

# DARWINISM COMES TO CREATINE

## Popular Supplement Undergoes a Remarkable Evolution

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### Improved forms of orally ingested creatine

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**About the Authors:** Mr. Faulkner earned a degree in Physics from the University of Dallas and has since spent over 20 years in the business of bio-medicine. After working in diagnostics for Abbott Labs, he co-founded Aegis Analytical Laboratories, Inc. and focused largely on athletic doping control (analysis for banned drugs). After 10 years, he shifted from testing for illegal supplements to researching and manufacturing safe and legal performance enhancing supplements. Dr. Miller is an Associate Professor at the University of Manitoba and focuses research on drug delivery and blood-brain barrier dynamics, as well as effective supplementation for human and animal health and wellness conditions.

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In the mid-1990's and in the wake of Ben Johnson and other steroid scandals, Mark Faulkner recalls having a conversation with a nationally known professional athlete/celebrity who was being tested for banned drugs. The athlete said, "Fine, you can take away my steroids, but then come up with something else that is legal that helps me do my job - I have to have strength and size, and I have to be able to get up in the morning. Without the drugs, my joint and muscle pain is almost unbearable, and I need to be able to push through it because this is how I feed my family". That message was somewhat unsettling, but even more so, it was unsettling to read the news report 5 years later of the death of that same athlete at age 41.

Athletes ask their bodies to perform at, and need to power their bodies at, levels that most people do not. That pushes them to search for supplements (or drugs) that will assist in not only the building of strength and speed and endurance, but also in recovery from the extreme workouts in which they engage. Over that last 20 years, one of the most researched and well-known supplements used to address these concerns has been creatine but, early forms of creatine had almost as many negative attributes as positive.

Original (and persisting) forms of creatine will build muscle and strength but unfortunately, in the way most people dose, it will also cause excessive water retention (bloating), cramps, and significant gastrointestinal problems. These characteristics have caused creatine to fall out of favor over time. However, as so often happens with science and mankind, there is an evolution of understanding and

product development that works to expand upon what is good and positive and weed out what is detrimental and negative.

Creatine monohydrate has been one of the most prevalent approaches in achieving legal muscle performance enhancement and numerous studies clearly indicate increased strength and speed, especially in anaerobic exercise. The problem with this original / traditional form of creatine is that efficacy is related to dose size and time...two things that are rarely balanced effectively.

However, research done by a team of scientists at the University of Nebraska initiated several breakthroughs in creatine research around the turn of the millennium. They began experimenting with different molecular forms of creatine and made great strides in the dosing and delivery of the compound. But it was in January of 2003 during a production scale batch of one of these new creatine forms that a significant step in the evolution of creatine occurred. The process engineers responsible for manufacturing the new creatine made a mistake on batch calculations, only discovering it when the finished product looked almost nothing like the intended compound. The "mistake batch" got set aside, awaiting a little head-scratching QA / QC investigation. It was later, when playing with the mistake batch and testing its characteristics in conjunction with analytical research being done at Vanderbilt University, that it became clear that although it wasn't the intended form of new creatine, it was in many ways better.

What became apparent in this third generation of creatine was that comparatively the new form had remarkably improved bio-availability, and that oral delivery at even very small doses leveraged *significant* muscle development and recovery. But even more important, these dramatic improvements in the positive attributes of creatine were accompanied by *none* of the negative side effects previously seen.

However, it been understandable that with the history of creatine, coupled with the inherent hype and poor clinical science often associated with the supplement industry, this evolution of creatine has been slow to gain acceptance. Athletes have been conditioned to not believe much of what marketers claim. Industry reports of supplements being found to have unsafe, non-legal compounds has understandably made many people cautious and skeptical. Mr. Faulkner recently recalled an "all natural" product tested at their lab that claimed to help with stress relief – no wonder, it was laced with benzodiazepines (tranquilizers).

What has occurred is that as athletes have tried this third generation creatine, the results have spoken for themselves. After winning a gold medal in the world bench press competition last year, the record setting lifter indicated he was visited in the middle of the night for drug testing because the authorities didn't believe a person his size could lift what he did without steroids. All tests from the use of this creatine came back "clean" – it has been analyzed under the testing profiles of the major governing bodies of sporting competitions (NCAA, NFL, IOC, etc.).

That same athlete indicated that separate from the dramatic strength gains, the most notable effect of dosing with this new form of creatine (marketed as CON-CRĒT) was his recovery both during and after work-outs and competition – normally experienced muscle aches and joint pain were non-existent. These results have now been echoed by nearly every athlete that has tried it.

The product has undergone a variety of testing for safety and performance at 3 major universities, and research continues on how this molecule accomplishes the performance enhancement it does. What is known is the main clinical advantage of CON-CRĒT is its greatly enhanced absorption from the GI tract compared to other forms of creatine. Therefore, you simply have more creatine in the bloodstream to supply to the muscles with this form compared to creatine monohydrate (CM). That enables the dosing to fall to levels well below the "super-therapeutic" doses required to gain positive effects with CM and thereby eliminate the side effects that come from the previous super-dosing.

Studies on this enhanced absorption done jointly between private industry and university medical centers revealed that there is a nearly sixty (60) fold increase in potency (solubility and bio-availability) in CON-CRĒT as compared to CM...and more than a five (5) fold increase compared to second generation creatines. This resulted in over 95% of volunteers reporting dramatic strength and endurance gains within the first month of usage. In these same studies, that figure rose to 100% of volunteers reporting positive results within the first 5 weeks of supplementation.

As one athlete recently said, "This product is revolutionary. I had hit a plateau for the past two years and this is the only thing that has moved me past it".

Darwin should be proud...another "accident" of evolution that improves on what is good and makes it better. CON-CRĒT is a greatly improved form of creatine.