

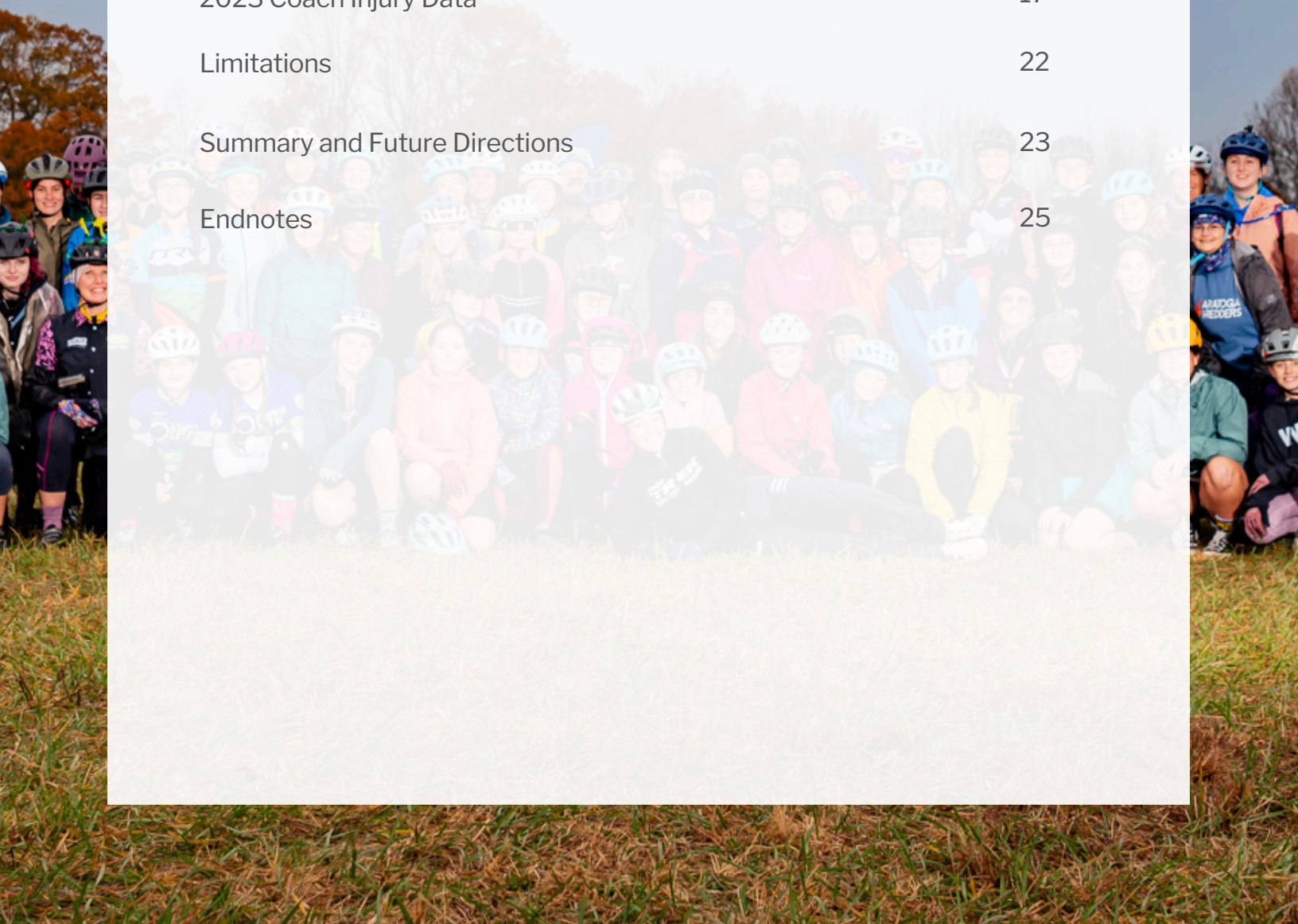


**THE NATIONAL INTERSCHOLASTIC CYCLING ASSOCIATION
INJURY SURVEILLANCE SYSTEM
2023 ANNUAL REPORT**

In partnership with University of Utah Sports Medicine

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INTRODUCTION

PREAMBLE

The National Interscholastic Cycling Association (NICA) is committed to protecting the safety of everyone participating in interscholastic mountain bike programs. To this aim, NICA and its partners at the University of Utah have collaborated to establish the NICA Injury Surveillance System. The Injury Surveillance System is designed to better understand the types and causes of injuries seen in middle and high school mountain biking, and to pursue data-driven strategies to protect the safety of student-athletes, coaches, officials and fans.

The NICA Injury Surveillance System solicits and welcomes input from all stakeholders, including student-athletes, coaches, parents, race staff and others.

After nearly three years of project development, consultation with leading sports epidemiologists around the world, and extensive beta testing, the NICA Injury Surveillance System was implemented in the 2018 season. Because of the dedication and commitment of many individuals, the first six years of data collection have been very successful. The NICA Safety Report is the largest and most comprehensive mountain biking injury surveillance system in the world. With the knowledge gained from these efforts, NICA is leading the way in making the sport of mountain biking safer, ultimately leading to the protection of student-athlete health and of all others involved in this sport.

This document is the 6th annual official NICA Annual Report and includes data from the 2023 spring and fall leagues. The annual NICA Safety Reports are made publicly available on the NICA website at <https://www.nationalmtb.org/safety-reporting/>.

Protection of Personal Information

NICA and its partners take protection of personal information very seriously. All information used in the NICA Injury Surveillance System is protected to the greatest degree possible. The NICA Injury Surveillance System meets or exceeds all national and local standards for the protection of personal information. Injury incident reports are only visible to NICA national staff, league staff, and NICA's insurance broker. NICA and its partners will never release an individual's personal health information without their formal permission. NICA's partners at the University of Utah never see information that can personally identify individuals; all data is de-identified and analyzed in aggregate, making it impossible to identify any individual in the final analyses.

“...to pursue data-driven strategies to protect the safety of student-athletes...”

DEFINITIONS

Injury Definition: Injury is defined as any physical event that occurs during a NICA sanctioned team practice, race, coaches training session or camp that results in physical harm to the participant significant enough to:

- 1) Warrant referral to a medical provider
OR
- 2) Lose time from training or competition beyond the day of injury
OR
- 3) Miss school or work

Notes Regarding Injury Definition:

-If an injury event does not result in an injury that meets one or more of the above criteria, then the injury event should not be entered into the NICA Safety Report database.

-If a rider is seen in the medical tent in the Pit Zone of a race, but otherwise none of the above 3 parameters are met, the injury event does not warrant inclusion in the injury database.

Injury Event: An injury event is a single event that causes one or more injuries meeting the above injury definition. In the majority of cases, an injury event is due to a crash or collision while riding. Less commonly in mountain biking, an injury may be the result of chronic overload to a body part; for example, the gradual onset of tendinitis in the knee.

Note Regarding Injury Event Definition: A single injury event can result in more than one unique injury. For example, a rider might be involved in a crash that results in both a hip contusion (i.e., bruise) and a fracture of the clavicle (i.e., broken collarbone).

Designated Reporter: The Designated Reporter is the individual from each team who completes the weekly exposure reports and completes the injury report forms. Designated Reporters receive training on how to correctly report injuries.

