CONVENIENCE SAMPLE SUMMARY REPORT

NATIONAL HIGH SCHOOL SPORTS-RELATED INJURY SURVEILLANCE STUDY

2013-2014 School Year

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Note

The analyses presented here provide only a brief summary of collected data, with the feasibility of a more detailed presentation limited by the extensive breadth and detail contained in the dataset. The principal investigator, Dr. R. Dawn Comstock, is happy to provide further information or to discuss research partnership opportunities upon request.

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I. Introduction & Methodology

1.1 Project Overview

To combat the epidemic of obesity among youth in the United States (US), adolescents must be encouraged to get up off the couch and participate in physically active sports, recreation, and leisure activities. Participation in high school sports, one of the most popular physical activities among adolescents, has grown rapidly from an estimated 4.0 million participants in 1971-72 to an estimated 7.8 million in 2013-14. While the health benefits of a physically active lifestyle including participating in sports are undeniable, high school athletes are at risk of sports-related injury because a certain endemic level of injury can be expected among participants of any physical activity. The challenge to injury epidemiologists is to reduce injury rates among high school athletes to the lowest possible level without discouraging adolescents from engaging in this important form of physical activity. This goal can best be accomplished by investigating the etiology of preventable injuries; by developing, implementing, and evaluating protective interventions using such science-based evidence; and by responsibly reporting epidemiologic findings while promoting a physically active lifestyle among adolescents.

1.2 Background and Significance

High school sports play an important role in the adoption and maintenance of a physically active lifestyle among millions of US adolescents. Too often injury prevention in this population is overlooked as sports-related injuries are thought to be unavoidable. In reality, sports-related injuries are largely preventable through the application of preventive interventions based on evidence-based science. The morbidity, mortality, and disability caused by high school sports-related injuries can be reduced through the development of effective prevention strategies and through programmatic decisions based on injury prevention. However, such efforts rely upon

accurate national estimates of injury incidence, injury rate calculations, and risk and protective factor data. Previously, no injury surveillance system capable of providing researchers with the needed quality of injury and exposure data for high school sports-related injuries existed.

Since the 2005-06 school year, Dr. R. Dawn Comstock has conducted the National High School Sports-Related Injury Surveillance System to monitor injuries among US high school athletes participating in boys' football, boys' and girls' soccer, boys' and girls' volleyball, boys' and girls' basketball, boys' wrestling, boys' baseball, girls' softball, girls' field hockey, girls' gymnastics, boys' ice hockey, boys' and girls' lacrosse, boys' and girls' swimming & diving, boys' and girls' track & field, boys' and girls' cross country, and cheerleading. This surveillance has been conducted using the time- and cost-efficient RIO™ (Reporting Information Online) surveillance system. This study during the 2013-14 academic year was funded by the Centers for Disease Control and Prevention (CDC), National Operating Committee on Standards for Athletic Equipment (NOCSAE), and the National Federation of State High School Associations (NFHS).

1.3 Specific Aims

The continuing objectives of this study are to continue the National High School Sports-Related Injury Surveillance System among a nationally representative sample of US high schools. The specific aims of this study are:

A) To determine the incidence (number) of injuries among US high school boys' football, boys' and girls' soccer, girls' volleyball, boys' and girls' basketball, boys' wrestling, boys' baseball, girls' softball, girls' field hockey, boys' ice hockey, boys' and girls' lacrosse, boys' and girls' swimming & diving, boys' and girls' track & field, boys' and girls' cross country, and cheerleading athletes.

B) To calculate the rate of injuries per 1,000 athlete-competitions, per 1,000 athlete-practices, and per 1,000 athlete-exposures for US high school athletes in the 18 sports of interest.

C) To provide detailed information about the injuries sustained by US high school athletes including the type, site, severity, initial and subsequent treatment/care, outcome, etc.

D) To provide detailed information about the injury events including athlete demographics, position played, phase of play/activity, etc.

E) To identify potential risk or protective factors.

1.4 Project Design

The National High School Sports-Related Injury Surveillance System defined an injury as:

A) An injury that occurred as a result of participation in an organized high school competition, practice, or performance and

B) Required medical attention by a team physician, certified athletic trainer, personal physician, or emergency department/urgent care facility and

C) Resulted in restriction of the high school athlete's participation for one or more days beyond the day of injury and

D) Any fracture, concussion, or dental injury regardless of whether or not it resulted in restriction of the student-athlete's participation.

An athlete exposure was defined as one athlete participating in one practice, competition or performance where he or she is exposed to the possibility of athletic injury. Exposure was expressed in three parts:

A) Number of athlete-practices = the sum of the number of athletes at each practice during the past week. For example, if 20 athletes practiced on Monday through Thursday and 18 practiced on Friday, the number of athlete-practices would equal 98.

B) Number of athlete-competitions = the sum of the number of athletes at each competition during the past week. For example, if 9 athletes played in a Freshman game, 12 in a JV game, and 14 in a Varsity game, the number of athlete-competitions would equal 35.

C) Number of athlete-performances = the sum of the number of cheerleading athletes at each performance during the past week. For example, if 9 cheerleading athletes performed 3 times in one weekend, the number of athlete-performances would equal 27.

1.5 Sample Recruitment

The National Athletic Trainers' Association (NATA) membership list was used to identify eligible reporters - certified athletic trainers (AT) who provide care for high school athletes and who have a valid e-mail address. Each eligible reporter received an e-mail introducing the study and inviting them to participate. A three stage sampling methodology was used to select study schools from all schools with ATs who expressed an interest in participating as reporters.

1) All schools were categorized into 8 sampling strata by geographic location (northeast, Midwest, south, and west) and high school size (enrollment <= 1,000 or > 1,000 students). Participant schools were then randomly selected from each substrata to obtain 100 study schools to report for each of the 9 sports included in the original National High School Sports-Related Injury Surveillance Study (boys' football, soccer, basketball, wrestling, and baseball and girls' soccer, volleyball, basketball, and softball). This subset of 100 study schools were the randomly selected, nationally representative sample.

2) All schools not selected in step 1 who offered any of the more rarely offered 9 sports included in the expansion of the National High School Sports-Related Injury Surveillance Study (girls' field hockey, and lacrosse and boys' ice hockey and lacrosse) were selected for the convenience sample in an attempt to obtain as large a sample as possible reporting for these more rarely offered sports.
3) A random sample of all schools not selected in step 1 or step 2 who offered the remaining sports of interest in the expansion of the National High School Sports-Related Injury Surveillance Study (boys' and girls' track & field, swimming & diving, cross country, and cheerleading) were selected in an attempt to ensure at least 100 schools were reporting for each of the 20 sports of interest.

This three step sampling methodology resulted in a large, nationally disperse convenience sample of US high schools. Participating ATs were offered a $300-$400 honorarium depending on the number of sports reported along with individualized injury reports following the study's conclusion.

As a result of the convenience sample methodology, different schools reported for the different sports of interest. See table below:

School Participation by Sport, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year.*

	# Schools in Random Sample	# Schools in Convenience Sample	# Schools Total
Original Sports			
Football	95	89	184
Boys' Soccer	88	85	173
Girls' Soccer	88	86	174
Girls' Volleyball	92	102	194
Boys' Basketball	97	93	190
Girls' Basketball	96	97	193
Wrestling	83	75	158
Baseball	94	71	165
Softball	91	**77**	168
New Sports			
Field Hockey	21	41	62
Ice hockey	13	14	27
Boys' Lacrosse	22	41	63
Girls' Lacrosse	22	40	62
Boys' Swimming and Diving	38	59	97
Girls' Swimming and Diving	38	62	100
Boys' Track and Field	63	89	152
Girls' Track and Field	62	92	154
Boys' Cross Country	60	98	158
Girls' Cross Country	58	97	155
Cheerleading	55	92	147
Total	**99**	**160**	**259**

*Numbers only include schools who actually reported data for the 2013-14 school year.

1.6 Data Collection

Each AT that enrolled their school in National High School Sports-Related Injury Surveillance System received an email every Monday throughout the study period reminding them to enter their school's data into the surveillance system. Each participating AT was asked to complete 45 weekly exposure reports: one for each week from July 29, 2013 through June 13, 2014. Exposure reports collected exposure information (number of athlete-competitions and athlete-practices) and the number of reportable injuries sustained by student athletes of each

sport that was currently in session at their school. For each reportable injury, the AT was asked to complete an injury report. The injury report collected detailed information about the injured player (e.g., age, year in school, etc.), the injury (e.g. site, type, severity, etc.) and the injury event (e.g., position played, phase of play, etc.). This internet-based surveillance tool provided ATs with the ability to view all their submitted data throughout the study and update reports as needed (e.g., need for surgery, days till resuming play, etc.).

1.7 Data Management

In an effort to decrease loss-to follow up, a log of reporters' utilization of the internet-based injury surveillance system was maintained throughout the study period. Reporters who repeatedly failed to log on to complete the weekly exposure and injury reports or who had errors with their reporting were contacted by the study staff and either reminded to report, asked to correct errors, or assessed for their willingness to continue participating in the study.

1.8 Data Analysis

Data were analyzed using SAS software, version 9.3 and SPSS, version 19.0. Although fractures, concussions, and dental injuries resulting in <1 day time loss were collected, unless otherwise noted, analyses in this report excluded these injuries.

Injury rates were calculated as the ratio of unweighted case counts per 1,000 athlete-exposures, and they were compared using rate ratios (RR) with 95% confidence intervals (CI). Following is an example of the RR calculation comparing the rate of injury in boys' soccer to the rate of injury in girls' soccer:

$$RR = \frac{\text{\# boys' soccer injuries / total \# boys' soccer athlete-exposures}}{\text{\# girls' soccer injuries / total \# girls' soccer athlete-exposures}}$$

Injury proportions were compared using injury proportion ratios (IPR) and corresponding confidence intervals. Following is an example of the IPR calculation comparing the proportion of male soccer concussions to the proportion of female soccer concussions:

$$IPR = \frac{\text{\# boys' soccer concussions / total \# boys' soccer injuries}}{\text{\# girls' soccer concussions / total \# girls' soccer injuries}}$$

An RR or IPR >1.00 suggests a risk association while an RR or IPR <1.00 suggests a protective association. CI not including 1.00 were considered statistically significant

II. Overall Injury Epidemiology

Table 2.1 Injury Rates by Sport and Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Overall total	**8,971**	**5,146,306**	**1.74**
Competition	**4,486**	**1,267,234**	**3.54**
Practice	**4,463**	**3,819,337**	**1.17**
Performance	**22**	**59,735**	**0.37**
Boys' football total	3,497	894,576	3.91
Competition	1,774	160,877	11.03
Practice	1,723	733,699	2.35
Boys' soccer total	505	329,962	1.53
Competition	322	99,900	3.22
Practice	183	230,062	0.80
Girls' soccer total	760	293,400	2.59
Competition	515	89,748	5.74
Practice	245	203,652	1.20
Girls' volleyball total	370	318,227	1.16
Competition	154	105,337	1.46
Practice	216	212,890	1.01
Boys' basketball total	588	393,596	1.49
Competition	297	121,907	2.44
Practice	291	271,689	1.07
Girls' basketball total	594	313,837	1.89
Competition	361	98,110	3.68
Practice	233	215,727	1.08
Boys' wrestling total	569	258,247	2.20
Competition	247	66,284	3.73
Practice	322	191,963	1.68
Boys' baseball total	323	305,925	1.06
Competition	178	106,274	1.67
Practice	145	199,651	0.73
Girls' softball total	263	228,469	1.15
Competition	111	77,196	1.44
Practice	152	151,273	1.00
Girls' Field Hockey total	124	91,048	1.36
Competition	61	29,115	2.10
Practice	63	61,933	1.02

Table 2.1 (Continued) Injury Rates by Sport and Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Boys' Ice Hockey total	99	45,180	2.19
Competition	85	16,039	5.30
Practice	14	29,141	0.48
Boys' Lacrosse total	224	133,692	1.68
Competition	145	39,696	3.65
Practice	79	93,996	0.84
Girls' Lacrosse total	110	99,347	1.11
Competition	53	30,286	1.75
Practice	57	69,061	0.83
Boys' Swimming total	22	97,228	0.23
Competition	3	17,314	0.17
Practice	19	79,914	0.24
Girls' Swimming total	34	122,557	0.28
Competition	6	21,648	0.28
Practice	28	100,909	0.28
Boys' Track total	210	337,996	0.62
Competition	75	65,338	1.15
Practice	135	272,658	0.50
Girls' Track total	242	285,266	0.85
Competition	49	53,852	0.91
Practice	193	231,414	0.83
Cheerleading total	222	306,318	0.72
Competition	15	18,206	0.82
Practice	185	228,377	0.81
Performance	22	59,735	0.37
Boys' Cross Country total	111	154,015	0.72
Competition	24	27,011	0.89
Practice	87	127,004	0.69
Girls' Cross Country total	104	137,420	0.76
Competition	11	23,096	0.48
Practice	93	114,324	0.81

*Only includes injuries resulting in ≥1 days' time loss.

