

Report to the Legislature

# Student Head Injuries

October 2024

RCW 43.70.435



Prepared by Injury and  
Violence Prevention,  
Prevention & Community  
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 disrupts the way the brain normally works. All concussions are serious, and continuing to engage in certain activities with a concussion can make the head injury worse. Schools play a key role in recognizing and responding to concussions when they first happen.

Washington state law ([RCW 28A.600.192](#)) 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 (DOH). This reporting must be done using a tool and process developed by DOH ([RCW 43.70.435](#)).

This report provides an overview of the data collected from schools on student concussions during the 2023-2024 school year. It includes:

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

Initial findings include:

- One thousand one hundred and five student concussions were reported.
- Contact sports such as football (30%) and soccer (10%) again held the highest percentages of concussions, accounting for 40% of reported concussions combined.
- Reported concussions are most commonly associated with playing sports (70%).
- Sixty three percent of reported concussions occurred in high school students with the highest proportion seen in grades 9 and 10.
- Consistent with 2023's Legislative Report, the months of September and October again 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 2023-2024 school year. This report contains data from the second year of reporting and while some patterns are starting to emerge, more years of reporting are needed to understand if these associations regarding student concussions persist over time and can be generalized. To see data from the first year of reporting, the [2022-2023 report](#) can be found on the DOH website.

# 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
- Inability to 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
- Loss of 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”

Signs and symptoms may have delayed onset and may appear and wane throughout the healing process. With quick attention and regular monitoring and care, most people feel better within a couple of weeks. Standard recovery for concussions requires time to rest. Slowly, patients may progressively increase activity and cognitive tasks.

Students may acquire an Individualized Education Plan (IEP), or a 504 Plan, to help them transition back to the learning environment. An IEP is a detailed, written plan identifying specific services, supports, modifications to the learning structure, and may include assistive technology. IEPs are created, administered, and monitored by team members including school personnel, the student, and family members. A 504 plan is a less formal plan to provide accommodations, assistive technology, and modifications to support a student’s success in the classroom based on disability or healthcare needs. A 504 plan may not be written and does not have strict requirements on who must be involved or level of evaluation.

After a student has returned to the learning environment, they may progress to returning to physical activity 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; even mild concussions can have significant impacts on learning, problem-solving, reasoning, personality, emotional regulation, and motor control. Continuing to engage in sports with a concussion can make a head injury worse. Any blow to the head after a concussion can cause significant complications and delay in healing. Anyone with a concussion needs to rest, avoid screens, and monitor symptoms to heal. Schools play a key role in recognizing and responding to concussions when they first happen.

## School Reporting

Washington state law ([RCW 28A.600.192](#)) requires public schools to annually report information about each diagnosed concussion sustained by a student during athletic and other activities to DOH. This reporting must be done using a tool developed by the department.

[RCW 43.70.435](#) directed DOH to develop a procedure to collect and analyze student head injury data reported by schools. DOH 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 (DSHS) Aging and Long-Term Support Administration (AL TSA) division – Traumatic Brain Injury Council to develop the reporting tool and procedure.

During this process, DOH 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. They may choose to go to a doctor after symptoms subside to get a release to return to learning or 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, DOH designed the reporting tool to allow schools to provide more reports of student head injuries that occurred outside of school activities.

Under [RCW 28A.600.192](#), all student concussion reporting must be submitted for each student impacted by June 30 of each year. Concussions that happen during summer sessions or preseason 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 post-injury. 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 DOH [website](#). 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. This report covers data from the 2023-2024 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. Imaging tests may be used in some cases; however, they are not always used because this has significant costs, additional health implications for children, and often scans appear normal after a concussion. Symptoms may also not be immediately observable or noticed at the 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

*Note on this section: Data categories, including age ranges and survey indicators, may look different than the 2022-2023 report. This is due to quality improvement changes in the reporting tool.*

For the 2023-2024 school year, reports were received from 43% (126 out of 295) of Washington state public school districts.

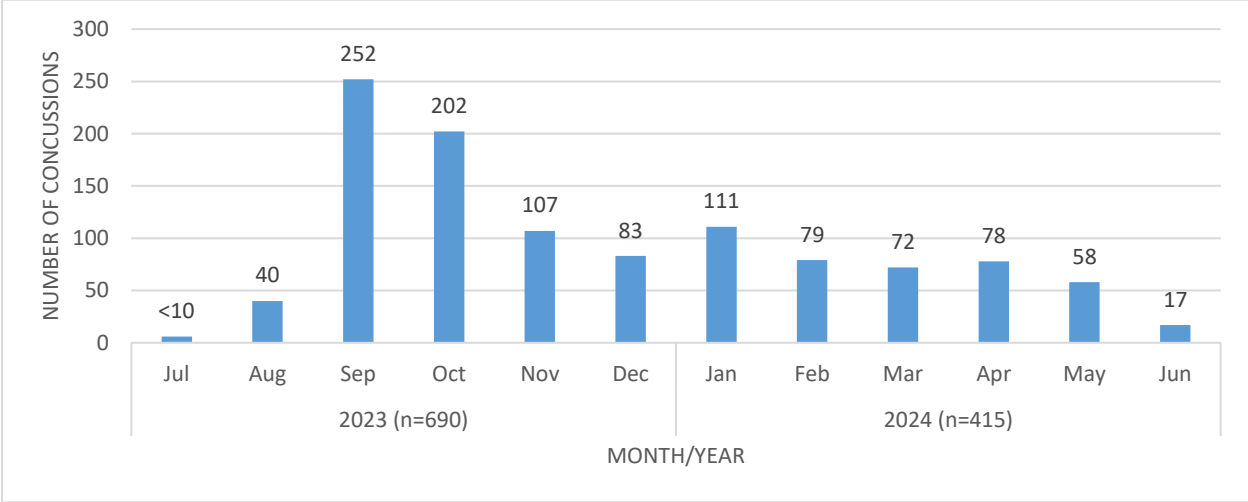
During the 2023-2024 school year, 1,100,059 students were enrolled in Washington public school districts. There were 1,105 reported concussions from July 1, 2023, to June 30, 2024. This is a rate of 10.0 per 10,000 students. This is 890 less reported concussions than the 2022-23 school year.

There were 559 additional concussions reported that occurred outside of school or a school activity, were not diagnosed by a licensed health care provider, were reported by a private school, or did not occur during the 2023-2024 school year. The concussions that were not reported by a licensed health care provider were most often identified by licensed athletic trainers who have training in recognizing the signs and symptoms of concussions; however, in current law, it is not within their scope of practice to diagnose concussions.



The number of reported concussions varied by month. Most concussions occurred in the fall during September and October (Figure 1). This is in line with the first year of reporting, in which September and October had the greatest number of concussions.

