



## ACUTE CITRULLINE SUPPLEMENTATION FAILS TO ENHANCE RESISTANCE PERFORMANCE IN DIVISION I FEMALE ATHLETES

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### PURPOSE

- Nitric-oxide stimulators (NOS) are increasingly promoted for their purported ability to enhance performance, particularly in resistance training; however, there is a significant dearth of empirical evidence evaluating the veracity of these claims within female athletic populations.
- Consequently, the present investigation aimed to assess the efficacy of supplemental citrulline supplementation on muscular strength parameters in division 1 female athletes within the southeastern conference.
- This study seeks to elucidate the potential ergogenic effects of citrulline in modulating nitric oxide synthesis and subsequent adaptations in skeletal muscle function.

### CONCLUSIONS

- Citrulline may not confer ergogenic benefits in female athletes regarding muscular upper-to-lower-body performance.

### METHODS

- 10 athletic females (age =  $21.68 \pm 0.97$  yr; mass =  $78.3 \pm 3.2$  kg, bodyfat % =  $20.06 \pm 1.59$ ; height =  $169.8 \pm 1.21$  cm) ingest citrulline (6 g) or a placebo (PL) 45 minutes before exercise in a randomized, double-blind crossover design.
- Subjects were free of any medical condition and refrained from any demanding upper-body and lower-body activity 72 hours before the testing sessions, respectively.
- Upon reporting to the lab, participants sat quietly for 5 minutes.
- Next, subjects ingested citrulline (6 g) or a placebo (PL) and rested for 45 minutes
- Then, resting blood pressure and heart rate were obtained.
- After a warm-up, participants performance one-repetition maximum (1-RM) testing on the bench press, followed by a 10-minute recovery period.
- Finally, participants rode a stationary cycle for 5-minutes, followed by a 3-minute warm-up bout on the leg press, and then performed 1-RM testing for the lower body.

### RESULTS

- Analysis revealed no significant difference in the treatment of 1-RM strength on the bench press ( $p > 0.05$ ).
- Analysis revealed no significant difference in 1-RM leg press ( $p > 0.05$ )
- Blood pressure and heart rate were similar at rest and immediately following 1-RM in both citrulline and PL groups.

### PRACTICAL APPLICATIONS

- Oral ingestion of citrulline does not significantly enhance muscular strength in female athletes and may be constrained by hepatic and intestinal metabolic processes.
- Studies suggest combining 3 grams of malate with citrulline supplementation may elicit more favorable ergogenic effects.

