

Effects of 7 days of Grape Seed Extract Supplementation on Heart Rate Recovery in Young Prehypertensive Individuals

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ABSTRACT

Evidence suggested heart rate recovery (HRR) is a useful maker to evaluate cardiac sympathetic function. Prehypertension is characterized by overactive sympathetic output and dysfunction of cardiac parasympathetic activity and associated with delayed HRR. Even though dietary supplementation with grape seed extract (GSE) elicits the production of nitric oxide, limited evidence has reported regarding the potential beneficial effects of this extract on HRR. **Purpose:** The aim of this study was to compare effects of 7 days of GSE supplementation and placebo (PL) on HRR for 5 min after graded exercise. **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. A maximal exercise test was performed using the Bruce protocol. HRR was measured as peak heart rate (HR) minus every minute HR immediately after cession of exercise. The VO_{2max} criteria were as follows: a plateau in VO_2 despite an increase in work rate, $RER > 1.0$, and $> 90\%$ of age-predicted maximal HR. **Results:** There were no difference in HRR after graded exercise before and after PL treatment (148 ± 7 vs 159 ± 4 , 127 ± 6 vs 134 ± 4 , 117 ± 5 vs 124 ± 4 , 112 ± 6 vs 117 ± 4 , and 109 ± 5 vs 112 ± 4 , respectively). However, post-GSE treatment increased HRR only at the first and second minute compared to pre-treatment (155 ± 4 vs 150 ± 5 , 134 ± 2 vs 127 ± 4 , 121 ± 3 vs 115 ± 4 , 116 ± 3 vs 112 ± 3 , and 103 ± 3 vs 108 ± 3 , respectively). **Conclusion:** Our results suggest that GSE is effective in improving HRR in prehypertensive individuals. The current study may have potential clinical significance that this extract at least partially improves autonomic dysfunction in pathological conditions such as hypertension and heart failure.