Table 2.2 Proportion of Injuries Resulting in Time Loss, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

	<1 day time loss	≥1 day time loss	Time loss data missing	Total
Overall				
Boys' football	2.2%	92.3%	5.6%	**100%**
Boys' soccer	2.1%	91.9%	6.0%	**100%**
Girls' soccer	2.9%	91.1%	6.0%	**100%**
Girls' volleyball	5.6%	86.3%	8.2%	**100%**
Boys' basketball	2.8%	90.0%	7.3%	**100%**
Girls' basketball	2.7%	92.4%	4.9%	**100%**
Boys' wrestling	1.2%	90.1%	8.7%	**100%**
Boys' baseball	2.4%	91.5%	6.1%	**100%**
Girls' softball	2.3%	90.4%	7.3%	**100%**
Girls' field hockey	1.9%	85.4%	12.7%	**100%**
Boys' ice hockey	--	93.0%	7.0%	**100%**
Boys' lacrosse	0.8%	90.3%	8.9%	**100%**
Girls' lacrosse	0.7%	86.7%	12.6%	**100%**
Boys' swimming	4.0%	92.0%	4.0%	**100%**
Girls' swimming	6.3%	81.3%	12.5%	**100%**
Boys' track	1.7%	91.7%	6.6%	**100%**
Girls' track	1.1%	92.1%	6.8%	**100%**
Cheerleading	2.3%	90.9%	6.8%	**100%**
Boys' cross country	9.1%	80.0%	10.9%	**100%**
Girls' cross country	0.7%	96.3%	3.0%	**100%**
Total	**2.3%**	**91.2%**	**6.5%**	**100%**

*By study definition, non-time loss injuries were fractures, concussions, and dental injuries. Because they accounted for less than 2% of all injuries, they are not included in any other analyses.

Table 2.3 Demographic Characteristics of Injured Athletes by Sex, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

	Male	Female
Year in School	**n=5,906**	**n=2,733**
Freshman	23.1%	27.7%
Sophomore	24.5%	26.5%
Junior	24.1%	24.9%
Senior	28.3%	20.9%
Total†	**100%**	**100%**
Age (years)		
Minimum	12	13
Maximum	19	19
Mean (St. Dev.)	15.9 (1.3)	15.6 (1.2)
BMI		
Minimum	10.2	14.0
Maximum	61.8	47.2
Mean (St. Dev.)	24.9 (4.7)	22.1 (3.5)

*All analyses in this report present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 2.1 Injury Diagnosis by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

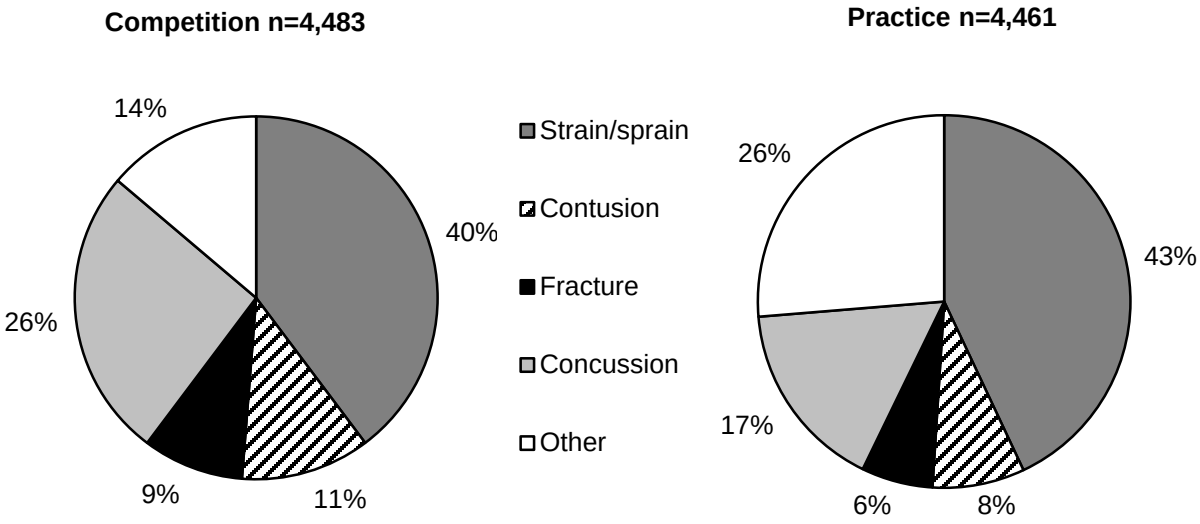


Table 2.4 Body Site of Injury by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall*	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	1,301	29.0%	906	20.3%	2,217	24.7%
Ankle	717	16.0%	673	15.1%	1,393	15.5%
Knee	675	15.1%	565	12.7%	1,242	13.8%
Hip/thigh/upper leg	381	8.5%	543	12.2%	924	10.3%
Shoulder	337	7.5%	349	7.8%	686	7.6%
Hand/wrist	334	7.4%	348	7.8%	685	7.6%
Lower leg	180	4.0%	332	7.4%	512	5.7%
Trunk	147	3.3%	269	6.0%	419	4.7%
Foot	109	2.4%	172	3.9%	281	3.1%
Arm/elbow	156	3.5%	152	3.4%	308	3.4%
Neck	57	1.3%	45	1.0%	102	1.1%
Other	90	2.0%	109	2.4%	200	2.2%
Total	**4,484**	**100%**	**4,463**	**100%**	**8,969**	**100%**

*Overall includes cheerleading performance related injuries however performance injuries do not have an individual column due to them totaling less than 1.0% of all injuries.
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.5 Most Commonly Injured Ankle Structures, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Male		Female		Total	
	n	% of ankle injuries	n	% of ankle injuries	n	% of ankle injuries
Ankle Ligament						
Anterior talofibular ligament	595	73.3%	447	81.6%	1042	74.8%
Calcaneofibular ligament	199	24.5%	193	35.2%	392	28.1%
Anterior tibiofibular ligament	154	19.0%	83	15.1%	237	17.0%
Posterior talofibular ligament	64	7.9%	72	13.1%	136	9.8%
Deltoid ligament	42	5.2%	26	4.7%	68	4.9%
Posterior tibiofibular ligament	24	3.0%	15	2.7%	39	2.8%
Total Ankle Injuries	**1,078**		**836**		**1,914**	

*Multiple responses allowed per injury report.
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.6 Most Commonly Injured Knee Structures, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Male		Female		Total	
	n	% of knee injuries	n	% of knee injuries	n	% of knee injuries
Knee Ligament						
Medial collateral ligament	232	30.6%	76	18.7%	308	26.4%
Patella/patellar tendon	167	22.0%	131	32.2%	298	25.6%
Anterior cruciate ligament	156	20.6%	111	27.3%	267	22.9%
Torn cartilage (meniscus)	144	19.0%	69	17.0%	213	18.3%
Lateral collateral ligament	45	5.9%	14	3.4%	59	5.1%
Posterior cruciate ligament	14	1.8%	6	1.4%	20	1.7%
Total Knee Injuries	**758**		**407**		**1,165**	

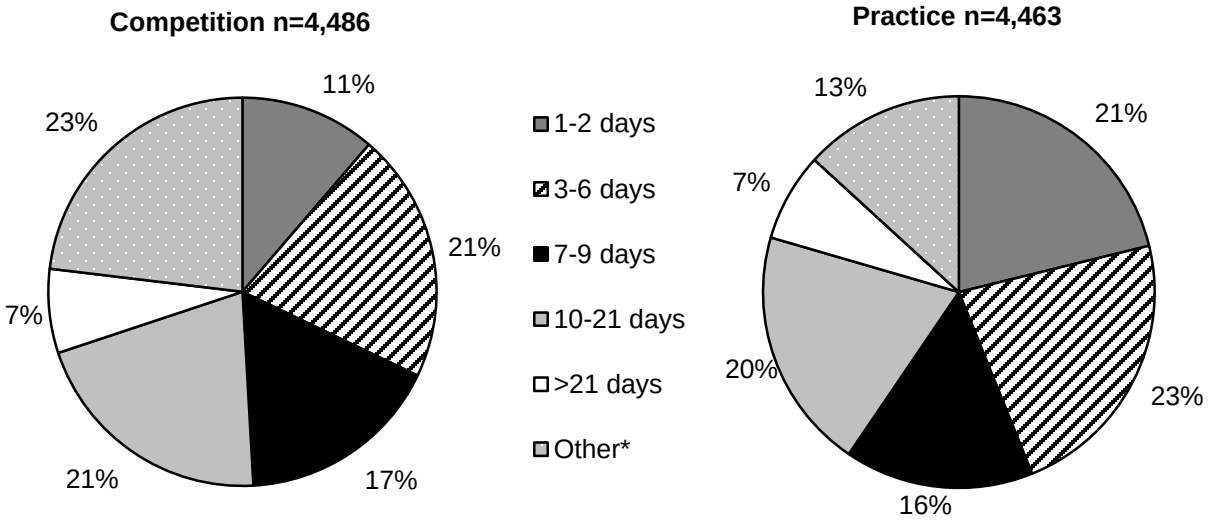
*Multiple responses allowed per injury report.
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.7 Ten Most Common Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=4,481		Practice n=4,461		Overall n=8,964	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	1,163	26.0%	736	16.5%	1,908	21.3%
Ankle strain/sprain	661	14.8%	625	14.0%	1,288	14.4%
Hip/thigh/upper leg strain/sprain	252	5.6%	441	9.9%	693	7.7%
Knee strain/sprain	413	9.2%	215	4.8%	630	7.0%
Knee other	153	3.4%	277	6.2%	430	4.8%
Shoulder other	168	3.7%	187	4.2%	355	4.0%
Hand/wrist fracture	160	3.6%	128	2.9%	290	3.2%
Shoulder strain/sprain	130	2.9%	135	3.0%	265	3.0%
Hand/wrist strain/sprain	90	2.0%	125	2.8%	215	2.4%
Lower leg other	26	0.6%	178	4.0%	204	2.3%

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 2.2 Time Loss by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 2.8 Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	362	8.2%	198	4.5%	562	6.4%
Did not require surgery	4,050	91.8%	4,196	95.5%	8,263	93.6%
Total	**4,412**	**100%**	**4,394**	**100%**	**8,825**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 2.3 New and Recurring Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

