Assessing the Test/Retest Reliability of the Baseline Concussion Test (ImPACT) in High School Athletes

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The widely-used and validated method of concussion assessment is the Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT). Current practice involves athletes undergoing a baseline examination before the start of each season. After suffering a concussion, the injured athlete completes the ImPACT test again. The individual results of the baseline and post-concussion performances are compared in order to diagnose the presence and severity of a concussion. Thus, the ImPACT test allows for an objective comparison of the individual before and after the injury.

This summer, I worked with Dr. Schatz to investigate the reliability of the ImPACT test across three administrations and the utility of updated baselines when compared to post concussion test data. Research included the preparing and organizing of a large data set from Louisiana high schools athletes for statistical analyses.

Preliminary results show that for athletes taking the test three times across three administrations, there is high test/retest reliability in all five neurocognitive composite scores of the ImPACT test. In a sub-sample of 71 athletes who completed two annual baselines, following by a concussion, only 4% (3/71) would have been diagnosed as “concussed” based on comparison to the second baseline instead of the first.

In the midst of this research, an offshoot project was initiated. This study examined the correlation between high school data (state test proficiency scores and mean ACT scores) with two ImPACT composite scores (verbal memory and visual memory). Preliminary results indicate a low correlation between high school academic data and ImPACT composite scores. However, results show a significant difference between public and private high school athletes’ composite scores on both verbal memory and visual motor speed.

This Summer Scholars research will culminate in publications documenting the utility of updated baseline assessments, as well as the relationship between concussion testing and high school proficiency scores.