Exposure Reporting: The total amount that an athlete is exposed to the risk of injury is a very important parameter in sports epidemiology. Exposure can be estimated in many different ways. In order to obtain an estimate of how much student-athletes are exposed to risk, the NICA Safety Report asks the Designated Reporters to provide the following information on a weekly basis:

- 1) How many NICA-sanctioned races, practices and other activities their team participated in each week
AND
- 2) How many student-athletes participated in each team race, practice and other activities.

This information provides the total number of student-athlete exposures.





Injury Event Proportion: The injury proportion is the number of injury events in one year divided by 100 participating riders. The injury proportion is expressed as a percentage.

Injury Proportion: The injury proportion is the number of unique injuries in one year divided by 100 participating riders. The injury proportion is expressed as a percentage. Because riders often sustain more than one injury per crash, the injury proportion is higher than the injury event proportion.

Injury Incidence: The injury incidence is the number of injury events per student-athlete exposure. In sports epidemiology, injury incidence is often considered more important than injury proportion because it considers how much a student-athlete is exposed to risk. Injury incidence can be reported in many different ways. Some common examples include:

- The number of student-athlete injuries per 1,000 student-athlete practices plus races;
- The number of student-athlete injuries per 1,000 student-athlete practices;
- The number of student-athlete injuries per 1,000 student-athlete races.

Note regarding exposure and injury incidence: During the first six years (2018, 2019, 2020, 2021 2022, and 2023) of the NICA Safety Report, exposure reporting was insufficient to calculate injury incidence with confidence.

Therefore, injury incidence is not included in this report. NICA is pursuing ongoing efforts to improve the reporting of exposure. With these efforts, compliance with exposure reporting has increased from ~40% to ~70%, with a goal of reaching 90%.

Student-Athlete: The term student-athlete refers to any student who has registered for a given season in the NICA Pit Zone with the intent of participating in NICA programs.

Coach: The term coach refers to adults who have registered for a given season in the NICA Pit Zone with the intent to coach for NICA programs.

Category: The term category refers to a group of student athletes defined by grade-level, division, sex, and/or ability. Divisions can differ by state.

"Every youth is empowered to be part of a thriving and engaged cycling community"

NICA SAFETY TEAM

NICA Team



Elsie Thomson

NICA Risk and Safety Manager

Elsie is thrilled to serve the NICA community as the Risk and Safety Manager. Elsie's own outdoor and recreation experiences have dramatically shaped her life and voice. She is passionate about outdoor and recreation experiences as influential tools for empowerment and community building. Prior to joining NICA, Elsie spent almost a decade working for a variety of other youth development and education organizations including NOLS, The Traveling School, Teton Science Schools, and the Colorado Mountain Club.



Sarah Thomson

NICA Project Manager

Sarah is a Bay Area native, growing up in Menlo Park and attending UC Santa Cruz where she earned a degree in Marine Biology. She has been a competitive fencer for over 15 years and has worked with fencing clubs and leagues for over 10 years. Sarah was excited to join NICA and bring her extensive experience with fencing tournaments and registration to her new role. In her spare time, she likes to read, in particular murder mysteries.



Julia Lawrence

NICA Director of Administration

An avid hiker, runner, sailor, and mother of four, Julia discovered the sport of mountain biking in her 30s and came to love the physical, mental, and social benefits it had to offer. Her relationship with the sport continued to grow when her daughters joined their club team at San Ramon Valley High School. Julia spent many years as an Assistant Coach at SRV and this eventually led her to employment at NICA in 2012. She is continually reminded what a positive impact mountain biking has had on her own children, as well as the students in her community and beyond.



Nargis Solis

NICA Data Analyst

Two time Ironman finisher and long time triathlete, Nargis Solis, started her athletic endeavors in high school as a runner and then continued into rowing. She completed her first triathlon in 2001; the start of a longtime passion with the sport. Having recently coached a small team of charity runners for the 2014 and 2015 Boston Marathons while simultaneously keeping up with her 3-year old daughter, Nargis is passionate about getting kids outside running and cycling. Nargis has a BA in Applied Mathematics from UC Berkeley.

"We build strong minds, bodies, character, and communities through cycling"

University of Utah Team



Stuart Willick, MD

Professor, Sports Medicine, University of Utah

Stuart Willick, MD is a sports medicine physician who has worked with numerous elite sports organizations, including the University of Utah, the United States Ski and Snowboard Association, US Speedskating, the US Bobsled and Skeleton Federation, USA Climbing and the International Olympic and Paralympic Medical Committees. Dr. Willick helps athletes of all ages recover from their sports injuries and stay healthy and active. His research focus is the prevention of injury and illness in sport. Both of his kids raced NICA.



Dan Cushman, MD

Associate Professor, Sports Medicine, University of Utah

Dan Cushman, MD is board-certified in both Sports Medicine and Physical Medicine & Rehabilitation, and specializes in the care of musculoskeletal injuries in both athletes & non-athletes, musculoskeletal ultrasound, electrodiagnostic medicine, and endurance sports-specific injuries with a particular interest in runners, cyclists, swimmers, and triathletes. He is Director of Sports Medicine Research at the University of Utah. His life revolves heavily around bikes, commuting year-round, having biked over 100,000 miles, and trying to remain intermittently competitive in local triathlons.



Meredith Ehn, DO, DPT

Assistant Professor, Sports Medicine, University of Utah

Meredith Ehn, DO, DPT is board-certified in both Physical Medicine & Rehabilitation and Sports Medicine. She has a particular interest in treatment of acute and chronic injuries in cyclists and skiers of all ability levels. She is the head team physician for US Para Snowboarding and US Para Alpine as well as a sports medicine consultant for US-based women's professional cycling teams. Prior to medical school, she had a rewarding 9-year career as an orthopedic and sports physical therapist, specializing in the rehabilitation of cycling and skiing related injuries. She continues to ride and race bikes, most recently completing in the legendary Breck Epic.



Aaron Provance, MD

Professor, Sports Medicine, University of Utah

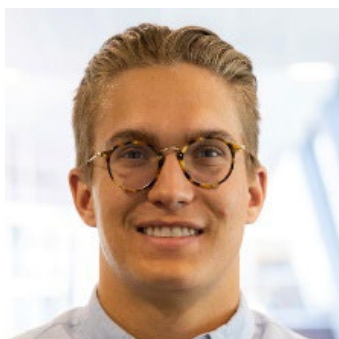
Aaron Provance, MD specializes in pediatric sports medicine. Prior to joining the University of Utah, he served as the medical director of the Sports Medicine Center at Children's Hospital Colorado for 12 years where he built one of the nation's leading pediatric sports medicine programs. He now serves as the pediatric sports medicine director within the Department of Orthopaedics at the University of Utah. He has a special interest in adventure and extreme sports injuries including mountain biking, rock climbing and skiing/snowboarding injuries.



Masaru (Masa) Teramoto, PhD, MPH, PStat®

Research Associate Professor, Sports Medicine, University of Utah

Masa is a Research Associate Professor in the Department of Physical Medicine & Rehabilitation at University of Utah. He is a member of the American Statistical Association (ASA), and is an ASA Accredited Professional Statistician®. His research focuses on sports/exercise epidemiology and sports analytics.



Luke Johnson

Clinical Research Coordinator, University of Utah

Luke grew up in Michigan's Upper Peninsula and graduated from the University of Utah in 2020 with a bachelor's degree in Kinesiology. Luke has held multiple roles within the University of Utah Health systems, previously working as Health Care Aide in the Emergency Department and also as a Patient Relations Specialist at the Snowbird Medical Clinic. Luke currently works with providers in both Physical Medicine & Rehabilitation and Orthopaedics. Some of his work includes studying innovative arthritis treatments, sports epidemiology and sports injury prevention. In his free time Luke loves skiing, spending time on the lake, and camping.