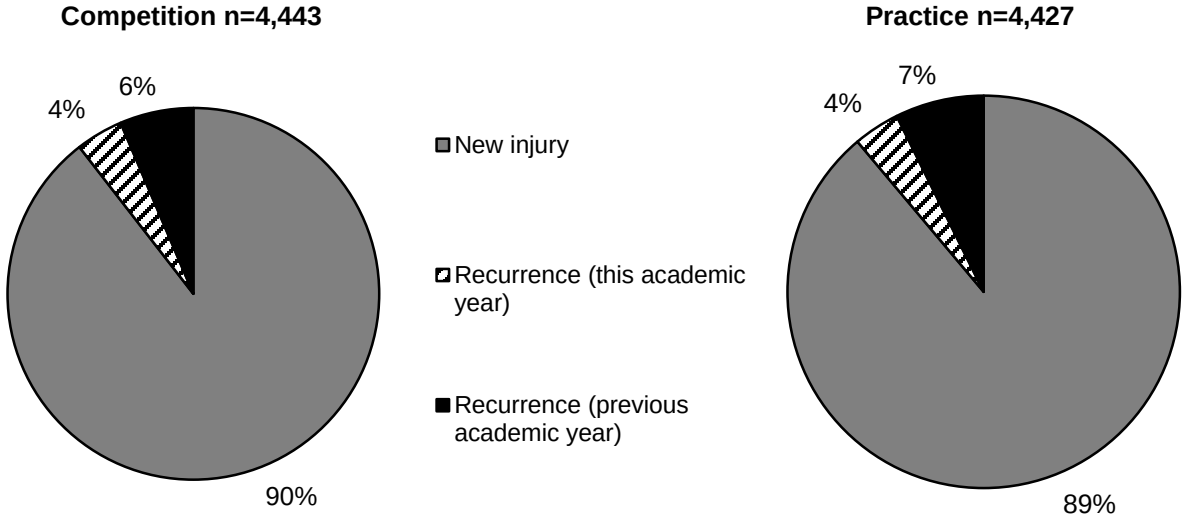


Table 2.9 Time during Season of Injury, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	2,047	23.4%
Regular season	6,365	72.8%
Post season	335	3.8%
Total	**8,747**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.10 Practice-Related Variables, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First ½ hour	464	11.8%
Second ½ hour	801	20.3%
1-2 hours into practice	2,321	58.8%
> 2 hours into practice	361	9.1%
Total	**3,947**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.11 Methods for Injury Evaluation and Assessment, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
% of Injuries Evaluated by:*		
Certified athletic trainer	8,440	94.1%
General physician	2,965	33.1%
Orthopedic physician	2,844	31.7%
Neurologist	107	1.2%
Physician's assistant	102	1.1%
Chiropractor	86	1.0%
Nurse practitioner	56	0.6%
Dentist/oral surgeon	26	0.3%
Other	254	2.8%
Total	**8,971**	
% of Injuries Assessed by:*		
Evaluation	8,769	97.7%
X-ray	2,902	32.3%
MRI	867	9.7%
CT-scan	259	2.9%
Surgery	107	1.2%
Blood work/lab test	72	0.8%
Other	73	0.8%
Total	**8,971**	

*Multiple responses allowed per injury report.
†Totals and n's are not always equal due to slight rounding or missing responses.

III. Boys' Football Injury Epidemiology

Table 3.1 Football Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**3,497**	**894,576**	**3.91**
Competition	1,774	160,877	11.03
Practice	1,723	733,699	2.35

Table 3.2 Demographic Characteristics of Injured Football Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=3,456**
Freshman	24.2%
Sophomore	23.8%
Junior	24.2%
Senior	27.8%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.8 (1.3)
BMI	
Minimum	15.9
Maximum	31.9
Mean (SE)	26.0 (4.9)

*All analyses in this report present un-weighted data
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 3.1 Diagnosis of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

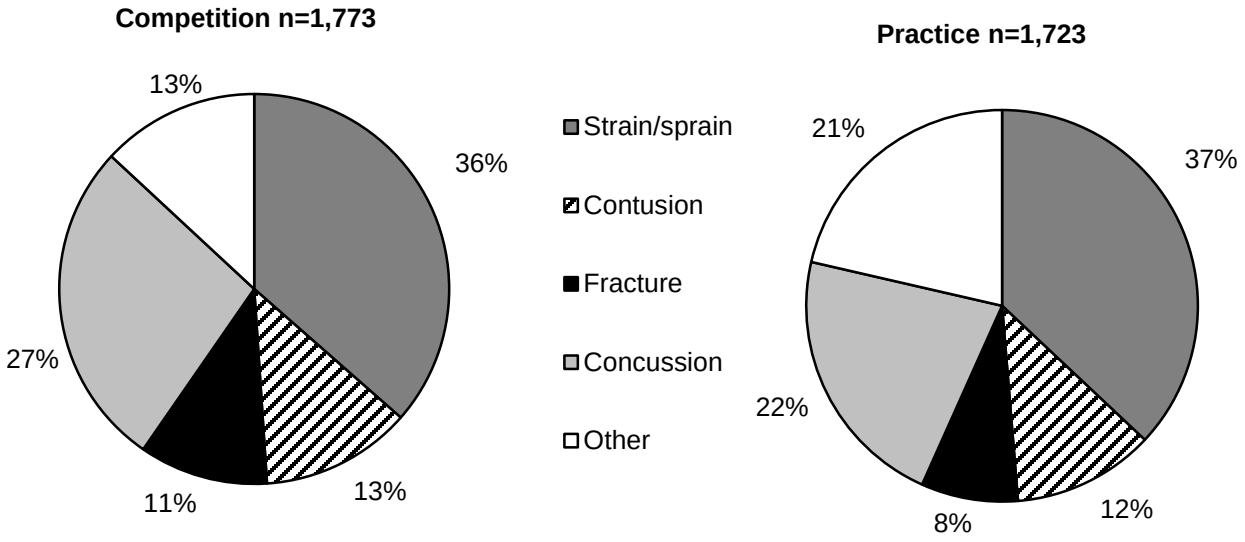


Table 3.3 Body Site of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	496	28.0%	409	23.7%	905	25.9%
Knee	269	15.2%	216	12.5%	485	13.9%
Ankle	230	13.0%	185	10.7%	415	11.9%
Shoulder	196	11.1%	176	10.2%	372	10.6%
Hand/wrist	146	8.2%	189	11.0%	335	9.6%
Hip/thigh/upper leg	116	6.5%	161	9.3%	277	7.9%
Trunk	59	3.3%	117	6.8%	176	5.0%
Lower leg	67	3.7%	82	4.8%	149	4.3%
Arm/elbow	61	3.4%	54	3.1%	115	3.3%
Foot	41	2.3%	42	2.4%	83	2.4%
Neck	38	2.1%	30	1.7%	68	1.9%
Other	54	3.3%	62	3.8%	116	3.5%
Total	**1,773**	**100%**	**1,723**	**100%**	**3,496**	**100%**

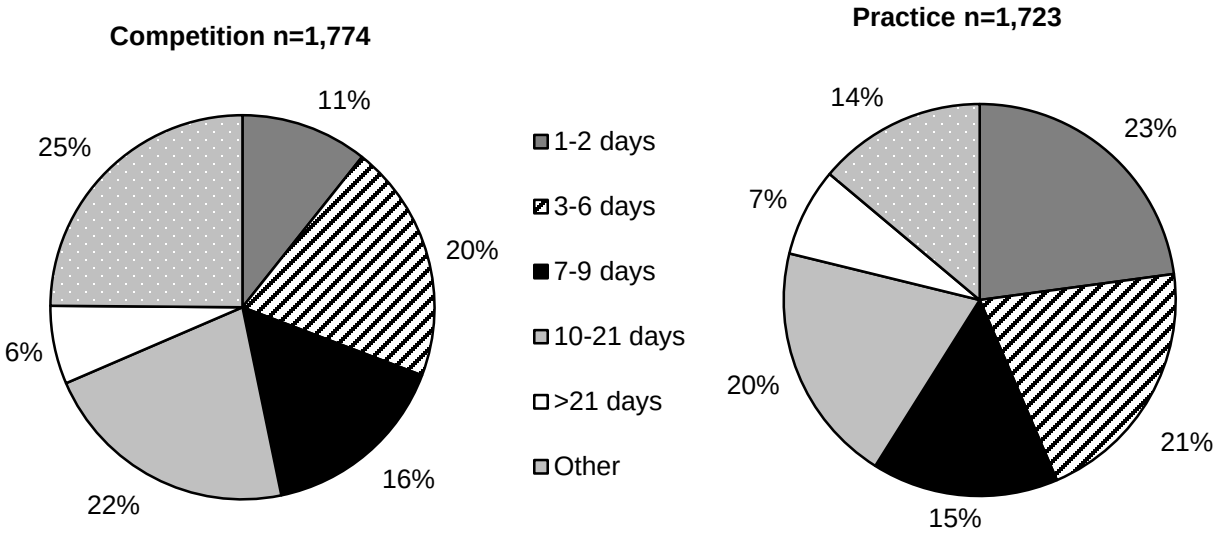
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 3.4 Ten Most Common Football Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=1,772		Practice n=1,723		Total n=3,495	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	484	27.3%	378	21.9%	862	24.7%
Ankle strain/sprain	208	11.7%	173	10.0%	381	10.9%
Knee strain/sprain	182	10.3%	98	5.7%	280	8.0%
Shoulder other	101	5.7%	93	5.4%	194	5.6%
Hip/thigh/upper leg strain/sprain	58	3.3%	120	7.0%	178	5.1%
Hand/wrist fracture	75	4.2%	75	4.4%	150	4.3%
Shoulder strain/sprain	75	4.2%	63	3.7%	138	3.9%
Knee other	48	2.7%	82	4.8%	130	3.7%
Hand/wrist strain/sprain	28	1.6%	53	3.1%	81	2.3%
Hip/thigh/upper leg contusion	53	3.0%	26	1.5%	79	2.3%

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 3.2 Time Loss of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 3.5 Football Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	161	9.2%	89	5.3%	250	7.3%
Did not require surgery	1,586	90.8%	1,596	94.7%	3,182	92.7%
Total	**1,747**	**100%**	**1,685**	**100%**	**3,432**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 3.3 History of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

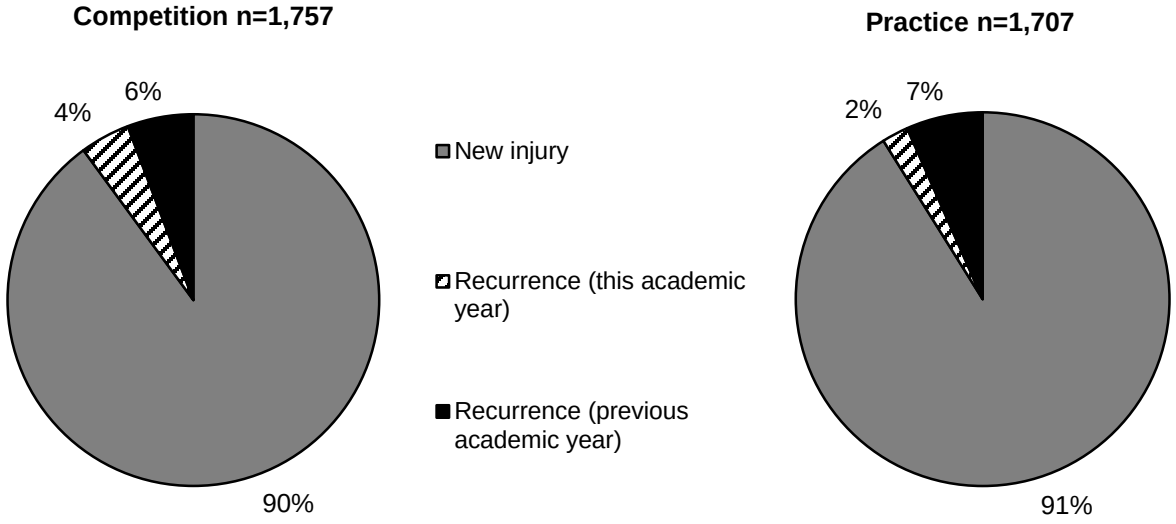


Table 3.6 Time during Season of Football Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	987	29.0%
Regular season	2,275	66.9%
Post season	139	4.1%
Total	**3,401**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 3.7 Competition-Related Variables for Football Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	14	0.9%
First quarter	209	13.3%
Second quarter	487	31.0%
Third quarter	466	29.6%
Fourth quarter	394	25.0%
Overtime	3	0.2%
Total	**1,573**	**100%**
Field Location		
Between the 20 yard lines	1,177	76.8%
Red zone (20 yard line to goal line)	324	21.1%
End zone	26	1.7%
Off the field	6	0.4%
Total	**1,573**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 3.8 Practice-Related Variables for Football Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	135	8.6%
Second 1/2 hour	240	15.2%
1-2 hours into practice	1,011	64.2%
>2 hours into practice	188	11.9%
Total	**1,574**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 3.4 Player Position of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

