



# CONCUSSIONS IN CHILDREN AND YOUNG ADULTS

## A MATTER OF RECENT NATIONAL CONCERN

### AMONG THE LATEST FINDINGS

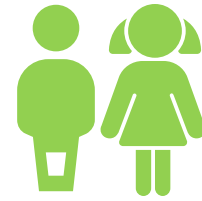
**500%** increase in diagnoses since 2010 for children and young adults



September and October are the most dangerous months



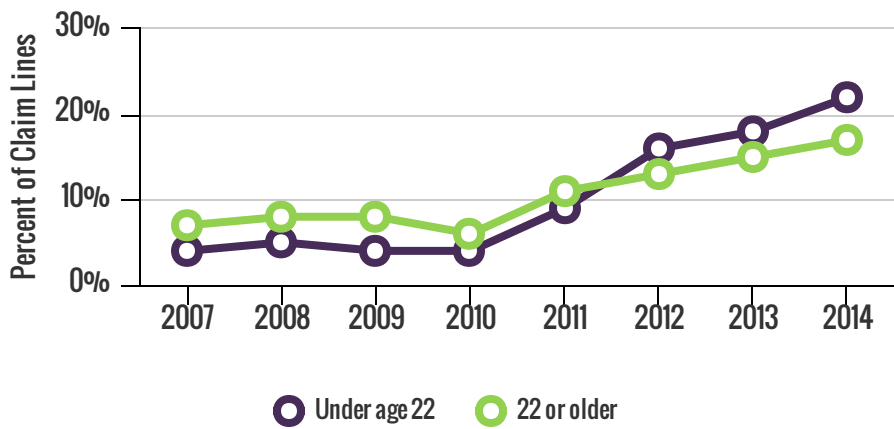
High school years show higher rates than middle school or college



Boys are much more likely than girls to have concussions diagnosed

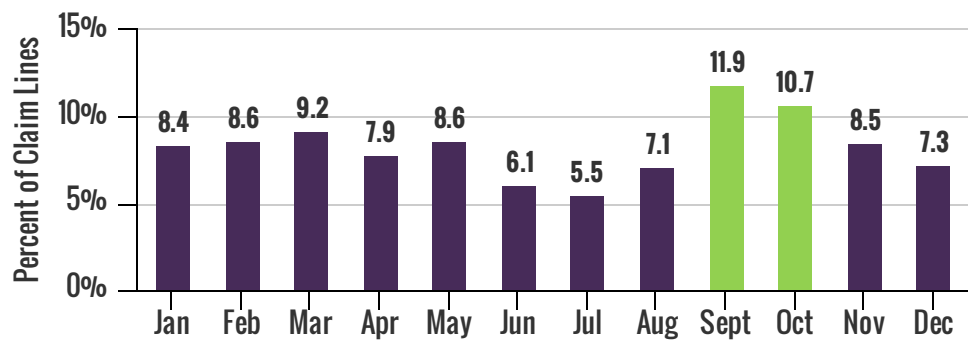
### NATIONAL OVERVIEW

#### Concussion Diagnoses Year over Year



Concussion diagnoses rose **500 percent** for children and young adults under age 22 from 2010 to 2014.

#### Pediatric Concussion Diagnoses by Month (Under Age 22)

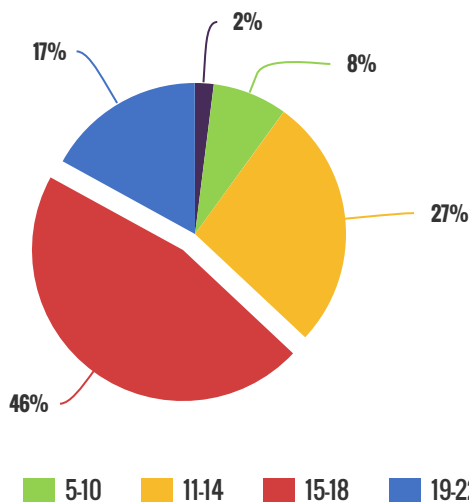


September and October are the months with the **highest incidence** of concussions for children and young adults under age 22—the months that correlate with the start of youth football.

### AGE AND GENDER

Based on healthcare insurance claims 2007-2015, ages 0-22 years.

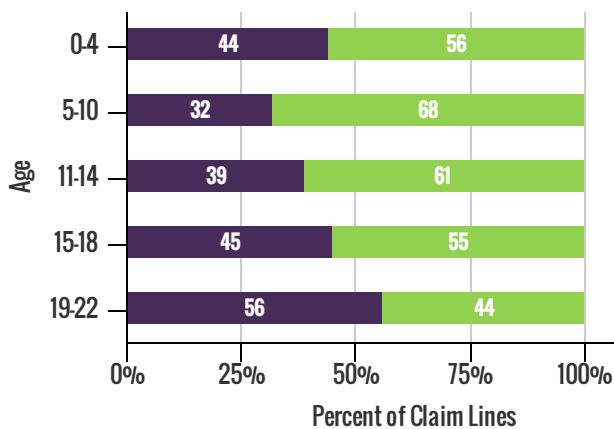
#### By Age



Legend: 0-4 (dark purple), 5-10 (green), 11-14 (orange), 15-18 (red), 19-22 (blue)

Nearly half (46 percent) of concussions diagnosed in people younger than 23 occur in the age group 15-18—the **high school years**. This suggests that high school sports may present the greatest risk for concussions, followed by middle school sports (ages 11-14, 27 percent) and college sports (ages 19-22, 17 percent).

