

POSTER PRESENTATION

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Effects of 14 days of prophylactic resveratrol supplementation in trained endurance runners upon the inflammatory markers TNF- α , IL1 β , and IL-6 following a single bout of eccentric exercise

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Background

Resveratrol is a natural polyphenol found in peanuts and grapes. Resveratrol possesses antioxidative properties which have shown to reduce the oxidative damage from reactive oxygen species (ROS). Resveratrol also has the ability to attenuate inflammation via inhibiting TNF- α , IL-1 β , IL-6, and blocking NF- κ B activation. Resveratrol supplementation may have the potential to mitigate the damages associated with intense or prolonged exercise; consequently improving recovery. The purpose of this study is to evaluate the effects of a 14 day prophylactic supplementation trans-resveratrol on TNF- α , IL-1 β , and IL-6 from a single bout of eccentric exercise in trained-distance runners.

Methods

Eight trained male distance runners ages 35 to 45 (38.13 ± 2.95 yrs) were randomly assigned to consume in a double blind manner either a placebo (PL) or 1000mg of trans-resveratrol (*Polygonum cuspidatum*) (RESV) daily for 14 days (Transmax, Biotivia Bioceuticals). Prior to supplementation participants' height (69.5 ± 2.3 in) and weight (165.2 ± 24.25 lbs.) were recorded and body composition (17.75 ± 4.8 BF%) was assessed using DEXA. $\dot{V}O_{2\max}$ (55.3 ± 6.4 ml/kg/min) was assessed using Fox and Costill protocol and 65% of $\dot{V}O_{2\max}$ heart rate (117 ± 4.2 bpm) was established for use as intensity predictor in the downhill running protocol. Following 14 days of prophylactic supplementation, participants engaged in a 45 minute downhill running protocol at 65% of $\dot{V}O_{2\max}$ at a

declined grade of 12%. Venous blood samples were taken prior to (PRE), immediately after (POST), one hour (1HR) and two hours (2HR) following the downhill protocol. Serum samples for each time point (PRE, POST, 1HR, 2HR) were assayed for TNF- α , IL-1 β , and IL-6 using ELISA. Dietary analyses were conducted during the four days prior to testing to determine any antioxidant and anti-inflammatory influences within the diet.

Results

A significant main effect for time ($p = 0.003$) for IL-6 (RESV: 0.613 ± 0.253 , 1.38 ± 0.394 , 1.978 ± 0.479 , 1.594 ± 0.66 ; PL: 0.921 ± 0.73 , 2.25 ± 1.05 , 1.698 ± 0.561 , 1.953 ± 1.87 pg/mL). Delta responses for IL-6 showed a 125.12% change at POST, 222.68% change at 1HR, and 160.03% at 2HR for the RESV group while the PL group showed a 144.3%, 84.36%, and 112.05% change at the same time points, respectively. No significant observations for time or between groups for TNF- α and IL-1 β were observed. Response from baseline for TNF- α showed a 10.91% change at POST, 53.33% change at 1HR, and 8.48% at 2HR for the RESV group while the PL group showed a 15.3%, -1.87%, and -8.96% change at the same time points ($p > 0.05$), respectively. For IL-1 β , the response from baseline showed a 10.96% change at POST, 16.04% change at 1HR, and 18.18% at 2HR for the RESV group while the PL group showed a -39.67%, -31.15%, and -33.93% change at the same time points ($p > 0.05$), respectively. No differences were observed on pain scale values between groups resulting from the eccentric protocol ($p > 0.05$).

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Conclusion

The results of this study suggest that 14 days of prophylactic Resveratrol supplementation does not attenuate inflammatory responses resulting from a single bout of eccentric exercise in trained endurance runners.

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