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The Effect Of Antioxidant Cherryflex® Supplementation On Exercise Induced Doms, Biomarkers Of Tissue Damage, And Oxidative Stress

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Abstract:

**Purpose:** The purpose of this crossover, double blind study was to examine the effects of CherryFlex supplementation on eccentric exercise induced inflammation, tissue damage, oxidative stress biomarkers and delayed onset muscle soreness (DOMS).

**Methods:** Four males and ten females (ages:  $21 \pm 0.76$  years; weight:  $72.21 \pm 3.7$  kg) performed five sets of 10 maximal eccentric contractions of the elbow flexor on a Biodex isokinetic dynamometer. The placebo and CherryFlex supplemental groups each ingested tablets 16 days prior to exercise and continued through the study. Venous blood samples were obtained at 16 and 1 day prior to exercise and 0, 2, 4, 24, 48 and 72 hours post exercise. Samples were measured for creatine kinase (CK), myoglobin, protein carbonyls (PC), thiobarbituric acid (TBARS), and C-Reactive proteins (CRP). Data for limb volume, limb girth, arm hang angle, peak torque, peak work, punctuated tenderness gauge (objective pain) and visual analog scale (subjective pain) were collected at 0, 12, 24, 48, and 72 hours post exercise. Time by treatment and treatment effects were measured using MANOVA repeated measures with Tukey's post-hoc at specific time points.

**Results:** Moderately significant treatment effect were observed in TBARS ( $\pm$  SE; P24  $4.15 \pm 0.43$  vs. S24  $3.42 \pm 0.29$ ;  $p=0.1062$ ), 12 hour objective pain at 4 cm site (P12  $1.25 \pm 0.13$  vs. S12  $1.63 \pm 0.20$ ;  $p=0.139$ ), 12 hour relaxed arm hang angle (P12  $145.67 \pm 2.15$  vs. S12  $150.18 \pm 1.69$ ;  $p=0.100$ ) and percent of maximum torque loss (S24  $21 \pm 4.2\%$ , P24  $29 \pm 4.2\%$ ,  $p=0.11$ ). Statistically significant time by treatment interactions between groups at  $p \leq 0.05$ , were observed for CRP (P24  $5.02 \pm 2.02$  vs. S24  $2.85 \pm 0.95$ ;  $p=0.047$ ), objective pain (P12  $1.41 \pm 0.06$  vs. S12  $1.52 \pm 0.08$ ;  $p=0.040$ ) and subjective pain (P48  $4.86 \pm 0.39$  vs. S48  $4.14 \pm 0.41$ ;  $p=0.026$ ). The cherry supplemental group demonstrated no significant differences in protein carbonyls, creatine kinase, myoglobin, limb volume, limb girth, flexed arm hang angle, peak torque and peak work.

**Conclusions:** These findings suggest that ingestion of the CherryFlex supplement prior to and during eccentric exercise may have a protective effect on oxidative stress (TBARS), inflammation (CRP), range of motion, contractile force loss, and perceived pain.

Author Disclosure Information: G.M. Kastello, Brownwood Acres Inc., Contracted Research.