

Effects of Acute Grape Seed Extract Supplementation on Muscle Metaboreflex in Healthy Young Individuals

ALVIN APILADO, WILLIAM BOYER, TREVOR GILLUM, SEAN SULLIVAN, ANDREW HARVESON, ALBERT LIRA, & JONG-KYUNG KIM

Department of Kinesiology; Californian Baptist University; Riverside, CA

Category: Masters-in-Training

Advisor / Mentor: KIM, JONG-KYUNG (jokim@calbaptist.edu)

ABSTRACT

Studies demonstrated that grape seed extract (GSE) increases the production of nitric oxide (NO) and reduces central sympathetic output. However, limited data have reported regarding the potential beneficial effects of this extract on blood pressure (BP) to increased sympathetic activity induced by the muscle metaboreflex (MMR) activation. **Purpose:** the aim of this study was to determine whether GSE supplementation could reduce the BP in response to static exercise and post exercise muscular ischemia (PEMI) in normotensive young adults. **Methods:** in 12 healthy subjects (7 male and 5 female, 24.6±3.4 yr), we compared acute effect of both GSE (600 mg) and placebo (PL: 600 mg) on changes from rest in systolic BP (SBP), diastolic BP (DBP), mean arterial pressure (MAP), heart rate (HR), stroke volume (SV), cardiac output (CO), and total peripheral resistance (TPR) during static exercise (SE) and PEMI. Subjects completed 2 min of SE at 30% of maximal voluntary contraction (MVC) followed by 2 min of PEMI. **Results:** MAP was significantly increased during SE in both conditions, but the rise was significantly attenuated following GSE treatment compared to PL supplementation (24±2 mmHg vs. 30±2 mmHg). There was no difference in CO between GSE and PL conditions. TPR was significantly increased in both conditions, but the rise was significantly higher following PL treatment compared to GSE treatment (2.9±0.5 mmHg/L/min vs. 0.9±0.6 mmHg/L/min). The similar results persisted during the PEMI. **Conclusion:** findings suggest that GSE is effective in reducing BP response mediated by the MMR activation. The current study may have potential clinical significance that this extract at least partially buffers an exaggerated BP response evoked during exercise in hypertensive individuals.