

Poster presentation

## Effect of a combination dietary supplement product (Bounce-Back™) 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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from 2008 International Society of Sports Nutrition Conference and Expo Las Vegas, NV, USA. 9–10 June 2008

Published: 17 September 2008

*Journal of the International Society of Sports Nutrition* 2008, **5**(Suppl 1):P24 doi:10.1186/1550-2783-5-S1-P24

This abstract is available from: <http://www.jissn.com/content/5/S1/P24>

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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 Bounce-Back™ 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 Bounce-Back™ product to reduce the signs and symptoms of DOMS and increase the rate of muscle recovery following eccentric exercise.

### 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 (algotmeter) 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 wash-out, 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. Immediately post-exercise, two of the four Visual Analog Scale (VAS) pain assessments were significantly lower (0.35 v 1.0938,  $p = 0.002$  and 0.3095 v. 0.8229,  $p = 0.047$ ) in the active group. At 6 hours, one of the VAS pain 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.

### Conclusion

In this small pilot study, the Bounce-Back™ 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.

### Acknowledgements

The authors would like to thank Mannatech, Incorporated for funding this research.

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