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Via® instant coffee prior to brief ballistic exercise tends to increase serum epinephrine

Jesse White, Grant Slack, Barry Myers, Kayla Ruffner and Lonnie Lowery
University of Mount Union, USA

Statement of the Problem: Coffee, of various types, is a commonly consumed beverage in the United States, because of its stimulating nature. One application for coffee is use as a “pre-workout” product to enhance exercise performance. Various ergogenic mechanisms have been described, however less is known about various types of coffee and physiological systems by which they work. The purpose of this study was to examine the effect Starbucks Via® instant coffee (VIA) has on serum epinephrine (SE) concentrations relative to non-exhausting, explosive exercise. We hypothesized VIA ingested one hour before dynamic exercise would increase SE compared to an identical decaffeinated placebo (DCF).

Methodology & Theoretical Orientation: In a double-blind, crossover experimental design, nine resistance trained individuals exercised at 50% of their one repetition maximum (1RM) in bench press and squat, and vertical jump. Six dynamic maximal effort repetitions were performed in each. The exercise bout was completed 60 min. after ingesting two packets VIA (328 mg caffeine) or DCF in 525 ml tap water. Pre-coffee, post-coffee-absorption, and post-exercise SE samples were obtained through antecubital venous draws and analyzed via Enzyme-linked Immunosorbent Assay (ELISA). Two-way repeated measures ANOVA with Newman-Keuls post hoc was employed where appropriate.

Conclusion & Significance: Prior to ingesting the drink, SE concentrations (mean±SD) were quantitatively lower for the VIA condition (26.22±17.5 pg/ml) than the DCF condition (37.33±31.8 pg/ml) but not statistically different. An hour after absorbing VIA, SE (49.33±36.6 pg/ml) was quantitatively greater than SE concentrations after absorbing DCF (40.00±29.1 pg/ml) but not significantly so. After exercise, the VIA condition exhibited a higher SE concentration (81.11±63.1 pg/ml) than DCF concentrations (50.00±38.6 pg/ml) that tended to diverge from the more modest increase for DCF (p=0.066). We conclude that a trend toward increased SE occurred when combining VIA with non-exhaustive, explosive exercise.

Biography

Jesse White is Biology major at the University of Mount Union. Grant Slack was Biochemistry major at Mount Union, now in medical school. Barry Myers is an Exercise Science major at Mount Union with a minor in Entrepreneurship. Kayla Ruffner was an Exercise Science major at Mount Union, now continuing her studies in graduate school. Lonnie Lowery is an Associate Professor of Exercise Science and licensed nutritionist, studying coffee-health interactions at Mount Union.

whiteja2021@mountunion.edu

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