Jamie Egbert

Research Associate, University of Utah

Jamie joined the University of Utah after receiving an MPH with an emphasis in Epidemiology from Loyola University Chicago and a BS in Statistics from Brigham Young University. In her current role as a Research Associate, she collaborates with providers at the University of Utah, conducting research related to sports epidemiology and sports injury prevention and intervention. Outside of work, Jamie enjoys hiking, spending time with family and friends, and going on walks with her dog.



2023 STUDENT-ATHLETE INJURY DATA

2023 Student-Athletes Summary

2023 student-athlete summary	n	%
Total n of student-athletes Nationwide	24,457	100.00%
Total n of male student-athletes Nationwide	18,741	76.63%
Total n of female student-athletes Nationwide	5,716	23.40%
Total n of <i>injured</i> student-athletes Nationwide	547	2.24%
Total n of <i>injured</i> male student-athletes Nationwide	400	2.13%
Total n of <i>injured</i> female student-athletes Nationwide	146	2.55%

Table 1. 2023 student-athlete summary data. The percentages in the bottom 3 rows refer to the number of injury events per 100 student-athletes in each category.

Age of Injured Student-Athletes

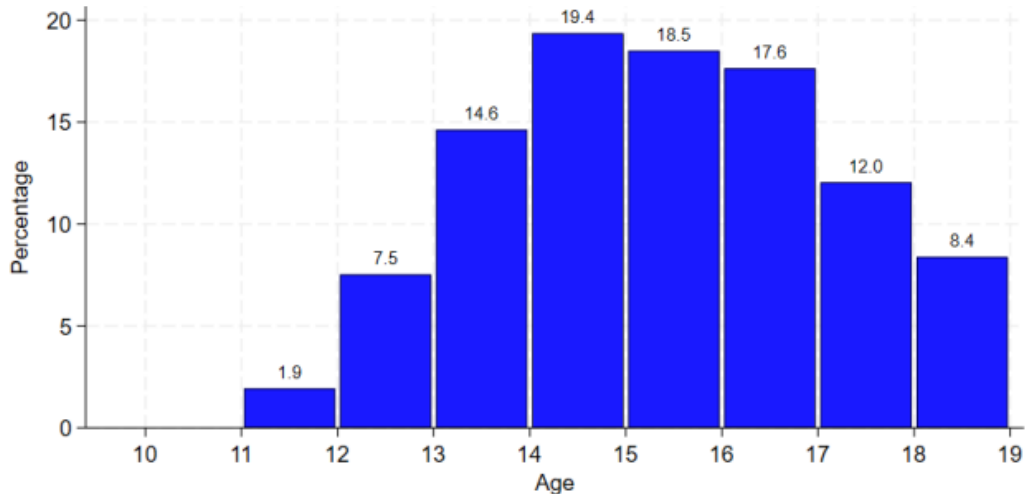


Figure 1. Percentage of injury events that correspond to student-athletes ages 11 through 18.

Results of Student-Athlete Injuries

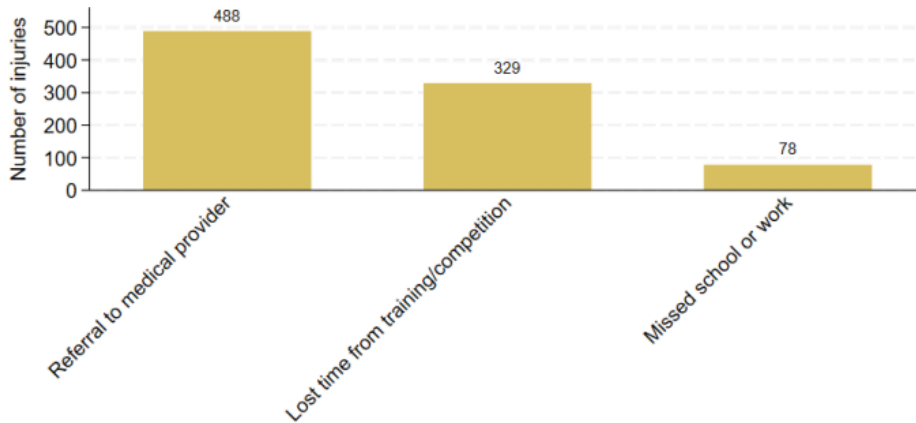


Figure 2. Number of injury events corresponding to various injury outcomes (i.e., referral to medical provider, lost time from training/competition, missed school or work). The total number in figure 2 is greater than the total number of injury events because a single injury event can result in more than one injury outcome.

Injured Student-Athletes Who Were and Were Not Able to Complete the Training Session or Race

Were the student-athletes able to complete the training session or race?	Male student-athletes		Female student-athletes		All student-athletes	
	n	%	n	%	n	%
No	282	70.5%	91	62.3%	373	68.3%
Yes	114	28.5%	52	35.6%	166	30.4%
N/A	4	1.0%	3	2.1%	7	1.3%
Total	400	73.3%	146	26.7%	546	100%

Table 2. Number and percentage of student-athletes who were and were not able to complete their practice ride or race after a reportable injury. The injury events in which the student-athlete was able to complete the training session or race likely resulted in less severe injuries to the student-athlete compared with the injury events in which the student-athlete was unable to complete the training session or race.



Student-Athlete Injuries by Body Part

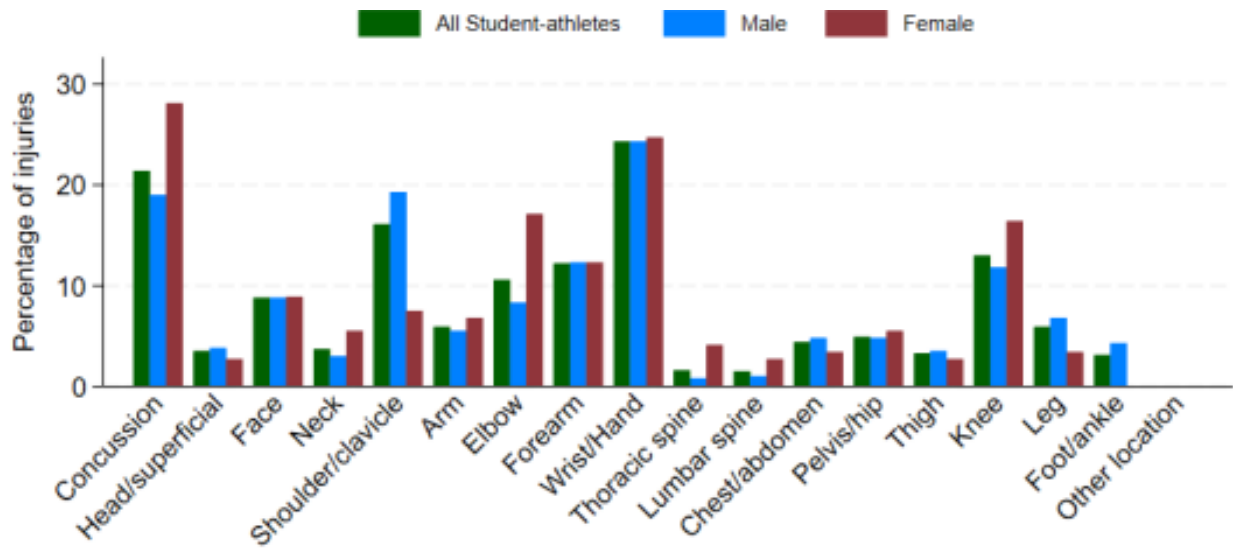


Figure 3. Student-athlete injuries by body part. The second category, “Head/superficial” refers to injuries besides concussions that affect the head and face, such as abrasions (scrapes), but without a concussion. The total number of injuries is greater than the total number of injury events listed in Table 1 because a single injury event can result in more than one injury.

