

# CREATINE SUPPLEMENTATION FOR TEENAGERS

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In this research, we looked at the effect of the dietary supplement, creatine, on teenagers' physical performance, as well as how the supplement changed body composition. We had three hypotheses: 1) creatine supplementation for seven days will increase muscle mass; 2) creatine supplementation for seven days will increase muscle strength; and 3) creatine supplementation for seven days will reduce body fat.

The objectives in this research project were to find out if creatine supplementation worked to improve muscle strength and mass, as well as fat reduction, among teenagers. We conducted a study involving three males, 16 years of age. The subjects were involved in a four-week program, meeting three times a week and completing five exercises to measure various strengths. In week 3, the study participants took creatine supplementation and we compared the results from this week to the two previous weeks without supplementation. To date, the study has only yielded results of the familiarization phase.

## INTRODUCTION

The dietary supplement creatine is an amino acid derivative that has been known to enhance strength and build muscle. It is often used by athletes for its effects on muscular endurance and strength. Creatine is capable of becoming transformed into plasma creatinine (PCr) and used as a source of energy. It is a naturally occurring element within the body and is obtained from diet, mostly animal products such as meat. If enough is not supplied through diet, the body synthesizes creatine from amino acids (arginine, glycine, and methionine). One–two grams is the recommended daily average for creatine obtained through diet or synthesis within the body. Little research about creatine has been conducted on youth, 15–17 years of age. In previous studies, there are no reports of dangers involved with creatine supplementation; however, there has been some question as to creatine's effect on the kidneys. Since creatine directs water toward the muscles, some reports advise that anyone using this supplementation should drink up to 25% more water to balance the water absorbed by the creatine.

## SPECIFIC AIMS AND METHODS

The purpose of this study was to test the effects of the dietary supplement creatine on male athletes, 15–17 years of age, and particularly its effects on weight training (ie, gaining muscle mass, strength, reducing body fat, etc.). The supplementation was creatine capsules, with instructions on how and when to take the creatine capsules. Each participant received seven packets of capsules (one for each day of the week).

Capsules contained .3g/kg body weight of creatine in three capsules, with one taken at each meal.

The four-week program schedule appears below:

Week 1—Testing familiarization (3 days per week, 5 exercises each day, no change, in regular behavior, no creatine).

Week 2—Testing familiarization (3 days per week, 5 exercises each day, no change in regular behavior, no creatine).

Week 3—Creatine supplementation/continue testing (.3 g/kg creatine per day for 7 days, continue testing schedule of 3 days per week, 5 exercises each day). Record body fat, body muscle, body water, body weight, and height at the beginning of the week.

Week 4—Creatine supplementation ended/final testing (3 days per week, 5 exercises each day). Record body fat, body muscle, body water, body weight, and height at the beginning of week.

Each day participants reported for the study, they were asked to complete the same five exercises: standing long jump (three warm-ups, then three tested jumps); vertical jump (three tested jumps); leg press (warm up of eight reps at 50% of 1RM, five reps of 70% 1RM, two reps of 85% 1RM, and one test); bench press (warm up of eight reps at 50% of 1RM, five reps of 70% 1RM, two reps of 85% 1RM, and then one test); and hand grip (three tests).

## RESULTS

At the conclusion of these testings, the data was analyzed for gain in strength, muscle mass, fat reduction, and any possible side effects related to the creatine. Subjects were also interviewed to determine if they noticed body changes not apparent in the data.

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As of the date of this report, only the familiarization phase was complete. During this time data was collected from three subjects over a two-week time period. From the data gathered, it is important to note that the familiarization phase is important for the validity of studies of this type. Except for hand grip and bench press exercises, results indicated that it takes more than

two weeks to complete familiarization with a particular exercise. For hand grip and bench press exercises, the maximum outputs were achieved, whereas the remaining exercises had not reached maximum output within the two-week period.

The data gathered provides valuable information about creatine and weight training and may lead to answers on

America's obesity problem and on how youth can achieve muscle strength, muscle mass, low-fat bodies, and overall athletic performance.

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