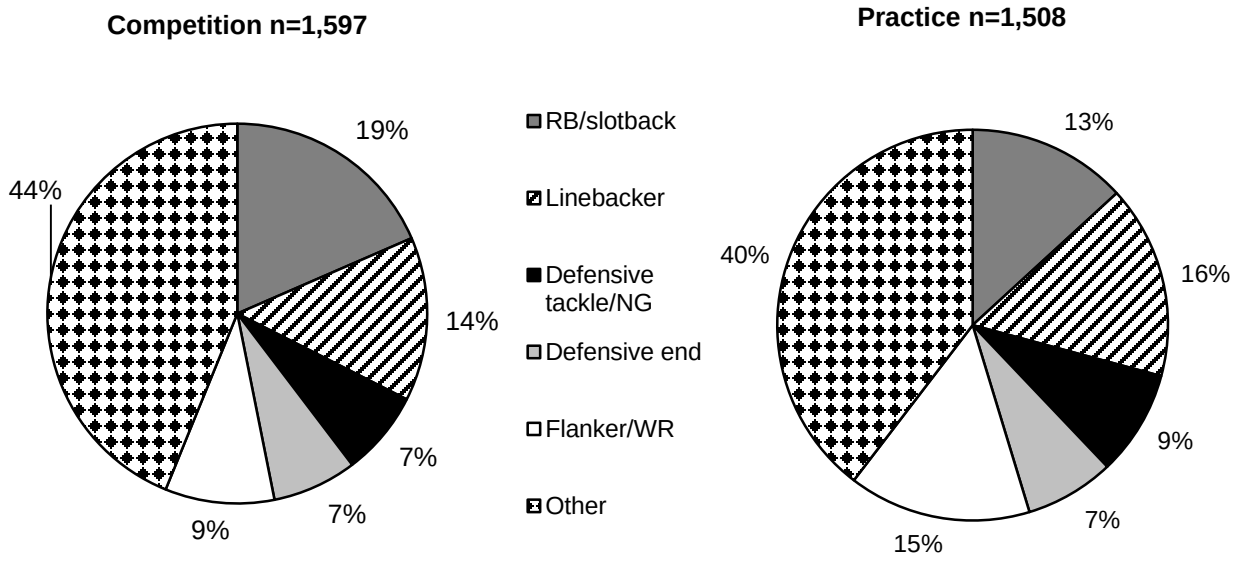


Table 3.9 Activities Leading to Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Being tackled	540	32.5%	302	18.9%	842	25.8%
Tackling	405	24.4%	351	21.9%	756	23.2%
Blocking	261	15.7%	258	16.1%	519	15.9%
Being blocked	168	10.1%	117	7.3%	285	8.7%
N/A (e.g., overuse, heat illness, etc.)	38	2.3%	215	13.4%	253	7.8%
Stepped on/fell on/kicked	91	5.5%	107	6.7%	198	6.1%
Rotation around a planted foot/inversion	79	4.8%	73	4.6%	152	4.7%
Contact with ball	10	0.6%	34	2.1%	44	1.3%
Uneven playing surface	5	0.3%	27	1.7%	32	1.0%
Contact with blocking sled/dummy	0	0.0%	21	1.3%	21	0.6%
Contact with goal posts/yard marker/etc.	0	0.0%	2	0.1%	2	0.1%
Other	64	3.9%	94	5.9%	158	4.8%
Total	**1,661**	**100%**	**1,601**	**100%**	**3,262**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 3.10 Activity Resulting in Football Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Being tackled	263	21.8%	145	35.2%	91	30.0%	246	31.4%	97	17.4%
Tackling	218	18.1%	85	20.6%	71	23.4%	254	32.4%	127	22.7%
Blocking	196	16.3%	48	11.7%	51	16.8%	139	17.8%	85	15.2%
Being blocked	83	6.9%	49	11.9%	21	6.9%	100	12.8%	32	5.7%
No contact (overuse/illness)	113	9.4%	3	0.7%	5	1.7%	2	0.3%	130	23.3%
Other	331	27.5%	82	19.9%	64	21.1%	42	5.4%	88	15.7%
Total	**1204**	**100%**	**412**	**100%**	**303**	**100%**	**783**	**100%**	**559**	**100%**

IV. Boys' Soccer Injury Epidemiology

Table 4.1 Boys' Soccer Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**505**	**329,962**	**1.53**
Competition	322	99,900	3.22
Practice	183	230,062	0.80

Table 4.2 Demographic Characteristics of Injured Boys' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=493**
Freshman	17.6%
Sophomore	25.6%
Junior	25.4%
Senior	31.4%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	16.0 (1.30)
BMI	
Minimum	10.2
Maximum	41.5
Mean (St. Dev.)	22.5 (3.17)

*All analyses in this report present data un-weighted
†Throughout this report, totals and n's represent the total un-weighted numbers of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 4.1 Diagnosis of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

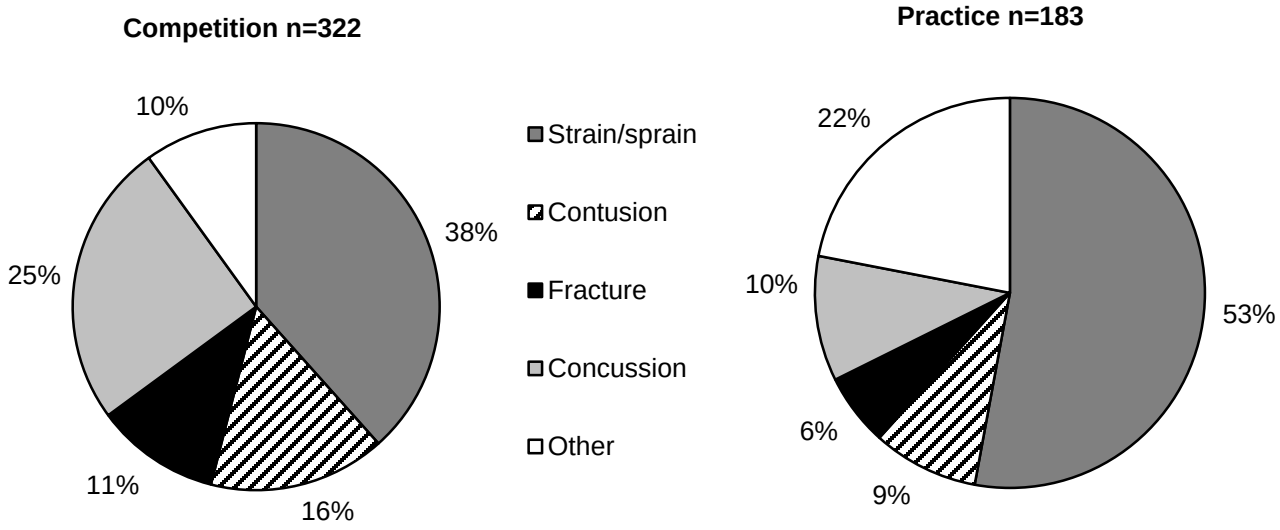


Table 4.3 Body Site of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	99	30.7%	22	12.0%	121	24.0%
Hip/thigh/upper leg	48	14.9%	50	27.3%	98	19.4%
Ankle	58	18.0%	33	18.0%	91	18.0%
Knee	40	12.4%	28	15.3%	68	13.5%
Lower leg	25	7.8%	18	9.8%	43	8.5%
Foot	9	2.8%	11	6.0%	20	4.0%
Hand/wrist	14	4.3%	5	2.7%	19	3.8%
Trunk	6	1.9%	6	3.3%	12	2.4%
Shoulder	10	3.1%	2	1.1%	12	2.4%
Neck	5	1.6%	1	0.5%	6	1.2%
Arm/elbow	3	0.9%	2	1.1%	5	1.0%
Other	5	1.6%	5	2.7%	10	2.0%
Total	**322**	**100%**	**183**	**100%**	**505**	**100%**

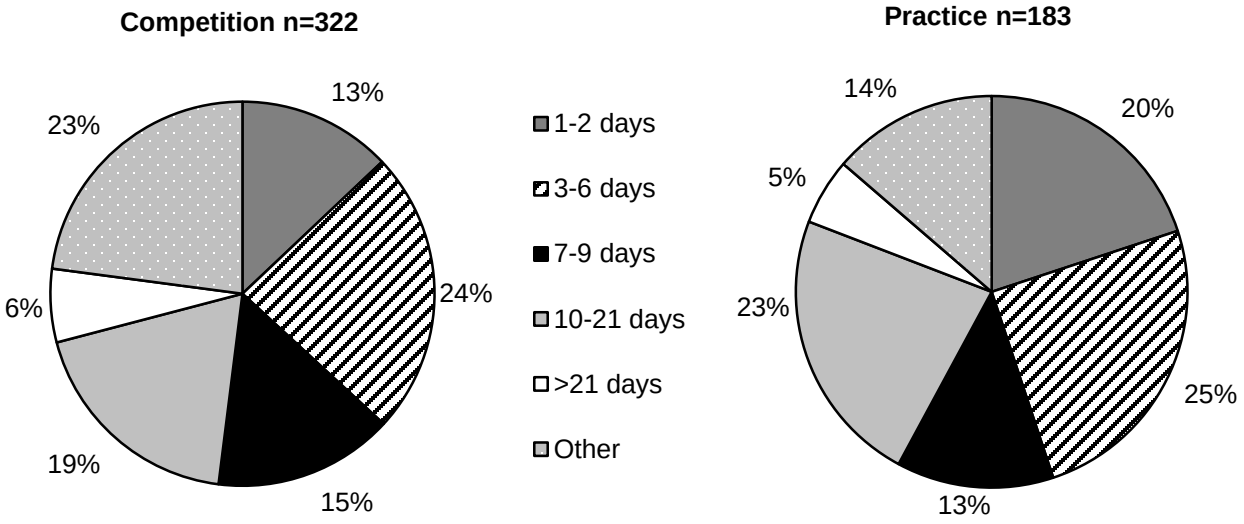
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 4.4 Ten Most Common Boys' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=322		Practice n=182		Total n=504	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	82	25.5%	19	10.4%	101	20.0%
Ankle strain/sprain	47	14.6%	31	17.0%	78	15.5%
Hip/thigh/upper leg strain/sprain	35	10.9%	39	21.4%	74	14.7%
Knee strain/sprain	22	6.8%	15	8.2%	37	7.3%
Knee other	13	4.0%	10	5.5%	23	4.6%
Hip/thigh/upper leg contusion	9	2.8%	6	3.3%	15	3.0%
Lower leg contusion	13	4.0%	1	0.5%	14	2.8%
Lower leg other	1	0.3%	11	6.0%	12	2.4%
Hand/wrist fracture	10	3.1%	2	1.1%	12	2.4%
Foot contusion	6	1.9%	4	2.2%	10	2.0%

