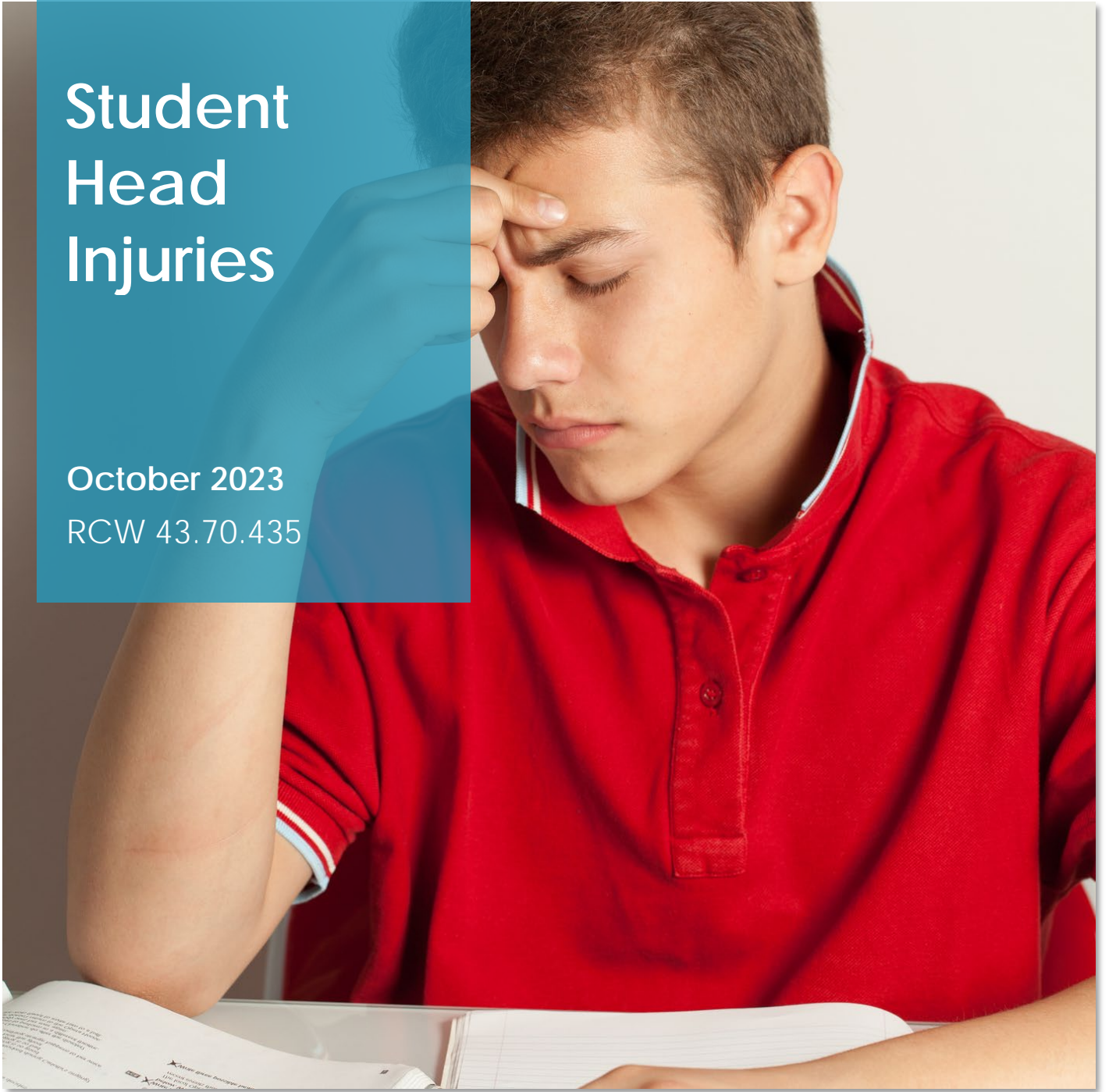


Report to the Legislature

# Student Head Injuries

October 2023  
RCW 43.70.435



Prepared by  
Injury and Violence Prevention  
Prevention and Community Health



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For more information or additional copies of this report:

Prevention and Community Health  
Office of Healthy and Safe Communities  
111 Israel Road SE  
Tumwater, WA 98501

[studentconcussionreporting@doh.wa.gov](mailto:studentconcussionreporting@doh.wa.gov)

**Report Authors**

Will Hitchcock, Health Services Consultant  
Office of Healthy and Safe Communities  
Prevention and Community Health  
Washington State Department of Health  
[Will.Hitchcock@doh.wa.gov](mailto:Will.Hitchcock@doh.wa.gov)

Dana Drummond, Epidemiologist  
Office of Healthy and Safe Communities  
Prevention and Community Health  
Washington State Department of Health  
[Dana.Drummond@doh.wa.gov](mailto:Dana.Drummond@doh.wa.gov)

Umair Shah, MD, MPH  
Secretary of Health

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## Executive Summary

Concussions are a type of traumatic brain injury, caused by a blow or jolt to the head or body, that disrupt the way the brain normally works. All concussions are serious and continuing to play with a concussion can make the head injury worse. Schools play a key role in recognition and proper response to concussions when they first occur.

Washington state law (RCW 28A.600) requires public schools to annually report information about each diagnosed concussion sustained by a student during athletic and other activities to the Department of Health (department). This reporting must be done using a tool and process developed by the department (RCW 43.70.435).

The department used a committee approach consisting of professionals in traumatic brain injury (TBI) treatment and research, student sports and activities, sports rehab, the Office of the Superintendent of Public Instruction, and school nurses to develop the reporting tool and process. The 2022-2023 school year was the first year of data collection due to the COVID-19 pandemic and its impacts on the department and schools.

This report provides an overview of the data collected from schools on student concussions during the 2022-2023 school year. The report provides information related to:

- Injury occurrence
- Incidence rates
- Time to return to activity and learning
- Future needs for surveillance, support, and policy

Initial findings include:

- Contact sports such as football and soccer held the highest percentages of concussions, accounting for 44% of reported concussions combined.
- Reported concussions were most common while playing sports (76%).
- 71% of reported concussions occurred in high school students with students in grades 9 and 10 showing the highest proportion of concussions.
- September and October had the most reported concussions.
- The median time from concussion to returning to normal classroom activities was 7 days. The median time to return to play was 14 days.

Data presented in this report provides rates, trends, and patterns of student concussions that occurred during the 2022-2023 school year. More years of reporting are needed to better understand whether these associations regarding student concussions persist over time and can be generalized.

## Background

The Centers for Disease Control and Prevention (CDC) defines a concussion as a type of traumatic brain injury (TBI) caused by a bump, blow, or jolt to the head or by a hit to the body that causes the head and brain to move rapidly back and forth. This sudden movement can cause the brain to bounce around or twist in the skull, creating chemical changes in the brain and sometimes stretching and damaging brain cells.

Common signs and symptoms include:

- Confusion, difficulty concentrating, or memory problems
- Can't recall events before or after a hit or fall
- Appears dazed or stunned
- Forgets an instruction, is confused about an assignment or position, or is unsure of the game, score, or opponent
- Slurred speech or answers questions slowly
- Loses consciousness, even briefly
- Shows mood, behavior, or personality changes
- Headache or "pressure" in head
- One pupil larger than the other
- Nausea or vomiting
- Decreased coordination or balance problems or dizziness
- Double or blurry vision
- Bothered by light or noise
- Feeling sluggish, hazy, foggy, or groggy
- Unusual behavior or agitation
- Just not "feeling right" or "feeling down"

Symptoms may have delayed onset and may appear and wane throughout the healing process. However, with quick attention and regular monitoring and care most people feel better within a couple of weeks. Standard recovery for concussions require time to rest. Slowly, patients may progressively increase activity and cognitive tasks. Students may have an Individualized Education Plan (IEP) or a 504 Plan to help them transition back to the learning environment. A 504 plan is a formal plan to provide accommodations and modifications to support a student's success in the classroom based on disability or healthcare needs. After a student has returned to the learning environment, they may progress to returning to physical activities starting with light aerobic activity and progressing to moderate then heavy non-contact activity, then on to practice and full contact, and finally returning to competition. At any phase in the recovery the student may take a step back to a previous phase if symptoms return.