Student-Athlete Injury by Diagnosis

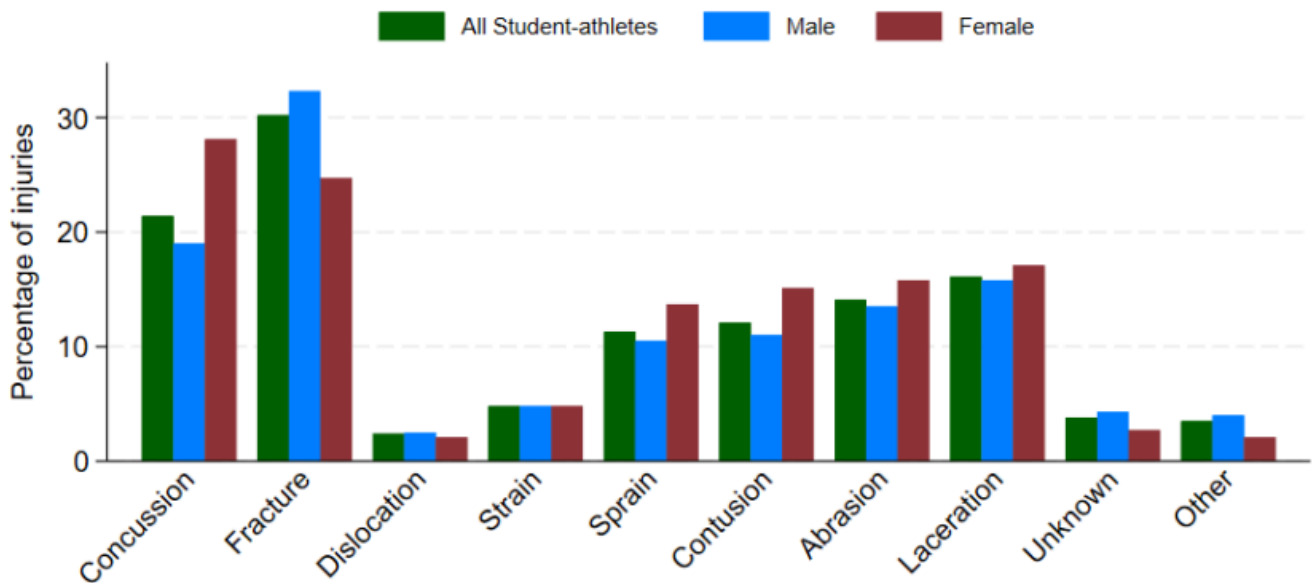


Figure 4. Student-athlete injuries by diagnosis. There were a high number of relatively mild injuries such as contusion (bruise) and abrasion (scrape). However, there were also a high number of more significant injuries such as fractures (broken bones) and concussions. The total number of diagnoses is greater than the total number of injury events listed in Table 1 because a single injury event can result in more than one type of injury.

Mode of Transportation for Injured Student-Athletes

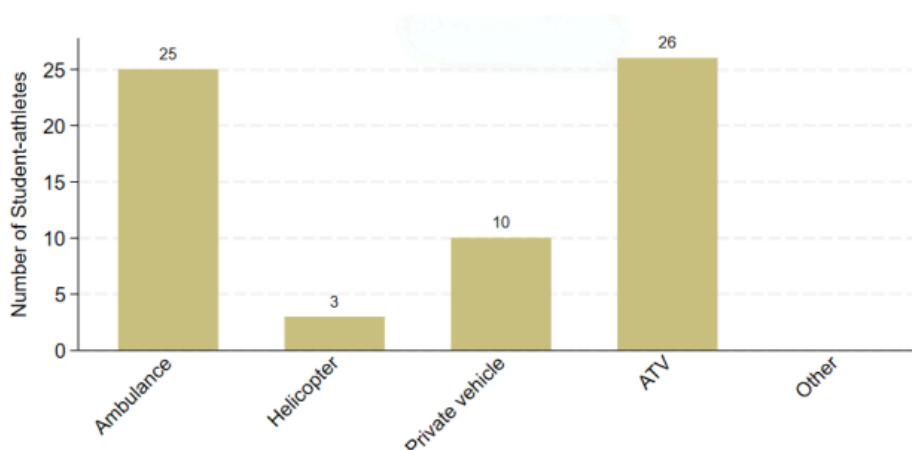


Figure 5. Number of all injured student-athletes who required assisted transport from the site of an injury. Only 64 injured student-athletes required assisted transportation from the injury site.

Disposition Following Injury

Disposition following injury	Male student-athletes		Female student-athletes		All student-athletes	
	n	%	n	%	n	%
Did not require ER visit	192	48.2%	74	50.7%	266	48.9%
Went to the ER, then went home	172	43.2%	58	39.7%	230	42.3%
Went to the ER, then admitted to the hospital	13	3.3%	4	2.7%	17	3.1%
Unknown	21	5.3%	10	6.8%	31	5.7%
Total	400	73.3%	146	26.7%	546	100%

Table 3. Disposition of injured student-athletes. About half of all injured student-athletes sought emergency evaluation, but only a small percentage (3.1%) of injured student-athletes required admission to the hospital.

Disposition Following Injury for Male and Female Student-Athletes

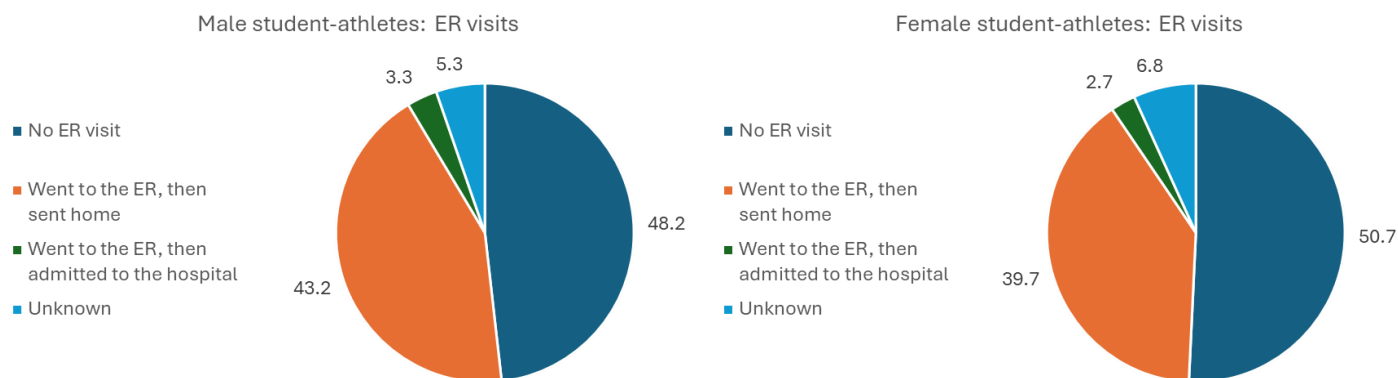


Figure 6. Disposition of student athletes by sex (values presented are percentages).