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 4.2 Time Loss of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 4.5 Boys' Soccer Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	20	6.3%	7	3.9%	27	5.4%
Did not require surgery	297	93.7%	174	96.1%	471	94.6%
Total	**317**	**100%**	**181**	**100%**	**498**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 4.3 History of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

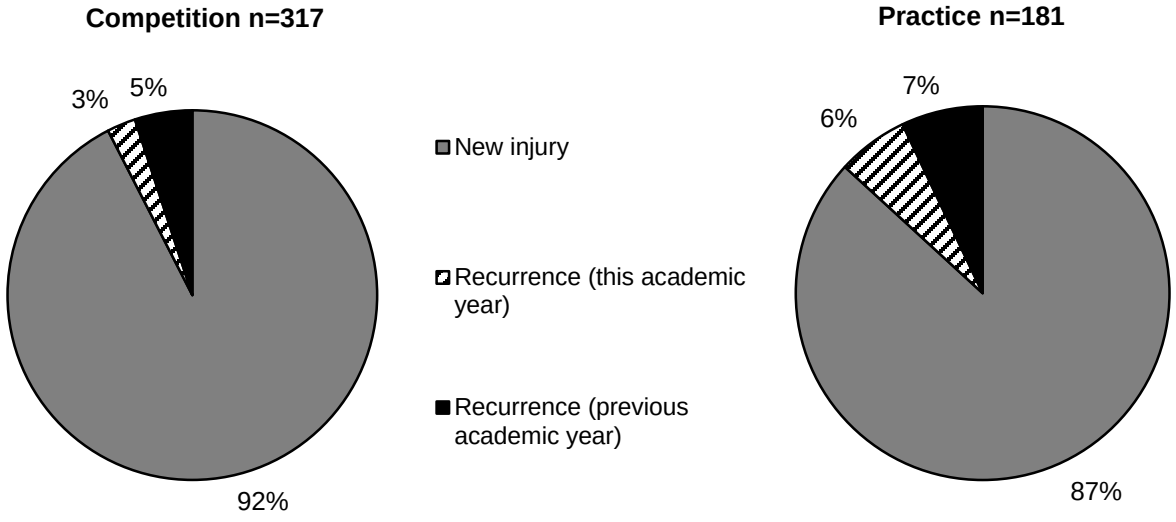


Table 4.6 Time during Season of Boys' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	115	23.3%
Regular season	356	72.2%
Post season	22	4.5%
Total	**493**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 4.7 Competition-Related Variables for Boys' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	9	3.1%
First half	96	33.3%
Second half	180	62.5%
Overtime	3	1.0%
Total	**288**	**100%**
Field Location		
Top of goal box extended to center line (offense)	91	34.7%
Top of goal box extended to center line (defense)	59	22.5%
Goal box (defense)	33	12.6%
Goal box (offense)	31	11.8%
Side of goal box (defense)	24	9.2%
Side of goal box (offense)	19	7.3%
Off the field	5	1.9%
Total	**262**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 4.8 Practice-Related Variables for Boys' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	21	12.6%
Second 1/2 hour	51	30.5%
1-2 hours into practice	84	50.3%
>2 hours into practice	11	6.6%
Total	**167**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 4.4 Player Position of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

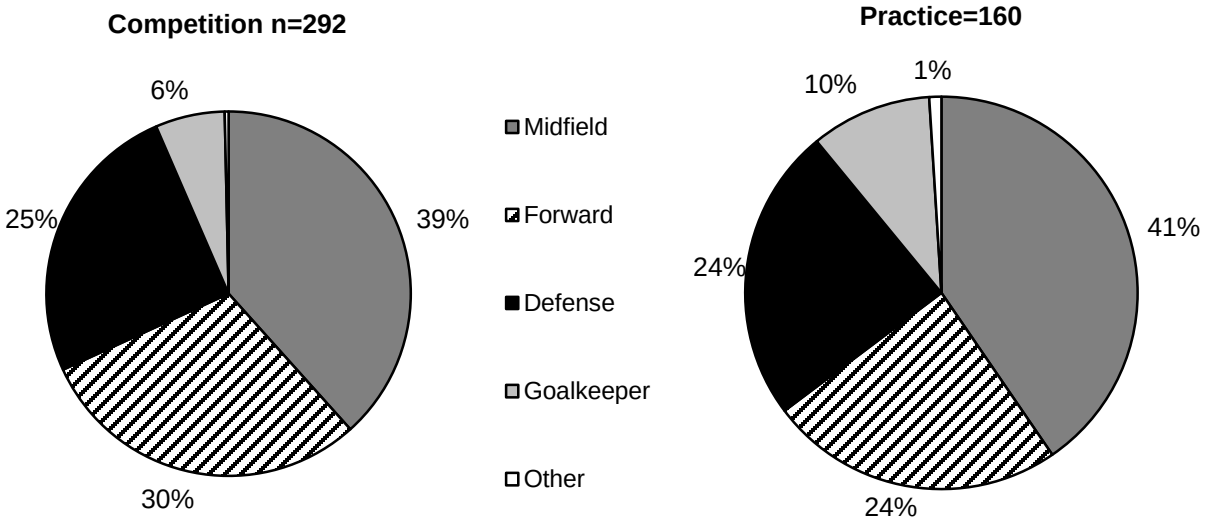


Table 4.9 Activities Leading to Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	72	24.2%	59	35.1%	131	28.5%
Defending	47	15.8%	14	8.3%	61	13.3%
Chasing loose ball	32	10.7%	11	6.5%	43	9.4%
Heading ball	32	10.7%	4	2.4%	36	7.8%
Ball handling/dribbling	32	10.7%	18	10.7%	50	10.9%
Goaltending	14	4.7%	11	6.5%	25	5.4%
Passing (foot)	10	3.4%	6	3.6%	16	3.5%
Conditioning	1	0.3%	23	13.7%	24	5.2%
Receiving pass	17	5.7%	6	3.6%	16	3.5%
Shooting (foot)	16	5.4%	9	5.4%	25	5.4%
Blocking shot	3	1.0%	3	1.8%	6	1.3%
Attempting a slide tackle	7	2.3%	1	0.6%	8	1.7%
Receiving a slide tackle	7	2.3%	0	0.0%	7	1.5%
Other	8	2.7%	3	1.8%	11	2.4%
Total	**298**	**100%**	**168**	**100%**	**459**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 4.10 Activity Resulting in Boys' Soccer Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	55	26.8%	13	22.0%	9	20.9%	29	31.9%	25	37.3%
Defending	24	11.7%	5	8.5%	9	20.9%	17	18.7%	6	9.0%
Ball handling/ dribbling	21	10.2%	13	22.0%	7	16.3%	3	3.3%	6	9.0%
Chasing loose ball	18	8.8%	9	15.3%	5	11.6%	5	5.5%	6	9.0%
Heading ball	6	2.9%	1	1.7%	2	4.7%	22	24.2%	5	7.5%
Other	81	39.5%	18	30.5%	11	25.6%	15	16.5%	19	28.4%
Total	**205**	**100%**	**59**	**100%**	**43**	**100%**	**91**	**100%**	**67**	**100%**

V. Girls' Soccer Injury Epidemiology

Table 5.1 Girls' Soccer Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**760**	**293,400**	**2.59**
Competition	515	89,748	5.74
Practice	245	203,652	1.20

Table 5.2 Demographic Characteristics of Injured Girls' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=749**
Freshman	25.4%
Sophomore	26.8%
Junior	24.0%
Senior	23.8%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.6 (1.2)
BMI	
Minimum	15.6
Maximum	43.8
Mean (St. Dev.)	21.9 (3.2)

*All analyses in this report present un-weighted data
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 5.1 Diagnosis of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

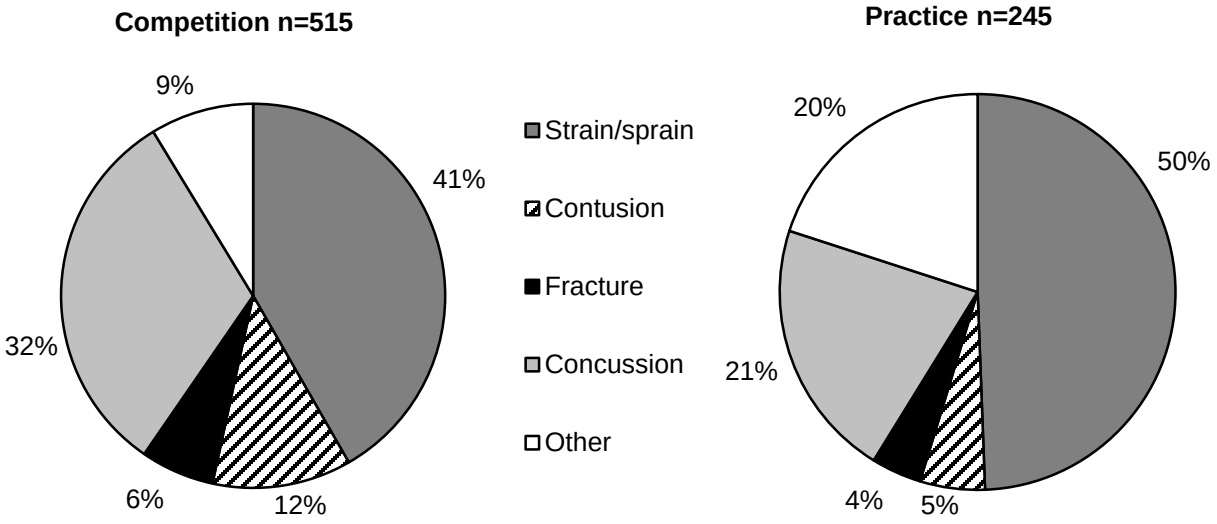


Table 5.3 Body Site of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	176	34.2%	53	21.6%	229	30.1%
Ankle	98	19.0%	62	25.3%	160	21.1%
Knee	120	23.3%	29	11.8%	149	19.6%
Hip/thigh/upper leg	40	7.8%	35	14.3%	75	9.9%
Lower leg	22	4.3%	22	9.0%	44	5.8%
Foot	14	2.7%	15	6.1%	29	3.8%
Hand/wrist	16	3.1%	1	0.4%	17	2.2%
Trunk	10	1.9%	18	7.3%	28	3.7%
Shoulder	6	1.2%	2	0.8%	8	1.1%
Arm/elbow	5	1.0%	1	0.4%	6	0.8%
Neck	4	0.8%	0	0.0%	4	0.5%
Other	4	0.8%	7	2.9%	11	1.4%
Total	**515**	**100%**	**245**	**100%**	**760**	**100%**

