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The Use of Tart Cherry Juice for Muscle Recovery in Females

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An inflammatory response and oxidative stress are known causes of muscle damage within the body following exercise, with a greater intensity of exercise contributing to severity. Symptoms associated with exercise-induced muscle damage (EIMD) include soreness, swelling, and pain, possibly affecting future exercise participation. Tart cherry juice (TCJ) may provide protection against EIMD, due to its potent antioxidant and anti-inflammatory properties. Research has suggested that the prevention of EIMD from TCJ supplementation enhances muscle recovery following intense exercise, though data on females are lacking. **PURPOSE:** To assess the effects of TCJ supplementation on muscle recovery and inflammation following intense resistance training exercise in young, healthy females. **METHODS:** Fifteen females (18-24y) completed two trials of intense resistance exercise separated by one month. Participants were randomly assigned either a TCJ supplement or placebo to consume for eight days (6 days before trial, and 2 days after trial). On day 6 of each trial, participants completed 6 sets of 10 repetitions of a machine chest press at 80% of their previously determined 1RM. If unable to complete a set, the subsequent set was reduced by 5%. On days 7-8 of each trial, participants followed 1RM protocols to assess possible strength loss and reported perceived soreness and pain levels using a visual analogue scale (VAS). Venous blood samples were collected on days 6-8 of each trial and processed. Inflammatory biomarkers (IL-1β, IL-6, IL-8, TNF-α) were assessed from plasma samples using an electrochemiluminescence model. A two-way repeated-measures ANOVA were used for statistical analysis of the data. **RESULTS:** The average total volume of exercise completed across the TCJ and placebo conditions did not differ (-33.3kg in TCJ condition, $P>0.05$). There were no differences noted between the TCJ and placebo conditions for perceived pain (VAS; $\Delta 8.3 \pm 6.6$) or soreness (VAS; $\Delta 7.8 \pm 7.6$), respectively. Inflammatory biomarker data to be determined. **CONCLUSION:** Despite potential differences in inflammatory markers following TCJ ingestion, the use of tart cherry juice supplementation did not impact participant perceptions of soreness and pain in this cohort. Further studies of this phenomenon in females are warranted. **SIGNIFICANCE/NOVELTY:** To the author's knowledge, this is the first study to examine the use of TCJ for muscle recovery in females only.