All concussions are serious and even mild concussions can have significant impacts to learning, problem solving, reasoning, personality, emotional regulation, and motor control. Continuing to

play with a concussion can make the head injury worse. Schools play a key role in recognition and proper response to concussions when they first occur.

### **School Reporting**

Washington state law (RCW 28A.600) requires public schools to annually report information about each diagnosed concussion sustained by a student during athletic and other activities to the department. This reporting must be done using a tool developed by the department.

RCW 43.70.435 directed the department to develop a procedure to collect and analyze student head injury data reported by schools. The department collaborated with a workgroup of key stakeholders from the University of Washington Harborview Injury Prevention Research Center, the Washington Interscholastic Activities Association, Seattle Children’s Hospital, the Office of Superintendent of Public Instruction (OSPI), School Nurse Corps, and the Department of Social and Health Services AL TSA division – Traumatic Brain Injury Council to develop the reporting tool and procedure.

During this process, the department received feedback from schools that students sometimes sustain concussions that happen outside of school sports or activities that can impact education and school- sponsored activities. Students and families may or may not follow the recommendations for physician follow up to confirm concussions when removed from play. They may choose to go to a doctor after symptoms subside to get a release to return to play as quickly as possible. Some schools requested the option to report and track additional head injuries that impacted students’ education. To address this feedback, the department designed the reporting tool to offer schools the ability to provide additional reports of student head injuries that occurred outside of school activities.

Under 28A.600 RCW, all student concussion reporting must be submitted for each student impacted by June 30 of each year. Concussions that occur during summer sessions or pre-season after July 1 of every school year are to be reported in the upcoming school year. The reporting tool is available and active continuously except for the first two weeks of July when data closeout and reporting tool edits are made. Schools can submit reports at any time and frequency postinjury. They must have all relevant data at the time of submission and must complete all reporting by June 30.

School personnel access the Student Head Injury Reporting Tool (SHIRT) on the department’s website at: <https://doh.wa.gov/you-and-your-family/injury-and-violence-prevention/traumatic-brain-injuries/student-head-injury-concussion-reporting>. The form is also available in a PDF version and as an Excel spreadsheet.

Schools began submitting data at the start of the 2022 – 2023 school year.

### **A Note on Terminology**

A concussion is a specific form of head injury, a mild traumatic brain injury. However, not all head injuries are concussions. The scientific and medical field continue to refine the definition

around “diagnosed” and what professionals have the appropriate training and expertise to diagnose or determine a concussion. Concussions might be diagnosed by a neurological exam, cognitive testing, and observations of symptoms known to be associated with concussion. In some cases, imaging test may be used but not always as this has significant cost and additional health implications for children and often scans appear normal after a concussion. Symptoms may also not be immediately observable or noticed at initial point of injury and may show up or change over several days post injury. Consequently, the report title and contents reflect the intent of the legislation (ESHB 2731 2020) and uses “head injuries” and “concussions” interchangeably.

## Student Head Injury Data

The 2022-2023 school year was the first year for reporting. Reports were received from 49% (144 out of 295) of Washington state public school districts, including additional public school jurisdictions:

- 144 Washington public school districts
- 6 private schools
- 2 additional Washington state public school jurisdictions (including educational service districts \* and the Office of the Governor School for the Blind)

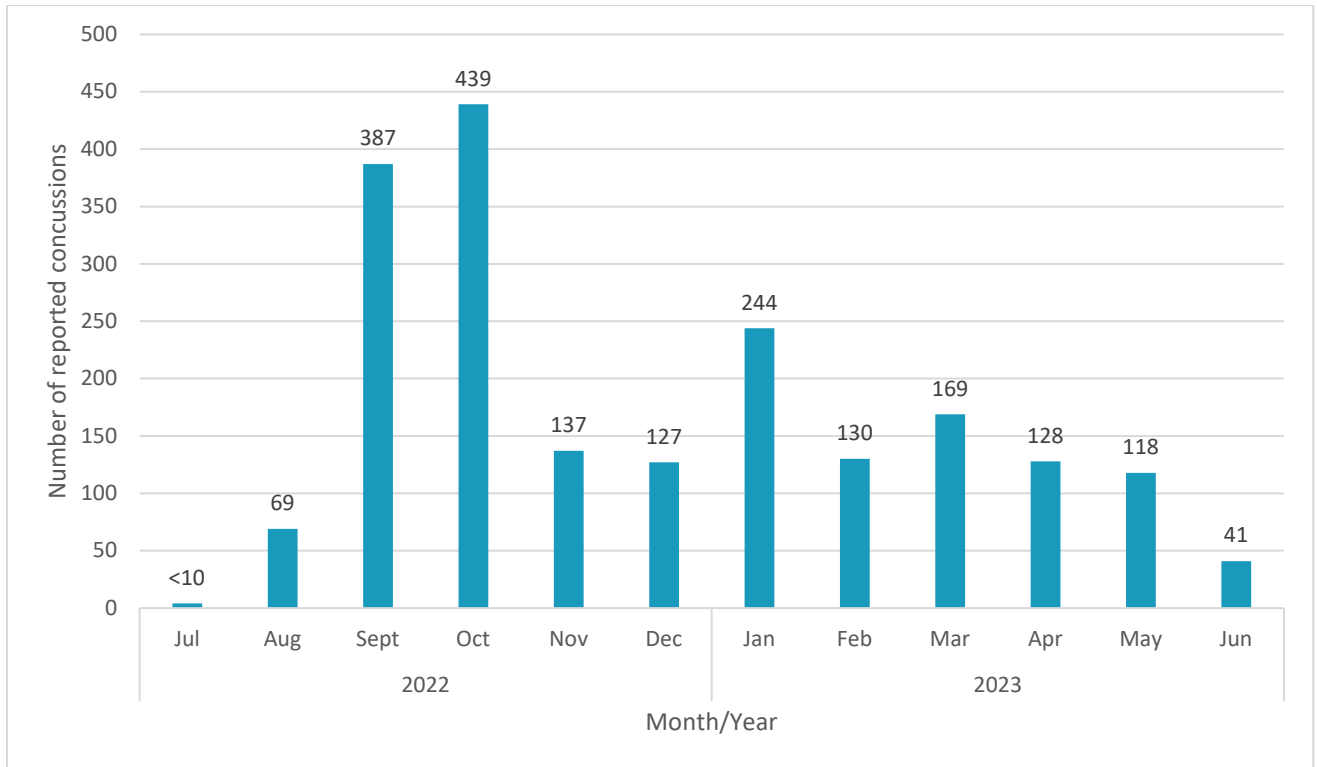
*\*The department saw large variability in how reporters listed the school district, school name, student grade, and student age in the first year form as those categories were open to field type responses. This process has been refined for year two reporting.*

The department continues to work with the Office of the Superintendent for Public Instruction (OSPI) to increase awareness of the reporting requirement and make improvements to the reporting tool. The department expects to see an increase in the number of public school districts reporting for year two.

During the 2022-2023 school year, 1,096,431 students were enrolled in Washington public schools. There were 1,995 reported concussions from July 1, 2022, to June 30, 2023. This is a rate of 18.2 per 10,000 students. The number of reported concussions varied by month. Most concussions occurred during the fall, September and October (Figure 1).



**Figure 1: Number of Reported Student Concussions by Month**



## Student Concussion Demographics

The proportion of reported student concussions were highest among students ages 12 to 19 years old (87%), males (60%), students who identified as masculine (55%), and White, non-Hispanic students (56%). Students in the ninth and tenth grades had the highest number of concussions (Table 1).