Figure 1: Monthly number of student concussions



### Student Concussion Demographics

The proportion of reported student concussions was highest among students ages 14 to 17 (Figure 2). Male students (64%), students who identified as masculine (43%), and White, non-Hispanic students (56%) also were more likely to have a concussion. Students in the ninth and tenth grades had the highest number of concussions (Table 1).

Figure 2: Student Age Distribution

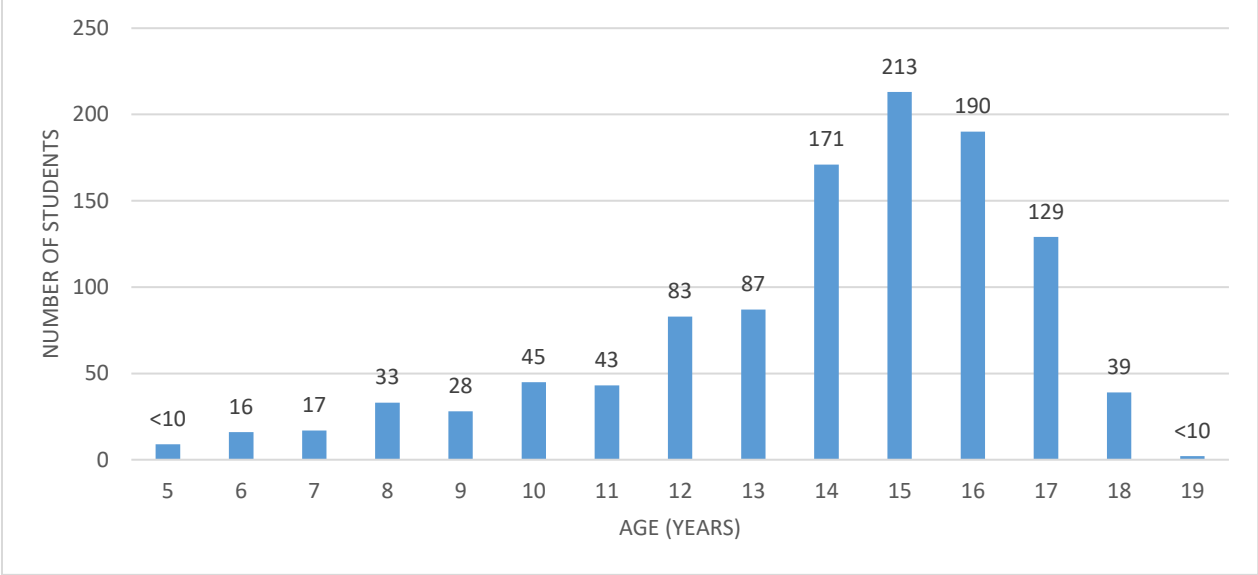


Table 1: Student Head Injury Demographics

Demographics	Count	Percent
<b>Age</b>		
5-10	148	13%
11-13	213	19%
14-19	744	67%
<b>Sex at Birth</b>		
Female	380	34%
Male	725	66%
<b>Student's Identified Gender</b>		
Feminine	224	20%
Masculine	444	40%
Non-binary	5	0%
Unknown, Prefer not to say, and/or Missing data	432	39%
<b>Race/Ethnicity*</b>		
<b>White</b>		
White alone	463	42%
White alone or in combination with another race/ethnicity	504	46%
<b>Black</b>		
Black alone	37	3%
Black alone or in combination with another race/ethnicity	53	5%
<b>Asian</b>		
Asian alone	28	3%
Asian alone or in combination with another race/ethnicity	41	4%
<b>American Indian and Alaska Native</b>		
American Indian and Alaska Native alone	12	1%
American Indian and Alaska Native alone or in combination with another race/ethnicity	19	2%
<b>Native Hawaiian and Pacific Islander</b>		
Native Hawaiian and Pacific Islander alone	<10	-
Native Hawaiian and Pacific Islander alone or in combination with another race/ethnicity	<10	-
<b>Hispanic</b>		
Hispanic alone	86	8%
Hispanic alone or in combination with another race/ethnicity	101	9%
<b>Multiracial and/or Multiethnic</b>	108	10%
<b>Other Race</b>	5	0.5%
<b>Unknown</b>	413	37%
<b>Grade Level</b>		
<b>Elementary School</b>	<b>168</b>	<b>15%</b>
Pre-K or Kindergarten	19	2%
1 <sup>st</sup> Grade	14	1%
2 <sup>nd</sup> Grade	27	2%
3 <sup>rd</sup> Grade	30	3%

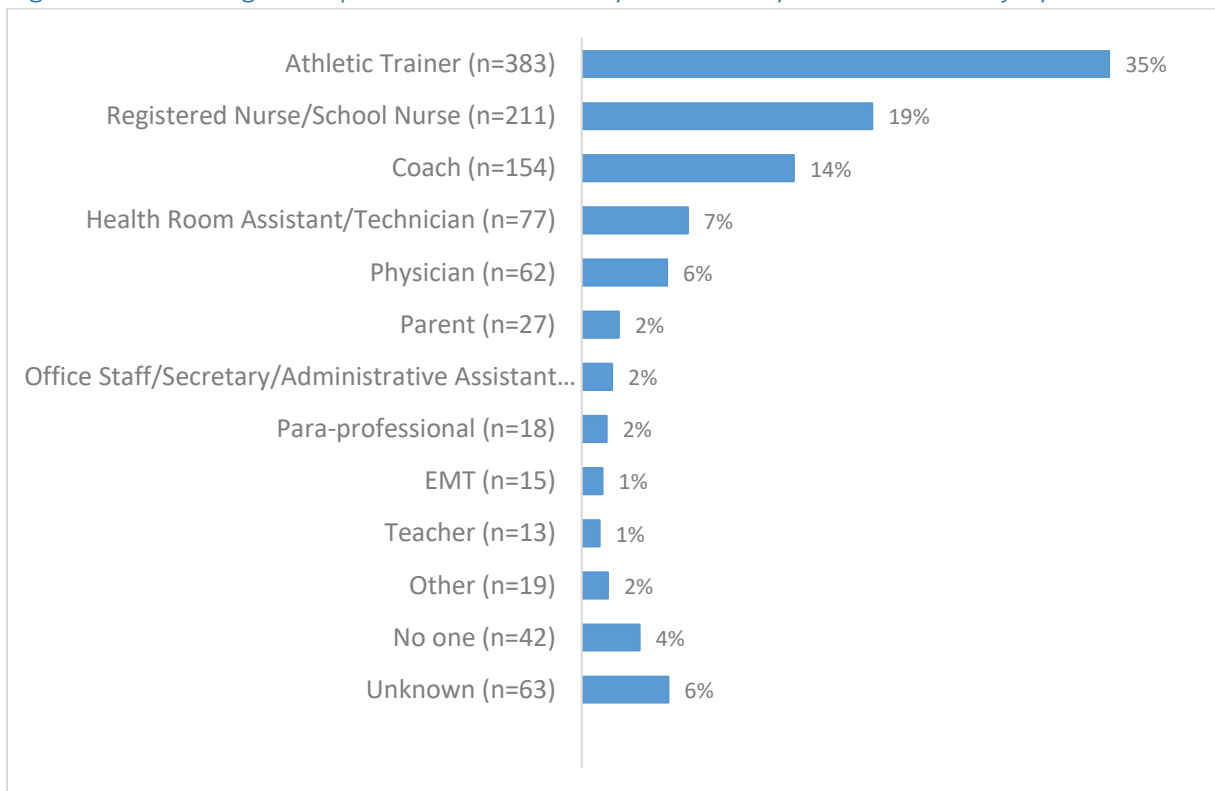
Demographics	Count	Percent
4 <sup>th</sup> Grade	31	3%
5 <sup>th</sup> Grade	47	4%
<b>Middle School</b>	<b>241</b>	<b>22%</b>
6 <sup>th</sup> Grade	49	4%
7 <sup>th</sup> Grade	91	8%
8 <sup>th</sup> Grade	101	9%
<b>High School</b>	<b>696</b>	<b>63%</b>
9 <sup>th</sup> Grade	199	18%
10 <sup>th</sup> Grade	248	22%
11 <sup>th</sup> Grade	160	14%
12 <sup>th</sup> Grade	89	8%

