

Dark Chocolate Supplementation Elevates Resting Energy Expenditure in Exercise Trained Females

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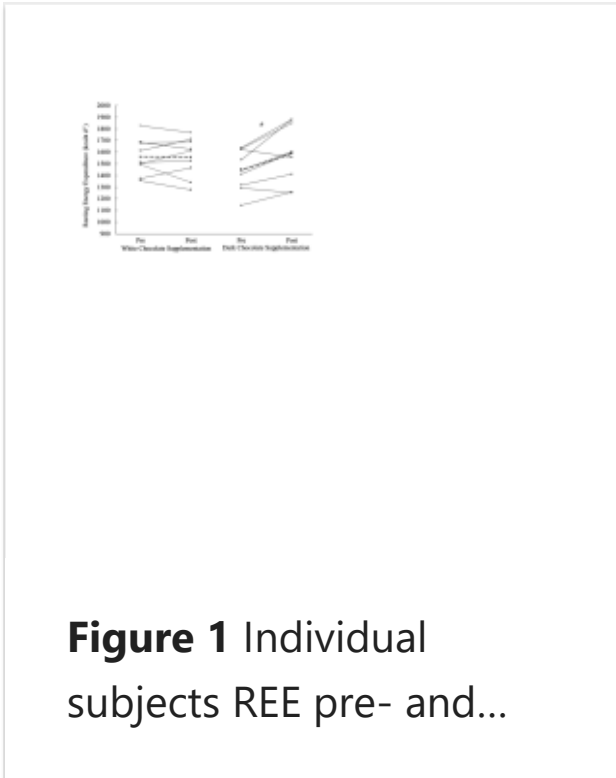
Abstract

Several recent reports have indicated positive health and exercise benefits of (-)-epicatechin-rich cocoa products. This study investigated the influence of dark chocolate (DC) supplementation on resting and steady state exercise metabolism in a group of athletically fit females. Using a randomized, single-blind design, 18 exercise trained female subjects were assigned to a 30-d supplementation with either 20g · d⁻¹ of 70% DC (*n* = 9) or a calorically matched white chocolate (WC) (*n* = 9). Pre-supplementation (PRE), subjects underwent indirect calorimetry assessment for resting energy expenditure (REE) and exercise energy expenditure (EEE) consisting of steady state cycling for 20 min, 10 min each at 50 W (EEE-50) and 100 W (EEE-100). Upon completion of the 30-d supplementation (POST), subjects repeated the assessment for REE, EEE-50, and EEE-100. Post supplementation REE was significantly increased by ~9.6% in the DC group (Δ REE: DC 140 ± 132, WC -3 ± 92 kcal · d⁻¹, *p* = .017). Post supplementation, neither EEE-50 (DC 4.51 ± 0.59, WC 4.51 ± 0.32 kcal · min⁻¹) nor EEE-100 (DC 6.56 ± 0.60, WC 6.69 ± 0.42 kcal · min⁻¹) were significantly different between groups (*p* ≥ .05). There were no significant within or between group time effects for substrate utilization at rest or during EEE-50 or EEE-100 (*p* ≥ .05). To our knowledge this is the first study to demonstrate that a relatively small daily dosage of DC can significantly elevate REE. However, it does not impact steady state EEE or substrate utilization in a group of athletically fit females.

Keywords: cacao; epicatechin; polyphenol.

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