**FOR IMMEDIATE RELEASE**

AGE MAY PLAY ROLE IN RECOVERY FOLLOWING SPORTS-RELATED CONCUSSIONS, HIGH SCHOOL ATHLETES MAY NEED LONGER RECOVERY THAN COLLEGE ATHLETES University of Pittsburgh Medical Center study published in Journal of Pediatrics may have serious implications for return-to-play guidelines for high school athletes

PITTSBURGH, May 19 - Does age play a role in how long it takes for an athlete to recover from concussion? In the first published study to examine age as a factor, University of Pittsburgh Medical Center (UPMC) sports concussion researchers found that high school athletes demonstrated prolonged memory dysfunction requiring longer recovery compared to college athletes. The study's results, published in the May 19 issue of the Journal of Pediatrics, supports more conservative management and comprehensive assessment of the concussed high school athlete and may have serious implications for return-to-play guidelines and decisions involving high school athletes.

In the study, post-concussion neuropsychological recovery of high school athletes was compared to that of college athletes at 24 hours, 3 days, 5 days and 7 days post-injury. In tests of neurocognitive function and self-reported symptoms, high school athletes performed significantly worse than age-matched control subjects at 7 days post-injury. Concussed college athletes, despite sustaining more severe injuries, displayed commensurate performance with age-matched control subjects by day 3 post-injury. Specifically, following mild concussion, high school athletes showed significant memory impairment at day 7; conversely, college athletes revealed significant memory deficits only within the first 24 hours post-injury.

"Our finding that high school athletes did not recover from concussion as quickly as college athletes is a cause for concern because the largest majority of at-risk athletes are at the high school level or below," said principal investigator Melvin Field, M.D., chief resident in the department of neurological surgery at UPMC. "Furthermore, existing return-to-play guidelines assume a standard use for all age groups and levels of play, from school-age to professional. Our study is the first to suggest that there may be differing vulnerabilities to concussion at different ages and that current guidelines may not be appropriate for all age groups," said Dr. Field.

At least 1.5 million high school and college athletes compete in contact sports. Recent studies show that more than 62,000 concussions occur each year in high school sports, with football accounting for about 63 percent of them. At the college level, 34 percent of football players have had at least one concussion and 20 percent have had more than one.

Concussion is a trauma-induced alteration of mental status, which may or may not result in unconsciousness. Other symptoms may include dizziness, disorientation, headache, nausea, amnesia and poor hand-eye coordination. Concussion occurs when the brain is violently rocked back-and-forth inside the skull due to a blow to the head, neck or upper body.

"The problem with concussion in sports is that symptoms are not always straightforward, not always reported by the athlete and usually difficult to objectively measure," said study co-investigator Joseph Maroon, M.D., professor and vice chairman, department of neurological surgery at UPMC. "Meanwhile, the typically competitive high school athlete is usually quite anxious to return to the game despite any minor symptoms. The concern is that previous studies have proven that before an athlete is fully recovered from an initial concussion, he or she is more susceptible to a second concussion and is at higher risk for further, more serious damage. Thus, keeping an athlete out of contact play until he or she is fully recovered from initial concussion is absolutely crucial to preventing further injury," said Dr. Maroon. "No concussed athlete should ever return to contact sports before it is determined that their recovery is complete."

Dr. Field added, "Unfortunately, too many high schools lack qualified full-time sports medicine staff, which increases the risk of concussions going unidentified and inadequately evaluated through the recovery period, thus predisposing the athlete to more serious injury and poor outcome."

"This study suggests that further studies are needed in children of all ages before current adult-based return-to-play management guidelines are maintained or implemented in high schools and other adolescent-related sports," said Mark Lovell, Ph.D., study co-investigator and director of the UPMC Sports Medicine Concussion Program. Michael Collins, Ph.D., assistant director of the program, was also a study co-investigator.

The study, conducted by sports concussion researchers in the department of neurological surgery and Sports Medicine Concussion Program, evaluated 39 high school athletes (19 concussed athletes compared to 20 control subjects) and 53 college athletes (35 concussed athletes compared to 18 control subjects) during the 2000-2001 scholastic sports season.

Of the 39 high school athletes, 35 were male varsity football players and four were female soccer players. The average age of the high school athletes was 15.9 years. Of the 53 college athletes, 51 were male football players and two were female soccer players. The average age of the college athletes was 19.9 years. The athletes were from Michigan State University, University of Utah, University of California at Berkeley, Arizona State University and five high schools in Shiawassee County, Michigan. All of the athletes had undergone pre-injury baseline testing methods identical to post-injury methods.

For more information on previously published sports concussion research studies at UPMC, please access www.upmc.com.

# # #

kr/05-16-03

CONTACT:
Susan Manko
Jocelyn Uhl
PHONE: (412) 647-3555
FAX: (412) 624-3184
E-MAIL:
MankoSM@upmc.eduUhlJH@upmc.edu