

Poster presentation

Effects of beta-alanine supplementation on performance and body composition in collegiate wrestlers and football players

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Background

Supplementation with β -alanine has been associated with improved strength, anaerobic endurance, body composition and performance on tests of anaerobic power output following varying training protocols, including high intensity interval training (HIIT) and heavy resistance training. Early season training for collegiate wrestling includes repeated bouts of high intensity exercise with intermittent rest periods; this type of training parallels HIIT from a metabolic standpoint. Collegiate wrestlers also use moderate to high intensity resistance training with high work to rest ratios. In-season football training includes repeated bouts of short sprints and Olympic/power lifting with low work to rest ratios.

Methods

Twenty-two Division II college wrestlers (19.9 ± 1.9 yr, age \pm SD) and 15 football players (18.6 ± 1.5 yr) completed this double-blind, placebo controlled study. Each subject

ingested either 4 g/day β -alanine or placebo in powdered capsule form. Subjects were tested pre and post 8-week treatment in timed 300 yd. shuttle, 90° flexed arm hang (FAH), body composition, and blood lactate accumulation during 300 yd. shuttle. Wrestlers participated in 5 days per week training that included HIIT 3 days/week and resistance training with high work: rest ratios 2 days/week. Football players participated in 5 days/week training that included repeated sprints with low work: rest ratios 3 times/week and Olympic/power lifting 4 times/week.

Results

The subjects taking β -alanine achieved more desirable results on all tests compared to placebo (NS, $p > 0.05$). Performance improvements were greatest in the football supplement group, decreasing 300 shuttle time by 1.1 sec (vs. 0.4 sec. placebo) and increasing FAH (3.0 vs. 0.39 sec.). The wrestlers, both placebo and supplement lost

Table 1:

Test	Football Placebo (n = 8) Mean (SD)	Football Supplement (n = 7) Mean (SD)	Wrestling Placebo (n = 12) Mean (SD)	Wrestling Supplement (n = 10) Mean (SD)
Δ bodyweight	2.8 (1.2)	2.6 (1.9)	-3.2 (4.9)	-0.43 (4.6)
Δ bodyfat%	0.88 (1.5)	0.1 (1.1)	-1.1 (1.4)	-0.89 (0.66)
Δ lean mass	1.1 (2.3)	2.1 (3.6)	-0.98 (2.6)	1.1 (4.3)
Δ 300 shuttle	-0.4 (2.2)	-1.1 (0.94)	-1.3 (1.7)	-1.6 (2.2)
Δ 90° FAH	0.39 (6.5)	3.0 (5.4)	5.0 (3.9)	6.5 (7.3)
Δ Lactate	1.5 (3.3)	0.03 (3.7)	-2.3 (4.7)	-2.6 (4.7)

weight (as was the goal, i.e. weight bracket allowance); however, the supplement group increased lean mass by 1.1 lb., while the placebo group lost lean mass (-0.98 lb). Both football groups gained weight; however, the supplement group gained an average 2.1 lb lean mass compared to 1.1 lb for placebo. See Table 1.

Conclusion

Supplementation with beta-alanine appears to have the ability to augment performance and stimulate lean mass accrual in a short amount of time (8 weeks) in previously trained athletes. β -alanine may magnify the expected performance outcomes of training programs with different metabolic demands.

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