

Pre-Injury Exercise Level May Correlate with Improved Concussion outcomes

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Level of Pre-Injury Aerobic Exercise and Concussion Outcomes

BACKGROUND:

Exercise is well known to have beneficial effects on the brain, specifically on learning, memory, and mood. Recent studies have shown that aerobic exercise aids recovery in the sub-acute phase of concussion. However, research has not found any preventive strategies to reliably improve concussion outcomes. Risk factors for prolonged recovery have been identified but no modifiable factors prognosticating better recovery have been described.

PURPOSE: To determine if pre-injury exercise level correlates with improved outcomes, specifically concussion severity and length of recovery.

METHODS: This is a retrospective, exploratory cohort study. A sample of patients with concussion, evaluated in a tertiary pediatric hospital-affiliated sports medicine clinic, was chosen for review and abstraction. 311 charts were sampled in total, 274 charts were patients <18 years old. 11 different major sports were identified: Ice Hockey, Lax, Soccer, Basketball, Field Hockey, Cheerleading, Baseball, Softball, Volleyball, Swimming, Football. Statistical analysis was performed using poisson regression controlling for age, comorbidities and mechanism of injury.

RESULTS: *Lacrosse ($p=0.021$), Soccer ($p=0.02$), Basketball ($p=0.041$), volleyball ($p=0.034$), and swimming ($p=0.039$), had significantly fewer days of missed exercise.*

CONCLUSIONS: These findings suggest that pediatric and adolescent athletes with concussion may experience a significantly shorter recovery period as demonstrated by fewer days of missed exercise. Specifically, athletes participating in moderate-high dynamic and low-moderate static sports had fewer days of missed exercise compared to other sports. More research is needed to determine if level of pre-injury exercise confers a protective effect on concussion outcomes and if so, by what mechanism.