Spring 2012 Student Research Conference

Title:
The Effects of Branched Chain Amino Acid Supplementation on Exercise Induced Delayed Onset Muscle Soreness

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Abstract:
During exercise, skeletal muscle proteins are broken down into amino acid constituents. Studies have shown that the three branched chain amino acids (BCAA), leucine, isoleucine and valine, are metabolized in the greatest quantity by skeletal muscle during exercise. (Shimomura, 2006) Supplementation of the BCAA following exercise has been used to stimulate muscle protein synthesis. (Harper, 1984) The purpose of this study is to determine whether supplementation with an all-natural, commercial preparation of branch chain amino acids, in combination with glucose and other nutrients, will reduce exercise induced delayed onset muscle soreness (DOMS). Subjects will be randomly assigned to either test or placebo groups and required to perform a squatting exercise. Subjects will then be given eight ounces of test solution or placebo and will then perform three sets of twelve squats with a one-minute rest between sets. Subjects will be asked to rate their muscle soreness every twenty-four hours over the next 5 days. After a three-week recovery period, each subject will return to perform the same squatting exercise, but be given the opposite solution to consume pre-exercise. The potential benefit of this study would be to provide evidence in support of individuals wishing to enhance their exercise performance by consuming a supplement containing a combination of branch chain amino acids and other nutrients.

Works Cited:
Harper, A., Miller, R., & Block, K. (1984) Branched-chain amino acid metabolism. *Annual Review of Nutrition, 4, 409–454.*

Shimomura, Y., Yamamoto, Y., Bajotto, G., Sato, J., Murakami, T., Shimomura, N., & ... Mawatari, K. (2006). Nutraceutical Effects of Branched-Chain Amino Acids on Skeletal Muscle. *Journal of Nutrition*, 136(2), 529S-532S.