MEDICUS RESEARCH

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Effect of a combination dietary supplement product (BounceBack™) on the signs and symptoms of delayed onset muscle soreness after eccentric exercise: a randomized, double-blind, placebo-controlled, crossover pilot study

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BACKGROUND

Delayed onset muscle soreness (DOMS) is muscle pain and discomfort experienced approximately one to three days after exercise and is believed to be a result of microscopic muscle fiber tears. The BounceBack™ product is a combination of several dietary supplement ingredients which have individually been shown to improve the inflammation and pain associated with DOMS (digestive enzymes, Bromelain, Curcumin, Vitamin C) in combination with an Avocado Soy extract and Resveratrol. The purpose of the study was to evaluate the ability of the BounceBack™ product to reduce the signs and symptoms of DOMS and increase the rate of muscle recovery following eccentric exercise.

PURPOSE AND HYPOTHESIS

This protocol was designed to provide a structured study in which to evaluate the ability of BounceBack™ to reduce the signs and symptoms of DOMS and increase the rate of muscle recovery following eccentric exercise.

Additionally, the total energy expenditure and measured active energy expenditure were tracked during the eccentric exercise and on the days preceding the exercise.

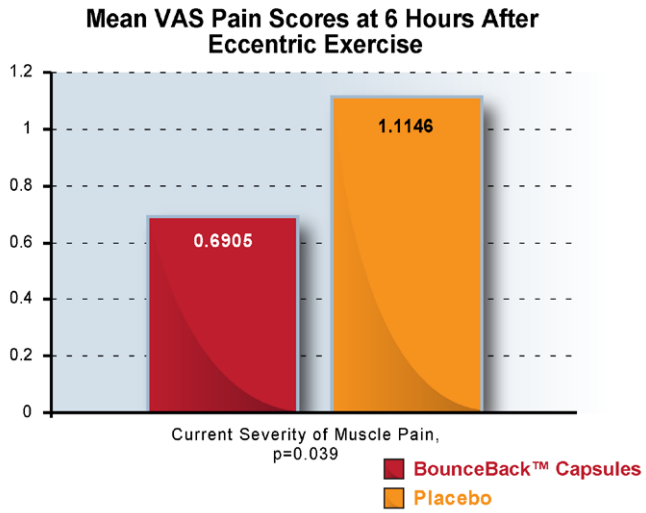
MATERIALS AND METHODS

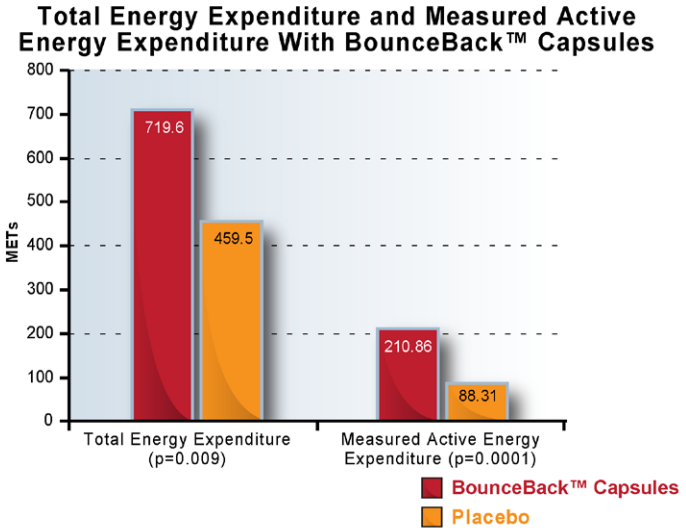
A randomized, double-blind, placebo-controlled, crossover study was performed with 10 healthy, untrained subjects between the ages of 18 and 45. Subjects were screened for eligibility and then randomized to receive the active or placebo product for 33 days. Subjects wore the BodyMedia Armband Monitoring System during days 28-30 to track their pre-exercise activity level. Subjects returned on day 30 to undergo a standardized eccentric exercise protocol (isokinetic quadriceps squat contractions). Subjects underwent pain and tenderness (algometer) evaluations and blood draws just prior to exercise, immediately post-exercise, and again at 6, 24, 48, and 72 hours post-exercise. Subjects underwent a two week washout, and were then crossed over to the other arm of the study. Mean differences between groups were assessed inferentially at each data collection time-point.

