Effect of MORPH™ on Exercise-Induced Changes in Lean Mass of the Arms

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RESEARCH ABSTRACT

Objective: The purpose of this study was to determine the effect of acute ingestion of a supplement (MORPH™) containing primarily beta alanine, arginine, creatine malate and glycerol monostearate on exercise-induced changes in lean mass of the arms.

Methods: Using a randomized, placebo-controlled, double-blind, crossover design, eight healthy men (mean ± SD age, height, weight: 23.6 ± 3.0 y, 180.3 ± 6.9 cm, 81.8 ± 6.9 kg,) were randomly assigned to ingest one serving of MORPH™, and on a separate day placebo, along with 12 ounces of water. Verification of ingredient purity and potency by an external laboratory is pending. Thirty minutes after consumption, subjects completed a standardized workout for the elbow flexors and extensors (i.e., six sets x 12-15 reps of biceps curls alternated with six sets x 12-15 reps of lying triceps extensions). Weight loads, rest periods between sets, and tempo of execution were tightly controlled from trial to trial. Body composition was measured with dual-energy x-ray absorptiometry (DEXA) prior to supplementation and immediately following the final set of resistance exercise. Twenty-four hours before each trial, subjects were required to refrain from exercise and follow a standardized diet. Data were analyzed via ANOVA and statistical significance was accepted at $p \leq 0.05$.

Results: Acute resistance exercise increased the lean mass of the arms in both trials (MORPH™: +13.5%; 8807 ± 824 [baseline] to 9999 ± 954 grams [post], placebo: +7.6%; 9066 ± 813 [baseline] to 9753 ± 860 grams [post], $p<0.004$), but the increase was significantly greater in MORPH™ ($p<0.003$). In contrast, no statistically significant interactions were noted on fat mass or systemic hemodyamics (heart rate, systolic or diastolic blood pressure).

Conclusions: Within the framework of the current experimental design, these preliminary data indicate that acute supplementation with a product (MORPH™) containing primarily beta alanine, arginine, creatine malate and glycerol monostearate augments resistance exercise-induced increase in lean mass of the arms without negatively affecting blood pressure.

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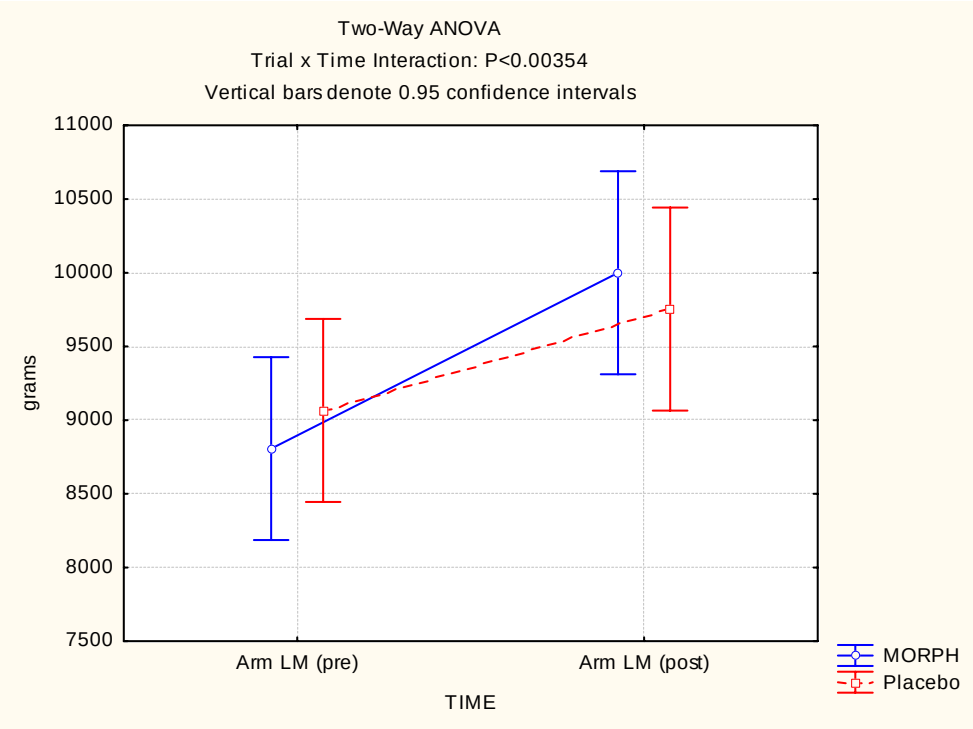
RESEARCH HIGHLIGHT

>> 1.77 Times Greater Increase in Lean Mass of the Arms <<

Interpretation: The blue line represents changes in arm lean mass during Trial A (MORPH™), while the red line represents changes during Trial B (Placebo). The analysis using a repeated-measures ANOVA was statistically significant (p=0.0354), indicating a difference between trials. Post-hoc analysis (i.e., one-way ANOVA on the change scores) indicated that during Trial A (MORPH™), subjects increased their Arm Lean Mass significantly more than during Trial B (Placebo). **Specifically, the change in Arm Lean Mass during Trial A was 13.5%, while the change was only 7.6% during Trial B (p<0.0276).** See graph below:



Summary: Relative to the arm lean mass translation, trial A was Morph, while trial B was placebo. Morph increased lean mass of the arms by 13.5% compared to pre-exercise, while the workout itself (placebo) increased lean mass of the arms by 7.6%. This translates into a 1.77 times greater increase in lean mass of the arms. Although this study was not designed to determine the mechanisms behind the observed differences, the greater increase in lean mass of the arms during the Morph trial is likely the result of the interplay between neurogenic, hormonal, and metabolic factors that increase blood flow to the small arteries and arterioles of the active muscles. In other words, during exercise the body makes physiological adjustments to accomplish a given task – in this case, biceps curls and lying triceps extensions. The nervous system coordinates the firing of electrical signals to the muscle fibers, which respond by contracting to move the weight. During this process, different sources of energy (called substrates) are used to regenerate ATP (adenosine triphosphate). As these substrates become depleted and their metabolites accumulate, it signals the body to call on additional energy reserves, and activates two key enzymes (AMP 5'-nucleotidase and nitric oxide [NO] synthase) that increase skeletal muscle blood flow. The ingredients in Morph apparently influence this process in a way that increases the vasodilatory responses within the active musculature.

Acknowledgements

This study was funded in part by a research grant from iSatori Technologies (Golden, CO).