



Highlights of [GAO-10-569T](#), a testimony before the Committee on Education and Labor, House of Representatives

## Why GAO Did This Study

Participation in school sports can benefit children but also carries a risk of injury, including concussion. Concussion is a brain injury that can affect memory, speech, and muscle coordination and can cause permanent disability or death. Concussion can be especially serious for children, who are more likely than adults both to sustain a concussion and to take longer to recover. These factors may affect return-to-play decisions, which determine when it is safe for an athlete to participate in sports again.

GAO was asked to testify on concussion incurred in high school sports. This statement focuses on (1) what is known about the nationwide occurrence of concussion, (2) federal concussion prevention programs, (3) the components of key state laws related to the management of concussion, and (4) the recommendations of voluntary nationwide concussion management guidelines. To do this work, GAO conducted literature searches; reviewed injury databases, state laws, and documents from federal agencies and organizations that conduct work in high school athletics or sports medicine; and interviewed federal officials and experts who identified key state laws and nationwide guidelines and provided other information. GAO shared the information in this statement with the relevant federal agencies.

[View GAO-10-569T or key components.](#)  
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## CONCUSSION IN HIGH SCHOOL SPORTS

### Overall Estimate of Occurrence Is Not Available, but Key State Laws and Nationwide Guidelines Address Injury Management

#### What GAO Found

GAO identified three national databases that, as part of broader data collection efforts, collect information on the occurrence of concussion in high school sports, but they do not provide an overall national estimate of occurrence. Although the High School Reporting Information Online database provides national estimates of occurrence of concussion, it covers only 20 sports for high schools with certified athletic trainers. It may underestimate occurrence because some athletes may be reluctant to report symptoms of a possible concussion to avoid being removed from a game. The Consumer Product Safety Commission's (CPSC) National Electronic Injury Surveillance System provides national estimates only on concussions treated in an emergency room. The National Center for Catastrophic Sports Injury Research database provides information only on cases of concussion with serious complications and cannot provide national estimates of the occurrence of all concussions.

The Centers for Disease Control and Prevention's program, Heads Up: Concussion in High School Sports, which began in September 2005, is the primary federal prevention program directed toward concussion. In addition, CPSC carries out prevention initiatives that include distributing educational materials, but these initiatives are directed more broadly at sports and recreation safety, such as appropriate helmets for football, baseball, and bicycling.

The three key laws regarding the management of concussion in high school sports that were identified by federal officials and experts—those of Oregon, Texas, and Washington—all address concussion education and return to play, but their specific requirements vary. The education requirements vary with respect to who is to receive the education. For example, the Washington law targets coaches, athletes, and parents, while the Oregon law targets coaches only. There is also variation with respect to the content and frequency of education. The return-to-play requirements vary in the conditions under which athletes may return to play and in who may authorize it. For example, the Texas requirements apply specifically to athletes who lose consciousness, which excludes many concussions, and the Washington law requires return-to-play authorizations to be made by health professionals specifically trained in the evaluation and management of concussion.

GAO found five sets of voluntary nationwide guidelines, which were developed by organizations that conduct work in high school athletics or sports medicine, that address the management of concussion in high school sports. All recommend monitoring an athlete with a concussion on the sidelines and assessing cognitive function regularly for signs of deterioration. All guidelines also recommend returning an athlete to play on a gradual basis, tailored to an individual's recovery and based on symptoms and the results of memory, cognition, and balance tests.