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Neuro Testing Keeps Concussed Kids on the Sidelines

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MedPage Today Action Points

- Explain that analysis of a database of concussions in high school athletes found that those undergoing neuropsychological testing were less likely to return to play within one week.
- Note that only about one-quarter of those suffering a concussion had neuropsychological testing and that the testing was performed less among football players, who were the most likely to have a concussion.

Review

High school athletes who undergo computerized neuropsychological testing after sustaining a concussion are less likely to return to play within one week than those not tested, researchers found.

Just 13.6% of those who underwent testing returned to action within a week, compared with 32.9% of those who were not tested ($P<0.01$), according to William Meehan III, MD, of Children's Hospital Boston, and colleagues.

There was a nonsignificant trend toward a reduced likelihood of returning on the same day among athletes who were tested (0.8% versus 4.2%, $P=0.056$), the researchers reported in the December issue of the *American Journal of Sports Medicine*.

There are several possible explanations for the findings, they noted.

"It is possible that, despite reporting symptom resolution, these athletes had deficits in their neurocognitive function, adding further evidence to the benefit of neuropsychological testing in the management of sport-related concussion," they wrote, noting that the test scores were not available.

It is also possible, they continued, that clinicians who order testing are more conservative in their management of concussions or that athletes who were considered to have more serious injuries were more likely to undergo testing.

To explore the epidemiology of concussions in high school sports, Meehan and his colleagues looked at data from the High School Reporting Information Online (HS

RIO) injury surveillance system, which collects information from a nationally representative sample of 100 schools.

It covers five sports -- football, soccer, basketball, wrestling, baseball, volleyball, and softball.

During the 2008-2009 academic year, there were 544 concussions recorded in the database by certified athletic trainers. More than half (56.8%) were football injuries, with girls' soccer coming in a distant second (11.9%).

About three-quarters of the concussions were caused by contact with another player, and half of those involved a head-to-head collision.

Most of the concussed athletes (93.4%) had a headache after injury, but loss of consciousness was uncommon, occurring in just 4.6% of cases.

Other symptoms reported by more than half of the cases were dizziness/unsteadiness (74.6%) and difficulty concentrating (56.6%).

Symptoms resolved for 83.4% of the athletes within one week, with symptoms lingering longer than a month in just 1.5%.

Computerized neuropsychological testing was used in a quarter of cases. Testing was more common in athletes who played sports other than football (32% versus 23%, $P=0.02$).

The researchers speculated that "perhaps schools with limited financial resources are more likely to have football programs, given its popularity, than they are to have other sports. Similarly, they may not have the resources to purchase computerized test programs."

"Another possibility," they wrote, "is that football programs may be reluctant to use computerized neuropsychological testing in the assessment of a concussion for fear that athletes may miss more playing time."

The authors acknowledged that the study was limited both by the lack of neuropsychological test scores and by the use of data entered by athletic trainers, who have various thresholds for diagnosis of concussion, management strategies, and return-to-play protocols.

The authors reported that they had no conflicts of interest.

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Source reference:

Meehan W, et al "High school concussions in the 2008-2009 academic year: mechanism, symptoms, and management" *Am J Sports Med* 2010; 38: 2405-2409.

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