\*Race/ethnicity categories are not mutually exclusive and will sum to greater than 100 percent. Students may identify with more than one race/ethnicity category.

## Concussion Identification and Initial Examination

Most concussion symptoms were initially identified by an athletic trainer (35%), a registered nurse/school nurse (19%), or a coach (14%) (Figure 3).

Figure 3: 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.

## Repeated Concussions

There were 153 (14%) students who reported having at least one previous concussion (Figure 4). Among these students, 45% had a prior concussion in the last 2 years during the current or prior school year (Figure 5).

Figure 4: Number of previous concussions

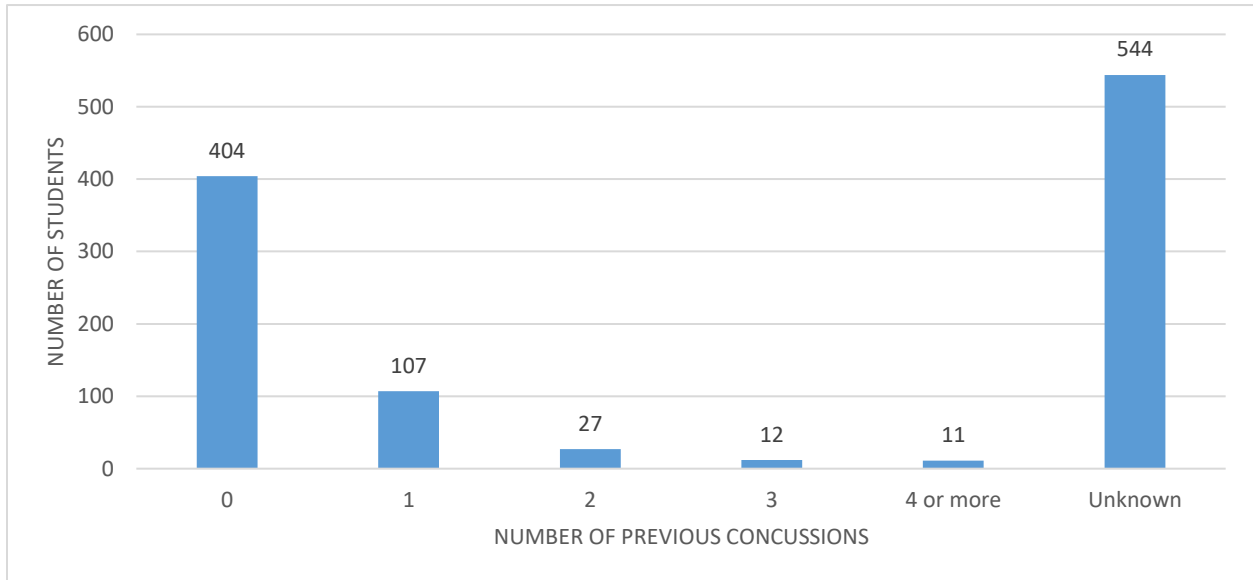
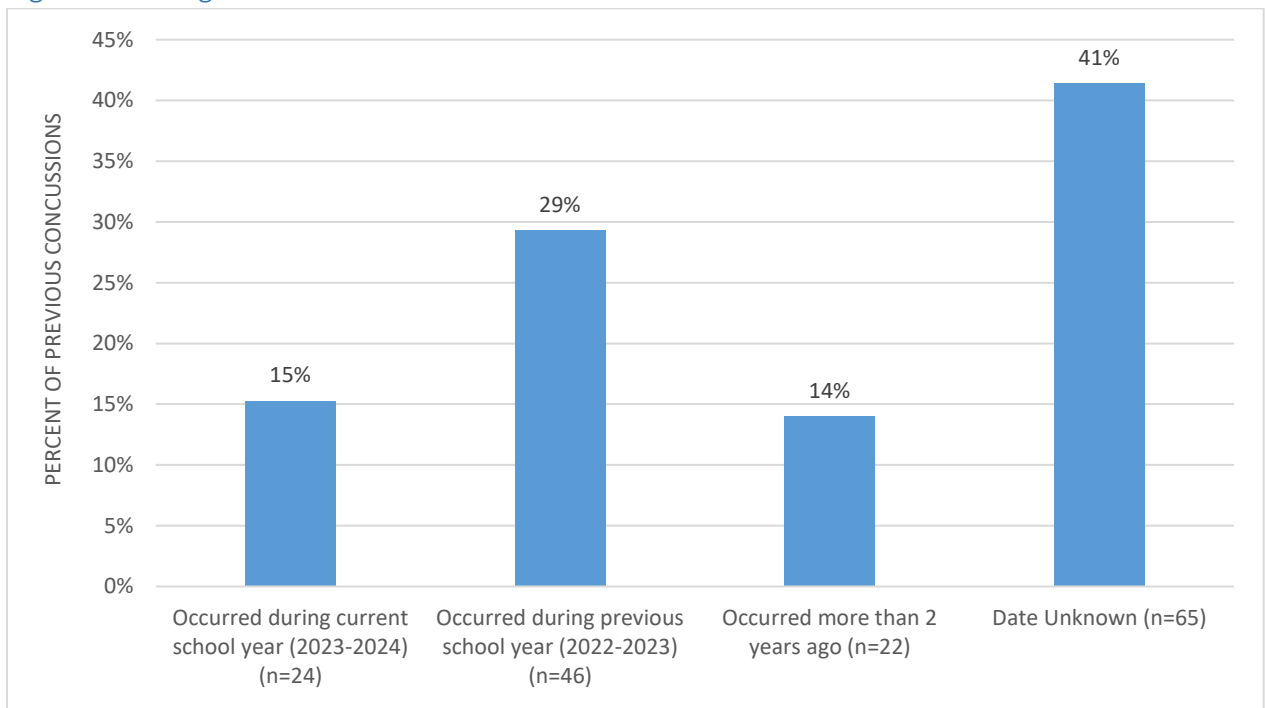


