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Supplement safety questioned

BY MATT BRZYCKI

One of the most popular supplements of all-time – certainly in recent memory – is creatine. In 2000, it was estimated that consumers purchased about 6.8 million pounds – 3,400 tons – of creatine.

Matt Brzycki

Creatine is found naturally in fresh fish and meat; it's also a component of skeletal muscle. Your body uses it as a source of energy during short-term, high-intensity efforts. As a result, many individuals take creatine supplements with the hope that they'll improve their muscular size, muscular strength, power and performance.

There's no shortage of research on creatine. In fact, creatine is perhaps the most heavily studied supplement on the planet; literally hundreds of studies have investigated its potential. Let's take a look at what the research says about the efficacy and safety of this supplement.

Is It Effective?

It's important to separate the studies that have examined creatine into two main categories: those that have been performed inside a laboratory and those that have been performed outside a laboratory. Inside a laboratory, many studies have shown that creatine improves performance. But for the most part, the improvements were in repeated maximal, short-term sprints on a stationary bicycle. That's all well and good, of course, if you're looking to improve your performance in doing repeated maximal, short-term sprints on a stationary bicycle. Outside a laboratory, many studies have found that creatine doesn't improve performance. In particular, two of the studies are highly relevant to police officers.

One of the studies involved 35 U. S. Army soldiers (20 men and 15 women; aged 22-36). The subjects were randomly assigned to two groups: One group received five grams of creatine and the other group received five grams of a placebo (taurine, an amino acid) for seven days. (The creatine and placebo were mixed with 16 grams of sucrose.) The researchers found that creatine didn't improve the number of push-ups that could be completed in two minutes as done in accordance with the Army Physical Fitness Test.

The other study involved 24 U. S. Navy SEALs (aged 23-42). The subjects were randomly assigned to two groups: One group received 20 grams of creatine and the other group received 20 grams of a placebo (polycose) for five days. The researchers found that creatine didn't have a significant effect on the time to complete an obstacle course that consisted of four elements: (1) scaling a three-meter high wooden wall; (2) scaling and descending a 10-meter high cargo net rope ladder; (3) climbing a five-meter high rope and transferring to another rope for descent; and (4) doing an all-out, 100-meter sprint. (The distance between the obstacles was about 40 meters and it took about two minutes to complete the course.) The researchers concluded, "The small effects on performance seen in some laboratory studies with [creatine] supplementation do not appear to carry over to field-related tasks conducted in an operational setting."

Is It Safe?

There haven't been any adverse side effects reported in studies using 20 - 30 grams of creatine per day for up to seven days. Nor have there been any adverse side effects reported in studies using smaller dosages of 2 - 3 grams of creatine per day for up to seven weeks.

Be that as it may, there are some caveats. First of all, most studies don't include any formal way of assessing the adverse side effects. In addition, many individuals undoubtedly exceed the recommended dosage, which puts them at a greater risk for incurring adverse side effects. Finally, the lengths of the studies are nowhere near the months – or years – that an individual might use creatine. The fact is that countless scientific, medical and nutritional authorities agree that the long-term effects of creatine supplementation are unknown.

Most of us who work in a fitness environment have heard numerous accounts of individuals who have taken creatine and experienced adverse side effects. Although these observations are anecdotal, their sheer volume is such that they cannot be dismissed. It's also important to consider a study that surveyed 52 athletes who voluntarily took creatine. Of the 52 athletes, 38 (73.1 percent) reported at least one adverse side effect.

The following potential side effects are of greatest concern: water retention, muscle cramping, dehydration/heat-related illness, muscle strains/dysfunction, gastrointestinal distress (such as an upset stomach, gastrointestinal pain, nausea and vomiting) and liver and kidney dysfunction. Due to individual variability, some people may be more susceptible to adverse side effects than others.

The bottom line

Before you choose to use creatine – or any other supplement, for that matter – you should get the approval of your physician.

Matt Brzycki is the assistant director of Campus Recreation, Fitness at Princeton University. A former Marine Drill Instructor, he has authored, co-authored or edited 16 books on strength and fitness, including SWAT Fitness (available at www.optacinternational.com).