

Study examines incidence of concussion in youth, high school, college football

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A slight majority of concussions happened during youth football games but most concussions at the high school and college levels occurred during practice, according to an article published online by *JAMA Pediatrics*.

Football is a popular [youth](#) sport with approximately 3 million youth [athletes](#), 1.1 million high school athletes and 100,000 [college athletes](#) playing tackle [football](#) each year. A report on [concussion](#) by the Institute of Medicine highlighted the need for more extensive data on incidence in athletes from youth to [college](#).

Thomas P. Dompier, Ph.D., A.T.C., of the Datalys Center for Sports Injury Research and Prevention Inc., Indianapolis, and coauthors used data collected as part of three large injury surveillance systems: the Youth Football Surveillance System included 118 [youth football](#) teams, providing 4,092 athlete seasons (one player participating in one season); the National Athletic Treatment, Injury and Outcomes Network included 96 secondary school football programs, providing 11,957 athlete-seasons; and the National Collegiate Athletic Association Injury Surveillance Program included 24 member institutions, providing 4,305 athlete-seasons.

The study found that during the 2012 and 2013 seasons there were 1,198 concussions reported with 141 (11.8 percent) of them in youth athletes, 795 (66.4 percent) in high school athletes and 262 (21.9 percent) in college athletes. Concussions accounted for 9.6 percent, 4 percent and 8

percent of all injuries reported in the youth, high school and college football groups, respectively.

The results indicate 53.9 percent of concussions occurred during youth football games but in high school and college most concussions (57.7 percent and 57.6 percent, respectively) happened during practice. No concussions were reported in youth football players who were ages 5 to 7 years, although the young players accounted for more than 7,000 athlete exposures (AEs, one player participating in one game or one practice).

In games, the college concussion rate (3.74 per 1,000 AEs) was higher than those reported in high school (2.01 per 1,000 AEs) and youth athletes (2.38 per 1,000 AEs). In practice, the college concussion rate (0.53 per 1,000 AEs) was lower than that in high school (0.66 per 1,000 AEs), according to the study.

Youth football had the lowest one-season concussion risks in 2012 (3.53 percent) and 2013 (3.13 percent). The one-season concussion risk was highest in high school (9.98 percent) and college (5.54 percent) in 2012.

"The rate of concussion in youth players was generally not different from those in [high school](#) and college players compared with other injuries. However, football practices were a major source of concussion at all three levels of competition. Concussions during practice might be mitigated and should prompt an evaluation of technique and head impact exposure. Although it is more difficult to change the intensity or conditions of a game, many strategies can be used during practice to limit play-to-player contact and other potentially injurious behaviors," the study concludes.

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