Figure 5: Timing of Previous Concussion



## School-Related Concussions

There were 1,105 reported concussions that occurred during school or a school-sponsored activity or sport. Most reported concussions occurred while the student was playing a sport (70%). The sports with the highest percentage of student concussions included football (30%), soccer (10%), wrestling (10%), and basketball (9%) (Table 2). There were 333 (30%) reported concussions that were not sports related. Most of the non-sports related concussions occurred during recess (11%) and during physical education class (5%) (Table 2).

Among all reported student concussions:

- 415 (38%) concussions occurred during a game or competition and 321 (29%) occurred during practice (Figure 6).
- Most concussions occurred outdoors on a sports field or course (44%), indoor gym or training room (29%), and on the playground (10%) (Figure 7).
- The top three types of surfaces where concussions occurred included grass/natural turf (21%), artificial turf (21%), and PVC/Vinyl/Wooden Court (17%) (Figure 8).
- 31% of students reported wearing protective head equipment during the activity (Figure 9).

Table 2: Activity or sport student was participating in at the time of injury

School related sport or activity	Number of reported concussions	Percent
<b>School-Related Sport</b>	<b>772</b>	<b>70%</b>
Football	334	30%
Soccer	110	10%
Wrestling	107	10%
Basketball	101	9%
Volleyball	42	4%
Softball	24	2%
Cheerleading	20	2%
Baseball	10	1%
Track & field/cross country	10	1%
Swimming	8	1%
Other Sport (e.g. water polo, golf, badminton)	6	1%
<b>School related non-sport activity</b>	<b>333</b>	<b>30%</b>
Recess/playground	121	11%
Physical Education (PE) class	60	5%
Classroom (not PE)	42	4%
Class change/in hallway	23	2%
Physical altercation	23	2%
Walking	8	1%
Other non-sport activities	47	4%

