

ACUTE METABOLIC RESPONSES TO SYNEPHRINE-CAFFEINE COMPARED TO EPHEDRINE- CAFFEINE

Bucci LR, Shugarman AE, Feliciano J, Wright J

Weider Nutrition International

Salt Lake City UT USA

SYNEPHRINE

- Zhi Shi, *Citrus aurantium*, p-synephrine
- Direct-acting α_1 -adrenergic agonist
- Weak β -adrenergic agonist
- GRAS (bitter citrus flavoring)
- 10 mg synephrine typical TCM dose
- No sig. \uparrow in RMR or HR, \uparrow BP (vasoconstriction)

GREEN TEA (*Camellia sinensis*)

- Caffeine source (250 mg per serving)
- Natural vs. synthetic caffeine source
- EGCG source - synergistic with caffeine for thermogenesis (Dulloo et al 1999)
- Inhibits adenosine & phosphodiesterase
- Synergistic with ephedrine

GUARANA (*Paullinia cupana*)

- Caffeine source (50 mg per serving)
- Natural vs. synthetic caffeine source
- Inhibits adenosine & phosphodiesterase
- Caffeine synergistic with ephedrine for metabolic, thermogenic effects

QUERCETIN

- Flavonoid antioxidant commonly found in foods (onions, wine, vegetables, apples)
- In vitro evidence of inhibition of prostaglandin A1 for 3-6 h
- Potential to inhibit effect of prostaglandins on feedback inhibition on E, NE effects
- Aspirin alternative for E / C synergy

YOHIMBE (*Pausinystalia yohimbe*)

- Standardized extract of yohimbine, an indolalkylamine (12 mg/serving)
- α_2 -adrenergic receptor antagonist
- May inhibit feedback regulation of E, NE
- Human studies as single agent on obesity mixed
- Safe up to 43 mg

SUMMARY 2

- Body core temperature ↑ by ephedrine & synephrine equivalently (0.3-0.5°C)
- HR ↑ by ephedrine (12%), but synephrine not different from placebo
- BP ↑ by ephedrine (6-8 mmHg), less so by synephrine (3-5 mmHg)

SUMMARY 3

- 24 hour activity not different
- Tension ↑ in all periods
- Vigor ↑ by synephrine

CONCLUSIONS

- Commercial ephedrine-caffeine product significantly increased metabolic rate, fat burning, thermogenesis, heart rate, blood pressure for 3 h after ingestion
- Consistent with earlier research

CONCLUSIONS 2

- Synephrine-caffeine product significantly increased metabolic rate, thermogenesis, blood pressure and vigor for 3 h after ingestion

CONCLUSIONS 3

- Synephrine-caffeine offered almost same performance as ephedrine-caffeine products
- Synephrine-caffeine had less cardiovascular effects than ephedrine-caffeine

CONCLUSIONS 4

- Synephrine-caffeine viable alternative to ephedrine-caffeine
- Synephrine-caffeine products enjoyed far less commercial success than ephedrine-caffeine
- Less substantiation long-term