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# The Effect of Caffeine Ingestion on Perception of Muscle Pain During a Sustained Submaximal Isometric Contraction of the Quadriceps

## Abstract

**Background:** The purpose of this study was to determine the effects of an acute dose of 5 mg/kg of caffeine on perceived pain of the quadriceps during a sustained submaximal isometric contraction.

**Methods:** A total of 15 low caffeine consuming college aged women ( $20.5 \pm 1.4$  y,  $66.0 \pm 9.0$  kg; mean  $\pm$  SD) participated in this study. 2–7 d after a familiarization trial subjects ingested, in a double blind random crossover manner, either 5 mg/kg caffeine (Caf) or a placebo (P), 1 h prior to performing a 2 min isometric leg extension at 45% of peak torque using visual cues to maintain force production. Every 15 s subjects rated their level of pain using the Borg CR10 pain scale. Subjects returned to the lab 2–7 d later to repeat the testing with the other condition. Data were analyzed using a repeated measures ANOVA with a Tukey's HSD post hoc.

**Results:** Caffeine ingestion resulted in a lower pain score at all time points during the 2 min isometric contraction. This difference approached significance at 90 s (Caf =  $3.2 \pm 1.4$ , P =  $4.1 \pm 1.4$ ;  $p < 0.10$ ), and became significantly different at 105 s (Caf =  $3.8 \pm 1.2$ , P =  $4.9 \pm 1.5$ ;  $p < 0.05$ ) and at 120 s (Caf =  $4.4 \pm 1.5$ , P =  $5.4 \pm 1.5$ ;  $p < 0.05$ ).

**Conclusion:** Acute caffeine ingestion attenuates perception of muscle pain in the quadriceps during a sustained submaximal isometric contraction. This effect becomes

## Keywords

Caffeine, Pain Level

## Disciplines

Dietetics and Clinical Nutrition | Other Medicine and Health Sciences | Sports Sciences

## Comments

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Poster presentation

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## The effect of caffeine ingestion on perception of muscle pain during a sustained submaximal isometric contraction of the quadriceps

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### Conclusion

Acute caffeine ingestion attenuates perception of muscle pain in the quadriceps during a sustained submaximal isometric contraction. This effect becomes more pronounced the longer the contraction is held.