

THE EFFECT OF CITRULLINE MALATE SUPPLEMENTATION ON ANAEROBIC PERFORMANCE

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INTRODUCTION

Citrulline malate (CM) is reported to lead to a significant reduction in the sensation of fatigue by increasing the rate of oxidative ATP production during exercise and the rate of phosphocreatine recovery after exercise. Moreover, many athletes seeking higher performance and fast recovery after intensive training sessions seem convinced that a single dose (4–10 g) of CM 1 hour before a training session is an effective ergogenic aid. Whether CM intake really improves performance has not been appropriately established.

PURPOSE

To investigate the ergogenic properties of citrulline malate (CM) during a 300-yard shuttle run. We hypothesized that CM supplementation would improve anaerobic performance and reduce lactate levels.

METHODS

Participants

The participants for this study were thirty-three recreationally active subjects recruited from university physical education classes.

Descriptive Statistics		
	Mean	Std. Deviation
Age (yrs)	22.18	3.53
Height (in)	68.21	4.69
Weight (lbs)	162.86	27.07
Body Fat %	17.48	7.14

METHODS

Research Design

The design was randomized, placebo-controlled, and double blind.

Data Collection

Participants completed baseline testing which consisted of two, 300 yard shuttle runs for time. Immediately after each trial a blood lactate measurement was taken via a finger stick. An average of the two trials (time in seconds and lactate levels) were recorded and used for analysis. One week later, participants were randomly assigned to one of four treatment groups (control, placebo, 4 grams CM, or 8 grams of CM) and repeated the same exercise protocol and the same dependent measures were obtained.

Data Analysis

Data was analyzed using a two-way repeated measures ANOVA.



Figure 1. 300 yd shuttle run and CM used for testing.

RESULTS

No differences were observed for anaerobic performance ($p=0.77$) or lactate levels ($p=0.69$) during the 300-yard shuttle run.

