

Effect of
Unimate
on acute appetite
suppression among adults

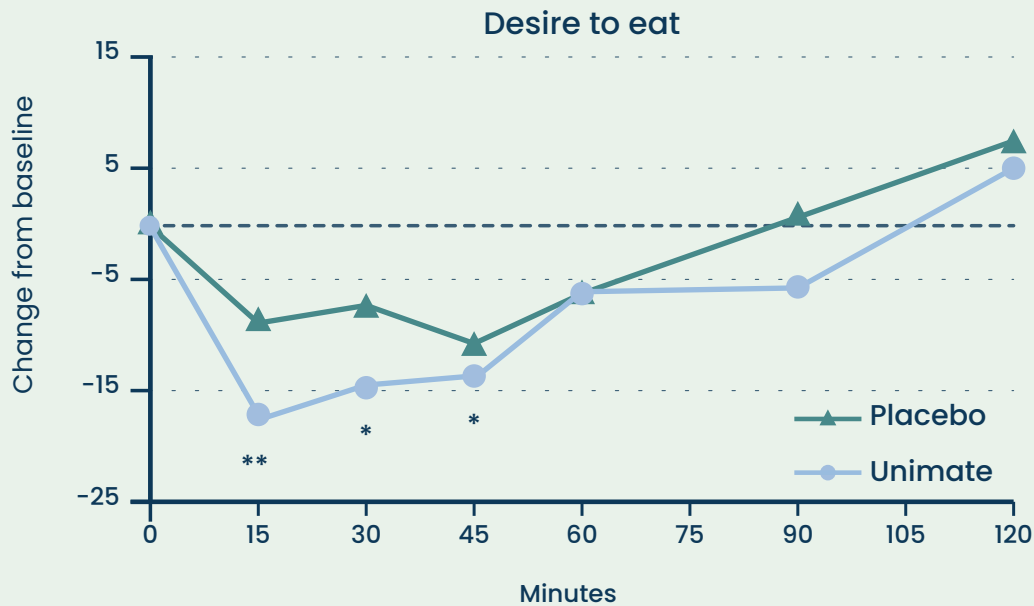


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Summary

Acute appetite responses to Unimate, a yerba mate supplement, were measured and compared to a flavor-matched placebo drink among a group of participants following a 12-hour overnight fast. Participants rated feelings of hunger, fullness, desire to eat, and other appetite-related measures for 120 minutes following consumption of Unimate or Placebo on 2 separate occasions. The overall trend in results show a decrease in desire to eat, feeling of hunger, and how much people thought they could eat, while fullness increased. Desire to eat was significantly reduced at 15, 30, and 45 minutes following Unimate consumption compared to baseline (0 min). These preliminary results suggest that Unimate supports appetite control, likely due to key components of the yerba mate extract including caffeine, chlorogenic acid, theobromine, and mate saponins.



Lower "desire to eat" after drinking Unimate.

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Background

Unimate is a dietary supplement drink mix that contains chlorogenic acids, methylxanthines (caffeine, theobromine), triterpene (mate) saponins, and other bioactive phyto-compounds concentrated from the yerba mate plant, *Ilex paraguariensis*. Traditionally, this herbal tea has been thought to have a multitude of effects, including boosting energy and feelings of well-being while

promoting satiety and reducing appetite.¹⁻² Previous work has suggested that yerba mate tea may regulate appetite through delaying gastric emptying or through upregulation of glucagon-like peptide 1 and leptin.³⁻⁴ Thus, this preliminary study was conducted to evaluate the acute appetite response following Unimate consumption.

Methods

This was a single-blind, exploratory study with 26 healthy adults (ages 20–65 years). A subgroup of these subjects (N=9) also completed a blinded placebo arm with a lemon-flavored beverage mix on a separate day. In the morning, while fasted, subjects consumed one serving of Unimate Lemon or Placebo (Crystal Light Lemon) in 500 ml

water. Subjective ratings for appetite (hunger, fullness, desire to eat, and prospective consumption) were recorded with a visual analog scale (VAS) prior to (0 min) and 15, 30, 45, 60, 90 and 120 minutes following consumption. An area under the curve (AUC) was derived for each individual scale item plotted over measured time points.



26 healthy participants	20–65 years	PLACEBO vs Unimate Lemon
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Results

Figures 1A-D show the response curves for select VAS items. While trends suggest increased appetite suppression after consuming Unimate, AUC was not statically different between the test (N=26) and placebo groups (N=9) due to the small sample size. Relative to baseline (0 min) responses, subjects appeared to have lower

desire to eat and feeling of hunger than in the placebo arm. Participants also reported a greater feeling of fullness and felt like they could eat less than they could in the placebo condition.