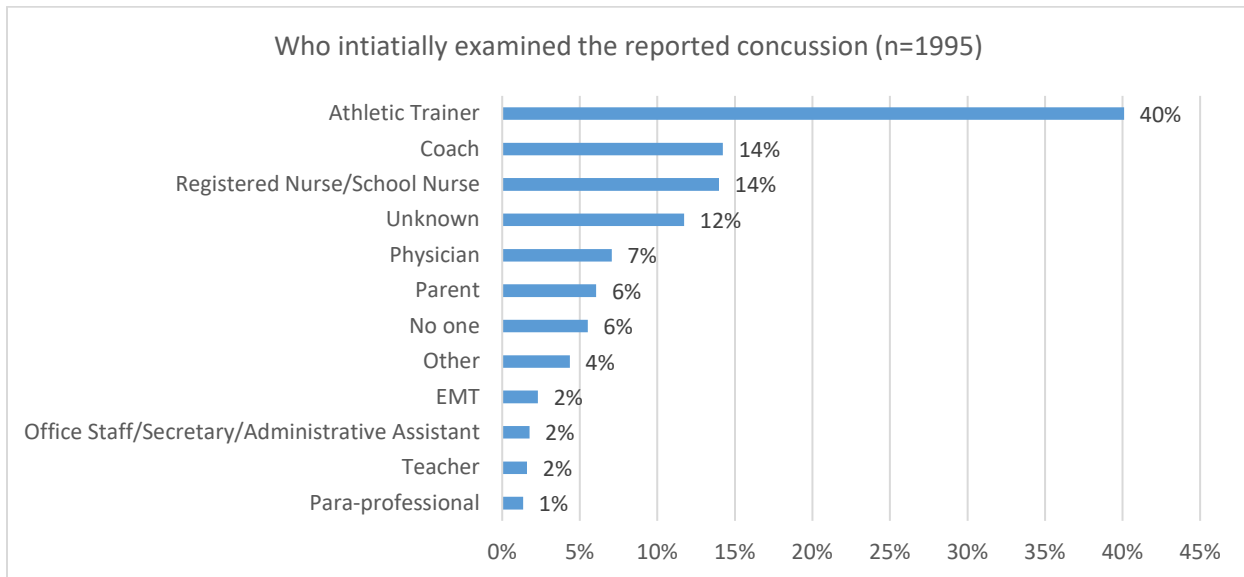
**Table 1: Student Head Injury Demographics**

Demographics	Count	Percent
<b>Age (n=1995)</b>		
1-5 yrs.	20	1.0%
6-11 yrs.	231	11.6%
12-19 yrs.	1740	87.2%
Unknown	4	0.2%
<b>Sex at Birth (n=1995)</b>		
Male	1193	59.8%
Female	802	40.2%
<b>Student's Identified Gender (n=1543)</b>		
Masculine	849	55.0%
Feminine	529	34.3%
Non-Binary	6	0.4%
Other	6	0.4%
Prefer not to say	153	9.9%
Missing	452	
<b>Race/Ethnicity (n=1615)</b>		
White, non-Hispanic	901	55.8%
Hispanic	237	14.7%
Multi-race, non-Hispanic	59	3.7%
Asian, non-Hispanic	58	3.6%
Black, non-Hispanic	58	3.6%
American Indian/Alaska Native, non-Hispanic	16	1.0%
Native Hawaiian/Other Pacific Islander, non-Hispanic	15	0.9%
Prefer not to say	241	14.9%
Unknown	30	1.9%
Missing	380	
<b>Grade Level (n=1995)</b>		
<b>Elementary School</b>	<b>210</b>	<b>10.5%</b>
Pre-Kindergarten	4	
Kindergarten	22	
1 <sup>st</sup> Grade	28	
2 <sup>nd</sup> Grade	28	
3 <sup>rd</sup> Grade	35	
4 <sup>th</sup> Grade	43	
5 <sup>th</sup> Grade	50	
<b>Middle School</b>	<b>351</b>	<b>17.6%</b>
6 <sup>th</sup> Grade	88	
7 <sup>th</sup> Grade	115	
8 <sup>th</sup> Grade	148	
<b>High School</b>	<b>1411</b>	<b>70.7%</b>
9 <sup>th</sup> Grade	424	
10 <sup>th</sup> Grade	420	
11 <sup>th</sup> Grade	317	
12 <sup>th</sup> Grade	250	
<b>Unknown</b>	<b>22</b>	<b>1.1%</b>

## Concussion Diagnosis and Initial Examination

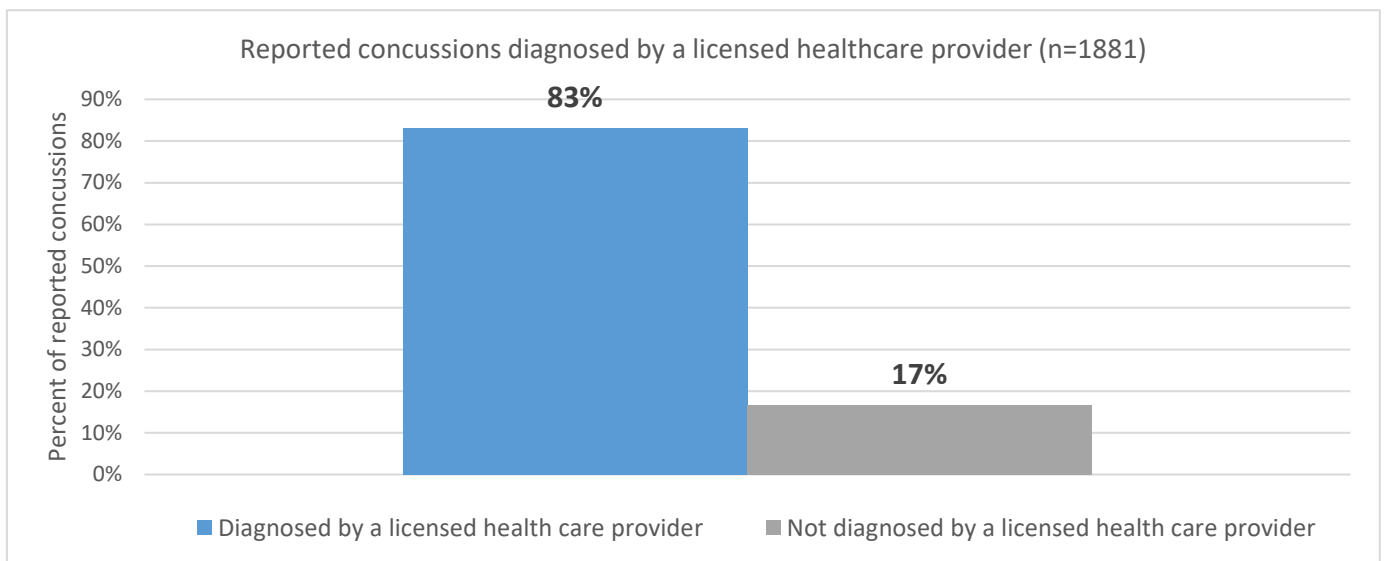
Most concussions were initially diagnosed by an athletic trainer (40%), a coach (15%), or a school nurse (14%) (Figure 2). There were 1,565 (83%) reported student concussions that were ultimately diagnosed by a licensed healthcare provider (Figure 3).

**Figure 2. Percentage of reported concussions by who initially examined the injury**



\*Categories are not mutually exclusive; a student may have been examined by more than one person.

