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10–12 December 2025 | Online

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sciforum-144845: Effects Of Beta-Alanine Supplementation On Neuromuscular And Cardiovascular Performance In Female Rugby Players

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Introduction

Beta-alanine (BA) is an ergogenic aid known to increase intramuscular carnosine concentrations, thereby enhancing the muscle's buffering capacity during high-intensity exercise. Its ergogenic effects have been primarily reported in activities relying on anaerobic metabolism. In rugby, performance in tasks requiring anaerobic energy pathways—such as sprinting and jumping—is essential. However, evidence regarding the effects of BA supplementation in female rugby players remains limited. Thus, the aim of this study was to evaluate the effects of BA supplementation on neuromuscular and cardiovascular performance in this population.

Methods

A randomized, double-blind, placebo-controlled trial was conducted with ten female rugby players competing in Spain's first division. Participants were assigned to receive either 6.4 g/day of BA or an isocaloric maltodextrin placebo for six weeks. The testing battery included assessments of isometric handgrip strength, countermovement jump, squat jump, modified agility T-test, repeated sprint ability test, and the Bronco Test. The study protocol was approved by the Institutional Ethics Committee (22/070-EC_X_TFM).

Results

No statistically significant differences were observed between groups in any neuromuscular or cardiovascular performance variables ($p > 0.05$). Nonetheless, the BA group exhibited a consistent trend toward improved performance across all assessed outcomes.

Conclusion

Six weeks of BA supplementation did not elicit significant improvements in aerobic or anaerobic performance among female rugby players. Further studies with larger and more representative samples are warranted to determine whether BA supplementation can serve as an effective ergogenic strategy in this athletic population.