Trail Familiarity

Was the venue or route familiar to the injured rider?	Male student-athletes		Female student-athletes		All student-athletes	
	n	%	n	%	n	%
No, the rider has not ridden on this trail	59	14.8%	22	15.1%	81	14.8%
Yes, the rider has ridden on this trail	311	77.8%	114	78.1%	425	77.8%
N/A or unsure	30	7.5%	10	6.8%	40	7.3%
Total	400	73.3%	146	26.7%	546	100%

Table 4. Trail familiarity at time of injury event: The majority of injuries (77.8%) occurred on a trail that was familiar to the student-athlete. The high percentage of injury events that occurred on trails with which the student-athlete was familiar may reflect the greater amount of time spent riding on familiar trails, as opposed to time spent riding on unfamiliar trails. Alternatively, these data could indicate that student-athletes take more risk when riding on familiar trails versus unfamiliar trails.

Injury Events by Practice versus Race

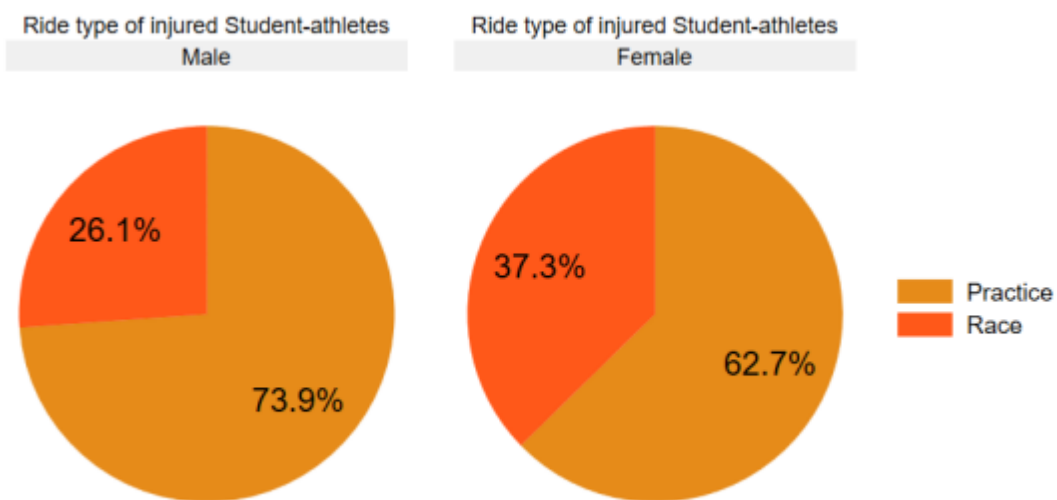


Figure 7. Pie chart representing ride type of student- athlete (i.e., practice versus race) associated with an injury event. Among male student-athletes, 73.9% of injuries occurred during practice compared to 62.7% of female student-athletes. Student-athletes generally participate in more practices than races.

Time Off Due to Injury

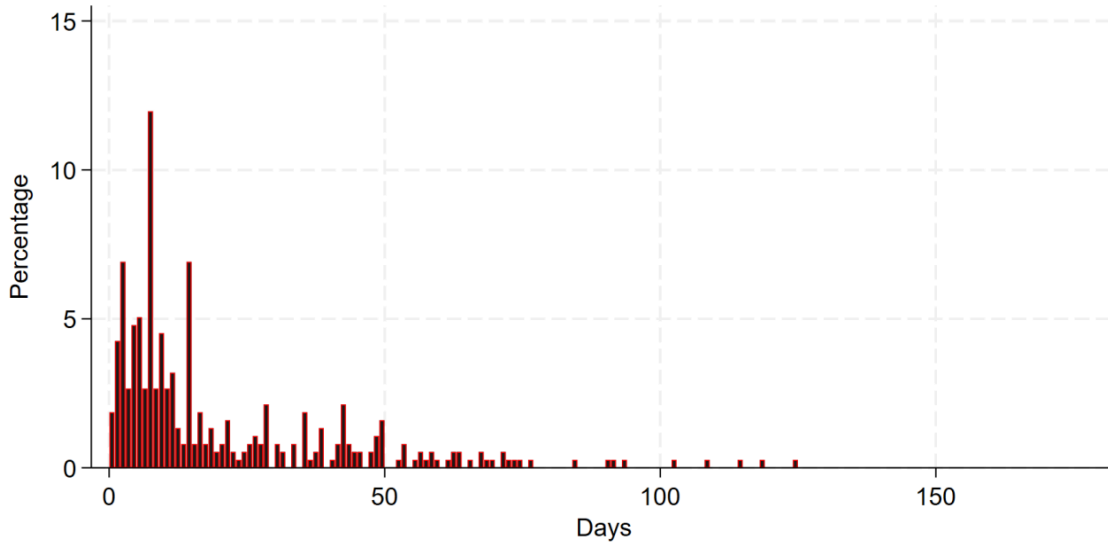


Figure 8. Bar chart representing time that student-athletes lost from practices and races following an injury event up to six months. Three student-athletes had time off due to injury that was over six months.



Factors Associated with Injury

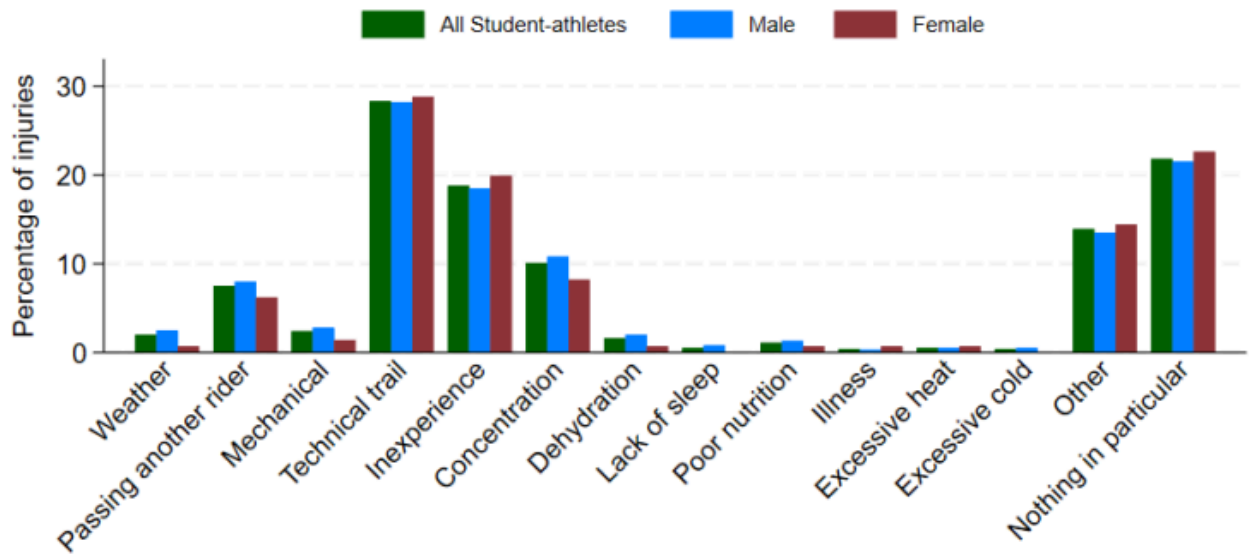


Figure 9. Factors that were felt to contribute to the injury event. Technical trails, rider inexperience and negotiating turns (not shown above) were all felt to contribute to injury events. This suggests that improving rider skills could decrease injuries.





