strength versus just strength training alone.²

The effects of creatine supplementation may reach beyond just strength increases. A study published in the *Research Quarterly for Exercise and Sport* (2001) showed creatine supplementation of 0.3 g/kg/day had a positive effect on anaerobic power and improved blood indicators of fatigue (blood lactate and ammonia diminished significantly). The positive effects were found in both the everyday supplemented group as well as the two day interval group. This may suggest that creatine supplementation could have a lingering and possibly cumulative beneficial effect on skeletal muscle creatine concentrations.³

Another study published in *The Journals of Gerontology* (2003) concluded that creatine supplementation significantly increased several markers of strength such as isometric knee extension, handgrip, dorsiflexion and others in resistance-trained individuals versus just training alone. However, this study also showed that total and fat free mass increased as well in the creatine-supplemented group versus the placebo group. This suggests that creatine supplementation may enhance lean muscle growth. This could possibly be attributed to creatine having both an anabolic and anti-catabolic effect.⁴

One study published in the *American Journal of Clinical Nutrition* suggested that creatine supplementation might enhance athletic performance due to an improvement in ATP resynthesis during exercise as a consequence of the increased phosphocreatine availability. This study also suggested that creatine uptake may be further improved when creatine supplementation is combined with carbohydrate ingestion. The study also found that there is a point of diminishing returns, where additional creatine intake (20grams/day versus 30grams/day) did not result in any greater of an increase in performance.⁵

SUMMARY

These results unanimously agree that creatine supplementation has many beneficial effects including increased strength or anaerobic power, improved lean muscle mass, reduced fatigue and enhanced recovery. However, these studies also suggest that an optimal dose provides the maximal result rather than a mega dose. Furthermore, the addition of carbohydrates with the creatine ingestion may further enhance creatine uptake, improving skeletal muscle creatine concentrations.⁶ Therefore, creatine is without a doubt, beneficial for athletes for improving strength and performance.