**Figure 3. Percentage of reported concussions that were diagnosed by a licensed healthcare provider**

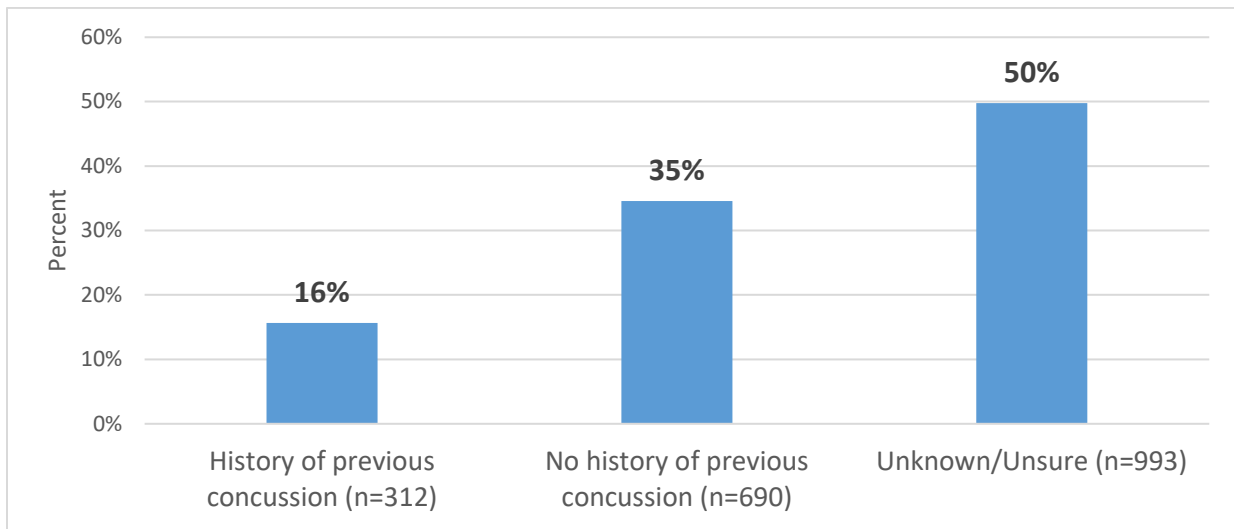


## Repeated Concussions

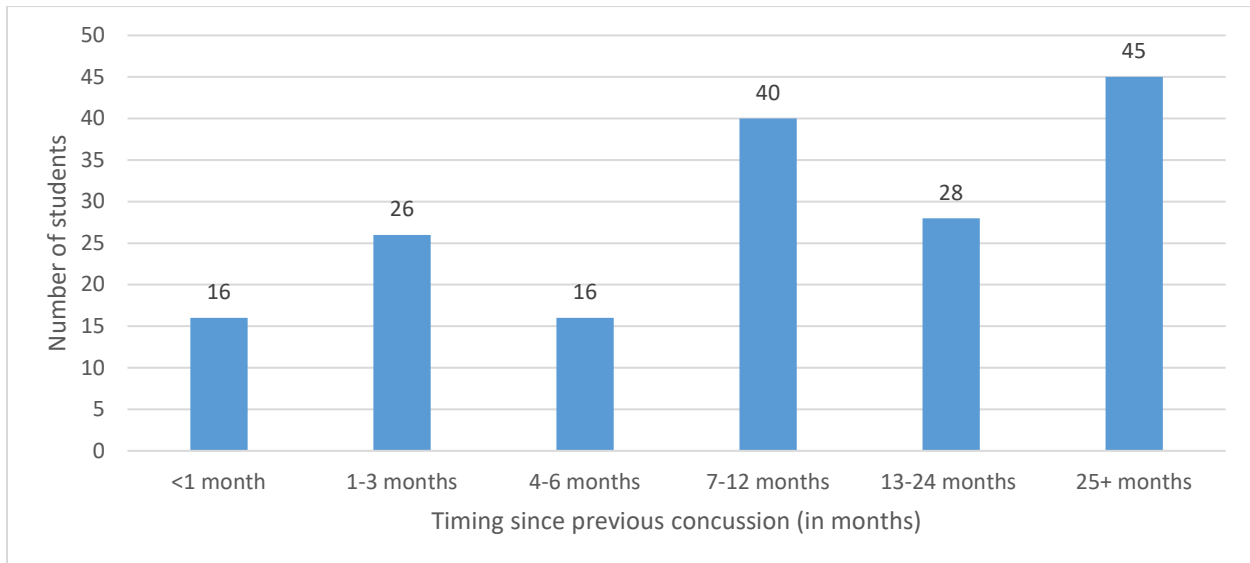
There were 312 (16%) students reported to have at least one previous concussion (Figure 4). Among students who had a previous concussion (Figure 5):

- 16 (9%) had more than one concussion in the past 30 days.
- 44 (25%) had more than one concussion in the past 6 months.
- 98 (57%) had more than one concussion in the past 12 months.
- 126 (74%) had more than one concussion in the past 2 years.

**Figure 4. Percentage of students who had a previous concussion**



**Figure 5. Timing of most recent previous concussion**



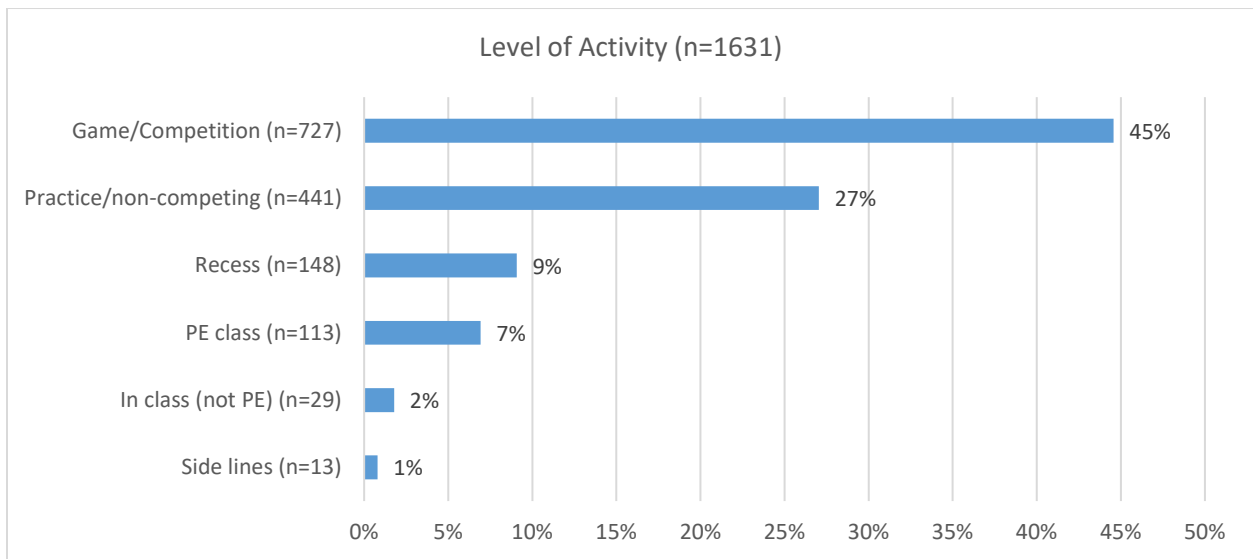
## School-Related Concussions

There were 1,631 reported concussions that occurred during school or a school-sponsored activity or sport.

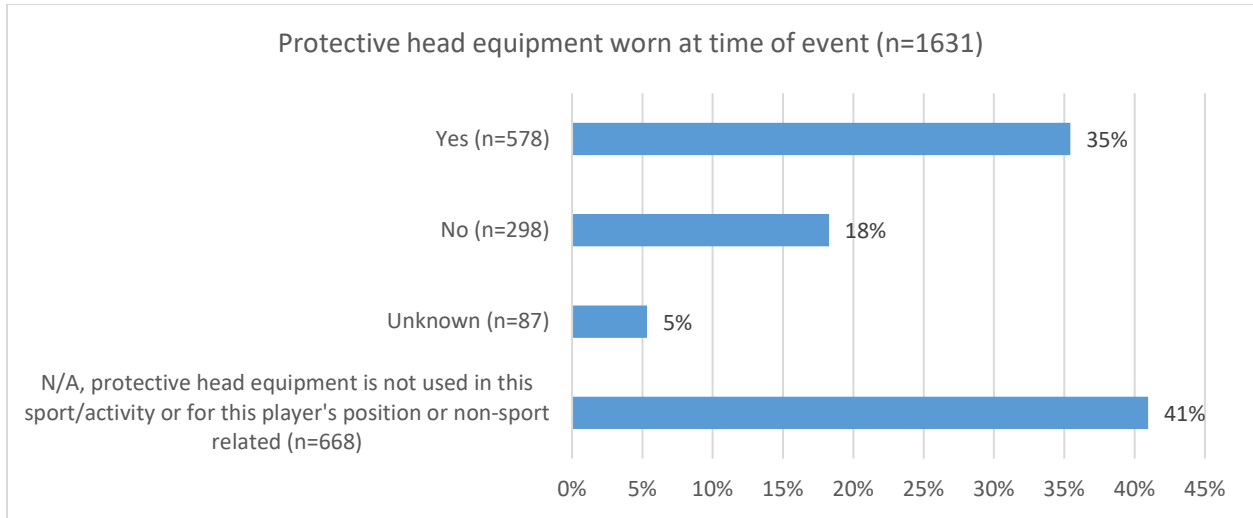
Among these concussions:

- 45% of concussions occurred during a game or competition and 27% occurred during practice (Figure 6).
- 35% of students reported wearing protective head equipment during the activity (Figure 7).
- The top three types of surfaces where concussions occurred included artificial turf (25%), grass/natural turf (20%), and PVC/Vinyl/Wooden Court (19%) (Figure 8).

