

Does baseline concussion testing really reduce risks to athletes?

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Baseline concussion tests given to hundreds of thousands of athletes might, paradoxically, increase risks in some cases, according to a Loyola University Health System researcher.

The tests likely have a high "false negative" rate, meaning a test shows an athlete has recovered, when in fact he or she is still experiencing cognitive impairments from the [concussion](#).

This could increase risks by returning to play athletes who might otherwise be withheld for a longer period, neuropsychologist Christopher Randolph, PhD, writes in a recent issue of the journal *Current [Sports Medicine Reports](#)*.

Baseline concussion testing is mandatory in many football, hockey and other programs, from [elementary schools](#) to the pros. Such testing provides a baseline score of an athlete's attention span, [working memory](#), [reaction time](#), etc. If the athlete suffers a concussion, he or she retakes the test. If there is a large decrease in the post-concussion score, the athlete typically is benched until the score increases.

Randolph examined the most common baseline test, called ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing). The 20-minute test is taken on a computer.

"There is no evidence to suggest that the use of baseline testing alters any risk from sport-related concussion, nor is there even a good rationale as to how such tests might influence outcome," Randolph writes.

In searching the scientific literature, Randolph could not find a single prospective, controlled study of the current version of ImPACT (version 2.0). Such a study would involve baseline testing a large sample of athletes and then retesting concussed athletes in comparison with noninjured teammates. There was a single prospective, controlled study of

an earlier version (1.0), but that study had several serious flaws, Randolph writes.

Studies by independent researchers have found that the reliability of ImPACT testing "appears to be far too low to be useful for individual decision making," Randolph writes.

Using baseline testing with poor sensitivity and inadequate reliability could create a false sense of security that an athlete has recovered from a concussion.

Rather than relying on ImPACT or other baseline tests, team medical personnel "may be better advised to rely upon their own clinical judgment, in conjunction with a validated symptom checklist, in making return-to-play decisions," Randolph writes.

Provided by Loyola University Health System

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