Creatine Supplementation in Concussion Recovery

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Introduction

- 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 well examined.

Purpose

- The purpose of this study was to compare concussion recovery between individuals supplementing creatine to those not supplementing creatine to determine whether creatine supplementation plays a role in concussion recovery.

Methods

Participants

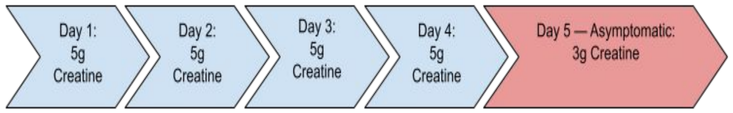
- Recently concussed participants (n=3), (2 females, 1 male).
- Mean age 22±3.6 years.
- No history of mental health disorders or migraines.
- No current use of creatine or have not used creatine for at least 6 weeks.
- Diagnosed with a concussion no more than 72 hours prior to initial laboratory visit.

Study Design

- Randomized controlled trial (RCT)
- Two total assessments: Initial and Final (Asymptomatic)
- Demographic data and days to asymptomatic measured.
- Assessments administered:
  - Demographic questionnaire (Initial visit only)
  - Sport Concussion Office Assessment Tool 6 (SCOAT6)
  - Standardized Assessment of Concussion (SAC)
  - Concussion Vital Signs (CNS Vital Signs)
  - Balance Error Scoring System (BESS)
- Participants were randomly assigned to the creatine (intervention) or no creatine (control) group prior to their initial assessment.

Methods

- Control group consumed their usual diet and no creatine.
- The intervention group consumed 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:



Statistical Analysis

- A Mann-Whitney U test was conducted to determine if days to asymptomatic differed in those taking creatine vs. those not taking creatine
- The alpha level $p<0.05$ was used for statistical significance.

Results

Figure 1--Participant Group Distribution

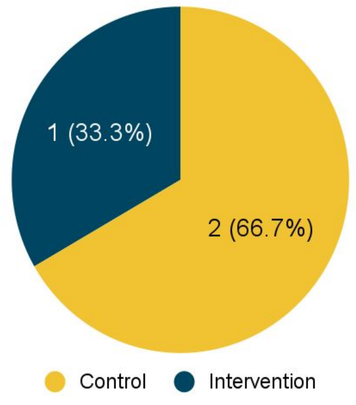


Figure 1– Group Distribution, number of participants in each group (n=3 participants). One (1) Intervention participant (Creatine supplementation group) and two (2) Control participants (no creatine). Participants randomly assigned to groups prior to initial assessment.

Results

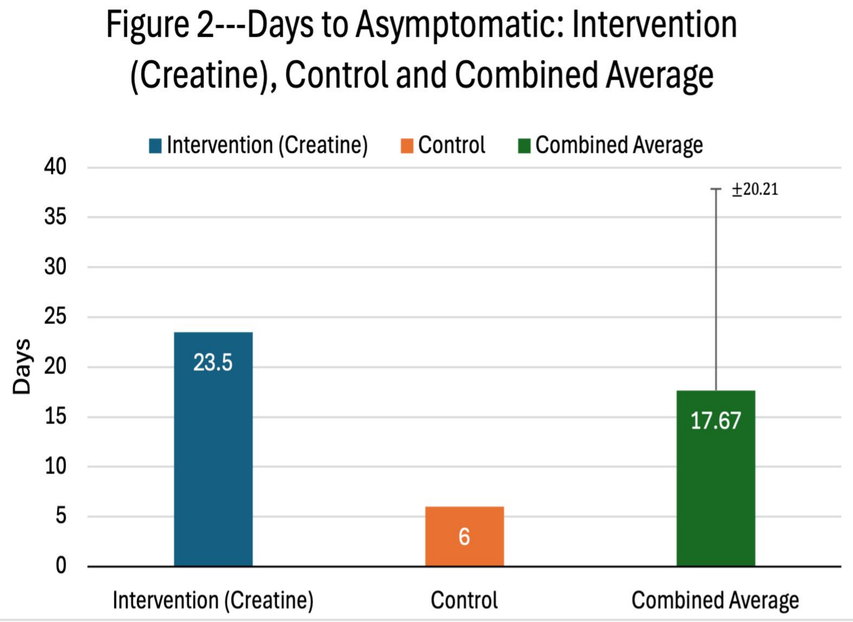


Figure 2- Days to asymptomatic for Intervention (Creatine) group, Control group, and the combined average days between both groups (n=3 participants). Data for Combined Average represented as average ± SD. No statistically significant difference for days to recovery between Intervention and Control groups; (p=0.667).

Conclusion

- 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.

Contact and Disclosure

- **This project was supported by San Diego State University School of Exercise and Nutritional Sciences Student Research Grant**
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