

## **Caffeine and Short-Term Exercise, Independently and Combined, Modestly Alter Eating Behavior**

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Caffeine has been shown to improve exercise performance, reduce ratings of perceived exertion, and reduce appetite. There is a shortage of research examining the combined effects of caffeine and short-term exercise on eating behavior. **PURPOSE:** The purpose of this study was to assess the relationship between caffeine and short-term moderate-vigorous intensity aerobic exercise, independently and combined, on the relative reinforcing value of LED and HED foods, food intake, and appetite. **METHODS:** 18-50 y old adults were randomized to consume caffeine or placebo 30 minutes prior to exercise or no exercise for two weeks. Participants consumed a buffet breakfast and had the RRV of LED and HED foods assessed at baseline and again after the intervention. Participants also recorded all foods and beverages consumed after leaving the laboratory on eating assessment and first and last intervention days. At intervention sessions all participants drank 350-mL Gatorade<sup>®</sup> with a relative (3 mg/kg body weight) dose of caffeine or placebo. Treatment (placebo/caffeine) x condition (no exercise/exercise) intervention sessions (sessions 3-10) varied by caffeine/exercise group. **RESULTS:** Exercise independently increased *ad libitum* intake at breakfast ( $p = 0.040$ ) and rate of consumption (kcalories/min) (45 vs 75 kcal/min;  $p = 0.021$ ) at food reinforcement assessment compared to no exercise. Caffeine independently increased responding for LED food (2.5 vs 3 portions;  $p = 0.021$ ) post two weeks compared to placebo. Chronic exposure to caffeine had an ergolytic effect on exercise among overweight/obese ( $p = 0.026$ ). **CONCLUSION:** These results suggest signals from exercise and caffeine on eating behavior may compete with each other or the effects are too weak or too transient to be consistently replicated. More research is needed to identify and describe any possible short-term caffeine and exercise interactions on food choice, food intake, and the implications for exercise responses.

Supported by NIH Grant R01 DA030386