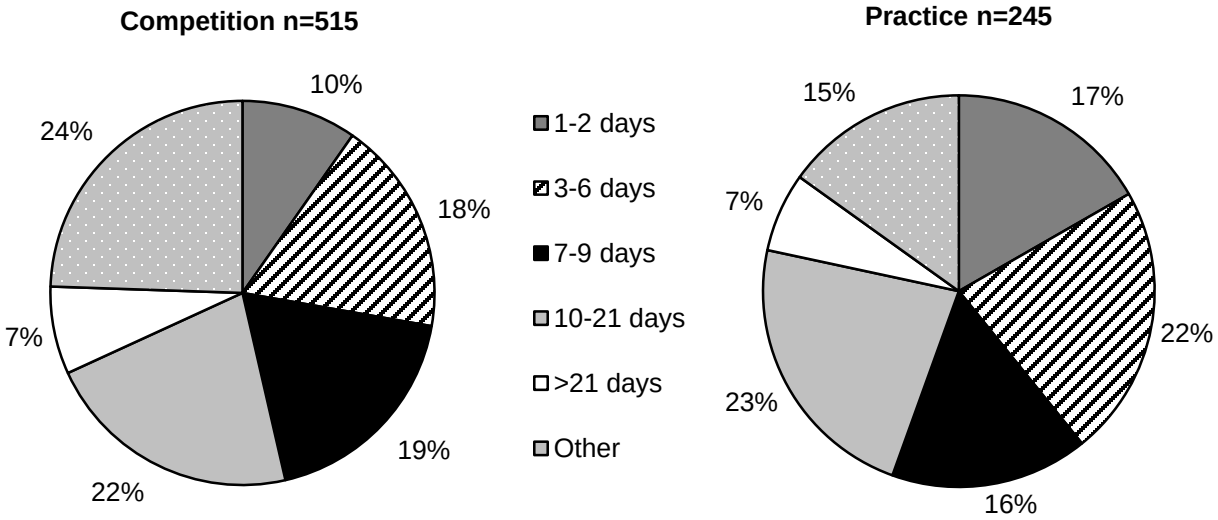
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 5.4 Ten Most Common Girls' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=515		Practice n=245		Total n=760	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	163	31.7%	52	21.2%	215	28.3%
Ankle strain/sprain	91	17.7%	54	22.0%	145	19.1%
Knee strain/sprain	71	13.8%	14	5.7%	85	11.2%
Hip/thigh/upper leg strain/sprain	29	5.6%	29	11.8%	58	7.6%
Knee other	20	3.9%	11	4.5%	31	4.1%
Knee contusion	27	5.2%	4	1.6%	31	4.1%
Trunk strain/sprain	7	1.4%	12	4.9%	19	2.5%
Lower leg other	3	0.6%	10	4.1%	13	1.7%
Lower leg contusion	11	2.1%	1	0.4%	12	1.6%
Hand/wrist fracture	10	1.9%	1	0.4%	11	1.4%

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 5.2 Time Loss of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 5.5 Girls' Soccer Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	48	9.4%	10	4.1%	58	7.7%
Did not require surgery	461	90.6%	233	95.9%	694	92.3%
Total	**509**	**100%**	**243**	**100%**	**752**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 5.3 History of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

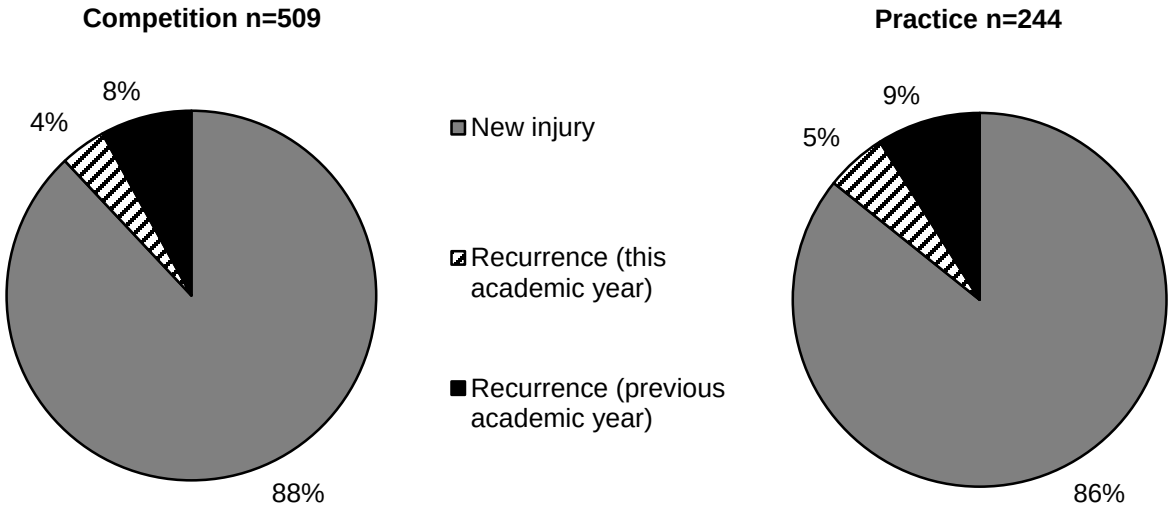


Table 5.6 Time during Season of Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	157	21.0%
Regular season	550	73.7%
Post season	39	5.2%
Total	**746**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 5.7 Competition-Related Variables for Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	16	3.3%
First half	165	34.2%
Second half	300	62.2%
Overtime	1	0.2%
Total	**482**	**100%**
Field Location		
Top of goal box extended to center line (offense)	154	34.3%
Top of goal box extended to center line (defense)	98	21.8%
Goal box (defense)	70	15.6%
Side of goal box (defense)	50	11.1%
Goal box (offense)	37	8.2%
Side of goal box (offense)	32	7.1%
Off the field	8	1.8%
Total	**449**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 5.8 Practice-Related Variables for Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	28	12.4%
Second 1/2 hour	39	17.3%
1-2 hours into practice	145	64.2%
>2 hours into practice	14	6.2%
Total	**226**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 5.4 Player Position of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

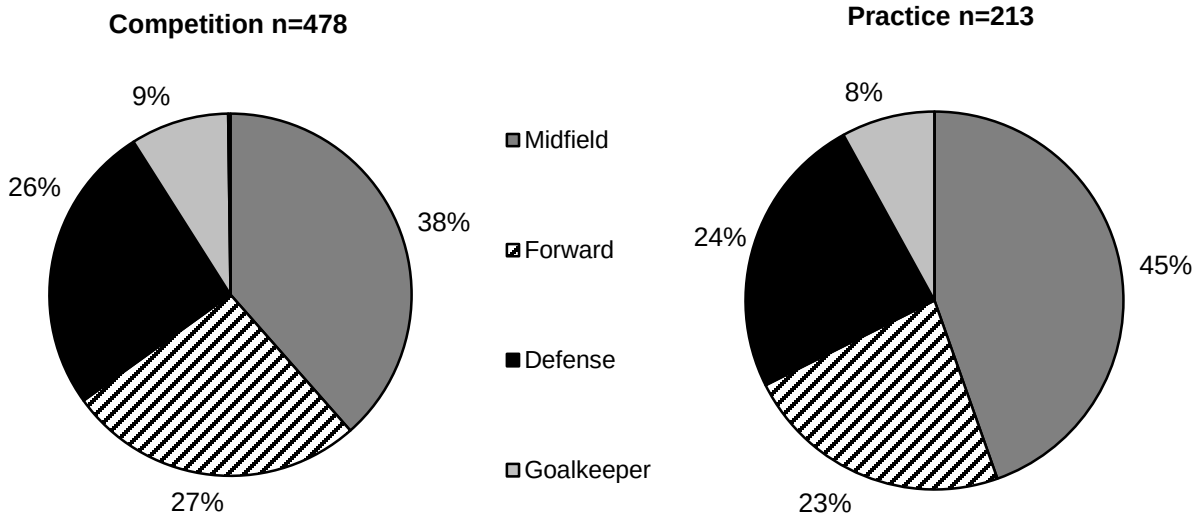


Table 5.9 Activities Leading to Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	123	24.8%	81	36.0%	204	28.3%
Defending	98	19.8%	18	8.0%	116	16.1%
Chasing loose ball	53	10.7%	14	6.2%	67	9.3%
Heading ball	52	10.7%	15	6.7%	67	9.3%
Ball handling/dribbling	48	9.7%	14	6.2%	62	8.6%
Goaltending	36	7.3%	13	5.8%	49	6.8%
Receiving pass	20	4.0%	5	2.2%	25	3.5%
Passing (foot)	18	3.6%	8	3.6%	26	3.6%
Shooting (foot)	20	4.0%	9	4.0%	29	4.0%
Conditioning	1	0.2%	39	17.3%	40	5.5%
Blocking shot	7	1.4%	3	1.3%	10	1.4%
Attempting a slide tackle	7	1.4%	0	0.0%	7	1.0%
Receiving a slide tackle	5	1.0%	2	0.9%	7	1.0%
Other	8	1.6%	4	1.8%	12	1.7%
Total	**496**	**100%**	**225**	**100%**	**721**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 5.10 Activity Resulting in Girls' Soccer Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	101	31.6%	18	25.7%	10	25.0%	42	20.9%	33	36.7%
Defending	48	15.0%	16	22.9%	6	15.0%	37	18.4%	9	10.0%
Chasing loose ball	34	10.6%	8	11.4%	7	17.5%	14	7.0%	4	4.4%
Heading ball	5	1.6%	0	0.0%	1	2.5%	58	28.9%	3	3.3%
Ball handling /dribbling	31	9.7%	7	10.0%	5	12.5%	11	5.5%	8	8.9%
Other	101	31.6%	21	30.0%	11	27.5%	39	19.4%	33	36.7%
Total	**320**	**100%**	**70**	**100%**	**40**	**100%**	**201**	**100%**	**90**	**100%**

VI. Girls' Volleyball Injury Epidemiology

Table 6.1 Girls' Volleyball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**370**	**318,227**	**1.16**
Competition	154	105.337	1.46
Practice	216	212,890	1.01

Table 6.2 Demographic Characteristics of Injured Girls' Volleyball Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=362**
Freshman	33.5%
Sophomore	22.2%
Junior	21.6%
Senior	20.5%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.4 (1.2)
BMI	
Minimum	16.2
Maximum	34.9
Mean (St. Dev.)	21.7 (3.0)

*All analyses in this report present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 6.1 Diagnosis of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

