Acute Effects of a Thermogenic Drink on Energy Expenditure

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Objectives: Thermogenic energy drinks (TED) are consumed for a metabolic boost connected to weight loss. While there have been investigations on the thermogenic effects of TED, the exact ingredients and amount used in TED are brand and product-specific, and thus, the examination of the thermogenic effects of individual formulations is warranted. The objective of this study was to examine the acute thermogenic effects of a uniquely formulated zero-sugar TED containing caffeine, green coffee bean extract, amino acids and guarana, in healthy adults in a double-blind, randomized, cross-over study.

Methods: Healthy adults (n = 30; 1:1 males: females; 18 to 50 years old; BMI 18 to 30 kg/m^2) consumed a flavored carbonated placebo beverage (Control) and TED (355 ml each) on two separate occasions, separated by at least six days. Resting energy expenditure (REE) and respiratory exchange ratio (RER) were assessed before and at 1, 2, and 3 h after study product consumption. Secondarily, subjective ratings of hunger, desire to eat, and fullness as well as presence and intensity of gastrointestinal (GI) symptoms were assessed before and up to 3.25 h after study product consumption.

Results: Compared to Control, the consumption of TED resulted in significantly ($P < 0.05$) greater REE responses assessed over 3 h with peak REE observed at 1 h post consumption. This equated to an average of 150 kcal/d over 3 h. RER did not differ between study products. Subjective ratings of fullness were not statistically different between the TED and Control, but directionally indicated increased fullness and reduced desire to eat with the TED. Hunger ratings were lower at 3.25 h post-consumption of the TED compared to Control, suggesting that TED minimally affected appetitive sensations despite the increase in REE. The most common GI symptoms that were reported to develop at 3.25 h post-consumption of either study product were stomach rumbling, burping, and flatulence. There were no differences in the proportion of subjects that develop these GI symptoms between study products, suggesting that the TED was as well tolerated as the Control.

Conclusions: The findings suggest that the TED safely elicits thermogenic effects without affecting type of fuel oxidation or increasing appetite compared to control.

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