

CHERRIES AND EXERCISE – Aiding Recovery and Reducing Muscle Damage

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Influence of tart cherry juice on indices of recovery following marathon running.

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This investigation determined the efficacy of a tart cherry juice in aiding recovery and reducing muscle damage, inflammation and oxidative stress. Twenty recreational Marathon runners assigned to either consumed cherry juice or placebo for 5 days before, the day of and for 48 h following a Marathon run. Markers of muscle damage (creatine kinase, lactate dehydrogenase, muscle soreness and isometric strength), inflammation [interleukin-6 (IL-6), C-reactive protein (CRP) and uric acid], total antioxidant status (TAS) and oxidative stress [thiobarbituric acid reactive species (TBARS) and protein carbonyls] were examined before and following the race. Isometric strength recovered significantly faster ($P=0.024$) in the cherry juice group. No other damage indices were significantly different. Inflammation was reduced in the cherry juice group (IL-6, $P<0.001$; CRP, $P<0.01$; uric acid, $P<0.05$). TAS was approximately 10% greater in the cherry juice than the placebo group for all post-supplementation measures ($P<0.05$). Protein carbonyls was not different; however, TBARS was lower in the cherry juice than the placebo at 48 h ($P<0.05$). **The cherry juice appears to provide a viable means to aid recovery following strenuous exercise by increasing total antioxidative capacity, reducing inflammation, lipid peroxidation and so aiding in the recovery of muscle function.**

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Cherries prevent exercise induced muscle damage

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Efficacy of a tart cherry juice blend in preventing the symptoms of muscle damage.

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BACKGROUND: Numerous antioxidant and anti-inflammatory agents have been identified in tart cherries.

OBJECTIVE: To test the efficacy of a tart cherry juice blend in preventing the symptoms of exercise induced muscle damage. **METHODS:** This was a randomised, placebo controlled, crossover design. Fourteen male college students drank 12 fl oz of a cherry juice blend or a placebo twice a day for eight consecutive days. A bout of eccentric elbow flexion contractions (2 x 20 maximum contractions) was performed on the fourth day of supplementation. Isometric elbow flexion strength, pain, muscle tenderness, and relaxed elbow angle were recorded before and for four days after the eccentric exercise. The protocol was repeated two weeks later with subjects who took the placebo initially, now taking the cherry juice (and vice versa). The opposite arm performed the eccentric exercise for the second bout to avoid the repeated bout protective effect. **RESULTS:** Strength loss and pain were significantly less in the cherry juice trial versus placebo (time by treatment: strength $p < 0.0001$, pain $p = 0.017$). Relaxed elbow angle (time by treatment $p = 0.85$) and muscle tenderness (time by treatment $p = 0.81$) were not different between trials.

CONCLUSIONS: **These data show efficacy for this cherry juice in decreasing some of the symptoms of exercise induced muscle damage. Most notably, strength loss averaged over the four days after eccentric exercise was 22% with the placebo, but only 4% with the cherry juice.**

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Tart Cherry Juice Diminishes Exercise-induced Muscle Damage in Horses

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Effect of a tart cherry juice blend on exercise-induced muscle damage in horses.

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OBJECTIVE: To evaluate whether administering a tart cherry juice blend (TCJB) prior to exercise would reduce skeletal and cardiac muscle damage by decreasing the inflammatory and oxidative stress response to exercise in horses. **ANIMALS:** 6 horses. **PROCEDURES:** Horses were randomly allocated into 2 groups in a crossover study with a 2-week washout period and orally administered either TCJB or a placebo solution (1.42 L, twice daily) in a double-masked protocol for 2 weeks prior to a stepwise incremental exercise protocol. Horses were tested for serum activities of creatine kinase and aspartate aminotransferase (AST) and concentrations of cardiac troponin I (cTnI), thiobarbituric acid reactive substances (TBARS; an indicator of oxidative stress), and serum amyloid A (SAA; an indicator of inflammation). To ensure that treatment would not result in positive results of an equine drug-screening protocol, serum samples obtained from each horse prior to and after 2 weeks of administration of TCJB or the placebo solution were tested. **RESULTS:** All horses had negative results of drug screening at both sample times. The exercise protocol resulted in a significant increase in TBARS concentration, SAA concentration, and serum AST activity in all horses. Administration of TCJB or placebo solution was not associated with an effect on malondialdehyde or SAA concentrations. However, administration of TCJB was associated with less serum activity of AST, compared with administration of placebo solution. **CONCLUSIONS AND CLINICAL RELEVANCE:** Administration of TCJB (Tart Cherry Juice Blend) may diminish muscle damage induced by exercise.

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