

Data Brief: Sports-Related Concussions in Minnesota High School Athletes, 2014-15

MARCH 2016

Summary

Between August 1, 2014 and June 30, 2015, a sample of 39 public high schools in Minnesota (8% of Minnesota’s high schools) reported 704 sports-related concussions. Of these schools, 31 (79%) were seven-county metro area schools; 89 percent of the athletes in our sample came from the metro schools. This year, schools from Greater Minnesota were part of the sample and reported similar rates of concussion as schools from the seven-county metro area – about 2 per 100 athletes. This is significantly lower than the rate of 6 per 100 athletes found in the previous year’s report¹

Football Concussions

As noted in the previous year’s report, athletes who play football sustain the highest numbers of reported concussions. In fact, football accounts for 38% of all concussions reported, far outnumbering reports from any other sport (Figure 1).

However, football also has more than twice the number of participants than the next closest sport. When comparing the number of concussions reported to the number of athletes on a team, the concussion rate in football is not significantly different from the rate in some other sports. Football then drops to second place on the list.

Figure 1. Number of concussions reported by gender, August 2014 – June 2015

Sport	Male	Female
Alpine Skiing	2	2
Baseball	8	NA
Basketball	25	68
Cheerleading	0	13
Cross-country	0	1
Dance Team	0	4

¹ Dugan S, Roesler J, Fraser C, Gaichas A, Kinde M, Seymour L. Data Brief: Trends in Sports-Related Concussions in Minnesota High School Athletes. Saint Paul, MN: Minnesota Department of Health, May 30, 2014.

SPORTS-RELATED CONCUSSIONS IN MINNESOTA HIGH SCHOOL ATHLETES

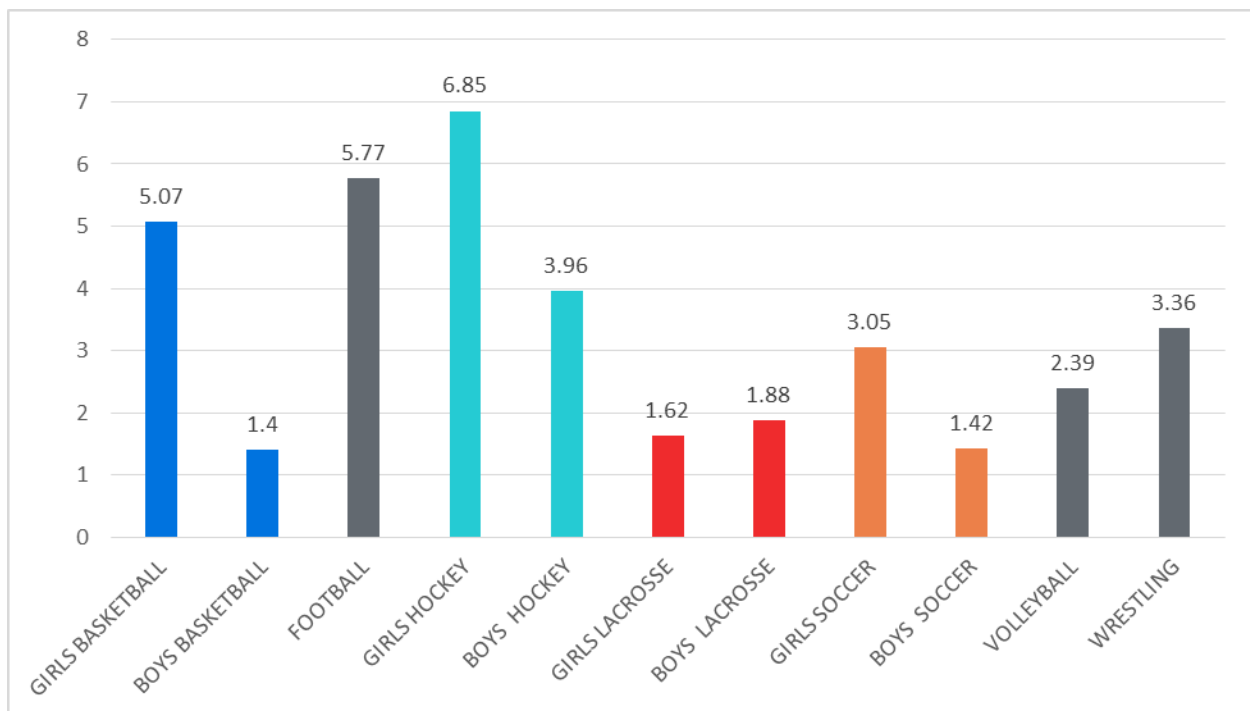
Sport	Male	Female
Football	261	NA
Gymnastics	0	8
Hockey	36	49
Lacrosse	17	15
Nordic Skiing	2	3
Soccer	30	57
Softball	NA	6
Swimming & Diving	2	8
Tennis	0	1
Track & Field	0	6
Volleyball	NA	42
Wrestling	37	1

