Tart cherries contain a high level of antioxidant and anti-inflammatory phytonutrients. Limited research has investigated their potential to ameliorate the symptoms of delayed onset muscle soreness (DOMS) caused by inflammation resulting from strenuous eccentric exercise. Further research is warranted to examine the effect of tart cherry juice (TCJ) on symptoms of DOMS.

PURPOSE: To assess the effect of TCJ on muscle pain, proximal (PT) and distal (DT) tenderness, thigh girth circumference (TG), range of motion (ROM), and strength.

METHODS: Recreationally active males and females (Age=25.3±6.9 yrs, Height=1.7±0.1 m, Weight=70.1±9.2 kg, BMI=23.3±1.9 kg/m²;) underwent assessment of the right quadriceps muscle for pain with a Visual Analog Scale (VAS) (mm), PT and DT with a dynamometer (kg), TG (cm), passive knee flexion (ROM) with an inclinometer (°), and isokinetic extension strength (N*m %BW) at Baseline, after an isokinetic eccentric fatigue protocol (Fatigue), and 24h (Day 1), 48h (Day 2), 72h (Day 4), and 168h (Day 7) post-fatigue while consuming a TCJ (N=15) or placebo beverage (N=14) twice per day. Repeated measures ANOVA was utilized to compare variables between group and time. Within subjects contrast was set between Baseline and all other study days. Alpha was set at \( p<0.05 \).

RESULTS: There were no differences between groups (treatment by time) for any variables. Variables showed within-subject differences between visits \( p<0.01 \), and within-subject contrasts showed significant differences from Baseline to Fatigue, Days 1, and 2 post-fatigue \( p<0.01 \) for VAS, from Baseline to Days 1, 2, and 4 post-fatigue \( p=0.000 \) for PT, from Baseline to Fatigue \( p<0.05 \) for DT and TG, from Baseline to Fatigue, Days 1, and 2 post-fatigue \( p<0.01 \) for ROM, and from Baseline to Day 7 post-fatigue \( p=0.004 \) for strength.

CONCLUSIONS: While previous studies have shown that TCJ has improved symptoms of DOMS, this study indicated there were no differences in symptoms between subjects consuming TCJ and placebo beverages. Variable differences between days suggest that subjects experienced symptoms of DOMS as a result of the fatigue protocol. Results of this study may be limited by the use of indirect measurements of antioxidant and anti-inflammatory mechanisms elicited by the consumption of TCJ.