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Exercise-induced oxidative stress: the effects of β -alanine supplementation in women.

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Source

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Abstract

The purpose of this study was to evaluate the effects of β -alanine supplementation on markers of oxidative stress. Twenty-four women (age: 21.7 ± 2.1 years; VO_{2max} : 2.6 ± 0.3 l min⁻¹) were randomly assigned, in a double-blind fashion, to a β -alanine (BA, 2x800 mg tablets, 3x daily; CarnoSyn®; n=13) or placebo (PL, 2x800 mg maltodextrin tablets, 3x daily; n=11) group. A graded oxygen consumption test (VO_{2max}) was performed to evaluate VO_{2max} , time to exhaustion, ventilatory threshold and establish peak velocity (PV). A 40-min treadmill run was used to induce oxidative stress. Total antioxidant capacity, superoxide dismutase, 8-isoprostane (8ISO) and reduced glutathione were measured. Heart rate and ratings of perceived exertion were recorded during the 40 min run. Separate three- [4x2x2; acute (base vs. IP vs. 2 vs. 4 h)xchronic (pre- vs. post-)xtreatment (BA vs. PL)] and two- [2x2; time (pre-supplement vs. post-supplement)xtreatment (BA vs. PL)] way ANOVAs were used for analyses. There was a significant increase in VO_{2max} ($p=0.009$), independent of treatment, with no significant changes in TTE ($p=0.074$) or VT ($p=0.344$). Ratings of perceived exertion values were significantly improved from pre- to post-supplementation for the BA group only at 40 min ($p=0.02$). The ANOVA model demonstrated no significant treatment effects on oxidative stress. The chronic effects of BA supplementation demonstrated little antioxidant potential, in women, and little influence on aerobic performance assessments.

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