Female Athletes and Concussions

Even though most concussions reported are from football, girls actually experience concussions at higher rates than boys in all sports played by both genders, with the exception of lacrosse.

For girls, basketball and soccer are the sports with the highest number of reported concussions (Figure 1). When looking at the rates (Figure 2) girls hockey leads the way, with more than twice the risk of soccer, followed by basketball and soccer.

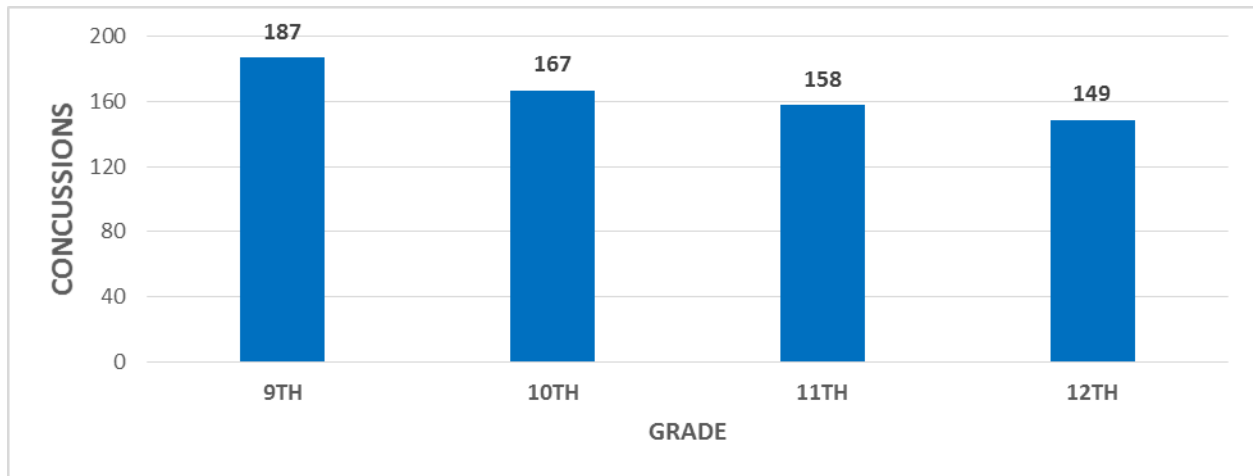
Figure 2. Rate of concussions by gender for top seven sports, August 2014 – June 2015



Younger Athletes Have More Concussions

The 2014-15 data shows a similar pattern as the previous year. Generally, as the athlete gets older, the number of reported concussions decreases. This observation varies across sport and gender. In the top seven sports, the overall decrease in reported concussions from 9th to 12th grade was 20% with boys showing a 5% decrease and girls a 43% drop (Figure 3). It is not clear if this is due to fewer participating athletes in the upper grades, a decreased risk in upper grades, or a combination of risk and protective factors.

Figure 3. Number of Concussions per Grade



Persistent Symptoms Cases

For the 2014-15 school year, two percent of concussions were reported to result in persistent symptoms. Of the 12 cases with persistent symptoms reported, seven boys (58%) had persistent symptoms and five girls (42%).

Sports-related Concussions in Minnesota High School Students

Based on the rates found in this study and applied to all of Minnesota's high schools, we estimate that there were 3,329 sports-related concussions in Minnesota high school students during the 2014-15 academic year. This number is similar to, although somewhat less than, the number estimated from the previous year's report for 2013-14 (5,577 concussions).

Methods

Athletic trainers from 39 Minnesota high schools reported incidents of sports-related concussion. Thirty-one of these schools were from the seven county metropolitan region and eight schools were located in Greater Minnesota. The Department of Education provided the numbers of athletes per sport for each school for use as the denominator in calculating the rates. These numbers were unavailable for all Minnesota schools in Minnesota so in calculating the estimated number of concussions in the state, enrollment was the number used as the denominator for the calculation of the rate, reported per 100 students, not athletes.

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