

# What Creatine Can Do For You

## Fuller, Harder Muscles

Creatine increases the amount of fluid retained inside your muscle cells-not outside.<sup>1</sup> The result? More fluid inside muscle cells makes your muscles feel fuller and gives you a harder, more defined look. You don't gain fluid outside the muscle cells which would give your physique a softer, puffy look. Creatine also enhances your body's ability to make proteins within muscle fibers by stimulating the uptake of amino acids.<sup>2</sup> Your muscle-fiber thickness increases, so you pack on more mass.

## Less Body Fat

Creatine can indirectly help you lose body fat. For every pound of lean muscle you gain, you'll burn an additional 16 calories per day. Unless you eat more to compensate, you'll lose fat as your body uses the calories in your stored body fat for energy.

- **A survey of creatine users found that 34% experienced BOTH a reduction in their body-fat level and an increase in definition or vascularity<sup>3</sup>**

## Bigger Muscles, Faster

Creatine supplementation can speed your muscle growth by boosting the resynthesis rate of ATP. Your body uses ATP to power intense muscular movement. So you can train your muscles harder and longer, and build more muscle in less time.

- **A study at the University of Texas Southwestern Medical Center found that when 8 weight-trained men took 20 grams of creatine per day for four weeks, their muscle mass increased by an average of 3.5 pounds.<sup>4</sup>**

## Greater strength and power

Creatine can prolong the amount of time your body remains in the ATP-CP cycle before reaching muscular failure. More intense workouts mean you can finally break through plateaus.

- **In the University of Texas study mentioned earlier, the athletes added 18 pounds to their one-repetition bench press, going from an average of 278 to 296 pounds in just one month. They also went from 11 to 15 repetitions lifting a weight that was 70% of their one-repetition maximum.**

## Not Just for Bodybuilders Anymore

For years, bodybuilders have known how creatine can help build muscle. If you play football, basketball, tennis, volleyball, racquetball, box, throw the discus or javelin, row or swim, creatine can enhance your performance, too.<sup>7,8,9</sup> Creatine can help you perform better in any sport requiring short bursts of concentrated power.

## Achieve Maximum Results

Your muscles absorb nutrients at a greater rate during the

hours after a workout, so take part of your creatine right after you exercise. Another good time is an hour before your workout.

Take creatine in 5 gram doses to maximize absorption. Using pure creatine monohydrate, this is about 1 rounded teaspoon. The minimum you should take is one 5 gram dose right after exercise. Many find it beneficial to use a "loading phase," during which you take 20-30 grams per day (in 5 gram doses spread through the day) for one week, then cut back to a maintenance level of 5-15 grams per day for 4 to 5 weeks. Others prefer simply taking a consistent 15-25 grams per day.<sup>4</sup>

Studies show you'll achieve the maximum benefits by taking creatine with some form of carbohydrate.

Carbohydrates stimulate your body to produce insulin, which is part of the transport mechanism used to carry creatine into your muscle cells. The most common practice is to mix pure creatine monohydrate with sugar like that found in grape juice. Only about a tablespoon of grape juice is needed with each dose to gain this benefit.

- **A study at Queen's Medical Center in England found that creatine concentrations in muscle increased by 36% when the athletes added 93 grams of glucose and simple sugar to the 20 grams of creatine they took each day.**

For the best results, be sure to drink plenty of water while taking creatine. Since creatine increases the fluids retained in muscle, you will need more water to stay hydrated. A good target is one quart of water per 50 pounds of body weight. That's about one gallon per day if you weigh 200 pounds, 3 quarts if you weigh 150, or 2 quarts if you weigh 100 pounds. There are many other health benefits to drinking more water, but that's another article!

### Sources:

1. Fitch, c. & Shields, R. "Creatine metabolism in skeletal muscle." *Journal of Biological Chemistry*; 241(15): 3611-3614, 1986.
2. Ingwall, J. "creatine and the control of muscle-specific protein synthesis in cardiac and skeletal muscle." *94 circulatory Research*; 38: 11S-122, 1976.
3. Sahelian, R. & Tuttle, D. *creatine: Nature's Muscle Builder*. Garden city Park, New York: Avery Publishing Group; pp. 34, 88, 1998.
4. Earnest, C. et al. "The effect of creatine monohydrate ingestion on anaerobic power indices, muscular strength and body composition." *Acta Physiologica Scandinavica*; 163:2207-2209, 1995.
5. Earnest, C. et al. op. cit. 6.
6. Birch, R. et al. "The influence of dietary creatine supplementation on performance during repeated bouts of maximal isokinetic cycling in man." *European Journal of Applied Physiology*; 69: 268-270, 1994.
7. volek, J. et al. 91Creatine supplementation enhances muscular performance during high-intensity resistance exercise. *94 Journal of the American Oletetic Association*; 97: 765-770, 1997.
8. Harris, R. et al. "The effect of oral creatine supplementation on running performance during maximal short-term exercise in man." *Journal of Physiology*; 467: 74P, 1993.
9. Rossiter, H. et al. 91The effect of oral creatine supplementation on the 1-rm performance of competitive rowers." *Journal of Sports Science*; 14: 175-179, 1996.
10. Green, A. et al. "Carbohydrate ingestion augments creatine retention during creatine feeding in humans." *Acta Physiologica Scandinavica*; 158:195-202, 1996.
11. Harris, R.C., et al. "Elevation of creatine in resting and exercised muscle of normal subjects by creatine supplementation." *Clinical Science*; 83: 367-374, 1992.