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Thermogenic effect of an acute ingestion of a weight loss supplement

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Background

The purpose of this study was to examine the acute effect of a weight loss supplement on resting oxygen uptake (VO_2), respiratory quotient (RQ), caloric expenditure (kcal), heart rate (HR), and blood pressure (BP) in healthy and physically active individuals.

Methods

Ten subjects (5 male, 5 female; 20.2 ± 1.2 y; 172.2 ± 8.9 cm; 71.5 ± 17.2 kg; 17.3 ± 2.6% body fat) underwent two testing sessions administered in a randomized and double-blind fashion. During each session, subjects reported to the Human Performance Laboratory after at least 3-h post-absorptive state and were provided either 3 capsules of the weight loss supplement (S), commercially marketed as Meltdown® or 3 capsules of a placebo (P). Subjects then rested in a semi-recumbent position for three hours. VO_2 and HR were determined every 5 min during the first 30 min and every 10 min during the next 150 min. BP was determined every 15 min during the first 30 min and every 30 min thereafter. The profile of mood states was determined every 30 minutes. Area under the curve (AUC) analysis was computed for VO_2, whereas a 3-hour average and an average for each/hour was calculated for RQ, kcal from carbohydrate, kcal from fat, total kcal, HR and BP.

Results

AUC analysis revealed a significant 28.9% difference in VO_2 between S and P for the three-hour study period. In addition, a significant difference in energy expenditure was also seen between S (1.28 ± 0.33 kcal · min^{-1}) and P (1.00 ± 0.32 kcal · min^{-1}) during the entire three-hour study. A trend (p = 0.06) towards a greater utilization of stored fat as an energy source was also demonstrated (0.78 ± 0.23 kcal · min^{-1} and 0.50 ± 0.38 kcal · min^{-1} in S and P, respectively). Significant elevations in heart rate were seen during hour 3 of the study, and significantly higher systolic blood pressures were observed between S (118.0 ± 7.3 mmHg) and P (111.4 ± 8.2 mmHg). No significant differences were seen in diastolic blood pressure at any time point. Analysis of mood states indicated a significant increase in tension during the supplement period compared to placebo.

Conclusion

Results indicate a significant increase in energy expenditure in young, healthy individuals following an acute ingestion of a weight loss supplement. In addition, ingestion of this supplement appears to stimulate increases in heart rate and blood pressure for three hours following ingestion.

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