

Concussion outcomes differ among football players from youth to college

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Concussions in high school football had the highest average number of reported symptoms and high school football players had the highest proportion of concussions with a return-to-play time of at least 30 days compared with youth and college players, according to an article published online by *JAMA Pediatrics*.

About 3 million youth, 1 million high school and about 100,000 college athletes play American football each year. Concerns remain about sports-related concussions, which can present with emotional, cognitive, somatic and sleep-related symptoms and impairments.

Zachary Y. Kerr, Ph.D., M.P.H., of the Datalys Center for Sports Injury Research and Prevention, Indianapolis, and coauthors analyzed data from three injury surveillance programs to compare sports-related concussion outcomes (symptoms and return to play) in youth, high school and [college football](#) athletes.

During the 2012 to 2014 seasons, the 1,429 sports-related concussions reported among youth, high school and college [football players](#) had an average of 5.48 symptoms. The most commonly reported symptoms were headache, dizziness and difficulty concentrating. About 15 percent of concussions resulted in return to play at least 30 days after an injury but 3 percent resulted in return to play less than 24 hours after an injury, according to the results.

Study results also indicate:

- Concussions in [high school football](#) had the highest average number of reported symptoms (5.6) followed by college (5.56) and youth (4.76).
- High school football players had the highest proportion of concussions with return to play of at least 30 days (19.5 percent) followed by youth (16.3 percent) and [college football players](#) (7.0 percent)
- Youth athletes had the highest proportion of concussions with return to play of less than 24 hours (10.1 percent) followed by college (4.7 percent) and [high school](#) athletes (0.8 percent).

The authors note the findings of football players returning to play less than 24 hours after an injury could be the result of athletes presenting with delayed concussion symptoms, disagreement between athletic trainers and physicians, or the difficulty of [youth](#) in reporting [symptoms](#).

"Differences in concussion-related outcomes existed by level of competition and may be attributable to genetic, biologic, and/or developmental differences or level-specific variations in concussion-related policies and protocols, athlete training management and athlete disclosure. Given the many organizational, social environmental and policy-related differences at each level of competition that were not measured in this study, further study is warranted to validate our findings," the study concludes.

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