

Poster presentation

Acute effects of VPX Meltdown® on plasma catecholamines, free fatty acids, glycerol, metabolic rate, and hemodynamics in young men and women

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Background

We have recently reported that the dietary supplement Meltdown® (Vital Pharmaceuticals) increases plasma norepinephrine (NE), epinephrine (EPI), glycerol, and free fatty acids (FFA), as well as metabolic rate in healthy men [1]. However, in that investigation measurements ceased at 90 minutes post ingestion, with values for bloodborne variables peaking at this time. It was the purpose of the present investigation to extend the time course of post ingestion measurement to 6 hours.

Methods

Ten exercise trained men (age = 24 ± 4 yrs; BMI = 25 ± 3 kg·m⁻²; body fat = $9 \pm 3\%$; mean \pm SD) and 10 exercise trained women (age = 22 ± 2 yrs; BMI = 23 ± 3 kg·m⁻²; body fat = $23 \pm 5\%$; mean \pm SD) ingested Meltdown® or a placebo, in a random order, double blind cross-over design, with one week separating conditions. Blood samples were collected before and at one hour intervals throughout the 6 hour protocol. Samples through the 3 hour post ingestion period were obtained in a fasted state and a standard meal was provided after the hour 3 collection. Blood samples were assayed for EPI, NE, glycerol, and FFA. Breath samples were collected at each time for measurement of metabolic rate and substrate utilization using indirect calorimetry. Area under the curve (AUC) was calculated for all variables. Heart rate and blood pressure were recorded at all collection times, and data were

analyzed using a 2 (condition) \times 7 (time) analysis of variance.

Results

AUC was greater for Meltdown® compared to placebo for EPI (367 ± 58 pg·mL⁻¹·6 hr⁻¹ vs. 183 ± 27 pg·mL⁻¹·6 hr⁻¹; $p = 0.01$), NE (2345 ± 205 pg·mL⁻¹·6 hr⁻¹ vs. 1659 ± 184 pg·mL⁻¹·6 hr⁻¹; $p = 0.02$), glycerol (79 ± 8 μg·mL⁻¹·6 hr⁻¹ vs. 59 ± 6 μg·mL⁻¹·6 hr⁻¹; $p = 0.03$), and FFA (2.46 ± 0.64 mmol·L⁻¹·6 hr⁻¹ vs. 1.57 ± 0.42 mmol·L⁻¹·6 hr⁻¹; $p = 0.05$). For all variables, values were highest between 1 and 3 hours post ingestion of Meltdown®. The AUC for kilocalorie expenditure was not statistically different ($p = 0.12$) for Meltdown® (449 ± 29 kcal·6 hrs⁻¹) compared to placebo (392 ± 21 kcal·6 hrs⁻¹), despite being 15% higher for Meltdown®. However, when only considering the AUC for kilocalorie expenditure from rest to hour 3 (prior to feeding), a difference was noted ($p = 0.05$) for Meltdown® (224 ± 14 kcal·3 hrs⁻¹) compared to placebo (187 ± 10 kcal·3 hrs⁻¹). No difference ($p = 0.32$) was noted in AUC for substrate utilization between Meltdown® (4.83 ± 0.09 ·6 hrs⁻¹) and placebo (5.04 ± 0.15 ·6 hrs⁻¹). A condition main effect was noted for both systolic and diastolic blood pressure ($p < 0.0001$), with values increasing from a resting $111 \pm 2/69 \pm 2$ mmHg to a peak of $124 \pm 2/75 \pm 2$ mmHg at hour 3 with Meltdown®, while no change was noted for placebo. A condition main effect was noted for heart rate ($p = 0.01$), with values increasing from a resting 57 ± 2 bpm to a peak

of 63 ± 2 bpm at hour 5 with Meltdown[®], while no change was noted for placebo.

Conclusion

Ingestion of Meltdown[®] results in an increase in catecholamine secretion, markers of lipolysis, and metabolic rate in young men and women. An increase in hemodynamic variables is also noted, likely due to the catecholamine response to treatment. Intervention studies should be undertaken to determine the impact of this dietary supplement on weight/fat loss, while monitoring hemodynamic variables to ensure safety of treatment.

Acknowledgements

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References

1. Bloomer RJ, Fisher-Wellman KH, Hammond KG, Schilling BK, Weber AA, Cole BJ: **Dietary supplement increases plasma norepinephrine, lipolysis, and metabolic rate in resistance trained men.** *J Int Soc Sports Nutr* 2009, **6**:4.

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