GRSM Grand River Sports Medicine Centre

INJURY INFO

NEUROCOGNITIVE TESTING FOR CONCUSSIONS

by: DR. TREVOR L. HALL, MD, CCFP, DIP. SPORT MED

Why has every player in the National Hockey League and National Football League undergone neurocognitive testing? Although it may sound a little scary, "neurocognitive testing" is quickly becoming the standard for detecting the negative effects of concussions in sports.

A concussion is any head injury which causes transient brain dysfunction, resulting in symptoms such as headache, dizziness, nausea/vomiting and loss of concentration. Over the past decade, the long-term effects of concussions suffered by athletes have become more obvious. Recent research studies in the United States and Europe, have shown decreased cognitive (brain) function (e.g., difficulty concentrating, memory problems, learning abilities) in soccer players and football players who have suffered multiple concussions. Neurocognitive abnormalities are usually seen transiently after a recent concussion.

In treating many athletes with concussions, I have seen many of the harmful consequences of multiple concussions. Along with the concentration, memory and attention difficulties, athletes can suffer from chronic headaches, fatigue, irritability and other mood problems. Not only can these effects put a player's sports career in jeopardy, but they can have severe consequences on school performance, work potential and social relationships.

Neurocognitive assessment involves a series of tests that measure how well a person's brain is functioning, especially in the areas of attention, concentration, memory, information processing speed and reaction time. Typical neurocognitive testing in the past would be a laborious process that would take hours, but in recent years, more modern computerized versions geared specifically to athletes has cut the process down to 20 to 30 minutes.

The great use of neurocognitive testing is that it can detect subtle changes in brain function. A typical scenario involves a player who has sustained multiple concussions and is worried that he may have sustained permanent damage. Neurocognitive assessment is more useful if a player has a "baseline" test during the pre-season. If this player then sustains a concussion during the season, a follow-up neurocognitive test can be done and compared to the baseline test. This information can then be used to determine when the player can safely return to playing contact sports.

Over the past decade, both the National Hockey League and the National Football League have instituted programs of baseline and follow-up neuropsychological testing. Many colleges and universities in the U.S. have also started using neurocognitive testing. The Kitchener Rangers started a similar program many years ago and have found it very beneficial.

Research is on-going in the area of neurocognitive testing. As more information is obtained, the great usefulness of neurocognitive testing in the management of concussions is becoming more and more obvious.

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