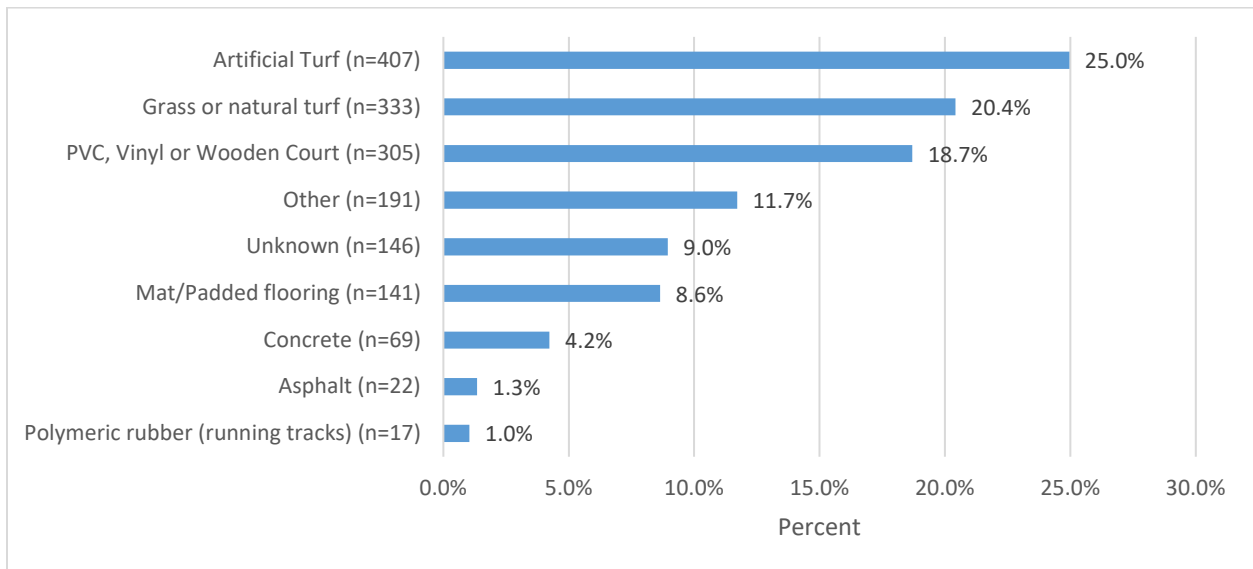
**Figure 6. Percentage of reported concussions by level of activity**



**Figure 7. Percentage of students who wore protective head equipment at the time of concussion**



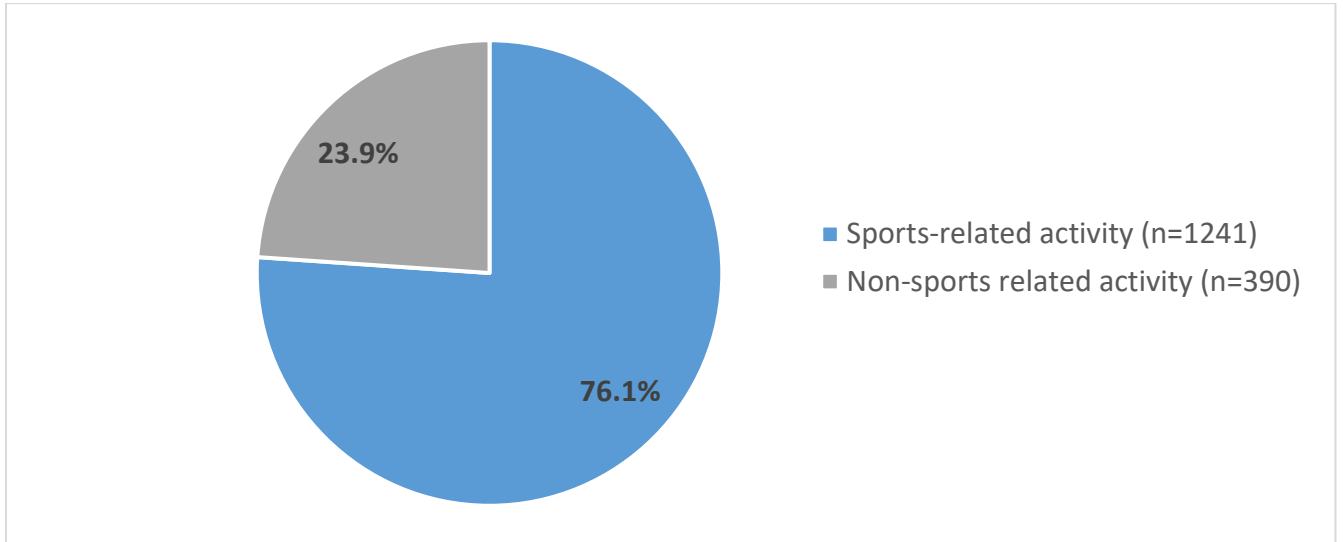
**Figure 8. Percentage of reported concussions by surface type**



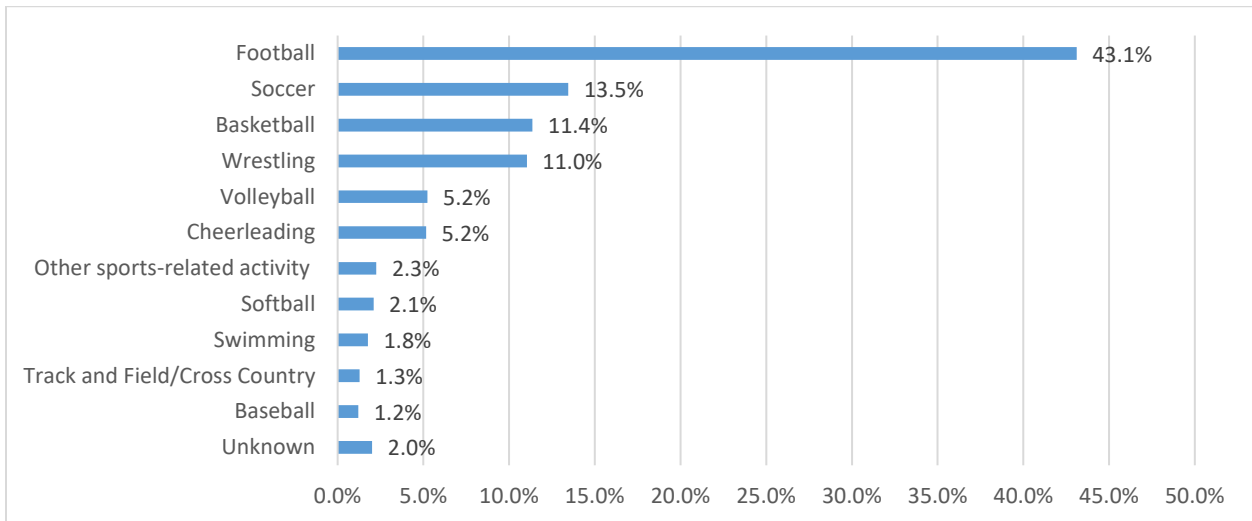
Most reported concussions occurred while the student was playing a sport (76%) (Figure 9). The sports with the highest percentage of student concussion injuries included football (43%), soccer (14%), basketball (11%), and wrestling (11%) (Figure 10).

This aligns with findings from the American Academy of Pediatrics, which states that football is the leading cause of concussions in high school students nationwide.

