2023-2024 School of Exercise and Nutritional Sciences Student Research Grant Report

Authors: Michaela Renfro, Shirin Hooshmand, Mark Kern, Michelle L. Weber Rawlins

Title: Creatine Supplementation in Concussion Recovery

Context: Concussions are a significant public health concern, with millions diagnosed every year. Concussion recovery can vary between person to person and many variables are proposed to influence recovery, including nutrition. Creatine is a nutrient proposed to play a role in brain health, however, the influence that creatine may have in concussion recovery has not been examined. Therefore, the purpose of this study was to compare concussion recovery between individuals supplementing creatine to those not supplementing creatine. We hypothesized that individuals taking creatine would recover sooner than those not taking creatine.

Methods: Participants were recruited from a large public academic institution. Inclusion criteria included concussion diagnosis and initial assessment within 72 hours post-injury, 18-35 years old, no history of mental health disorders, learning disabilities, or migraines, and no creatine use currently or within the last 6 weeks. Participants were randomly assigned to the creatine (intervention) or no creatine (control) group prior to their initial assessment. The intervention group consumed their usual diet plus 5 grams of creatine for the first 4 days following the initial assessment, and then 3 grams of creatine once per day thereafter until asymptomatic. The control group consumed their usual diet. Participants completed two assessments (initial and once asymptomatic). We calculated descriptive statistics for all demographics and days to asymptomatic. We also calculated a Mann-Whitney U to determine if days to asymptomatic differed in those taking creatine vs. those not taking creatine.

Results: Our project included 3 participants (2 intervention and 1 control group; age=22.0±3.6 years; male=1, 33.33%, female=2, 66.67%). The average days to asymptomatic were 17.67±20.21 (intervention group=23.50 days, control group=6.00 days). Results indicated that days to asymptomatic did not differ between the intervention and control groups (p=0.667).

Conclusions: Our preliminary results indicate that creatine use does not influence concussion recovery, however, future studies should consider a larger participant sample number to increase generalizability and accuracy. Further research is needed to evaluate additional roles creatine may play in concussion treatment and management, such as in patients with persisting concussion symptoms. While creatine supplementation may improve brain health, its effects on concussion recovery require additional research.