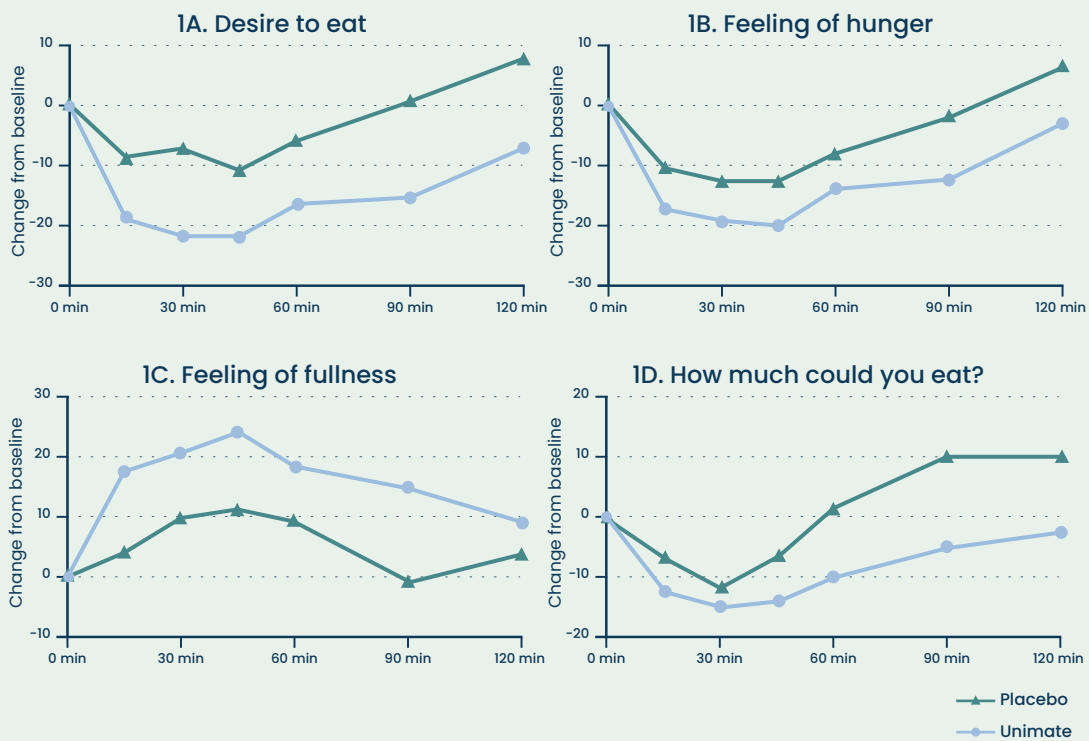


Figure 1. VAS subjective ratings of 'desire to eat' (A), 'feeling of hunger' (B), 'feeling of fullness' (C), and 'prospective consumption' (D) over 120 minutes following consumption of Unimate (N=26) versus Placebo (N=9). Ratings were normalized relative to Baseline (0 min).

Figure 2 shows the overall AUC for select VAS items, suggesting lower appetite after consuming the test product among the nine participants who completed both arms. Paired tests did not reveal statistical differences between the AUC of the placebo and

test groups. However, pairwise comparisons of 'desire to eat' at 15, 30, and 45 minutes post-consumption were significantly different from baseline (0 min) after consuming Unimate (Figure 3).

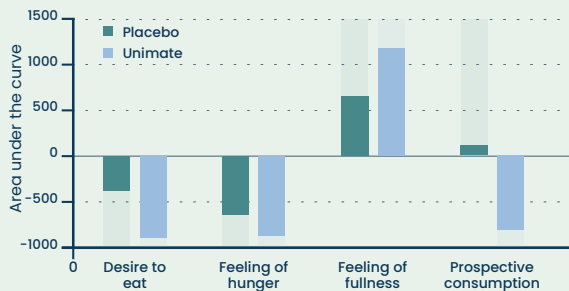


Figure 2. Paired within-subject comparisons (N=9) of AUC VAS appetite responses to Unimate versus Placebo.

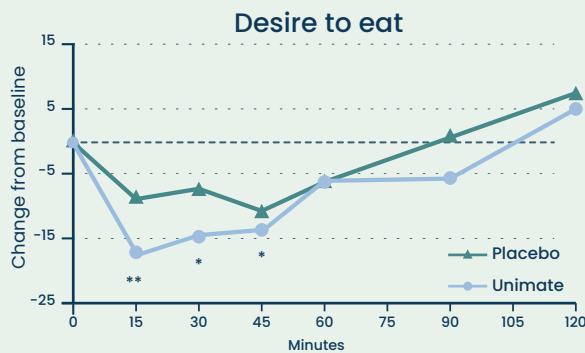


Figure 3. Within-subject comparisons (N=9) of 'desire to eat' over 120 minutes following consumption of Unimate versus Placebo. (2-way ANOVA, Dunnett's multiple comparisons test; * $p < 0.05$ and ** $p < 0.01$ relative to baseline)

Conclusion

The results of this study support previous reports on the beneficial effects of yerba mate on appetite regulation, and suggest Unimate supports appetite control in the

short-term. Further study with a larger subject group in a randomized, double-blind, placebo-controlled trial is warranted.

References

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