Citrulline malate enhances athletic anaerobic performance and relieves muscle soreness.

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The purpose of the present study was to determine the effects of a single dose of citrulline malate (CM) on the performance of flat barbell bench presses as an anaerobic exercise and in terms of decreasing muscle soreness after exercise.

Forty-one men performed 2 consecutive pectoral training session protocols (16 sets). The study was performed as a randomized, double-blind, 2-period crossover design. Eight grams of CM was used in 1 of the 2 training sessions, and a placebo was used in the other. The subjects' resistance was tested using the repetitions to fatigue test, at 80% of their predetermined 1 repetition maximum (RM), in the 8 sets of flat barbell bench presses during the pectoral training session (S1-4 and S1'-4'). The p-value was 0.05. The number of repetitions showed a significant increase from placebo treatment to CM treatment from the third set evaluated (p<0.0001). This increase was positively correlated with the number of sets, achieving 52.92% more repetitions and the 100% of response in the last set (S4').

A significant decrease of 40% in muscle soreness at 24 hours and 48 hours after the pectoral training session and a higher percentage response than 90% was achieved with CM supplementation. The only side effect reported was a feeling of stomach discomfort in 14.63% of the subjects. We conclude that the use of CM might be useful to increase athletic performance in high-intensity anaerobic exercises with short rest times and to relieve postexercise muscle soreness.

Thus, athletes undergoing intensive preparation involving a high level of training or in competitive events might profit from CM.

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