Building Muscle with Creatine Monohydrate and Beta-1, 3-D Glucan
Dr. Joe Brownholtz - University of Miami Sports Nutrition Specialist

It has been a long time coming and it has finally arrived. Creatine Monohydrate is a nutritional supplement that has a direct influence on building muscle tissue. Before looking into the benefits of Creatine Monohydrate, it is important to understand how a muscle gets bigger and stronger.

THREE THINGS MUST HAPPEN FOR A MUSCLE TO GROW

1. **First, the muscle must be overloaded.** This happens in the weight room when you increase resistance, repetitions and sets, or, decrease rest time between sets.

2. **Second, your diet must be adequate.** Not only do you need the basic nutrients in proper proportions, you must also meet the demand for additional protein and calories.

   Protein needs for weight training athletes amount to two (2) to three (3) grams per kilogram of body weight. (To convert kilograms to pounds, divide body weight by 2.2.)

3. **The third, and perhaps the least understood aspect of muscle growth, is rest or recovery time.** For a muscle to experience optimum growth, it must have adequate time to recover from the demands of an intense workout. What happens during this recovery is a healing effect. During the workout, a muscle actually experiences microscopic tearing and needs a rest period to fully heal. This is known as protein resynthesis.

   **THE IMMUNE SYSTEM ALSO COMES INTO PLAY IN THIS PROCESS.** A fully functioning immune system helps with the repair process, and reduces the chance of the next workout being less than 100% effective. (See diagram)

![WORKOUT RECOVERY TIME](image)

**WITH Beta-1, 3-D Glucan**  
Wednesday and Friday *work capacity is equal to Monday (100%)* because of *complete recovery* on Tuesday & Thursday.

**WITHOUT Beta-1, 3-D Glucan**  
Wednesday and Friday *work capacity is less* because of *insufficient recovery time* on Tuesday & Thursday.

Back to Creatine. Creatine in the form of Creatine Monohydrate is being marketed as an ergogenic (work enhancing) dietary supplement. There is scientific merit to the claim that Creatine is ergogenic when taken as prescribed. However, like everything in life, there are occasional roadblocks. Using Creatine Monohydrate is no exception to this probability.
Let us look closer at how Creatine Monohydrate helps promote muscle tissue growth. The fuel source for high intensity - short term work is Creatine Phosphate, a substance that is readily available in the muscles, but is in short supply. By supplementing Creatine Monohydrate, you increase the Creatine Phosphate levels that enable you to do more repetitions, resulting in faster growth. However, if the recovery time (usually 48 to 72 hours) is not adequate for complete recovery, the next workout can be affected. (See diagram)

Fact: To get the maximum results from your work outs, use a quality immune system enhancer such as Beta glucan in conjunction with Creatine Monohydrate. Beta glucan is a unique compound derived from the cell walls of yeast. It is the most potent immune system enhancer known to man. What makes Beta glucan special is the credibility it has earned through the extensive research done at the University of Kentucky, Baylor, Tulane University School of Medicine, and Harvard.

A consumer tip: When looking into the purchase of Beta-1, 3-D glucan, make sure the product is at least 85% Beta-1, 3-D glucan. You can get ripped off very easily. There are products with Beta-1, 3-D glucan in them, but in very small amounts. It is not uncommon to see the product being sold with less than 5 mg of Beta-1, 3-D-glucan, or, in combination with unprocessed yeast, fats, proteins, and other fillers. The purity of the Beta glucan is of the utmost importance. Ask for an analysis of the product. A large percentage of fat and protein prevents the Beta from being absorbed. When deciding whether or not to use supplements, the phrase "CAVEAT EMPTOR" (let the buyer beware) is certainly advisable.

Dr. Joe Brownholtz recommends Beta-1, 3-D Glucan because:

1. It is 94.3% pure Beta glucan (the fats and proteins have been removed).
2. It is affordable.
3. It is available in high concentrations.