Unknown	9	1%
<b>Total</b>	<b>1105</b>	

Figure 6: Percentage of reported concussions by level of activity

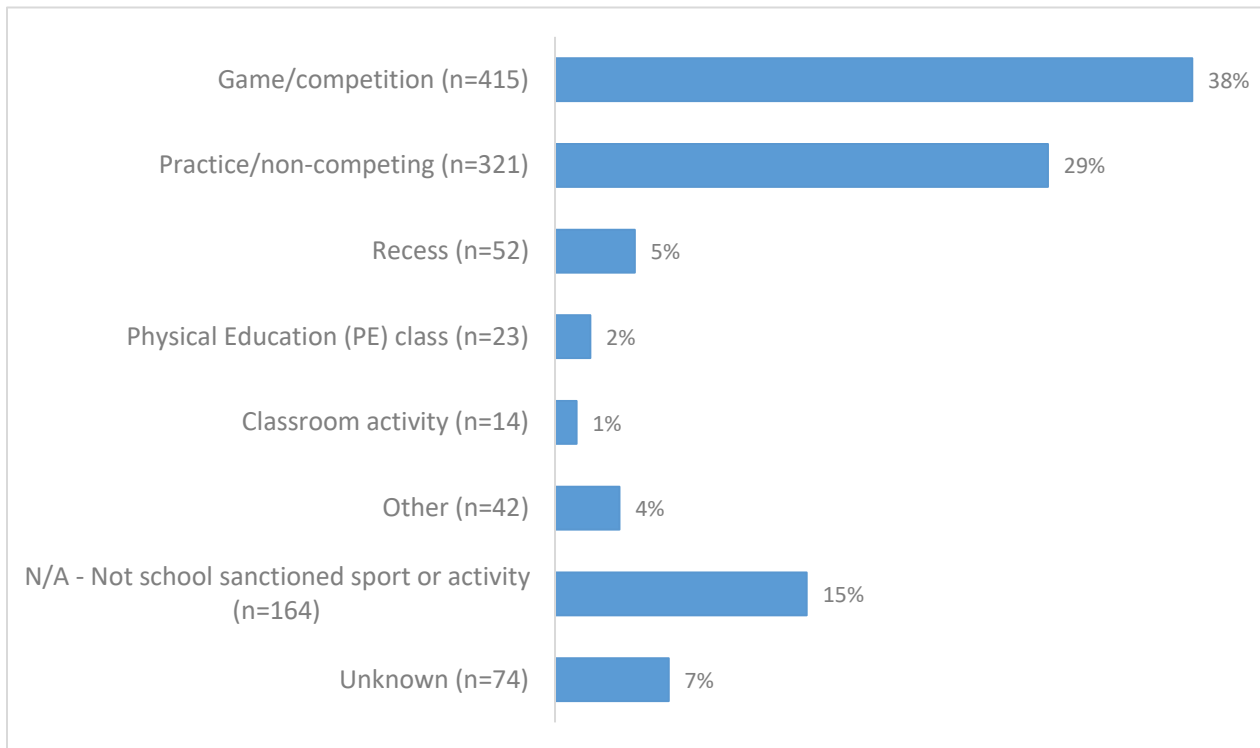


Figure 7. Percentage of concussions by location of occurrence

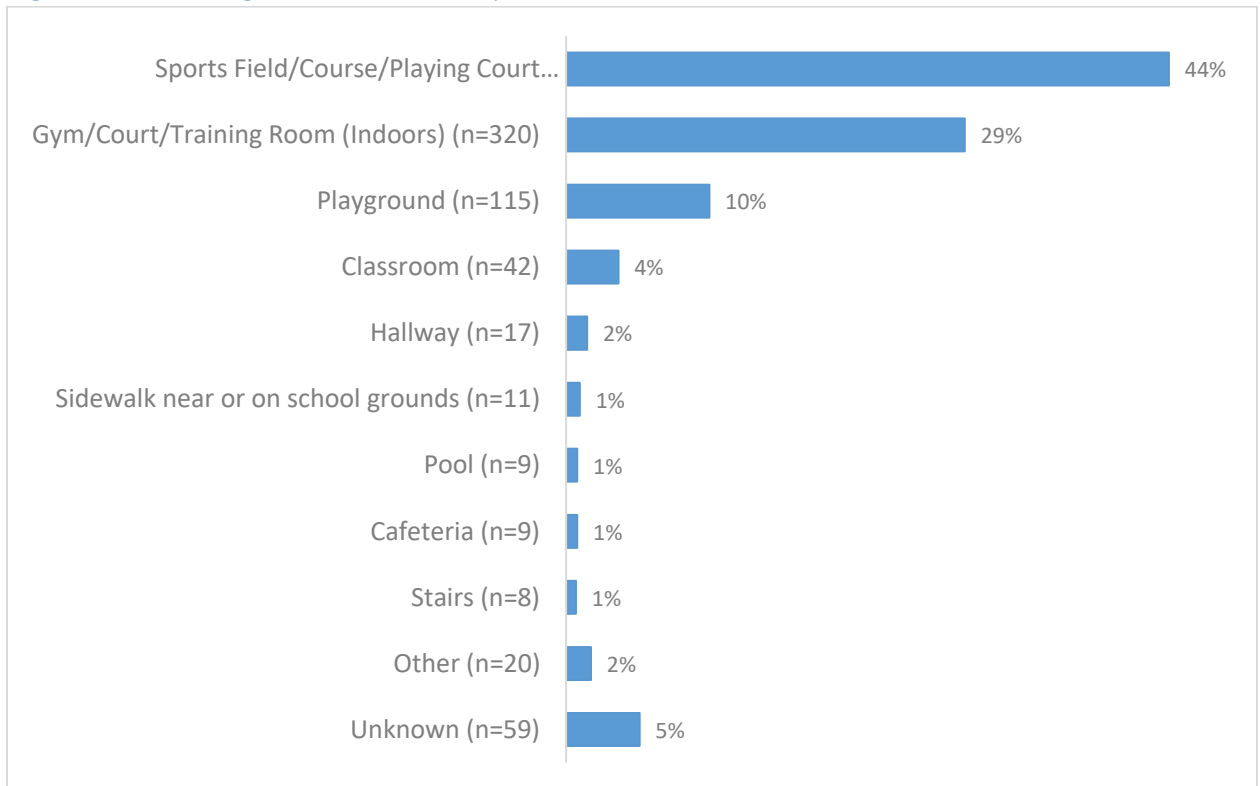


Figure 8: Percentage of reported concussions by type of surface

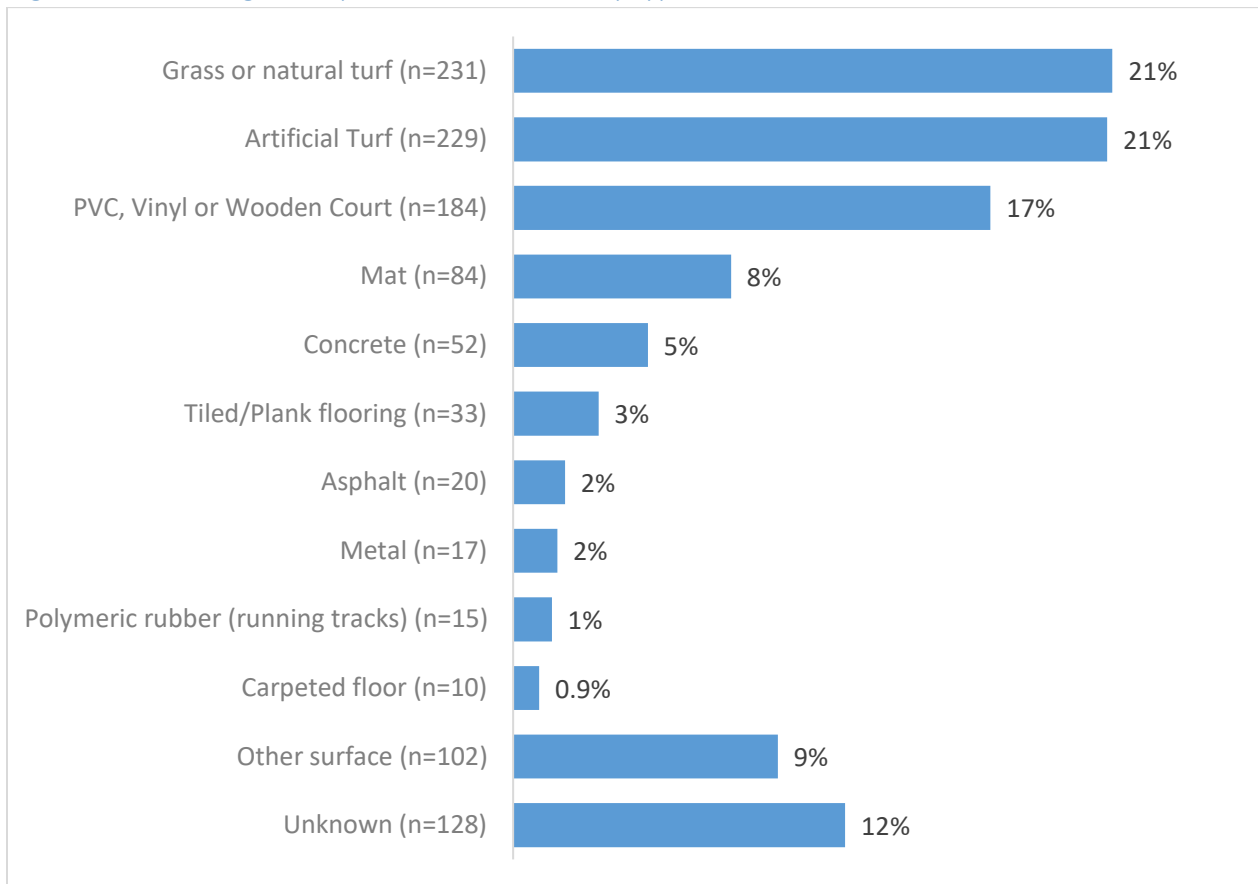
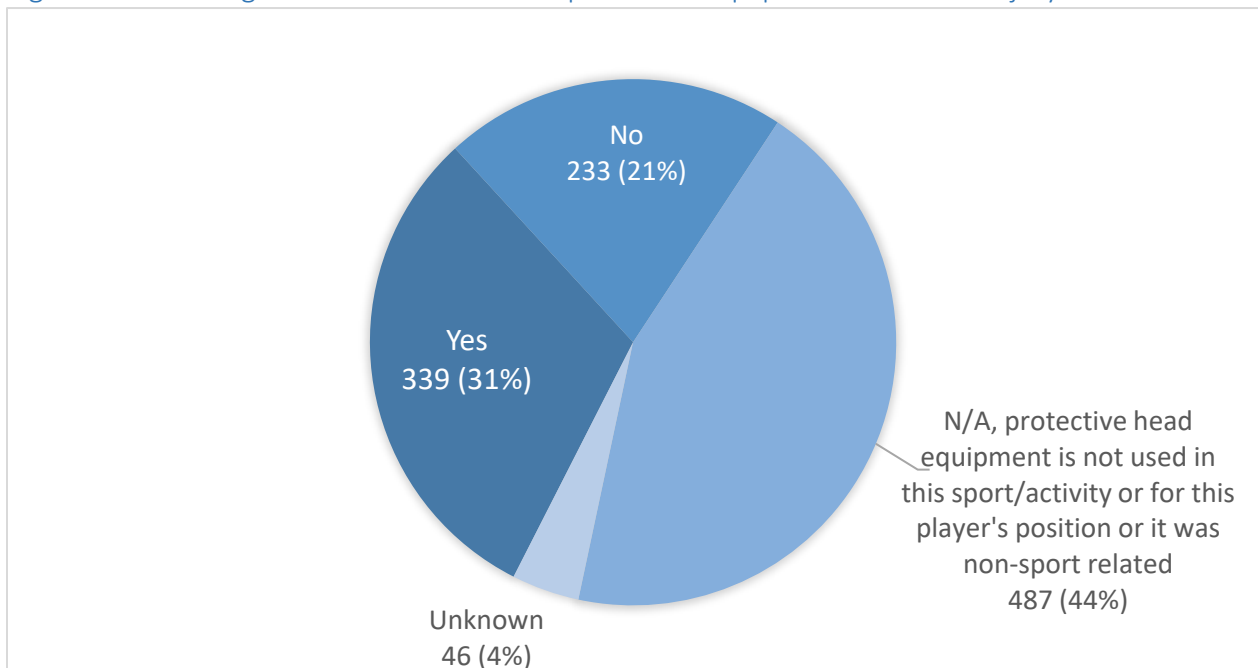