**Figure 9. Percentage of reported concussions by activity type**

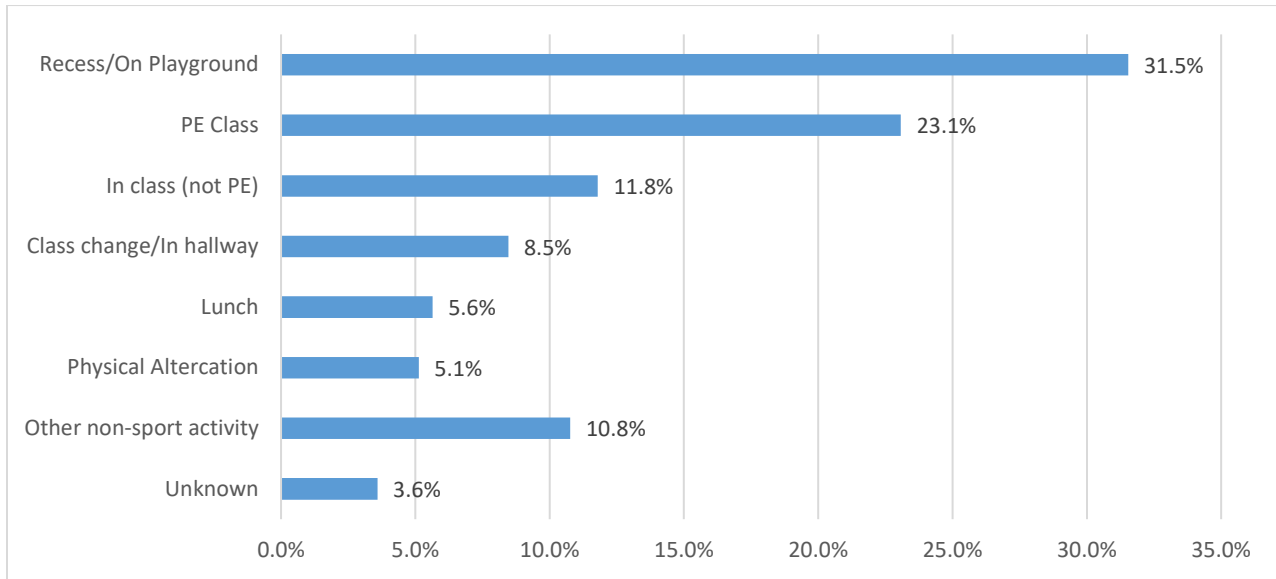


**Figure 10. Percentage of reported concussions by sport**



There were 390 (25%) reported concussions that were not sports related. Most of the non-sports related concussions occurred at recess (32%) and during physical education class (23%) (Figure 11).

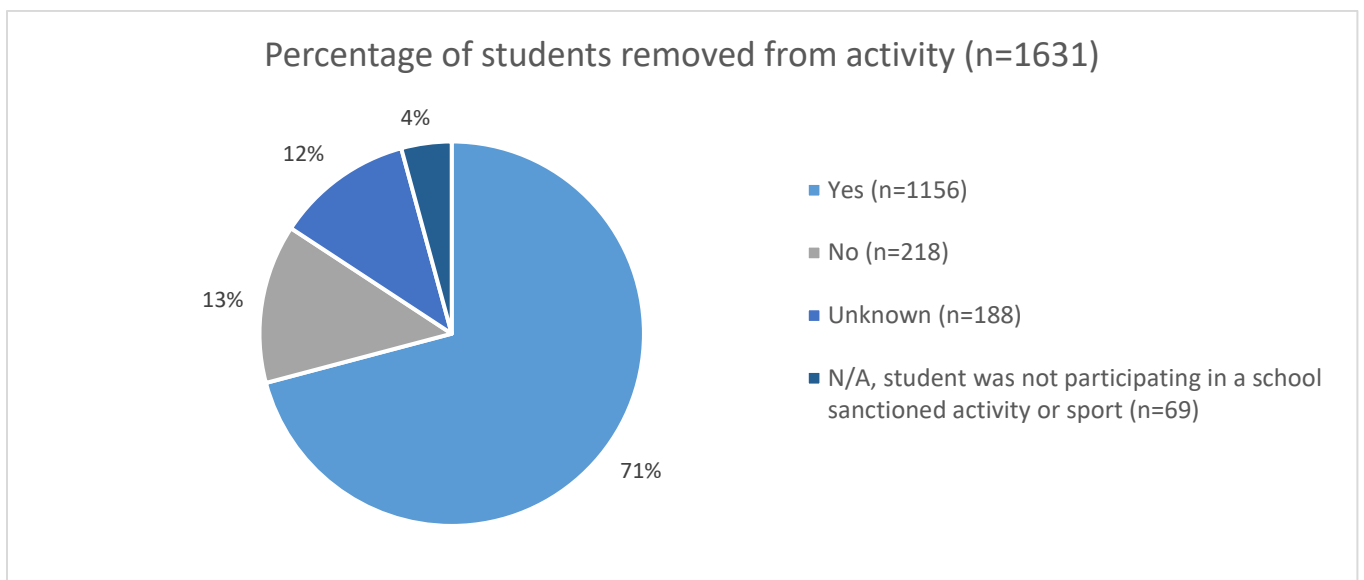
**Figure 11. Percentage of reported concussions by non-sport activity**



## Return to Activity and Return to Learning Environment

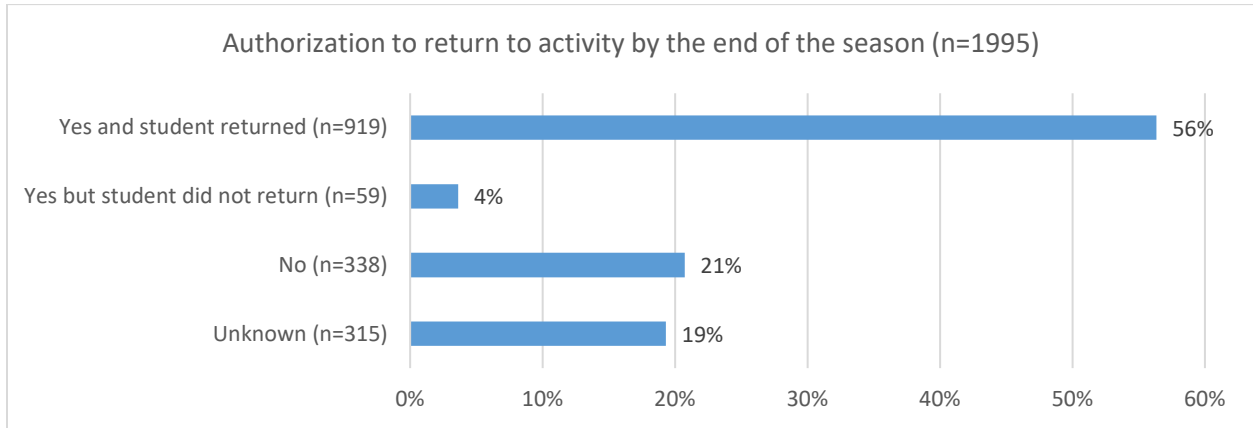
There were 1,156 (71%) students who were removed from the activity at the time of injury (Figure 12). There were 978 (61%) students given written authorization to return to the activity by the end of the season, but only 914 students returned to the activity (Figure 13). Among students who were given written authorization to return to the activity and returned, there was a median of 14 days between the time of injury and the time they returned to the activity (Figure 14).