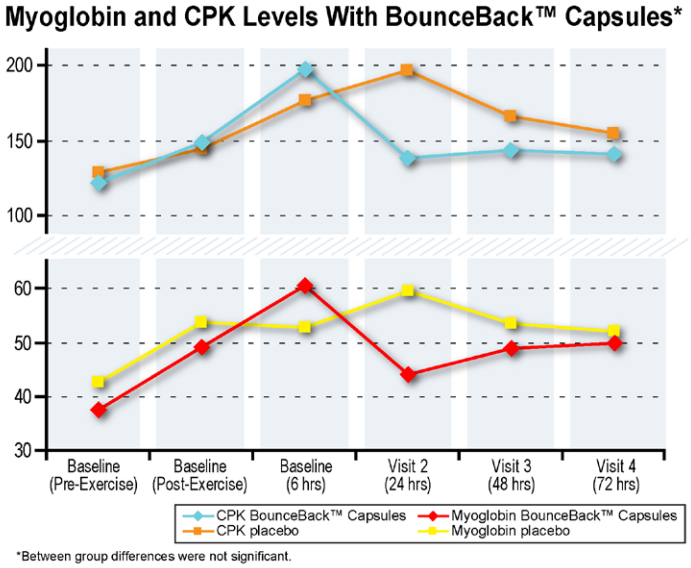
RESULTS

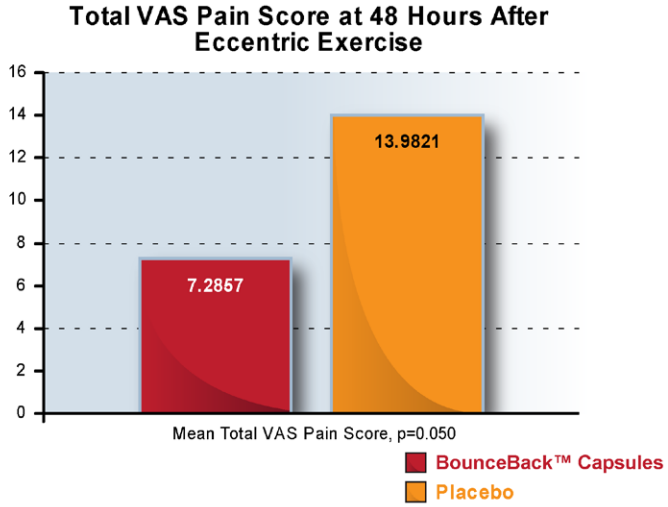
Statistically significant differences were observed in favor of the Bounce-Back™ product for pain, tenderness, and amount of energy expended. At 6 hours, the current severity of muscle pain VAS assessments was lower (0.6905 v 1.1146, p=0.039), and at 48 hours, the total VAS pain assessment was significantly lower (7.2857 v 13.9821, p=0.050) in the active group. At 24 hours, the tenderness after algometry was significantly lower (1.7245 v 2.3750, p=0.042) in the active group.

Based on the BodyMedia armband data, the active group recorded significantly greater Total Energy Expenditure (710.60 v 459.50 METs, p=0.009) and Measured Active Energy Expenditure (210.86 v 88.31 METs, p=0.000). Serological markers of muscle damage (CPK and Myoglobin) were lower in the active group throughout the entire post-exercise period, but this difference did not reach statistical significance.









CONCLUSIONS

In this small pilot study, the BounceBack™ product resulted in a significant reduction in standardized measures of pain and tenderness post-eccentric exercise, even after engaging in significantly more activity in the two day period prior to the exercise protocol. The differences in the serological markers of DOMS, while not statistically significant, appear to support the clinical findings. Further study with a larger sample size is warranted based on the current results.

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