*SWACSM Abstract*

# Effects of Chronic Grape Seed Extract Supplementation on Muscle Metaboreflex in Young Prehypertensive Individuals

DONGNYEUCK SEO, CARMEN WARDWELL, DAE SIK SONG, JOSLYN LEAGE, ISAAC SUMARAN, & JONG-KYUNG KIM

Department of Kinesiology; California Baptist University; Riverside, CA

*Category: Masters-in-Training*

*Advisor / Mentor: Kim, Jong-Kyung (jokim@calbaptist.edu)*

ABSTRACT

Previously, our laboratory demonstrated that acute grape seed extract (GSE) substantially reduced mean arterial pressure (MAP) in response to static exercise (SE) and post exercise muscular ischemia (PEMI) in normotensive young adults. However, limited evidence has reported regarding the potential beneficial effects of this extract on blood pressure (BP) induced by the muscle metaboreflex (MMR) activation in prehypertensive individuals. **PURPOSE:** The aim of this study was to compare effects of 7 days of GSE supplementation and placebo (PL) on hemodynamic response to SE and PEMI. **METHODS:** Subjects were randomly assigned via a double-blind, cross-over design to receive either GSE (600 mg) or PL (600 mg) with a 1 wk washout period. The changes from rest in systolic BP (SBP), diastolic BP (DBP), MAP, heart rate (HR), stroke volume (SV), cardiac output (CO), and total peripheral resistance (TPR) during SE and PEMI. Subjects completed 3 min of SE at 30% of maximal voluntary contraction (MVC) followed by 2 min of PEMI. The cold pressor test (CPT) was compared before and after either supplementation. **RESULTS:** MAP was significantly increased during SE in both conditions, but the rise was significantly accentuated following PL treatment compared to GSE supplementation (PL: 22±1 mmHg vs. 23±1 mmHg; GSE: 22±2 mmHg vs. 18±1 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 (PL: 2.3±0.5 mmHg/L/min vs 2.2±0.6 mmHg/L/min; GSE: 2.2±0.5 mmHg/L/min vs 1.5±0.6 mmHg/L/min). The similar results persisted during the PEMI. The MAP response to CPT was attenuated after GSE treatment compared to the PL. **CONCLUSION:** Our results suggest that GSE is effective in reducing exaggerated BP response mediated by the MMR activation in prehypertensive individuals.