**Figure 12. Percentage of students who were removed from activity at the time of concussion**

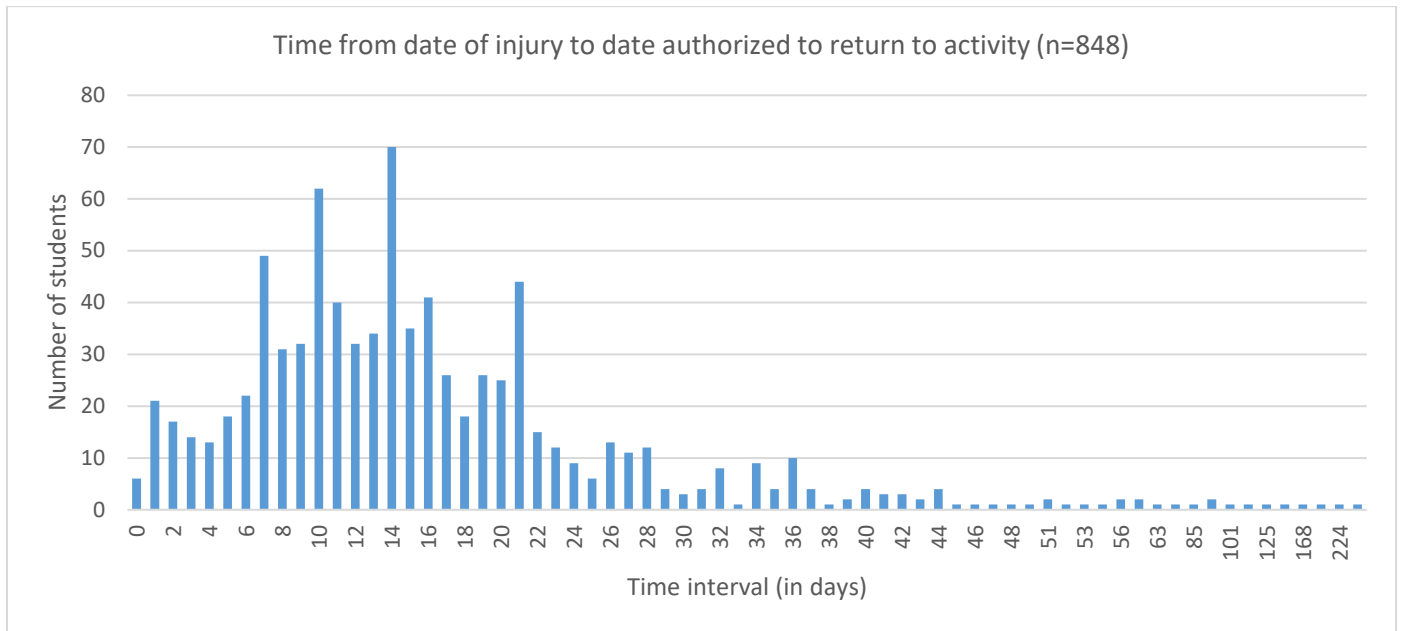




**Figure 13. Percentage of students given written authorization to return to activity by the end of the season**



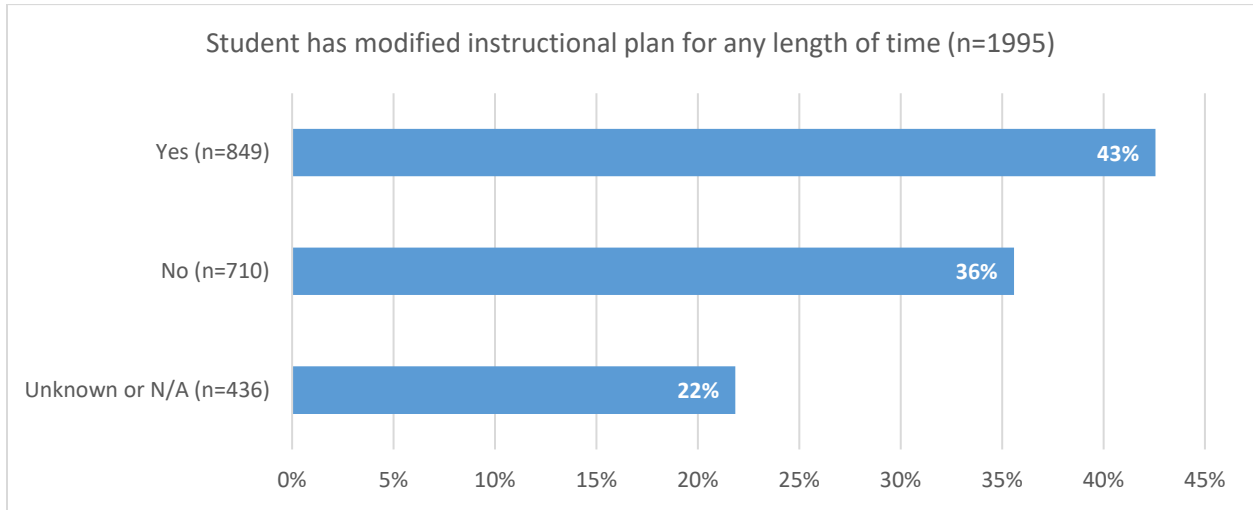
**Figure 14. Number of students by time to return to activity**



### Return to Learning Environment

There were 849 (43%) students who received a modified instructional plan for any length of time (Figure 15). Among these students, 73% were authorized to return to their typical learning environment (Figure 16). Among students who were given written authorization to return to the learning environment, there was a median of 10 days from the time of injury to the time they were authorized to return to the learning environment (Figure 17).

**Figure 15. Percentage of students who received a modified instructional plan for any length of time**



**Figure 16. Percentage of students who were authorized to return to their typical learning environment**

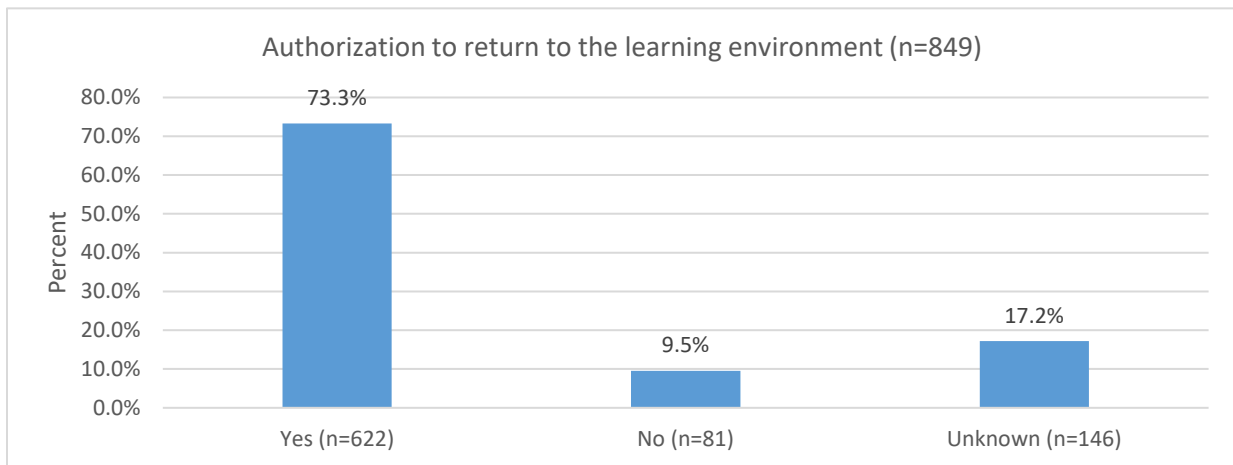
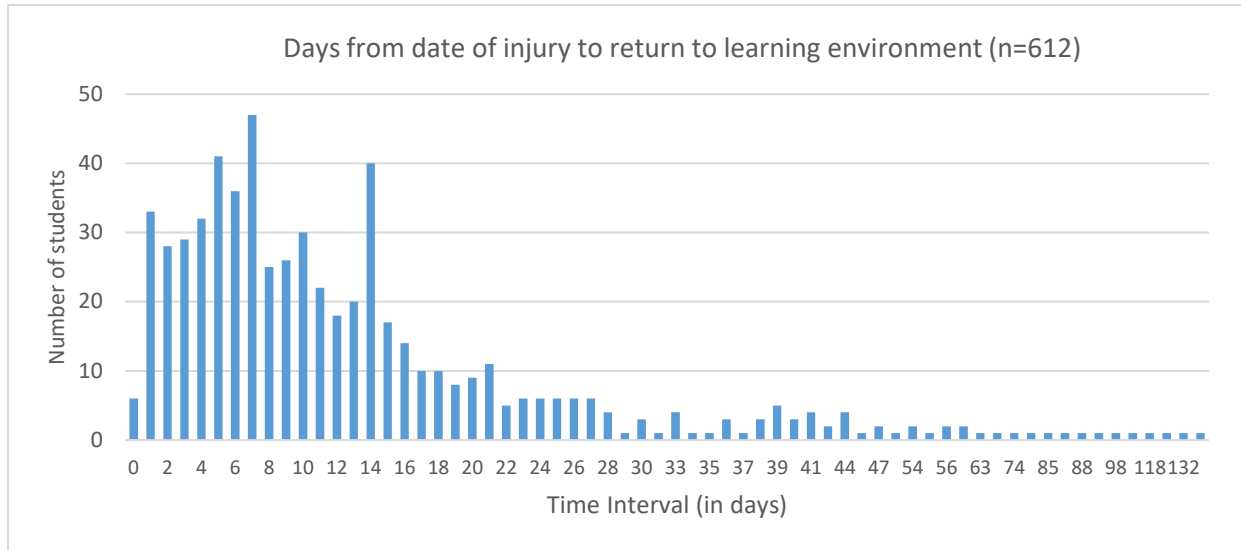


Figure 17. Number of students by time to return to learning environment



## Conclusion

Concussions are serious and can have significant impacts on student education. Data from the 2022-2023 school year shows that in Washington state, concussions occurred from a variety of activities and sports. The greatest proportion of concussions occurred in the fall with contact sports such as football and soccer. While contact sports held the highest percentages of concussions, they only accounted for 44% of reported concussions combined. While concussions were most common while playing sports, 25% of concussions occurred during other activities. Ninth and tenth graders showed the highest proportion of concussions across grades and ages, which aligns closely with organized school sports. The median time from concussion to returning to normal classroom activities was 7 days. The median time to return to play was 14 days.