Injuries by Trail Incline

Trail Incline at time of injury	Male student-athletes		Female student-athletes		All student-athletes	
	n	%	n	%	n	%
Uphill	23	5.8%	9	6.2%	32	5.9%
Flat	124	31.2%	50	34.5%	174	32.0%
Downhill	214	53.8%	72	49.7%	286	52.7%
N/A or other	37	9.3%	14	9.7%	51	9.4%
Total	400	73.3%	146	26.7%	546	100%

Table 5: Frequencies and percentage of injuries that occurred on flat, downhill and uphill terrain.

"We get kids on bikes. We are outside going places. We are stoking a life-long passion for riding."

2023 COACH INJURY DATA

2023 Coaches Summary

2023 coach summary	n	%
Total n of coaches Nationwide	15,901	100.00%
Total n of male coaches Nationwide	11,807	74.25%
Total n of female coaches Nationwide	4,094	25.7%
Total n of <i>injured</i> coaches Nationwide	116	0.73%
Total n of <i>injured</i> male coaches Nationwide	84	0.71%
Total n of <i>injured</i> female coaches Nationwide	32	0.78%

Table 6. 2023 coaches summary data. The percentages in the bottom 3 rows refer to the number of injury events per 100 coaches in each category.

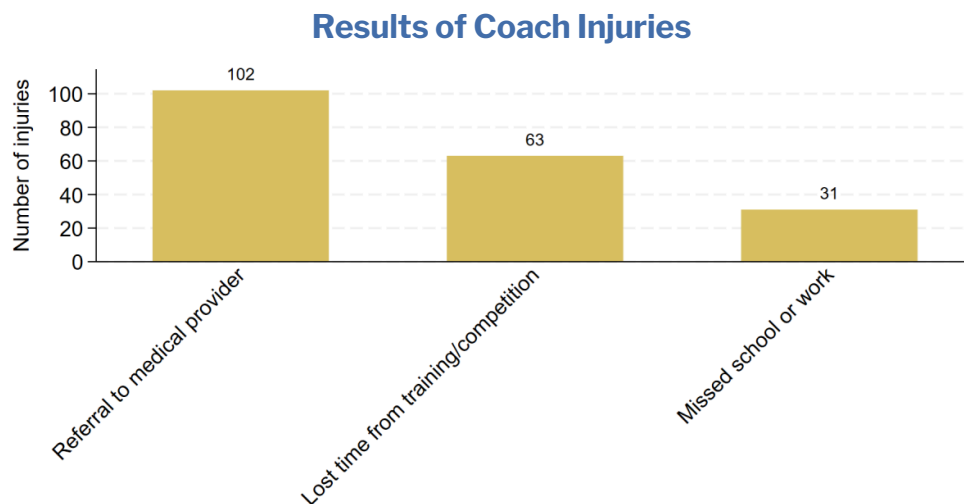


Figure 10. Number of injury events corresponding to various injury outcomes (i.e., referral to medical provider, lost time from training/competition, missed school or work). The total number in figure 11 is greater than the total number of injury events because a single injury event can result in more than one injury outcome.

Injured Coaches Who Were and Were Not Able to Complete the Training Session or Race

Was the coach able to complete the training session or race?	Male coaches		Female coaches		All coaches	
	n	%	n	%	n	%
No	53	63.1%	17	53.1%	70	60.3%
Yes	29	34.5%	13	40.6%	42	36.2%
N/A	2	2.4%	2	6.2%	4	3.4%
Total	84	72.4%	32	27.6%	116	100%

Table 7. Number and percentage of coaches who were and were not able to complete their ride after a reportable injury.

Coach Injuries by Body Part

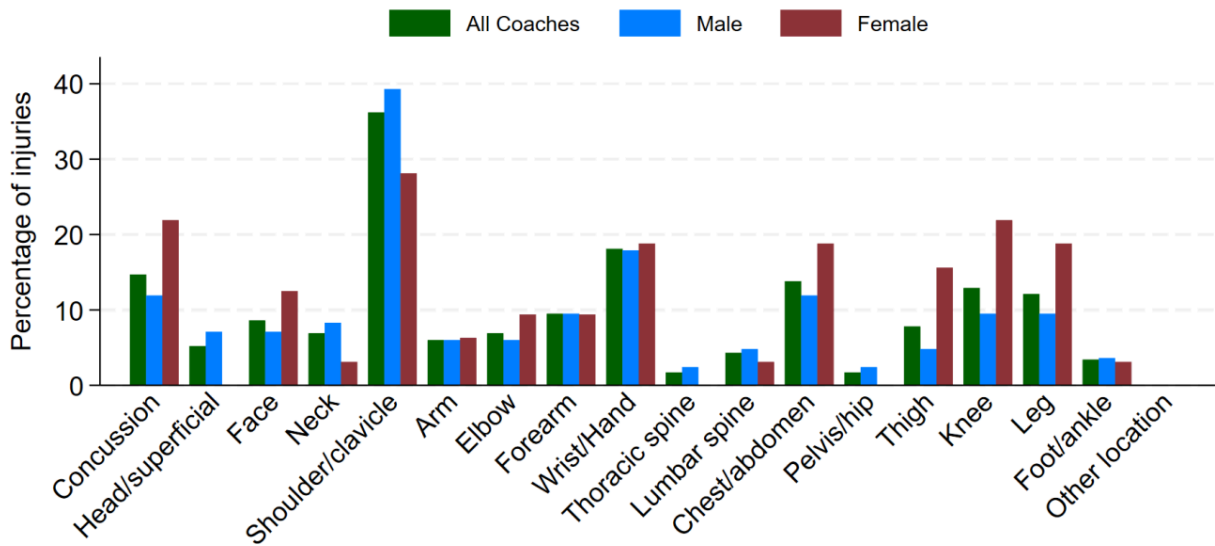


Figure 11. Coach injuries by body part. The second category, “Head/superficial” refers to injuries besides concussions that affect the head and face, such as abrasions (scrapes), but without a concussion. The total number of injuries is greater than the total number of injury events listed in Table 6 because a single injury event can result in more than one injury.

Coach Injury by Diagnosis

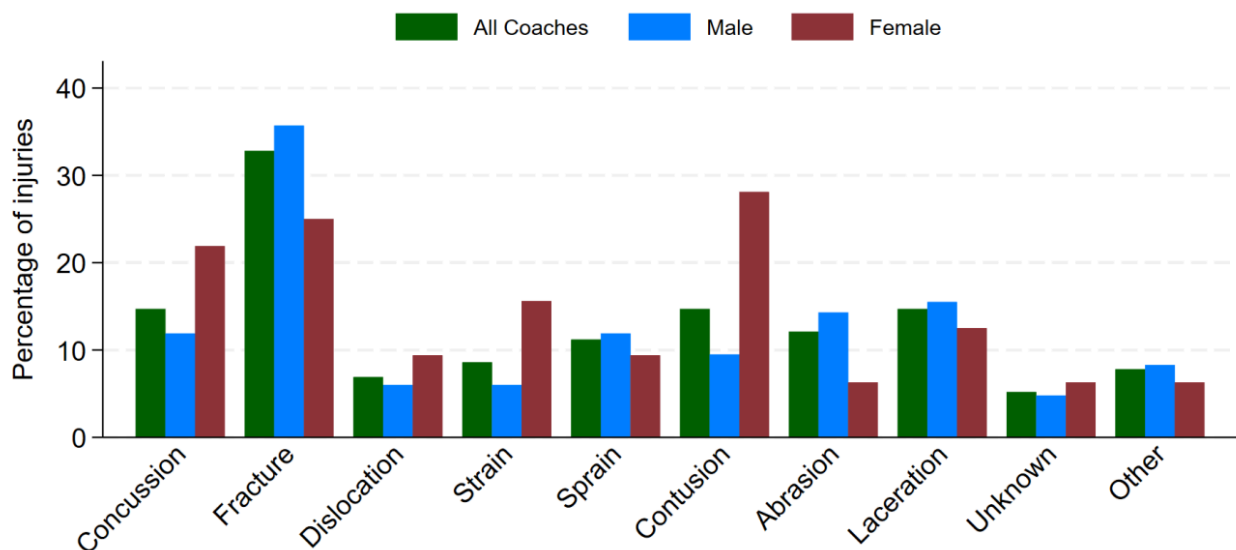


Figure 12. Coach injuries by diagnosis. There were a high number of relatively mild injuries such as contusions (bruises). However, there were also a high number of more significant injuries such as fractures (broken bones) and concussions. The total number of diagnoses is greater than the total number of injury events listed in Table 6 because a single injury event can result in more than one type of injury.



