

## Betaine Shown to Improve Strength

By Greg Arnold, DC, CSCS, August 16, 2010, abstracted from "Ergogenic effects of betaine supplementation on strength and power performance" printed online in the *Journal of the International Society of Sports Nutrition*

Link - <http://www.nowfoods.com/BasicArticles/080134.htm>

As a breakdown product of choline, betaine is known to help control inflammation in the body by lowering homocysteine levels and also helping maintain a healthy liver (1). Food sources of betaine include beets, broccoli, grains, shellfish, and spinach. Supplementary betaine is obtained as a byproduct of sugar beet processing (2).

While its homocysteine-lowering properties carry potential heart benefits, a new study (3) suggests that Betaine may increase strength, power, and possibly improve performance. In the study, 12 men with an average age of 21 year who were weight training for at least 3 months received either 2.5 grams of betaine (taken as 1.25 grams twice daily) or placebo for 2 weeks. Before and after the study the subject performed a resistance exercise challenge test that included bench, squat, and jump tests.

By the end of the 2 weeks, no significant increases were seen the placebo group while those in the betaine group saw significant increases in an exercise called the bench throw on Day 1 (14% increase – 1534 Watts before betaine supplementation to 1779 Watts after 14 days of betaine supplementation) and Day 2 (16% increase - 1498 to 1788 W) as well as isometric bench press force on Day 1 (20% increase - 2345 to 2922 W) and Day 2 (4% increase - 2423 to 2503 W). Although vertical jump power was decreased on Day 2 in the pre-testing phase (1534 on Day 1 and 1498 on Day 2), the researchers did not make any speculations as to why this happened.

There were also significant increases in vertical jump power in the betaine group, with a 9% increase – (4545 to 4980 W) and 7% increase (4476 to 4811 W) on Days 1 and 2, respectively, with no significant improvements in the placebo group. Surprisingly, neither group had significant differences in either jump squat power or squat repetitions but the researchers attributed this to the fact that the vertical jump test was done before the squat testing and betaine was "not able to offset the neural effect and partially explains the lack of improved power production in the squat."

Nevertheless, the researchers went on to conclude that "Betaine supplementation increased power, force and maintenance of these measures in selected performance measures, and these were more apparent in the smaller upper-body muscle groups."

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2. "Betaine" - <http://www.umm.edu/altmed/articles/betaine-000287.htm>
3. Lee EC. Ergogenic effects of betaine supplementation on strength and power performance