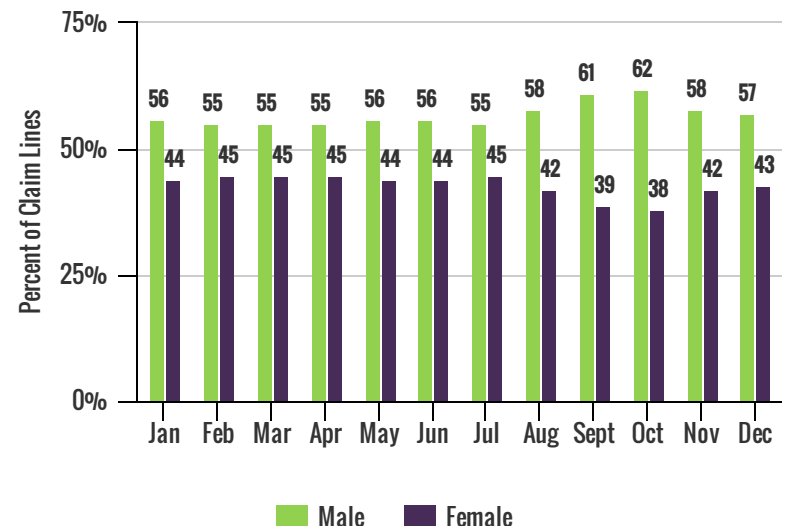
#### By Age and Gender



Legend: Male (green), Female (dark purple)

The largest disparity in concussions between **girls and boys** occurs in the **5-10 age group**, when the percentage of concussions diagnosed in boys is more than **twice that in girls**.

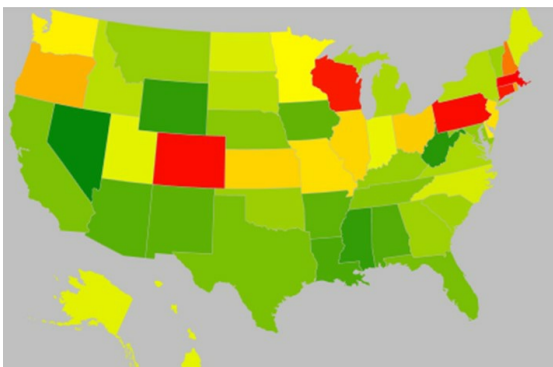
#### By Gender and Month



Legend: Male (green), Female (dark purple)

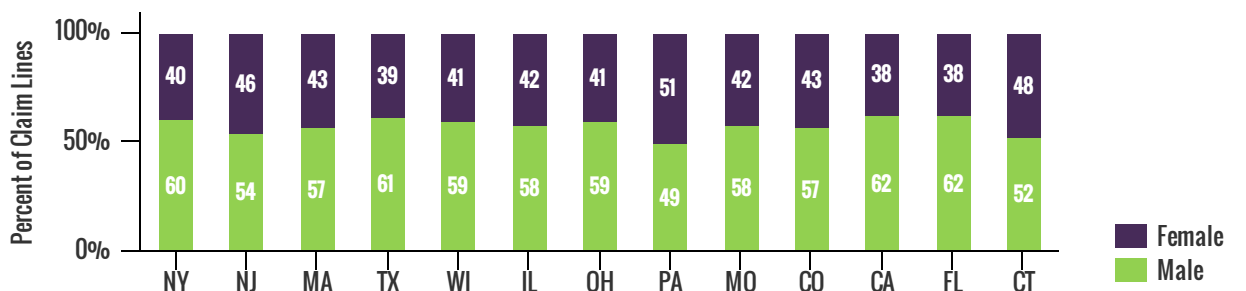
Although boys in general are more likely to have concussion diagnoses than girls, the **gap between girls and boys** is greatest in **September and October**—the start of the football season. In those months, the ratio of males with concussion diagnoses to females with concussion diagnoses is the greatest.

### STATE BY STATE



States in red indicate the **highest incidence** of concussion diagnoses compared to other pediatric diagnoses. Strict mandatory reporting laws in some states likely impact concussion reporting (e.g., Massachusetts).

#### Gender Distribution of Concussion Diagnoses



Legend: Female (dark purple), Male (green)

Among states with the highest volume of concussion diagnoses, **Pennsylvania** is unique in that **more girls than boys** have concussions diagnosed. In Pennsylvania, girls' field hockey is popular, while in Connecticut, where the gap between girls and boys is small, girls' ice hockey, lacrosse, field hockey and soccer are popular—likely leading to increased concussions for girls. In states where football predominates, such as Texas, Florida and California, boys are more likely to have concussions than girls.