

Global summit on

OBESITY, DIET AND NUTRITION

January 18-19, 2021 Webinar

Capsimax™ increases resting energy expenditure in healthy human subjects under fasting state: A randomized, double-blind, placebo controlled, cross-over study

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Obesity is a chronic metabolic condition resulting from energy imbalance with energy intake exceeding energy expenditure. Resting energy expenditure (REE) represents the amount of energy expended by a person at rest to maintain the basic and vital functions of our body and accounts for 60% to 70% of total energy expenditure. Increases in energy expenditure have been linked to reduction in body weight. There has been growing interest in understanding the role of natural plant derived actives, such as capsaicinoids, in managing metabolic rate and body weight. Capsaicinoids are bioactives extracted from the capsicum fruit and have previously been shown to increase metabolism, lipolysis and reduce appetite in the clinical setting.

The primary objective of the current study was to investigate the effect of Capsimax™ on resting energy expenditure (REE) using Cosmed Q-NRG with adult canopy via indirect calorimetry method. The secondary objectives were to evaluate the effects of Capsimax™ on Area under curve (AUC) for REE, volume of oxygen consumption (VO_2) and volume of CO_2 exhalation (VCO_2). Safety was assessed throughout the study with measurements of electrocardiogram (ECG), blood pressure (BP), pulse rate (PR), body temperature and adverse event occurrences. REE, VO_2 , VCO_2 assessments were performed at 0 hour (pre-dose), 1, 2, 3 & 4 hours post-dose.

Efficacy analysis included data for twenty-four volunteers of both genders with mean age of 32.75 (± 6.68) years and BMI of 24.67 (± 2.83) Kg/m^2 who received a single dose of Capsimax™ 100 mg (2 mg total capsaicinoids) and placebo in a cross-over fashion with washout period of 3-6 days based on the randomization schedule.

Capsimax™ ingestion significantly increased the change in REE as compared to placebo at 1 hr ($+66.36 \pm 28.17$ kcal Vs -82.69 ± 27.65 kcal), 2 hr ($+65.58 \pm 28.82$ kcal Vs -38.60 ± 28.07 kcal) & 3 hr ($+32.71 \pm 29.71$ kcal Vs -61.23 ± 28.11 kcal) post dose. Significant differences were also observed for AUC0-3 for REE, VO_2 at 1, 2 & 3 hrs and VCO_2 at 1, 2, 3 & 4 hrs post Capsimax™ dosage. Interestingly, the change in REE with Capsimax™ supplementation was significantly accentuated in overweight subjects (N=13) at 1 hr ($+130.61 \pm 43.12$ kcal Vs -86.99 ± 41.98 kcal) and 2 hr ($+146.19 \pm 46.37$ kcal Vs $+2.85 \pm 43.16$ kcal) compared to placebo. Capsimax™ was well-tolerated and there were no safety issues or adverse events.

These findings are consistent with previous data demonstrating the potential of Capsimax™ supplementation on affecting the body weight through increased resting metabolic rate in healthy and overweight individuals.

Biography

Shalini Srivastav - A Doctor of Medicine (RSMU, Moscow), with more than 12 years of experience in clinical development. She is a certified clinical research professional (Cranfield, UK) and holding a diploma in project management (Adelaide University, Australia). She has been spearheading end to end management of several clinical studies in collaboration with international researchers.

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