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Effects of beta-alanine supplementation on exercise performance during a competitive wrestling season: an 8-week open label pilot study

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Background

The goal of wrestlers during a competitive season is to maintain or lose body weight without compromising athletic performance. However, some studies have reported decrements in exercise performance associated with weight loss and/or the strain of a competitive season. The purpose of this study, therefore, was to examine the effects of 8 week beta-alanine (β-ala) supplementation on exercise performance in Division II collegiate wrestlers during a competitive season.

Methods

25 college wrestlers (age 18 to 22 y) volunteered to participate in this study, and 18 subjects (mean BMI 24.7 ± 3.7) completed the study. Each participant ingested 4 g/d of β-ala in an open-label manner during the final eight weeks of their competitive season. The subjects followed a standard training protocol for collegiate wrestling as dictated by the head coach. They were also required to maintain uniform body mass during the entire eight weeks, as per weight bracket allowance during the competitive season. Before and after supplementation, subjects performed a 400 m sprint and 90 degree flexed-arm hang to exhaustion. Immediately prior to and following the pre treatment and post treatment 400 m sprint, subjects blood lactate was taken via finger stick and analyzed to determine lactate increase during the 400 m sprint.

Results

The subjects showed significant decrease ($p < 0.01$) in 400 m sprint time (-3.5 s ± 2.4 s, mean ± SD) and significant increase ($p < 0.01$) in 90 degree flexed-arm hang (+ 8.5 s ± 8.35 s, mean ± SD). No significant changes ($p > 0.05$) in blood lactate values were observed.

Conclusion

The results of our study suggest that supplementation of β-ala may improve exercise performance in wrestlers during a competitive season. Because of the design of this experiment, it is impossible to identify exactly how much of the positive effects experienced by the subjects was a direct result of the supplementation. However, due to the large increase in performance and the similarity of results in comparison to other β-ala studies, we feel our study suggests efficacy of β-ala supplementation. The ergogenic effects of β-ala supplementation during a competitive wrestling season needs to be confirmed in placebo-controlled trials.

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