Mode of Transportation for Injured Coaches

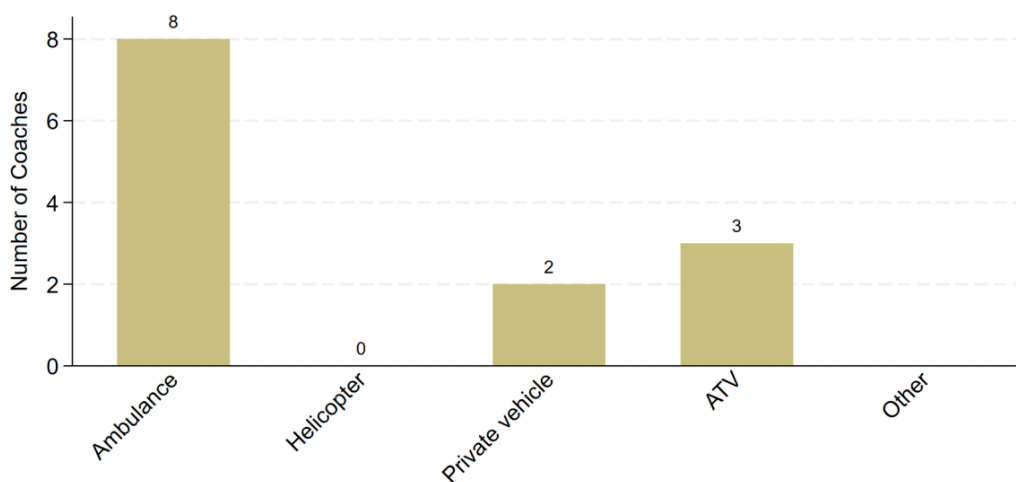


Figure 13. Number of all injured coaches who required assisted transport from the site of an injury. Only 13 injured coaches required assisted transportation from the injury site.

Disposition Following Injury

Disposition following injury	Male coaches		Female coaches		All coaches	
	n	%	n	%	n	%
Did not require ER visit	39	46.4%	15	46.9%	54	46.6%
Went to the ER, then went home	37	44.0%	14	43.8%	51	44.0%
Went to the ER, then admitted to the hospital	6	7.1%	1	3.1%	7	6.0%
Unknown	2	2.4%	2	6.2%	4	3.4%
Total	84	72.4%	32	27.6%	116	100%

Table 8. Disposition of injured coaches. About half of all injured coaches sought emergency evaluation, but only a small percentage (6.0%) of injured coaches required admission to the hospital.

Trail Familiarity

Was the venue or route familiar to the injured rider?	Male coaches		Female coaches		All coaches	
	n	%	n	%	n	%
No, the rider has not ridden on this trail	15	17.9%	6	18.8%	21	18.1%
Yes, the rider has ridden on this trail	67	79.8%	23	71.9%	90	77.6%
N/A or unsure	2	2.4%	3	9.4%	5	4.3%
Total	84	72.4%	32	27.6%	116	100%

Table 9. Trail familiarity at time of injury event: The majority of injuries (77.6%) occurred on a trail that was familiar to the coach. The high percentage of injury events that occurred on trails with which the coach was familiar may reflect the greater amount of time spent riding on familiar trails, as opposed to time spent riding on unfamiliar trails. Alternatively, these data could indicate that coaches take more risk when riding on familiar trails versus unfamiliar trails.

Time Off Due to Injury

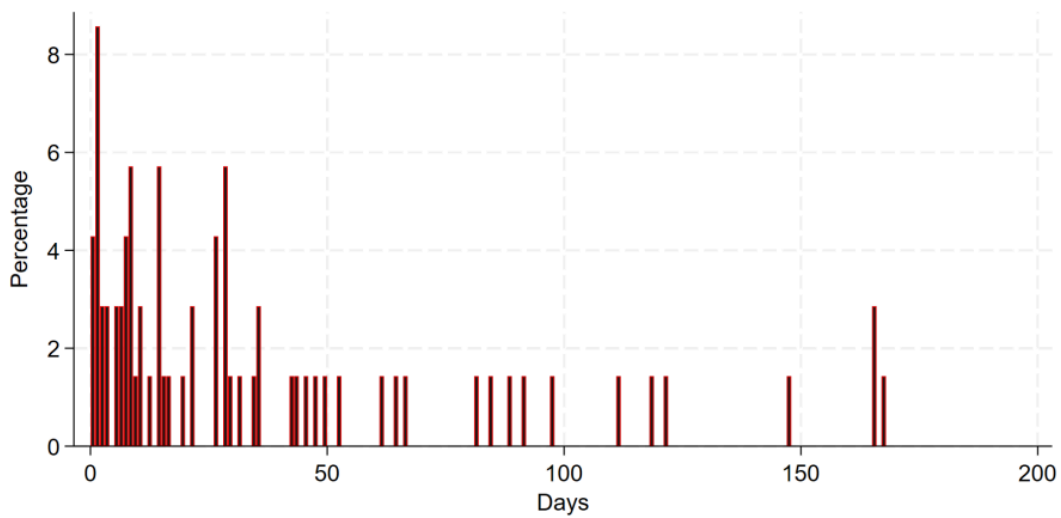


Figure 15. Bar chart representing time that coaches lost from riding following an injury event (up to six months). Six coaches had time off due to injury that was over six months.

