

Investigating the Effects of a High-fat Coffee Beverage Containing Medium-Chain Triglyceride Oil and Ghee on Cognitive Function and Measures of Satiety

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Objectives: To test the hypotheses that Bulletproof Coffee (a blended drink containing coffee, medium-chain triglyceride [MCT] oil, and grass-fed ghee) will acutely improve cognitive function and lead to greater satiety when compared to black coffee.

Methods: This study uses a single-blind, counterbalanced, randomized cross-over design with each participant completing two visits ~7 days apart. The researchers are unaware of the beverage consumed by the participant, however, distinct differences in taste and texture between the Bulletproof Coffee (10 oz freshly brewed coffee, 15 ml MCT oil, 15 ml grass-fed ghee, ~250 kcal) and black coffee (10 oz freshly brewed coffee, ~1 kcal) prevented participant blinding. At the time of COVID-19 in-person research curtailment on our campus, six young, healthy participants ($n = 5$ females, age = 25 ± 8) who are regular coffee consumers had completed both trials and we are presenting the

preliminary data here. During each trial participants complete baseline fasted measurements of cognitive performance (Digit Substitution Task [DSST], Stroop Task and Speed Task, all performed on a tablet computer), hunger/fullness, cognitive arousal, and gastrointestinal distress and then consume one of the two test beverages. The same measures are obtained again at 60- and 170-minutes post-consumption.

Results: Preliminary results suggest that there is no difference in cognitive function between the two conditions measured by number correct on the DSST ($P = 0.44$). Results suggest that there is a significant condition by time interaction resulting in greater measurements of fullness ($P = 0.04$) over the visit and a lower perceived prospective food consumption ($P = 0.02$) in the Bulletproof Coffee condition when compared to black coffee.

Conclusions: To our knowledge, this is the first study to examine the effects of Bulletproof coffee on cognitive performance. Preliminary data suggests that there may be no benefit of Bulletproof coffee over black coffee for improving cognitive performance. However, consuming one Bulletproof coffee containing 250 kcal, as compared to black coffee, does appear to increase feelings of fullness and result in a reduction in perceived prospective food consumption after 3 hours.

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