Data presented in this report provides rates, trends, and patterns of student concussions that occurred during the 2022-2023 school year. More years of reporting are needed to better understand whether these associations regarding student concussions persist over time and can be generalized. Additionally, the law requires schools to report diagnosed concussions that occurred during a school activity. Since concussions can also occur outside of school, this may limit the full picture of student concussions in Washington state. Only some schools voluntarily reported concussions that occurred outside of school.

As required reporting increases in future years and the reporting tool is improved, more consistent data collection will provide the department an opportunity to draw further conclusions.

The department continues to work with OSPI to improve reporting compliance, quality, and efficiency through additional communication and technical assistance for schools. The department is also working with community and research partners to provide concussion management tools for schools and to promote concussion awareness and prevention resources.



## Appendices

### Appendix A: RCW 43.70.435 (2)

(2) Beginning October 1, 2021, by October 1st annually thereafter, and in compliance with RCW 43.01.036, the department shall report a summary of the diagnosed concussion information received in the prior school year to the appropriate committees of the legislature and the office of the superintendent of public instruction. The report must include rates, patterns, trends, and other relevant information.

### Appendix B: Student Head Injury Reporting Tool (SHIRT) for Schools

School personnel can also access the Student Head Injury Reporting Tool on the DOH website at: <https://doh.wa.gov/you-and-your-family/injury-and-violence-prevention/traumatic-brain-injuries/student-head-injury-concussion-reporting>. The form is also as a PDF or an excel spreadsheet. This allows schools to download hard copies and have a digital tracking option. Technical assistance is available to schools who contact DOH by emailing [studentconcussionreporting@doh.wa.gov](mailto:studentconcussionreporting@doh.wa.gov).





# Student Head Injury Reporting Tool for Schools 2023-2024

This form meets requirements under RCW 28A.600 and RCW 43.703 for reporting student head injury information sustained during athletics and other activities for public k-12 schools. The reporting form handbook can be found at <https://doh.wa.gov/you-and-your-family/injury-and-violence-prevention/traumatic-brain-injuries/student-head-injury-concussion-reporting> or contact for technical assistance by email at [StudentConcussionReporting@doh.wa.gov](mailto:StudentConcussionReporting@doh.wa.gov) or phone at 360.236.2863.

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DOH Publication #: 971-058 updated July 2023

\* Required

1. Did the injury occur during school or during a school sponsored activity or sport? \*

Yes

No, happened outside of school or school activity

2. Was the concussion diagnosed by a licensed health care provider? \*

Confirmed diagnosis by a MD, DO, ARNP, or PA.

Yes

No

3. This injury is not required to be reported under RCW 28A.600 if the concussion did not occur during school activities or sports and was not diagnosed by a licensed health professional. You may still choose to have this student's injury recorded due to impacts on their academic participation. Would you like to continue? \*

Yes

No

4. Reporting individual's email \*

This email must be associated with a school, school district, or ESD

5. Reporting school (spell out completely using abbreviations only for Jr/Sr , i.e. Roosevelt Elementary; Thurgood Marshall Middle School; Glacier View Jr High; Capitol High, Colville Sr High \*)

## 6. Reporting school district\*

---

## 7. Student's grade \*

- Pre-k or Kindergarten
- 1st
- 2nd
- 3rd
- 4th
- 5th
- 6th
- 7th
- 8th
- 9th
- 10th
- 11th
- 12th



8. Student's age \*

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

9. Student's sex at birth? \*

Male

Female

10. Student's identified gender

This question is voluntary

Feminine

Masculine

Non-binary

Prefer not to say

Other

## 11. Student identified race/ethnicity

Check all that apply. Specific Tribe or Peoples can be listed in other for any category.

- American Indian/Alaskan Native
- Asian
- Black or African American
- Hispanic/Latino or Spanish origin
- Native Hawaiian or other Pacific Islander
- White
- Prefer not to say
- Other

## 12. Date student received the injury resulting in a concussion \*



13. How many concussions has the student had prior to this injury? \*

0

1

2

3

4

5 or more

Unknown

14. If student has had a previous concussion, approximate date of last injury (if known).

15. Who initially examined the student at the time of the current injury? \*

- Athletic Trainer
- Coach
- Registered Nurse/School Nurse
- Health Room Assistant
- EMT
- Physician
- Office Staff/Secretary/Administrative Assistant
- Teacher
- School para-professional
- School administrator
- Parent
- No one
- Unknown
- Other

16. How many days was the student absent from school due to the concussion? (Only count scheduled school days, not holidays or weekends or planned school breaks) \*

- 0, the student returned the same day or following day (even if it was only a portion of the day)
- 1 day
- 2 days
- 3 days
- 4 days
- 5 days
- 6 - 10 days
- > 10 days

17. Location of where the injury occurred (Select as many as apply; provide specific details for location such as streets or intersections in "other" tab)

Bathroom

Stairs

Hallway

Gym/court/training room (Indoors)

Sports field/course/playing court (Outdoors)

Sidewalk near or on school grounds

Crosswalk near or on school grounds

School Bus

Bus Stop

Public transportation

Personal vehicle

Playground

Home

Park

Business

Landmark

Path or Trail

Street

Intersection

Pedestrian/bike amenities (Sidewalks/bike lanes)

Other



18. What activity or sport was the student participating in when they were injured? \*

- Football
- Soccer
- Basketball
- Wrestling
- Volleyball
- Cheerleading
- Softball
- Swimming
- Baseball
- Track & field/cross country
- Recess/playground
- PE class
- Classroom (not PE)
- Class change/in hallway
- Physical altercation
- Driving/riding in or on a motor vehicle
- Bicycling/skating/scooter
- Walking

19. On what type of surface did the injury occur? \*

- Artificial Turf
- Grass or natural turf
- Polymeric rubber (running tracks)
- PVC, Vinyl or Wooden Court
- Clay
- Asphalt
- Concrete
- Gravel
- Sand
- Carpeted floor
- Tiled/Plank flooring
- Unknown
- Other

20. Was protective head equipment worn at the time of the injury? \*

- Yes
- No
- N/A, protective head equipment is not used in this sport/activity or for this player's position or it was non-sport related
- Unknown

21. If a school activity or sport, what level of activity was the student participating in at the time of injury?

- Practice/non-competing
- Game/competition
- Side lines/spectator
- Travel to or from event
- N/A - Not school sanctioned sport or activity
- Other

22. Was the student removed from the activity at the time of the injury? \*

- Yes
- No
- Unknown
- N/A, student was not participating in a school sanctioned activity or sport

23. Was the student given a written authorization to return to the activity? \*

- Yes and student returned
- Yes but student did not return
- No
- Unknown

24. Date student was authorized to return to play?



25. Did the student have a modified instructional plan for any length of time as a result of the concussion injury? (IEP, 504, or student-teacher in-classroom contract/agreement) \*

- Yes
- No
- Unknown or n/a

26. Was student able to return to their typical learning environment? \*

- Yes
- No
- Unknown

27. Date student returned to their typical learning environment? \*

28. Provide any notes related to diagnosis, location, cause of event or clarification of any multiple choice selections as needed.