Factors Associated with Injury

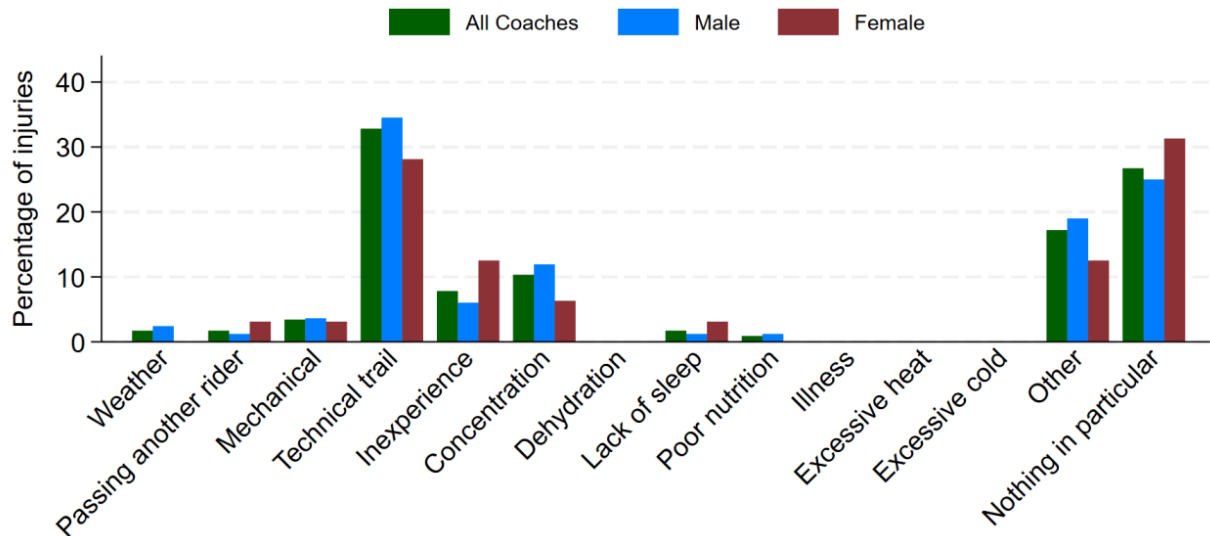


Figure 16. Factors that were felt to contribute to the injury event.

Injuries by Trail Incline

Trail Incline at time of injury	Male coaches		Female coaches		All coaches	
	n	%	n	%	n	%
Uphill	6	7.1%	3	9.4%	9	7.8%
Flat	19	22.6%	9	28.1%	28	24.1%
Downhill	54	64.3%	15	46.9%	69	59.5%
N/A or other	5	6.0%	5	15.6%	10	8.6%
Total	84	72.4%	32	27.6%	116	100%

Table 10: Frequencies and percentage of injuries that occurred on flat, downhill and uphill terrain.



LIMITATIONS

As with all sports epidemiology endeavors, the NICA Injury Surveillance System is not without limitations. It is necessary to understand the limitations in order to appropriately interpret the data. It is also necessary to find ways to decrease these limitations in order to lessen the impact of the limitations on data analysis and improve the value of the data. One primary limitation is that the information entered into the Safety Report is not usually entered by medical personnel, but rather by each team's Designated Reporter, who may or may not have medical training. The Safety Report does not collect primary source clinical documentation such as a physician's clinic notes and x-ray reports. However, the Designated Reporter who is entering the information into the injury report form is instructed to consult with the student-athlete, the student athlete's parents/guardians, and others so that they have the best information possible about the circumstances of the injury. A key component of the Safety Report is that the electronic injury reporting form allows the Designated Reporter to return to the injury form and update it at a later time as they obtain additional information about the injury and its outcome. In the first six years of data collection (2018, 2019, 2020, 2021, 2022, 2023), the information entered into the database regarding injuries was deemed to be high quality, despite not having primary source medical documentation.

A second important limitation involves the challenges of obtaining exposure data. Exposure is a very important concept in sports epidemiology. A basic definition of exposure is the amount that an athlete is exposed to risk. Exposure can be estimated in different ways. In mountain biking, exposure can be a count of the number of practices and races, or the amount of time that student-athletes are on their bikes, or the distance ridden in a given period of time. For practical reasons, the simplest estimate of exposure for the purposes of the NICA Injury Surveillance System is estimated as the number of student-athletes at each NICA sanctioned practice and race. This information is supposed to be provided by a team designee such as the team director and entered into the system by the Designated Reporter. Unfortunately, during the first six years of data collection (2018, 2019, 2020, 2021, 2022, and 2023), compliance with reporting exposure information was not adequate for use in the data analyses. NICA and its partners are actively working with all stakeholders to improve the capture of exposure information. Without adequate exposure data, the NICA Injury Surveillance System will remain somewhat limited in its ability to draw firm conclusions about when and why injuries are occurring, and how to decrease the risk of injury.

A third limitation involves the challenges of communicating and coordinating with hundreds of teams and tens of thousands of student-athletes and coaches across the country. The NICA Injury Surveillance System will be most effective if all stakeholders understand the importance of contributing to the effort. NICA will continue to have regular communications with all stakeholders and will post reports such as this one on the NICA Safety Report web page.

Another limitation is that the NICA Injury Surveillance System currently focuses on acute traumatic injuries. This is because acute injuries are by far the most common type of injury sustained in mountain biking. Depending on the results of data analysis, it is possible that an additional focus on insidious onset, overuse injuries will be added in the future. It is also possible that additional questions regarding medical illness in mountain biking will also be added in the future.

As with all large injury surveillance systems, there are some incomplete fields in the database. These missing data are primarily the result of the manner in which the designated reporters complete the injury incident forms. Ongoing communications with the Designated Reporters should decrease the number of missing fields.

Finally, the NICA Injury Surveillance System is limited by time, money and brainpower. The sports medicine researchers at the University of Utah have been volunteering their time and expertise in order to find ways to make the sport safer. NICA and its collaborators continually seek research grant funding and other funding to support this important project.

SUMMARY AND FUTURE DIRECTIONS

Thanks to the hard work of many individuals, the first six years of data collection for the NICA Injury Surveillance System have been a tremendous success. The NICA Injury Surveillance System is the largest and most comprehensive mountain biking injury surveillance system in the world. It is also the first injury surveillance system to track injuries among coaches. With the knowledge gained from this report, NICA is leading the way in efforts to make the great sport of mountain biking safer, and to protect the health of the student-athletes and all others involved in this sport. Over the upcoming years, NICA and its partners will be pursuing the following steps for the NICA Injury Surveillance System:

- Continue to communicate with all stakeholders about the importance of the project and the importance of obtaining quality exposure and injury data;
- Share Safety Study data with First Aid Training Partners to improve the focus of all first aid training for NICA coaches;
- Solicit feedback from stakeholders and safety experts for more insights on how to improve the effectiveness of the projects;
- Continue to post reports of findings to the NICA Safety Reporting web page;
- Review and improve the web based injury reporting form;
- Carry out sub-analyses of the 2018-2023 data;
- Pursue increased compliance with reporting of exposure data;
- Pursue research grant funding and other sources of funding to support the project;
- Plan future safety interventions.



The NICA Injury Surveillance System is the largest and most comprehensive mountain bike injury surveillance system in the world.



FUN

NICA inspires friendship, joy, and adventure.

INCLUSIVITY

NICA believes everyone should be able to participate in our programs and feel welcomed, respected, and supported.

EQUITY

NICA is committed to fair treatment, equal access, opportunity, advancement, and elimination of barriers to encourage participation for all.

RESPECT

NICA expects consideration for all others, oneself, and the outdoors.

COMMUNITY

NICA unites diverse people, families, and communities through cycling by creating fun and welcoming experiences.





ENDNOTES

1.

For the purposes of this report, the term “concussion” generally refers to a sports concussion, or a mild traumatic brain injury that occurs as the result of sports participation. However, there were a very small number of concussions that occurred that were more than mild. At the present time, the NICA Injury Surveillance System does not have the ability to assess the severity of these injuries. For questions regarding the use of the term concussion, please contact the NICA Director of Risk Management and Training.

2.

For the purposes of this report, the term “activity” is an inclusive term that covers all NICA sanctioned activities that participants are involved with, including NICA sanctioned races, team practices on mountain biking trails, team practices on dirt or paved roads, skills training for student-athletes and coaches, and other activities during which a mountain biking injury might occur, such as Grit rides and “Adventure Days.”

3.

For information on injury epidemiology in other high school sports, see: <https://datalyscenter.org/programs/rio/>



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