N-acetylcysteine (NAC) supplementation has demonstrated pro- and anti-inflammatory effects in human subjects following exercise-induced muscle injury. However, there is limited data examining the effects of NAC on recovery of maximal isometric torque (MIT) following injurious exercise. PURPOSE: The purpose of this study was to examine the effect of NAC supplementation on recovery of MIT following eccentric contraction-induced muscle injury. METHODS: Non-resistance-trained female subjects (n = 21, age = 20.7 ± .1 yr, weight = 68.1 ± 10 kg, height = 1.7 ± .07 m) performed one bout of eccentric exercise involving the non-dominant forearm flexor muscles. Subjects were given a placebo (P) (n = 10) or NAC supplement (10 mg·kg⁻¹·bw·d⁻¹; n = 11) for 7d prior to and 10d following the eccentric exercise bout. Maximal isometric torque, muscle soreness (SORE), range of motion (ROM), and arm circumference (CIRC) were measured at pre-exercise (PRE), immediately post-exercise (POST), and at 1d, 3d, 7d and 10d post-exercise. In addition, serum interleukin-6 (IL-6), serum creatine kinase (CK), and serum glutathione were measured. Subjects completed a
food frequency questionnaire (FFQ) to determine the antioxidant content of their diet.

RESULTS: There was no difference in MIT values between the P and NAC group POST (26.93 ± 6.4 vs. 24.95 ± 9.4 Nm) or at 1d (27.83 ± 5.7 vs. 26.9 ± 8.5 Nm), 3d (38.35 ± 6.7 vs. 34.69 ± 10.2 Nm), 7d (46.9 ± 8.8 vs. 42.5 ± 11.8 Nm), or 10d (57.83 ± 11.7 vs. 52.92 ± 14.3 Nm) post-exercise. In addition, there was no difference in SORE (p = .752), CIRC (p = .535), ROM (p = .539), serum CK (p = .449), serum glutathione (p = .967), or serum IL-6 (p = .360) at any time point. FFQ scores demonstrated that dietary antioxidant intake was not significantly different between groups (p = .054). CONCLUSION: A bout of eccentric forearm flexor exercise resulted in a significant decrease in MIT values (>50% PRE MIT at POST) in both groups. Supplementation with NAC had no effect on recovery of MIT, SORE, CIRC, ROM, serum CK, serum IL-6, or serum glutathione at any time point following the exercise bout when compared to a P group. These results suggest that oral ingestion of NAC, at a dosage of 10 mg·kg⁻¹·bw·d⁻¹, has no effect on recovery of MIT following eccentric muscle injury. Supported by doctoral dissertation grant from Gatorade Sports Science Institute.

Disclosures: **R.C. Luke:** None.