Sports-related mild traumatic brain injury (mTBI) recovery time in intercollegiate athletes

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Abstract
Sports-related mTBIs have become an increasingly hot topic. Few studies report mean recovery times from mTBIs and even less for intercollegiate athletes. The primary aim of this study was to compare the recovery time in athletes from a large Division I University to published data for quality assessment and improvement. Secondary aims were to compare recovery times between genders, sport, and league. 53 athletes (26 male & 27 female) with an mTBI from 2010 – 2012 had a mean recovery time of 10.11 days (95% CI 8.58–11.65 d), statistically greater than reported times in the literature. No significant variation in recovery times between genders and NCAA vs. club league were seen. Subgroup statistics of 13 sports were inconclusive due to low power. However, the male football subgroup had a mean recovery time of 6.5 days (95% CI 4.80–8.14 d), statistically similar to published data. Multiple confounding variables were not controlled. However, this study did highlight areas for quality improvement. Further studies with higher power and confounding variable control are needed for a definitive baseline recovery time.

Methods
Design: Retrospective chart review
Setting: Large Division I NCAA University
Exclusion Criteria: Non sports-mTBI injuries, athletes under alcoholic influence, no medical records, post-concussion syndrome, lack of dates, specialist referral, abnormal imaging, and medical treatment. 55 cases identified and 2 excluded.

Results & Discussion
Primary Objective Results: Table 1
- 53 cases showing a mean time to recovery of 10.11 days
- Statistically greater than NCAA study, but significance could not be determined due to lack of data from NCAA study
- Overlap of 95% CI with time to recovery in Zurich Statement

Secondary Objective Results: Recovery time by gender and sport league
- No statistically significant difference in recovery time between gender (Table 2)
- No statistically significant difference in recovery time between NCAA and non-NCAA athletes (Table 3)

Conclusion
- Statistically longer recovery time at this study’s institution, but not conclusive
- No significant difference in recovery time between genders
- No significant difference in recovery time between NCAA and non-NCAA athletes

Future Directions
- Repeat studies with better control and higher power
- Similar studies at other institutions for more definitive mean time to recovery
- Determination of sound evidence based management guidelines
- Clinical trials investigating therapeutic interventions for concussion management