

# Computerized Testing System Helps Determine Whether Athletes With Concussions Can Get Back In The Game

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How soon can I get back in the game? Despite a severe blow to the head, that is a frequent question by athletes who have suffered a concussion. Returning to play too soon can have catastrophic consequences. Suffering a second blow to the head while recovering from an initial concussion can cause permanent brain damage or death.

Dr. Shaun O'Leary, a neurosurgeon at Rush University Medical Center, is now using ImPACT, a new neurocognitive screening tool to help determine a concussion's severity as well as if and when it is safe for the athlete to return to contact sports.

With ImPACT, physicians and team athletic trainers collect and store pre-season baseline data on the athletes' neurocognitive functional state by having them take a 20-minute computerized test that measures brain processing, speed, memory and visual motor skills.

If an athlete experiences a concussion during the season, he or she is re-tested and the post-concussion data are compared to the baseline data. This information helps physicians and athletic trainers determine the player's post-concussion neurocognitive status and when it is safe for the player to return to active sports.

"Prior to ImPACT, physicians and medical trainers had some rough guidelines, but no good objective devices to figure out when an athlete could return to play," said O'Leary. "It is especially difficult to determine the impact of a mild concussion. Symptoms could be quite subtle and may go unnoticed by the athlete, team medical staff, or coaches."

O'Leary plans to partner with local sporting programs and schools to screen athletes at baseline. However, the system also includes historical norms for each age group so it can be used even if the athlete did not perform a baseline test.

"All concussions are serious, but often players wrongfully think it shows strength and courage to play injured," said O'Leary. "Players may say they are just fine. With ImPACT, we can objectively measure cognitive function to ensure we are allowing enough time for healing and recovery."

A repeat concussion that occurs before the brain recovers from the first can slow recovery or increase the likelihood of having long-term problems. In rare cases, repeat concussions can result in brain swelling, permanent brain damage, and even death. This more serious condition is called second impact syndrome.

According to the Centers for Disease Control as many as 3.8 million sports and recreation-related

concussions occur in the United States each year. A concussion occurs when the brain is violently rocked back and forth inside the skull due to a blow to the head or neck.

A concussion can occur without loss of consciousness. Other signs and symptoms include headache; nausea or vomiting; balance problems; double or blurry vision; sensitivity to light or noise; feeling sluggish, hazy, foggy or groggy; concentration or memory problems; and behavior or personality changes.

Some athletes may not experience or report symptoms until hours or days after an injury. Coaches who have a suspicion that an athlete has a concussion should keep the athlete out of the game or practice until they are evaluated and given permission to return to play by a health care professional with experience in evaluating for concussion.

Dr. Shaun O'Leary is the first credentialed ImPACT consultant in Chicago. Credentialed consultants have appropriate education, training, and experience with the ImPACT program.