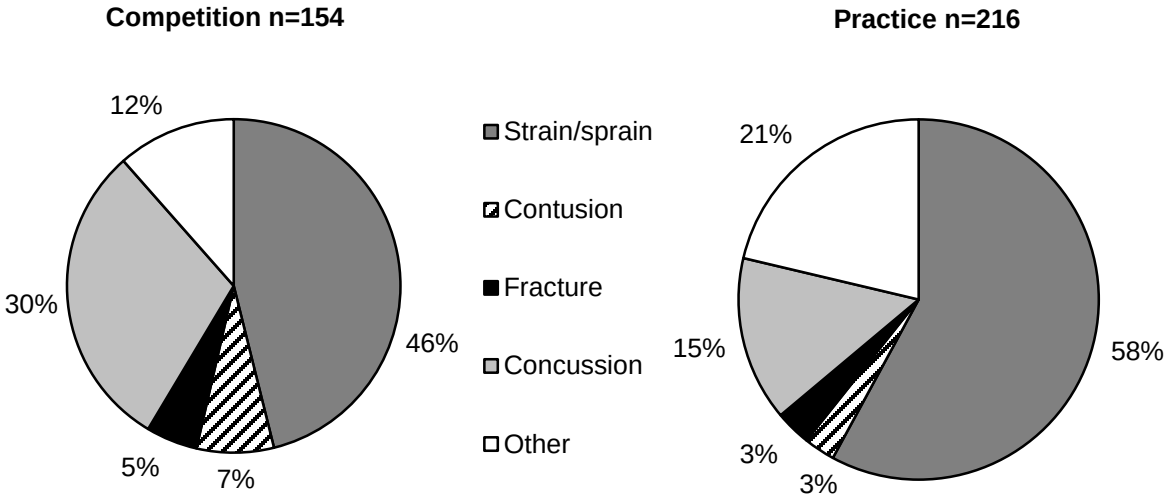


Table 6.3 Body Site of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

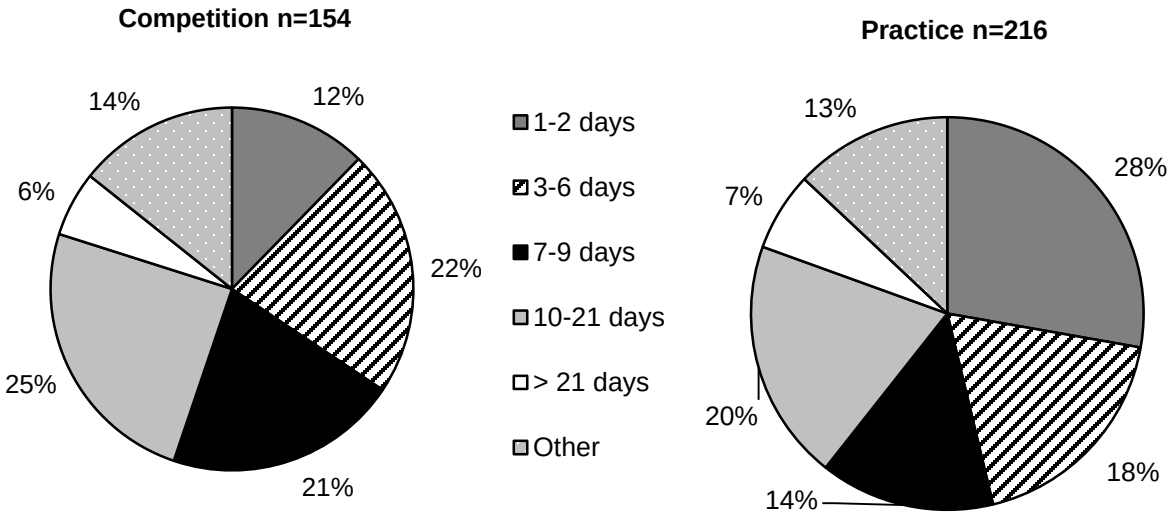
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Ankle	45	29.2%	56	25.9%	101	27.3%
Head/face	51	33.1%	34	15.7%	85	23.0%
Hand/wrist	16	10.4%	19	8.8%	35	9.5%
Knee	13	8.4%	24	11.1%	37	10.0%
Trunk	5	3.2%	24	11.1%	29	7.8%
Shoulder	8	5.2%	19	8.8%	27	7.3%
Foot	2	1.3%	10	4.6%	12	3.2%
Hip/thigh/upper leg	4	2.6%	12	5.6%	16	4.3%
Lower leg	3	1.9%	7	3.2%	10	2.7%
Arm/elbow	5	3.2%	7	3.2%	12	3.2%
Neck	1	0.6%	0	0.0%	1	0.3%
Other	1	0.6%	4	1.9%	5	1.4%
Total	**154**	**100%**	**216**	**100%**	**370**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 6.4 Ten Most Common Girls' Volleyball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=154		Practice n=216		Total n=370	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	44	28.6%	54	25.0%	98	26.5%
Head/face concussion	48	31.2%	32	14.8%	80	21.6%
Hand/wrist strain/sprain	10	6.5%	13	6.0%	23	6.2%
Knee other	5	3.2%	16	7.4%	21	5.7%
Shoulder strain/sprain	5	3.2%	10	4.6%	15	4.1%
Hip/thigh/upper leg strain/sprain	3	1.9%	11	5.1%	14	3.8%
Knee strain/sprain	5	3.2%	7	3.2%	12	3.2%
Shoulder other	3	1.9%	9	4.2%	12	3.2%
Trunk other	1	0.6%	6	2.8%	7	1.9%
Hand/wrist fracture	4	2.6%	3	1.4%	7	1.9%

Figure 6.2 Time Loss of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 6.5 Girls' Volleyball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	6	4.0%	7	3.2%	13	3.5%
Did not require surgery	146	96.1%	207	96.7%	353	96.4%
Total	**152**	**100%**	**214**	**100%**	**366**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 6.3 History of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

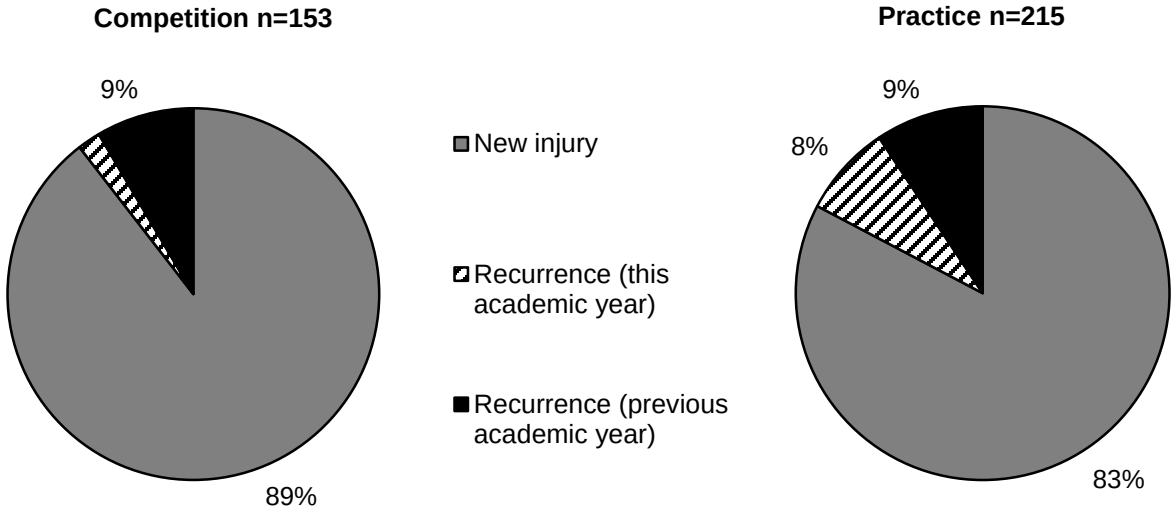


Table 6.6 Time during Season of Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	72	19.5%
Regular season	292	79.1%
Post season	5	1.4%
Total	**369**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 6.7 Competition-Related Variables for Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	28	20.6%
First set	13	9.6%
Second set	55	40.4%
Third set	35	25.7%
Fourth set	3	2.2%
Fifth set	2	1.5%
Total	**136**	**100%**
Court Location		
Middle forward	28	22.2%
Right forward	27	21.4%
Left back	21	16.7%
Left forward	18	14.3%
At the net	12	9.5%
Outside the playable area	9	7.1%
Outside court (your side)	5	4.0%
Outside court (opponent's side)	1	0.8%
Right back (server)	5	4.0%
Total	**126**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 6.8 Practice-Related Variables for Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	28	13.8%
Second 1/2 hour	47	23.2%
1-2 hours into practice	111	54.7%
>2 hours into practice	17	8.4%
Total	**203**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 6.4 Player Position of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

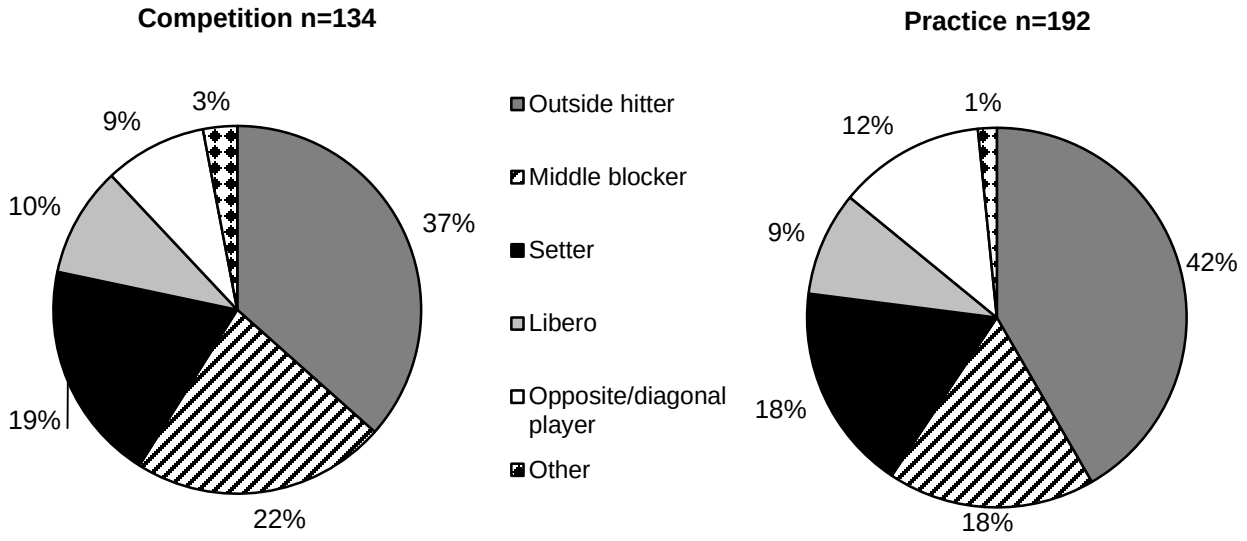


Table 6.9 Activities Leading to Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Digging	37	25.9%	20	9.6%	57	16.2%
General play	33	23.1%	76	36.5%	109	31.1%
Blocking	28	19.6%	37	17.8%	65	18.5%
Setting	14	9.8%	6	2.9%	20	5.7%
Passing	10	7.0%	11	5.3%	21	6.0%
Spiking	9	6.3%	35	16.8%	44	12.5%
Serving	7	4.9%	11	5.3%	18	5.1%
Conditioning	0	0.0%	8	3.8%	8	2.3%
Other	5	3.5%	4	1.9%	9	2.6%
Total	**143**	**100%**	**208**	**100%**	**351**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 6.10 Activity Resulting in Girls' Volleyball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	49	25.8%	5	31.3%	5	33.3%	21	28.8%	29	50.9%
Blocking	53	27.9%	3	18.8%	2	13.3%	3	4.1%	4	7.0%
Digging	17	8.9%	6	37.5%	4	26.7%	26	35.6%	4	7.0%
Spiking	32	16.8%	0	0.0%	1	6.7%	4	5.5%	7	12.3%
Passing	10	5.3%	2	12.5%	2	13.3%	6	8.2%	1	1.8%
Other	29	15.3%	0	0.0%	1	6.7%	13	17.8%	12	21.1%
Total	**190**	**100%**	**16**	**100%**	**15**	**100%**	**73**	**100%**	**57**	**100%**

VII. Boys' Basketball Injury Epidemiology

Table 7.1 Boys' Basketball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**588**	**393,596**	**1.49**
Competition	297	121,907	2.44
Practice	291	271,689	1.07

Table 7.2 Demographic Characteristics of Injured Boys' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=576**
Freshman	22.9%
Sophomore	29.0%
Junior	21.0%
Senior	27.1%
Total†	**100%**
Age (years)	
Minimum	12
Maximum	18
Mean (St. Dev.)	15.9 (1.3)
BMI	
Minimum	16.6
Maximum	43.0
Mean (St. Dev.)	23.2 (3.1)

*All analyses in this report present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 7.1 Diagnosis of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

