Effect of Dynamine™ With and Without TeaCrine® Over Four Weeks of Continuous Use on Cardiovascular Function and Psychometric Parameters of Healthy Males and Females

Michaela G. Alesi[1], Matthew T. Stratton[1], Alyssa R. Bailly[1] Alyssa J. Holmes[1], Andrew Modjeski[1], Megan Barie[1], Yuri Feito[1], Gerald T. Mangine[1], Karleena R. Tuggle[2], Tiffany A. Esmat[1], Garrett M. Hester[1], Katy Hayes[1], and Trisha A. VanDusseldorp[1]

[1]Dept. of Exercise Science and Sport Management, Kennesaw State University, Kennesaw, GA 30144

[2]WellStar Medical Group Comprehensive Bariatric Services, Marietta, GA 30060

Corresponding Author: tvanduss@kenensaw.edu

Background

Methylliberine (1,7,9,tetramethlyluric acid, Dynamine™) and theacrine (Teacrine®) are pure alkaloids, naturally occurring in multiple species of *Coffea*, and are derived from caffeine. Previous research on Teacrine reported increases in feelings of energy, focus, and concentration, with a reduced sensation of fatigue. Currently there is no published human safety data available on Dynamine, despite our previously published pilot abstract. The purpose of this study was to examine the effects of four weeks of continuous use of Dynamine with and without TeaCrine on changes in heart rhythm (electrocardiogram; ECG), resting heart rate (RHR), blood pressure (BP), and psychometric parameters (PP).

Materials and Methods

One-hundred college aged men (n=43) and women (n=57) were randomly assigned to one of five groups: low dose Dynamine (100mg), high dose Dynamine (150mg), low dose Dynamine with TeaCrine (100mg Dynamine + 50mg TeaCrine), high dose Dynamine with TeaCrine (150mg Dynamine + 25mg TeaCrine), and placebo (125mg Maltodextrin). Participants were then assessed for baseline ECG, RHR, BP and PP (energy, feeling of productivity, alertness, desensitization, motivation to do physical tasks, motivation to do mental tasks, and perceived level of focus) using visual analogue scales (VAS; 1-10 scale) every 30 min until 120 min after the first dosage. Following baseline assessments, participants were instructed to consume their supplement upon waking each morning with approximately 12oz of water for four consecutive weeks. VAS measures were repeated after one and two weeks of supplementation, while all baseline assessments were repeated after four weeks of supplementation.

Results

Separate 3-way analyses of variance with repeated measures (group x sex x time) revealed no significant interactions. Rather, main effects for time were noted for RHR ($p<0.001$), BP (systolic: $p=0.001$; diastolic: $p=0.018$), and corrected QT interval ($p<0.001$) where each measure decreased over the 4-week supplementation period, independent of supplementation strategy or sex. Increased ($p<0.001$) R-R and P-P intervals from pre to 60 min post (across 4-weeks of supplementation), energy, alertness, focus , and motivation to perform physical and mental tasks were also observed on each time point compared to baseline. No adverse events were reported in participants that completed the investigation.

Conclusion

These data suggest that Dynamine™ alone or in combination with TeaCrine® does not significantly affect heart rhythm, RHR, BP, and PP following acute or chronic supplementation at the dosages used in this study.

Acknowledgements - Compound Solutions, Inc. grant