Figure 9: Percentage of students who wore protective equipment at time of injury





## Return to Activity and Learning Environment

There were 733 (66%) students who were removed from the activity at the time of injury (Figure 10). 41% of students did not miss any school due to their injury (Figure 11).

Figure 10: Student removed from activity at the time of injury

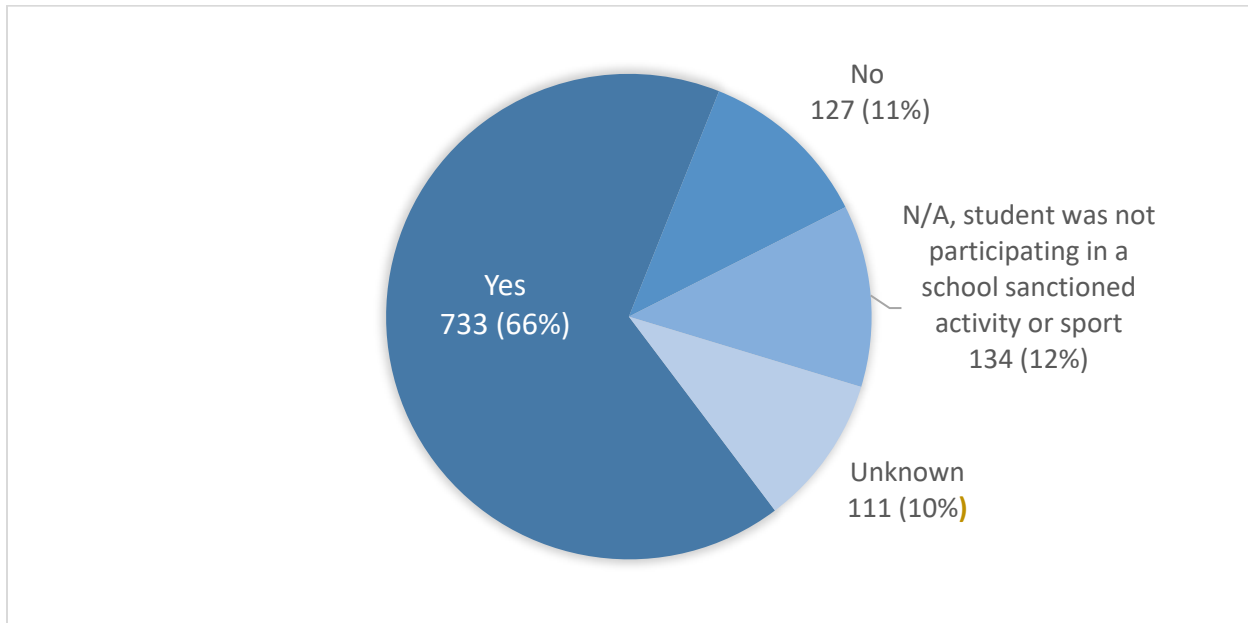
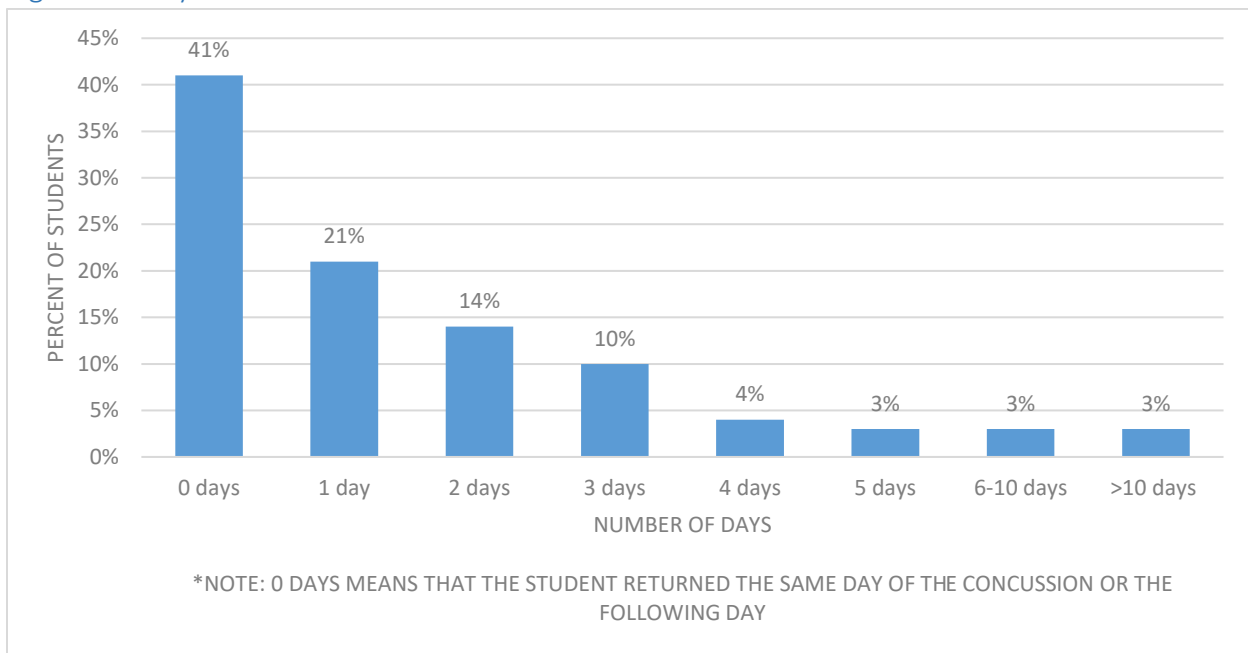
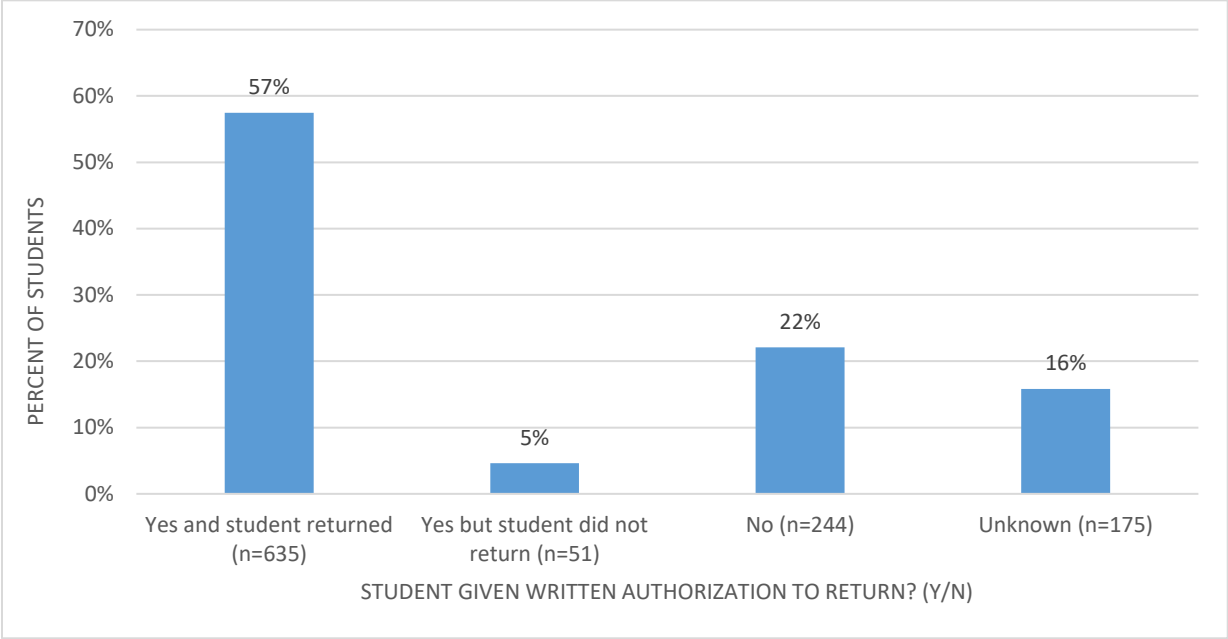


