

Capsaicinoids Enhance Metabolic Rate Using a Novel Metabolic Tracker Breezing Device: An Open-Label Study

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Abstract

Obesity and its associated comorbid conditions have increased in all age groups over the past 3 decades. The intake of capsaicinoids, bioactive components from Capsicum extract, resulted in lipolysis, increased energy expenditure, increased lipid oxidation, and reduced appetite. Breezing (Breezing Co.) is a portable device that measures metabolism by using a method known as indirect calorimetry. Resting energy expenditure (REE) can be affected by factors such as body size and composition, age, sex, medical conditions, and genetics. The purpose of this study was to investigate the effects of capsaicinoid supplementation on metabolic rate and heart rate (HR) before and after supplementation in healthy subjects at rest. In a single-blind, acute, placebo-controlled, crossover open-label study and after an initial familiarization visit, 40 subjects [$n = 23$ men, $n = 17$ women; age: 28.2 ± 5.3 y; body mass index (kg/m^2): 23.1 ± 3.8 ; body fat : $18.6\% \pm 7.2\%$] underwent testing sessions with the Breezing metabolic tracker equipment during which time they consumed 1 capsule/d of either a 2-mg capsaicinoid supplement (100 mg Capsimax; OmniActive Health Technologies Ltd.) or placebo. At least 35 subjects were required for a power of 0.95 with an α of 0.05. After supplementation, REE and HR at different time points (baseline and after 1, 2, and 3 h; calculated for 24 h) were assessed. The capsaicinoid treatment resulted in a significantly greater energy expenditure (ΔREE : 6.07%) compared with placebo ($P \leq 0.05$). The pre-rated changes in REE after 24 h were 130 kcal/d (7.23%) and 8 kcal/d (1.17%) in the capsaicinoid and placebo groups, respectively. There were no significant between-treatment differences for blood pressure and HR. These findings indicate that the capsaicinoid supplement increased REE. Further long-term studies are required to explore use of the Breezing metabolic tracker in nutritional studies for weight management.

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