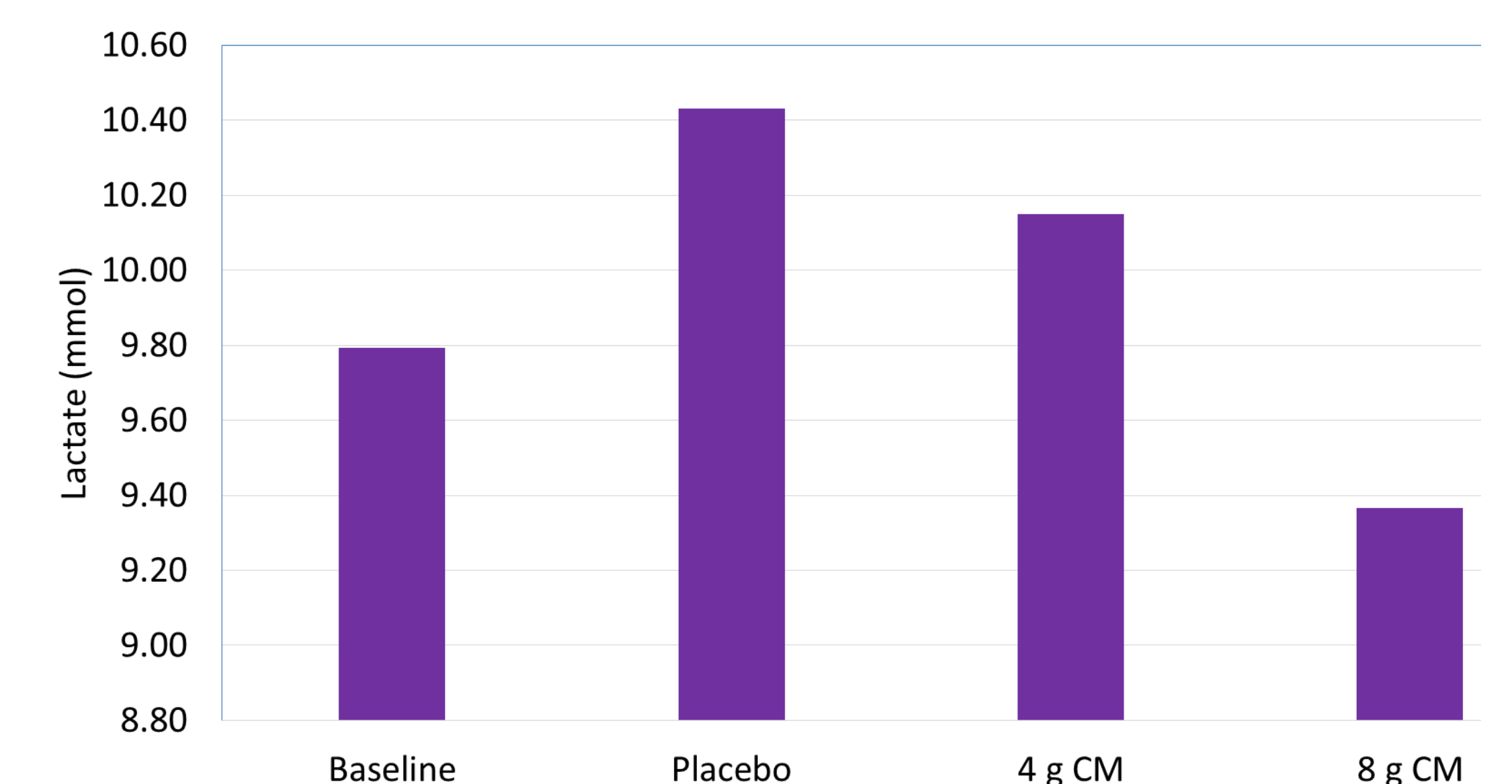


Figure 2. Lactate values for each treatment group

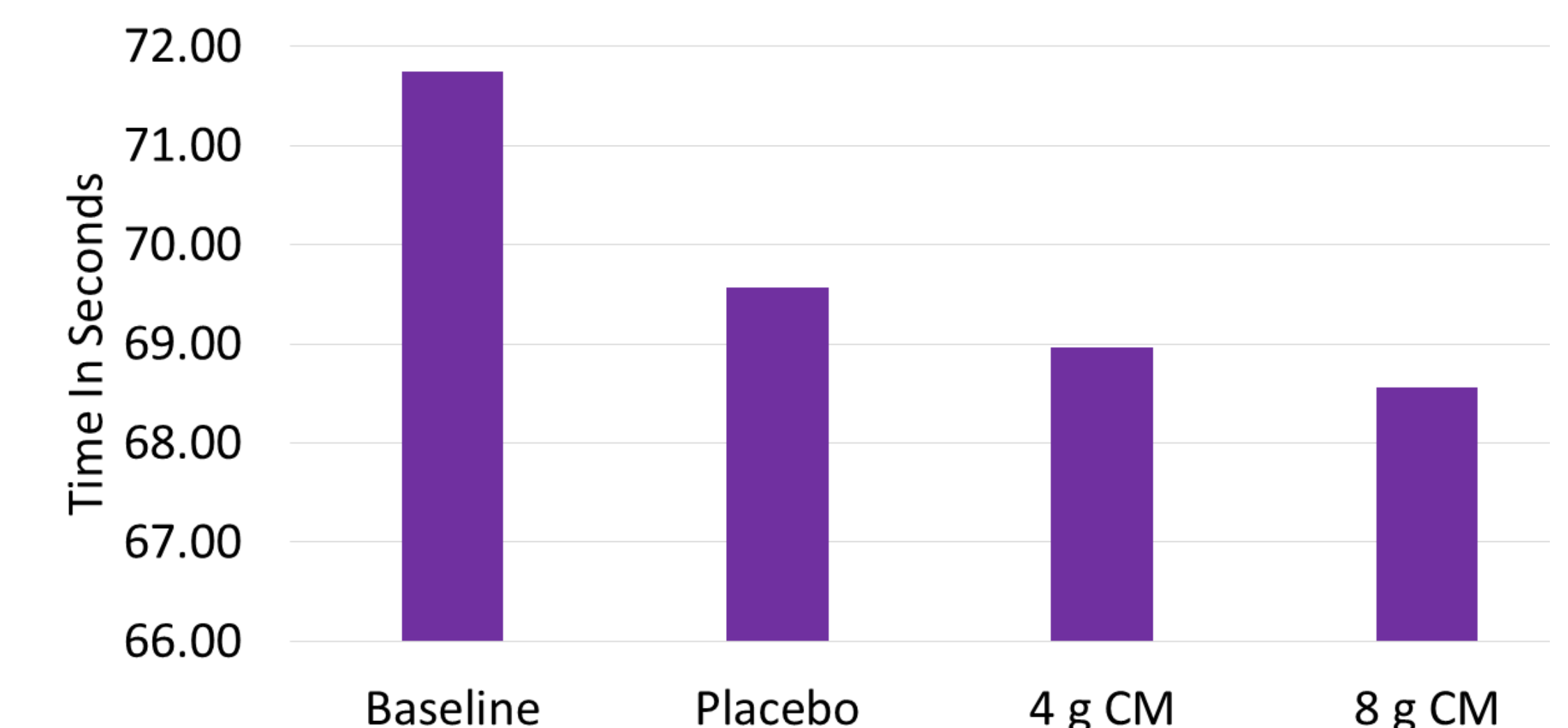


Figure 3. 300 yard shuttle run time for each treatment group

CONCLUSIONS

The results indicate that although trends did exist, acute CM supplementation provided no ergogenic benefit in this study.