

Study to probe how concussion affects young athletes' academic performance

August 16 2016, by Terry Devitt

The serious, sometimes life-altering effects of concussions sustained by college and professional athletes have become an inescapable storyline.

Much less has been written about the impact on athletes at the [high school](#) level.

This month, researchers from the University of Wisconsin—Madison School of Nursing and School of Medicine and Public Health are launching a pilot study aimed at teasing out the academic effects of concussions on younger athletes.

"Right now, there is an overwhelming amount of media attention on the issue at the college and professional level," explains Traci Snedden, a UW—Madison postdoctoral fellow co-leading the new study. "There is a substantial gap in our knowledge about what is going on with [concussion](#) at the high school level and younger."

Snedden, a nurse scientist who has worked as a pediatric emergency department nurse practitioner for a number of years, says school administrators, nurses, teachers, athletic trainers and coaches need a better framework for recognizing and supporting the effects of concussion on the field and in the classroom.

Snedden's longitudinal study, which is supported by the UW Institute for Clinical and Translational Research, seeks to enroll 200 Madison-area high school athletes and their parents to explore the effects of

concussion on learning and school performance. The results may eventually help determine interventions that could ease the academic challenges that may result from concussion.

"The goal is to get a snapshot of academic issues over time," says Snedden. "The majority of the work will focus on symptom presentation and timing of student return to school in addition to types of academic support they may require. Eventually, we hope to implement and test evidence-based strategies that inform policy at the school district level in Wisconsin."

A problem, she notes, is that concussion manifests itself differently in different people. Symptoms – headaches, dizziness, inability to concentrate, problems with balance – vary from student to student, as does how long they last.

The pathology of concussion in people is something of a black box, says Snedden. "Existing knowledge is primarily based in animal models. In humans, all we know is that concussion results in a complex, pathophysiological process that occurs at the cellular level. These changes are not discernable with standard testing or medical imaging techniques."

The animal models, according to Snedden, suggest that there is some process of shearing of axons, the nerve fibers on brain cells that are critical for the communication that routinely occurs in the brain. Such injuries can be especially worrisome in children and adolescents, as the human brain is not fully developed until later in life, sometime around the mid-20s.

In the classroom, students recovering from a concussion may have difficulty taking notes, completing homework in a timely manner, or overall difficulty with focusing. They may also require more time to

complete tests and quizzes.

"We call this a silent injury," she says. "These students return to school without a cast or crutches or any visible sign of injury. Those around them may not understand they have an injury. They look fine."

Snedden's study, conducted with School of Medicine and Public Health associate professor and concussion expert Alison Brooks, entails a series of surveys aimed at high school athletes who may have suffered a concussion, as well as their parents. The online surveys are conducted at weekly intervals, the first occurring within seven days of injury.

Ultimately, Snedden's research should help schools better recognize and accommodate students who've suffered a concussion. "These are generally high excelling kids who can't do what they did before. They want to get back to their sport and to the classroom. Their motivation is high."

Provided by University of Wisconsin-Madison

Citation: Study to probe how concussion affects young athletes' academic performance (2016, August 16) retrieved 25 April 2024 from <https://medicalxpress.com/news/2016-08-probe-concussion-affects-young-athletes.html>

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