



Grant Information Summary:

Sex Differences in Post-Concussion Symptoms and Neuropsychological Recovery of Collegiate Athletes

Practical Implications:

Male and female collegiate athletes displayed differences in post-concussion symptoms suggesting that sex specific evaluation tools may be necessary. Collegiate athletes' reaction time and memory verbal scores had the greatest decrements as a result of a concussion and warrant special attention when evaluating a concussed athlete.

Background

There are approximately 300,000 sport-related concussions reported each year. Although severity of concussion has been reported to be higher among male athletes, female athletes have been found to be at a greater inherent risk for concussions in basketball and soccer. However, very few studies have compared sex differences among collegiate athletes sustaining a concussion.

Objective

To determine if sex differences exist in neuropsychological functioning, post-concussion symptoms, and recovery rates of collegiate athletes.

Design and Setting

A prospective cohort design was used to compare baseline and post-concussion neuropsychological test scores and symptoms using the ImPACT concus-

sion software. When an athlete sustained a concussion he or she completed the ImPACT test during the following three test periods: 0 to 2 days, 2 to 5 days, and 6 to 10 days following injury.

Subjects

Division I intercollegiate athletes (N = 1093) at five Northeastern Universities were administered the ImPACT test battery during the 2002-2003 academic year. Thirty-three athletes sustained a concussion during the study period.

Measurements

The ImPACT battery, the American Academy of Neurology definition and grading scale were used by physicians and certified athletic trainers to assess athletes who suffer a concussion.

Results

Results revealed that concussed athletes performed significantly better on pre-test (.9 ± .06) when compared to post-test 1 (.82 ± .12), post-test 2 (.84 ± .10), and post test 3 (.84 ± .10) for memory verbal neuropsychological test scores (p<0.05). Concussed athletes had signifi-

cantly slower reaction time scores on post-test 1 (.60 ± .02 sec) than on post-test 2 (.56 ± .02 sec) and post-test 3 (.54 ± .02 sec) scores (p<0.05). Male athletes reported significantly higher symptoms of sadness and vomiting when compared to female athletes.

Conclusions

Collegiate athletes' reaction time and memory verbal scores had the greatest decrements as a result of a concussion and should warrant special attention when evaluating a concussed athlete. Moreover, male and female athletes exhibit different post-concussion symptoms suggesting that sex specific evaluation tools and grading scales need to be considered.

Principal Investigator:



**Tracey Covassin,
PhD, ATC**

Publication & Presentation List

NATA Annual Meeting,
Baltimore, MD, June 15-19, 2004

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