A CAFFEINATED DIETARY FAT LOSS SUPPLEMENT SIGNIFICANTLY INCREASES ACUTE RESTING ENERGY EXPENDITURE COMPARED TO NON-CAFFEINATED DIETARY SUPPLEMENT

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BACKGROUND

Caffeine is a typical active ingredient within multi-ingredient fat loss supplements due to its thermogenic properties.

However, there has been a rise in popularity of "non-stimulant" or caffeine-free fat loss supplements in an attempt to circumvent caffeine-induced central nervous system stimulation while still stimulating an increase in resting energy expenditure (REE).

Ingredients such as Grains of Paradise (*Aframomum melegueta)* or Thai Ginseng (*Kaempferia parviflora*) have some evidence supporting their thermogenic effects in isolation (1, 2), but there is a lack of evidence as to their effectiveness in a multi-ingredient non-caffeinated thermogenic fat loss supplement.

Therefore, a purpose of this study was to examine the effects of a caffeinated and non-caffeinated commercially available fat loss supplement (Phoenix, Legion®; Phoenix Caffeine-Free, Legion®) on REE in metabolically healthy adults.

METHODS

Twenty-five male (n = 7) and female (n = 18) participants (age: 23±4yrs; height: 163±10cm; bodyweight: 69±16kg; BMI: 26±5) completed this randomized, triple-blind, placebo-controlled cross-over study. Participants were free from any cardiometabolic disease as a condition for inclusion in this study.

Each laboratory visit was preceded by an overnight fast and 24-h exercise abstinence, and began with baseline assessments of height, weight, and REE. Ensuingly, participants ingested 3 pills – with water – containing either the caffeinated (CAF; 200mg), non-caffeinated (NCAF), or placebo (PL) fat loss supplement, and then repeated the REE assessment at 60-, 120-, and 180-minutes post-ingestion.

Each visit followed the same protocol with participants ingesting a different supplement condition during each visit, totaling 3 visits.

Data were analyzed via a 3x4 (treatment x time) within-subjects repeated measures analysis of variance (RMANOVA) and paired samples t-tests for post-hoc analyses. Alpha was set at $p \leq 0.05$.

RESULTS

There was a significant difference for the change in REE the 60-minute time point ($p = 0.019$) with a larger increase in REE resulting from CAF as compared to NCAF ($p = 0.025$) and PL ($p = 0.022$).

The increase in REE was a greater at the 120-minute time point with CAF compared to NCAF ($p < 0.001$) and PL ($p < 0.001$).

At the 180-minute time point the changes in REE were statistically different ($p < 0.001$) with CAF increasing to a greater extent than NCAF ($p < 0.001$) and PL ($p = 0.014$). At the 180-minute time point, PL also increased to a greater extent than NCAF ($p = 0.043$). When examining total energy expenditure during the 180-minute window, there was a statistically significant difference ($p = 0.003$) with CAF resulting in a greater energy expenditure than PL ($p < 0.05$).

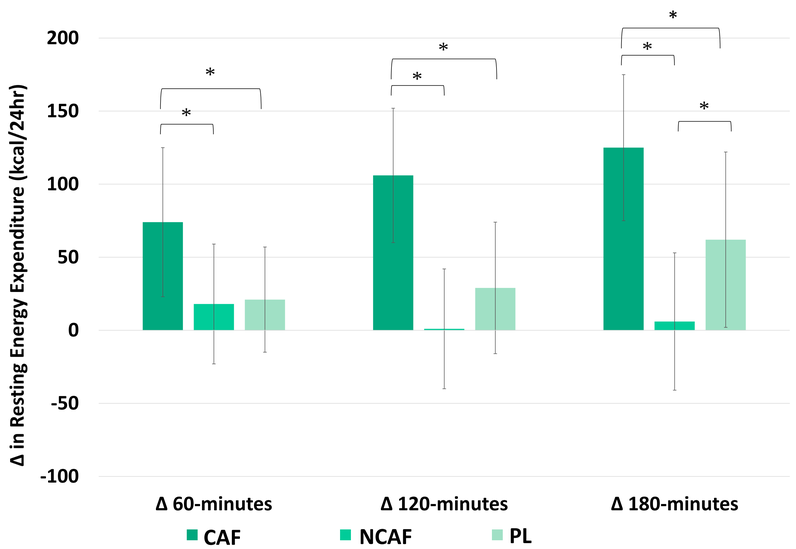

Figure 1. Changes in Resting Energy Expenditure. Error bars represent 95% confidence intervals. * Indicates statistical significance ($p \leq 0.05$).

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Supplement Facts

Serving Size: 3 Veggie Capsules | Servings Per Container: 30

Amount Per Serving		%DV*
Vitamin B6 (as Pyridoxine HCl)	1.7 mg	100%
Vitamin B12 (as Methylcobalamin)	2.4 mcg	100%
Iodine (as Potassium Iodide)	240 mcg	160%
Caralluma fimbriata [Aerial Parts] Extract 20:1	1000 mg	†
Coleus forskohlii [Root] Extract (Standardized to contain 20% Forskolin)	250 mg	†
Mucuna pruriens [Seed] Extract (Std to 98% L-DOPA)	153 mg	†
Griffonia simplicifolia [Seed] Extract (Standardized to 98% 5-HTP)	153 mg	†
Black Ginger *(Kaempferia parviflora)* [Root] Extract (Std to 2.5%Dimethoxyflavone)	100 mg	†
Grains of Paradise *(Aframomum melegueta)* [Seed] (Standardized to 12.5% 6-Paradol)	30 mg	†
Laminaria japonica Aresch [Whole Plant] Extract (Std to Contain 50% Fucoxanthin)	16 mg	†

*Percent Daily Value Based on a 2,000 Calorie Diet
†Daily Value Not Established

Other Ingredients: Hypromellose (Veggie Capsule), Silica, Magnesium Stearate.

Allergen warning: This product is manufactured in a facility which may also process milk, soy, wheat, egg, peanuts, tree nuts, fish and shellfish.

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Caralluma fimbriata [Aerial Parts] Extract 20:1	1000 mg	†
Coleus forskohlii [Root] Extract (Standardized to contain 20% Forskolin)	250 mg	†
Caffeine Anhydrous	200 mg	†
Mucuna pruriens [Seed] Extract (Std to 98% L-DOPA)	153 mg	†
Griffonia simplicifolia [Seed] Extract (Standardized to 98% 5-HTP)	153 mg	†
Black Ginger *(Kaempferia parviflora)* [Root] Extract (Std to 2.5%Dimethoxyflavone)	100 mg	†
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Figure 2. Ingredients list for Phoenix Caffeine-Free (left) and Phoenix (right). Ingredients and dosages between the two supplements are identical, with the only difference being the addition of 200mg caffeine anhydrous in Phoenix and not Phoenix Caffeine-Free.

CONCLUSIONS

The data suggests that NCAF is not superior to PL at increasing metabolic rate, while CAF is superior to both PL and NCAF.

NCAF's formulation may have led to a potential interaction effect between thermogenic stimulants that could not be altered or masked without caffeine's influence.

Further research on the interaction effects of NCAF's ingredients without caffeine on metabolic rate may be warranted.

REFERENCES

1. Sugita J, Yoneshiro T, Hatano T, Aita S, Ikemoto T, Uchiwa H, et al. Grains of paradise (Aframomum melegueta) extract activates brown adipose tissue and increases whole-body energy expenditure in men. Br J Nutr. 2013;110(4):733-8.

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