



## Concussion? Your brain needs longer time-out

Study: Young athletes return to activity too soon after common injury

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WASHINGTON - Your brain needs more of a time-out than just missing the next game to recover from a concussion. New research suggests student athletes who are too active — not just on the field, but at home and school — may hinder their recovery.

More puzzling, female athletes may take longer to recover than males.

It's part of growing evidence that healing from this common sports injury is more complicated than once thought, an important message for parents and coaches as school sports programs gear up for fall.

"No two concussions are the same," warns Kevin Guskiewicz, an athletic trainer who chairs the sports science department at the University of North Carolina at Chapel Hill. "We need to be cautious with what we're allowing someone to do, and at what point in their recovery they're allowed to do it."

Concussions are brain injuries and among the most difficult of sports injuries, starting with even identifying who's had one. Many athletes never lose consciousness, the most obvious symptom. Brain scans can't diagnose a concussion. Nor are other symptoms always apparent right away, and players can sometimes hide or minimize them: "Nope, no headaches, coach; put me back in."

Doing so has grave risks. A second concussion before recovering from the first can cause brain swelling that can trigger permanent damage, even death.

And there's mounting concern from studies of retired professional athletes that those who suffered multiple concussions over the years may be at increased risk for depression, memory problems and other neurological problems later in life.

The latest U.S. estimates suggest there are anywhere from 1.6 million to 3.8 million sports- and recreation-related concussions each year.

The good news: Awareness is growing, at least among college and professional athletes. Guskiewicz says reports of concussions have risen 10 percent in the last three years — not that more athletes are being injured but that more who properly seek care.

But how much time is needed to heal, and how much activity is OK while recovering, remains uncertain.

The worry isn't just another bump. An injured brain undergoes metabolic changes that affect its energy levels, meaning physical and mental exertion might add more strain.

So researchers at the University of Pittsburgh and one of Guskiewicz's UNC colleagues tracked 95 high school athletes evaluated in a university-based program that gave a battery of memory, reaction time and other cognitive tests up to a month after the concussion. The researchers grouped patients by activities recorded in their medical records: No school; some schoolwork but no other activity; moderate activity described as schoolwork and some routine home chores; that plus sports practice; or schoolwork and playing some sports.

Those with moderate activity showed the best recovery, scoring better on brain tests than even the less active patients, researchers reported in the *Journal of Athletic Training*. The more active patients scored much worse — and although their allowed activity suggested they were thought to have a mild concussion, they ultimately performed as poorly as athletes initially diagnosed with a more serious concussion.

The goal is "to keep the brain stimulated but not enough to push it into overdrive," explains Guskiewicz.

Another Pittsburgh study of 234 soccer players found that two weeks after their concussion, female players scored

worse on some brain-function tests than similarly injured males. Dr. Alexis Chiang Colvin found size differences didn't explain the discrepancy. She couldn't find an alternate explanation, and while the gender question is explored, urges coaches and athletes to be aware that female players may need a little extra time to recover.

Increasingly, professional and college athletes are given preseason tests of memory and other cognitive skills. After a concussion, retesting can help athletic trainers determine when athletes are ready to return to play.

That's far less common in high school sports. Are young athletes returning too soon? The only national study of high school injuries, run by Ohio State University, is analyzing that question now.

Meanwhile, what's the advice? A government campaign and concussion specialists urge that:

- Parents, players and coaches know the symptoms — from immediate signs, such as being dazed, amnesia, moving slowly or clumsily, to later symptoms such as dizziness, sleep problems, irritability and concentration problems.
- Athletes don't return to play until cleared by a health professional.
- Appropriate health officials be on site to assess concussion "whether it's Pop Warner football or soccer or high school teams," Guskiewicz says.

Teaching young players the seriousness is the big challenge, says Ohio State injury specialist Dawn Comstock: "It's difficult for them to realize this one game Friday night is not as important as my cognitive ability the rest of my life."

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