Figure 11: Days absent from school due to concussion



There were 686 (62%) students given written authorization to return to the activity by the end of the season, but only 635 (57%) students returned to the activity (Figure 12).

Figure 12: Percentage of students given a written authorization to return to activity by the end of the season



There were 305 (28%) students who received a modified instructional plan for any length of time (Figure 13). Among these students, 78% were able to return to their typical learning environment (Figure 14). There was a median of 7 days from the time of injury to the time these students returned to the learning environment (Figure 15).

Figure 13: Percentage of students given a modified instructional plan

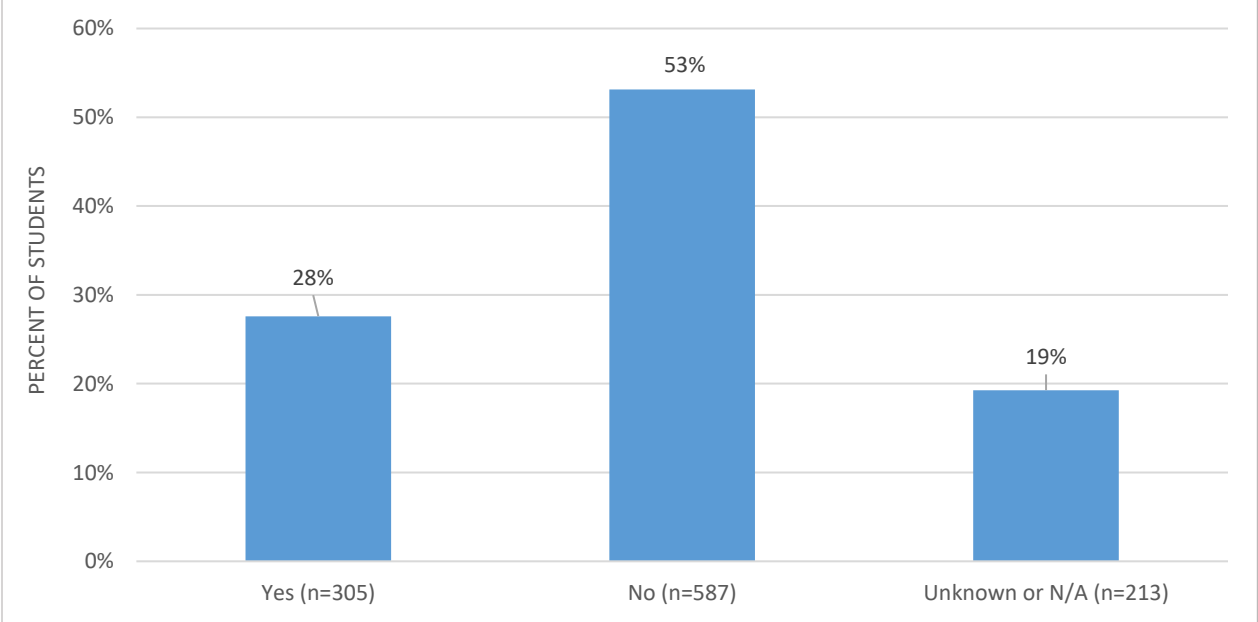


Figure 14: Percentage of students authorized to return to their typical learning environment

