



Mid Atlantic Regional Chapter of the American College of Sports Medicine

45th Annual Scientific Meeting, November 4th- 5th, 2022
Conference Proceedings

International Journal of Exercise Science, Issue 9, Volume 11



The Acute Effects of a Caffeine-based Multi-ingredient Energy Drink Compared to Caffeine on Muscular Endurance

Morgan E. Blanchflower, Jacob D. Eger, Mariah M. Francis, Joseph L. Kolb, Hannah M. Smith, Jeffery D. Buxton, Phillip J. Prins. Grove City College, Grove City, PA

Commercially manufactured energy drinks are heavily promoted as capable of enhancing performance (such as muscular endurance) due to the presence of a range of active ingredients including caffeine. However, evidence for the capacity of these additional ingredients (e.g., taurine), either alone or in combination with caffeine, to enhance performance is limited. **PURPOSE:** To compare the effects of a popular energy drink (ED) containing a moderate dose of caffeine (4 mg/kg BM) or an equivalent dose of anhydrous caffeine (CAF) with a noncaffeinated control beverage (PLA) on upper and lower body muscular endurance performance in trained participants. **METHODS:** Thirteen trained males (20.7 ± 0.8 yrs. old, 179.8 ± 9.1 cm, 82.3 ± 15.2 kg) participated in a double-blind, placebo-controlled, crossover-design study involving 3 experimental conditions. Participants were randomly administered a volume-matched ED (6.3 mL/kg body mass [BM] containing 4 mg/kg BM caffeine), CAF (4 mg/kg BM given in powder form), or a PLA 60 min before performance of 3 sets of bench press (BP) and squat (SQ) at 60% 1RM to failure. Blood lactate (BL) was assessed at baseline, after all BP sets and after all SQ sets. Session affect and RPE were assessed at the end of each trial. **RESULTS:** There were no significant differences between drinks in total repetitions completed for BP (CAF 41.8 ± 6.9 , ED 40.1 ± 6.2 , PLA 40.1 ± 8.1 ; $p > 0.05$) and SQ (CAF 45.3 ± 11.4 , ED 41.4 ± 11.7 , PLA 42.8 ± 11.4 ; $p > 0.05$). Additionally, there were no significant differences in BL, session affect, or RPE (p 's > 0.05). **CONCLUSION:** These results do not unequivocally support an ergogenic effect of a popular caffeine-based multi-ingredient ED above caffeine or a placebo with respect to upper and lower body muscular endurance in trained males.