Implications of attention deficit and hyperactivity disorders on neurocognitive performance and recovery in collegiate student–athletes

Caroline Ketcham, Kirtida Patel, Eric Hall

DOI: http://dx.doi.org/10.1136/bjsports-2016-097270.78

Abstract

Background
Approximately 3–13% of college-aged students have a diagnosis of Attention Deficit/Hyperactivity Disorder (ADD/ADHD) which is characterized by impulsivity, inattention, and cognitive speed deficits which affect academic, athletic, and occupational performance even when treated.

Objective
The purpose of this study was to examine baseline neurocognitive differences in collegiate student-athletes with a diagnosis of ADD/ADHD as well as recovery time from a concussion.

Design
Cross-sectional.

Setting
Collegiate campus in North Carolina

Participants
Participants of this study included 1161 student-athletes (varsity, n=272 and club, n=889). 89 participants were followed post-concussion with 8 having a diagnosis of ADD/ADHD.

Assessment of risk factors
Diagnosis of ADD/ADHD and days of recovery following concussion.

Outcome measures
Participants completed the Immediate Post-Concussion Assessment and Cognitive Testing which generated composite scores on Verbal Memory, Visual Memory, Visuomotor Speed, and Reaction Time as well as Total Symptom Scores.

Main results
There were no significant differences between groups for Visual Memory, Reaction Time and Total Symptom Scores (p>0.05). Those with diagnosis of ADD/ADHD (n=146) had lower verbal memory (mno=85.3, %95 CI: [84.6, 86] vs. madd=82.5, %95 CI: [80.7, 84.3], F(1, 1145)=8.6, p=0.003) and slower visuomotor speed (mno=41.7, %95 CI: [41.3, 42.7] vs. madd=40.5, %95 CI: [39.5, 41.5], F(1,1145)=8.6,p=0.027) compared to those without a diagnosis. Those with ADD/ADHD took almost two times longer to recover than those without (mno=7.3 days, %95 CI: [6.2, 8.4] vs. madd=13.3 days, %95 CI: [9.4, 17.2], F(1,89)=9.8, p=0.002).

Conclusions
Student-athletes with a diagnosis of ADD/ADHD may benefit from targeted interventions as part of return to play/learn protocols. Previous research has shown that practice may help rehabilitate those with cognitive and visuomotor processing speed deficits following a concussion.