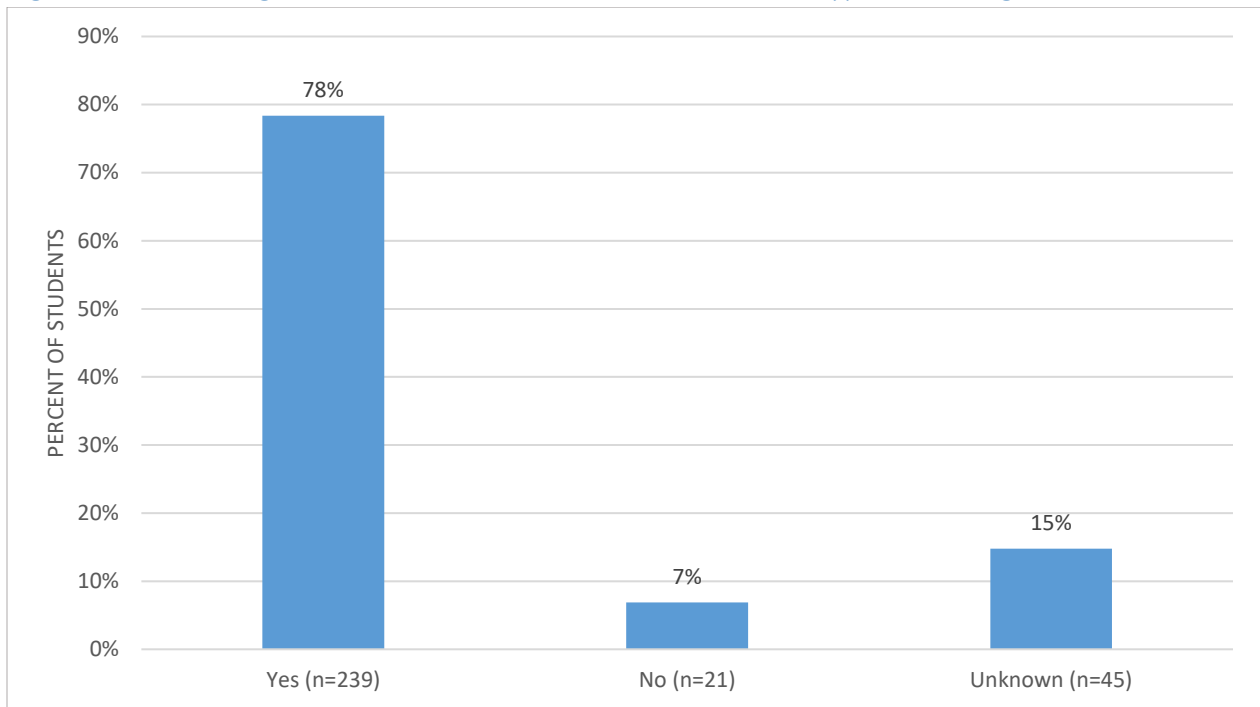
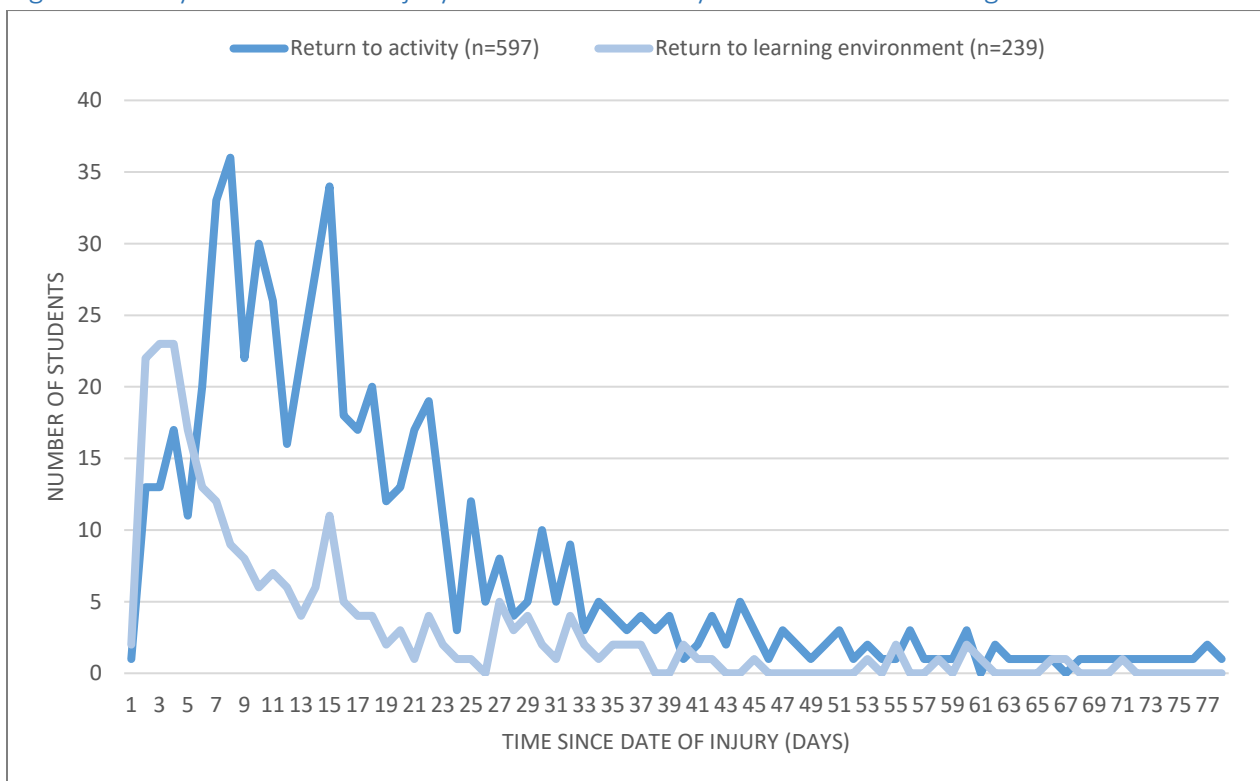


Figure 15: Days from date of injury to return to activity and return to learning environment



## Conclusion

Concussions are serious and can have significant impacts on student education. There were 1,105 reported student concussions to DOH from July 1, 2023, to June 30, 2024. Similar to 2022-23, data from the 2023-24 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 during September and October, with contact sports such as football (30%) and soccer (10%). Contact sports held the highest percentages of concussions, accounting for 59% of reported concussions combined. While concussions were most common while playing sports, 30% of concussions happened during other activities. Ninth and tenth graders showed the highest proportion of concussions across grades and ages, which is the same result that was reported in the 2022-23 school year. The median time from concussion to returning to normal classroom activities was 7 days. The median time to return to play was 14 days.

Since concussions can also occur outside of school, this may limit the full picture of student concussions in Washington. Again this year, 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 DOH an opportunity to draw further conclusions. DOH continues to work with OSPI to improve reporting compliance, quality, and efficiency through additional communication and technical assistance for schools. DOH is also working with community and research partners to provide concussion management tools and resources to schools.

Data presented in this report provides rates, trends, and patterns of student concussions that occurred during the 2023-2024 school year. The law does require schools to report diagnosed concussions that occurred during a school activity. This is the second year of reporting and while some trends are starting to emerge, more years of reporting are needed to better identify and understand whether these associations regarding student concussions persist over time and can be generalized.



# 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, 2023-24

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 available 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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\* 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.

