

A Dietary Supplement for the Prevention/Reduction of Delayed Onset Muscle Soreness

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OBJECTIVE:

The goal of this study was to determine if a post-workout amino acid-carbohydrate sports supplement could reduce delayed onset muscle soreness following exercise.

METHODS:

Titan™ Sports Supplement

The patent-pending sports supplement consisted of 50 grams of a proprietary blend containing sucrose, calcium 2-hydroxy-2-methylbutyrate, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, valine, caffeine, and flavoring. One serving was dissolved in 500 ml water and chilled prior to use. It was consumed in its entirety immediately following exercise.

Test Subjects

A group of ten healthy men and women who ages ranged from 22 to 55 years and regularly exercised volunteered for this study. Each person was asked to perform their usual workout routine for a time and intensity to insure they would have muscle soreness the following day. Their routines consisted of one of the following: running, weight resistance training, and kickboxing. Following the first workout, they were given one dose of Titan™ Sports Supplement. The following week, they were asked to perform the same workout at the same intensity but were given only water. The subjects did not take any other supplements during this study.

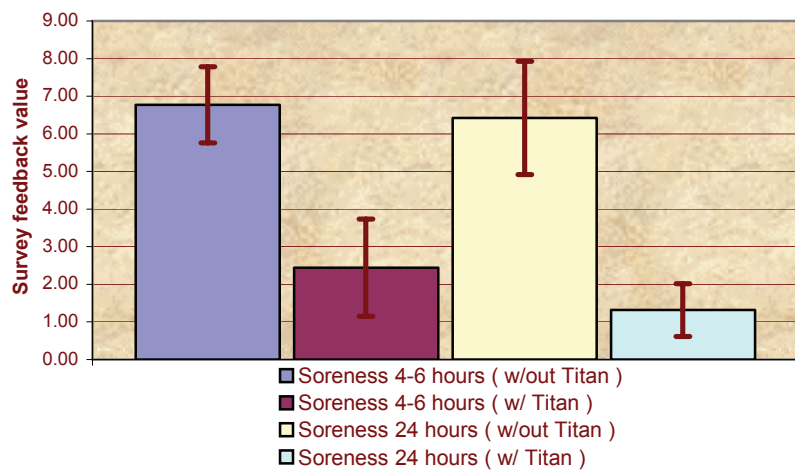
Assessment of Muscle Soreness

Each participant was asked to complete a Visual Analogue Scale that ranked muscle soreness on a scale of 0 (no soreness) to 10 (unbearable soreness) following each exercise session. Muscle soreness was evaluated at 4-6 hours and 24 hours post-exercise.

RESULTS:

The results showed that when the subjects used the Titan™ Sports Supplement there was a 64% reduction ($p = 0.05$) in muscle at 4-6 hours and an 80% reduction ($p = 0.05$) at 24 hours. The subjects also reported that their muscles felt more relaxed following supplementation and stated that they would definitely use the supplement again.

Titan™ Sports Supplement's Effect on Delayed Onset Muscle Soreness: Statistical Confidence Usage * $p = 0.05$, Subjects = 10



DISCUSSION:

High glycemic carbohydrates, such as sucrose, are known to increase insulin. Following exercise insulin serves both as an anabolic hormone to increase protein synthesis and anti-catabolic hormone to prevent protein breakdown. Insulin also stimulates the rapid uptake of amino acids and glucose to support muscle protein synthesis and glycogen replacement, respectively.

Previously, studies have shown that a combination of exercise, insulin and essential amino acids can cause a greater increase in muscle protein synthesis than any element alone. Because the body cannot make essential amino acids, these amino acids can become depleted following exercise and limit protein synthesis. Also, essential amino acids also contain the three branched chain amino acids, all of which have been shown to help prevent muscle soreness.

Calcium 2-hydroxy-2-methylbutyrate is involved in muscle cholesterol synthesis and membrane repair following exercise. Preventing muscle membrane damage and leakage of soluble muscle proteins helps prevent temporary inflammation, the contributing factor to muscle soreness.

CONCLUSION:

Administration of a dietary supplement consisting of sucrose, essential amino acids and calcium 2-hydroxy-2-methylbutyrate is capable of acting in a synergistic manner to help reduce muscle soreness at 4-6 hours and 24 hours post-exercise.