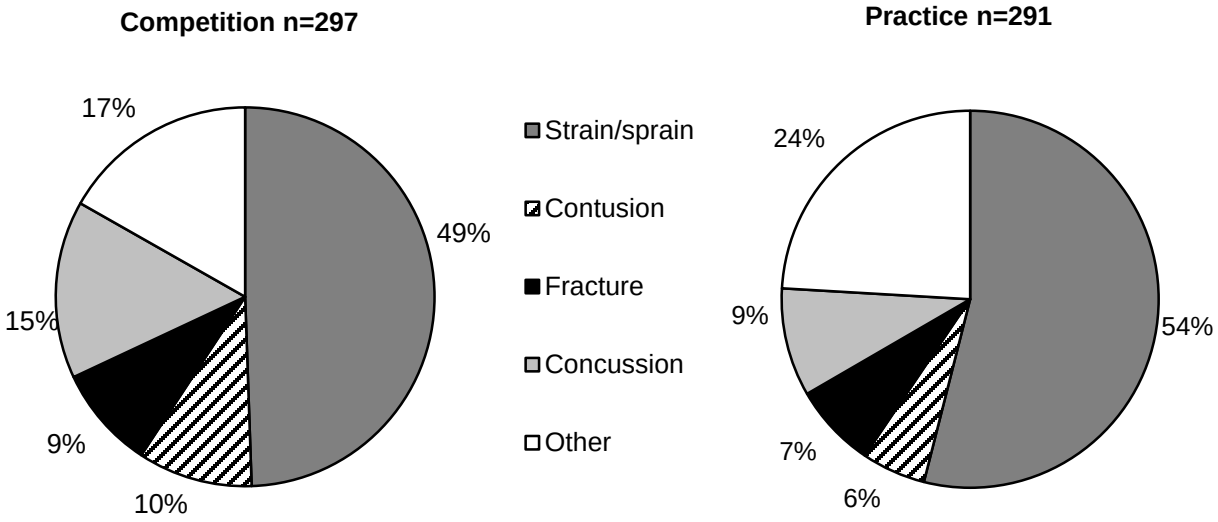


Table 7.3 Body Site of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Ankle	100	33.7%	103	35.4%	203	34.5%
Head/face	72	24.2%	46	15.8%	118	20.1%
Knee	37	12.5%	46	15.8%	83	14.1%
Hand/wrist	20	6.7%	24	8.2%	44	7.5%
Hip/thigh/upper leg	17	5.7%	21	7.2%	38	6.5%
Trunk	7	2.4%	9	3.1%	16	2.7%
Shoulder	10	3.4%	4	1.4%	14	2.4%
Foot	9	3.0%	15	5.2%	24	4.1%
Lower leg	11	3.7%	10	3.4%	21	3.6%
Arm/elbow	11	3.7%	7	2.4%	18	3.1%
Neck	1	0.3%	2	0.7%	3	0.5%
Other	2	0.7%	4	1.4%	6	1.0%
Total	**297**	**100%**	**291**	**100%**	**588**	**100%**

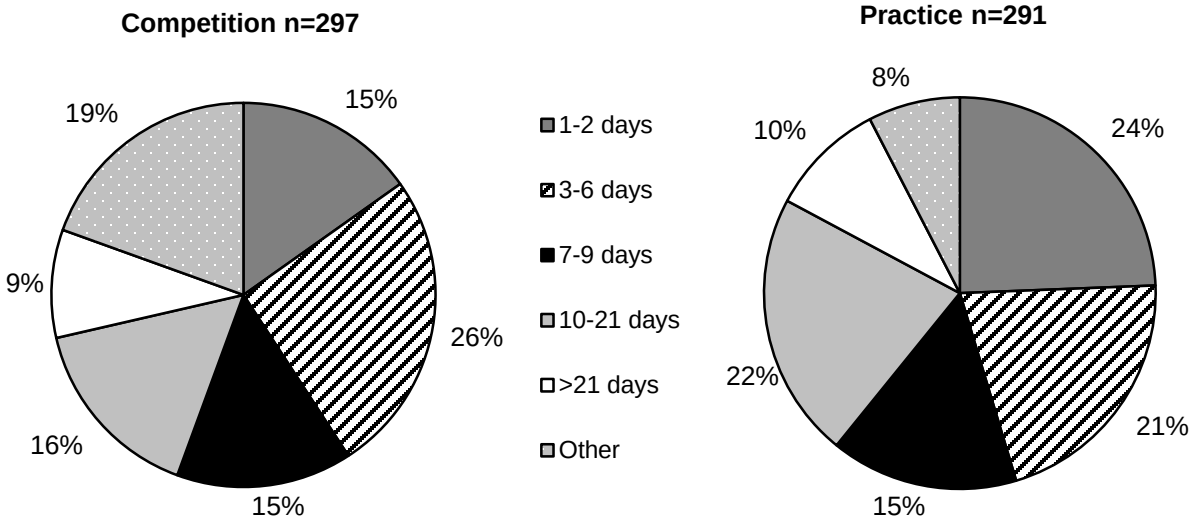
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 7.4 Ten Most Common Boys' Basketball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=297		Practice n=291		Total n=588	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	92	31.0%	101	34.7%	193	32.8%
Head/face concussion	45	15.2%	27	9.3%	72	12.2%
Knee strain/sprain	23	7.7%	13	4.5%	36	6.1%
Knee other	8	2.7%	26	8.9%	34	5.8%
Head/face other	16	5.4%	12	4.1%	28	4.8%
Hip/thigh/upper leg strain/sprain	7	2.4%	18	6.2%	25	4.3%
Hand/wrist strain/sprain	11	3.7%	9	3.1%	20	3.4%
Head/face fracture	9	3.0%	6	2.1%	15	2.6%
Hand/wrist fracture	5	1.7%	9	3.1%	14	2.4%
Foot strain/sprain	4	1.3%	8	2.7%	12	2.0%

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 7.2 Time Loss of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 7.5 Boys' Basketball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	18	6.2%	16	5.5%	34	5.9%
Did not require surgery	276	93.8%	272	94.5%	548	94.1%
Total	**294**	**100%**	**288**	**100%**	**582**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 7.3 History of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

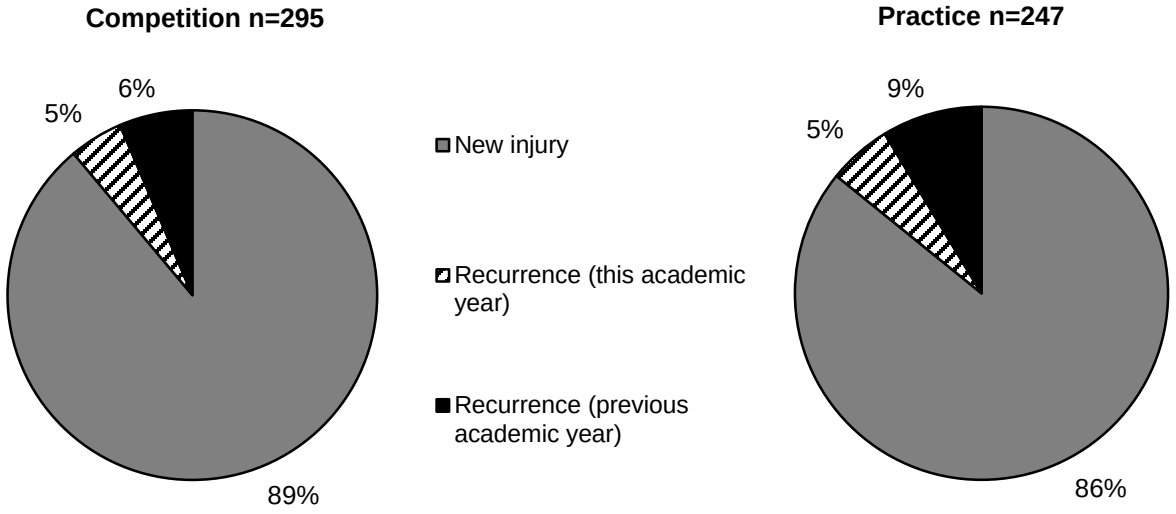


Table 7.6 Time during Season of Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	123	21.5%
Regular season	432	73.5%
Post season	17	3.0%
Total	**572**	**100.0%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 7.7 Competition-Related Variables for Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition-warm-ups	4	1.5%
First quarter	29	10.9%
Second quarter	72	27.2%
Third quarter	88	33.2%
Fourth quarter	72	27.2%
Total	**265**	**100%**
Court Location		
Inside lane (offense)	67	26.6%
Inside lane (defense)	92	36.5%
Between 3 pt arc and lane (offense)	31	12.3%
Between 3 pt arc and lane (defense)	19	7.5%
Outside 3 point arc - offense	21	8.3%
Outside 3 point arc - defense	9	3.6%
Backcourt	7	2.8%
Out of bounds	4	1.6%
Off the court	2	0.8%
Total	**252**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 7.8 Practice-Related Variables for Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	33	12.9%
Second 1/2 hour	55	21.6%
1-2 hours into practice	159	62.4%
>2 hours into practice	8	3.1%
Total	**255**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 7.4 Player Position of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

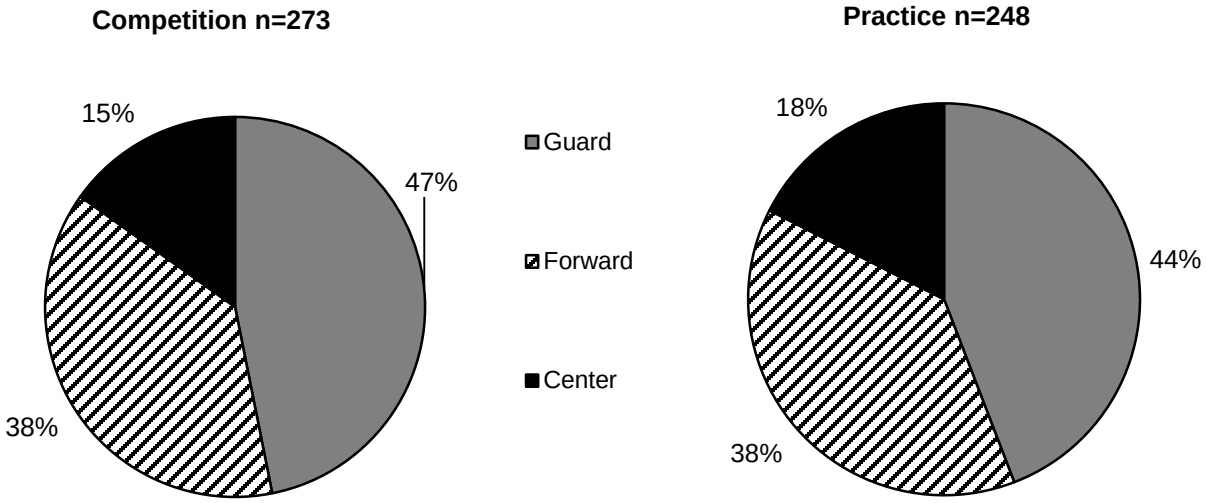


Table 7.9 Activities Leading to Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Rebounding	100	36.6%	68	26.1%	168	31.5%
General play	37	13.6%	74	28.4%	111	20.8%
Defending	41	15.0%	24	9.2%	65	12.2%
Shooting	24	8.8%	29	11.1%	53	9.9%
Chasing loose ball	27	9.9%	15	5.7%	42	7.9%
Ball handling/dribbling	21	7.7%	10	3.8%	31	5.8%
Receiving pass	14	5.1%	13	5.0%	27	5.1%
Conditioning	0	0.0%	15	5.7%	15	2.4%
Passing	2	0.7%	4	1.5%	6	1.1%
Other	6	2.2%	6	2.3%	12	2.2%
Total	**272**	**100%**	**258**	**100%**	**530**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 7.10 Activity Resulting in Boys' Basketball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Rebounding	104	37.1%	11	26.2%	10	22.2%	24	36.4%	19	18.8%
General play	56	20.0%	9	21.4%	7	15.6%	9	13.6%	30	29.7%
Defending	28	10.0%	2	4.8%	11	24.4%	11	16.7%	13	12.9%
Shooting	32	11.4%	3	7.1%	2	4.4%	7	10.6%	9	8.9%
Chasing loose ball	9	3.2%	10	23.8%	5	11.1%	8	12.1%	10	9.9%
Other	51	18.2%	7	16.7%	10	22.2%	7	10.6%	20	19.8%
Total	**280**	**100%**	**42**	**100%**	**45**	**100%**	**66**	**100%**	**101**	**100%**

VIII. Girls' Basketball Injury Epidemiology

Table 8.1 Girls' Basketball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**594**	**313,837**	**1.89**
Competition	361	98,110	3.68
Practice	233	215,727	1.08

Table 8.2 Demographic Characteristics of Injured Girls' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=587**
Freshman	30.7%
Sophomore	29.1%
Junior	22.1%
Senior	28.1%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.6 (1.2)
BMI	
Minimum	15.2
Maximum	41.1
Mean (St. Dev.)	22.4 (3.4)

*All analyses in this report present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 8.1 Diagnosis of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

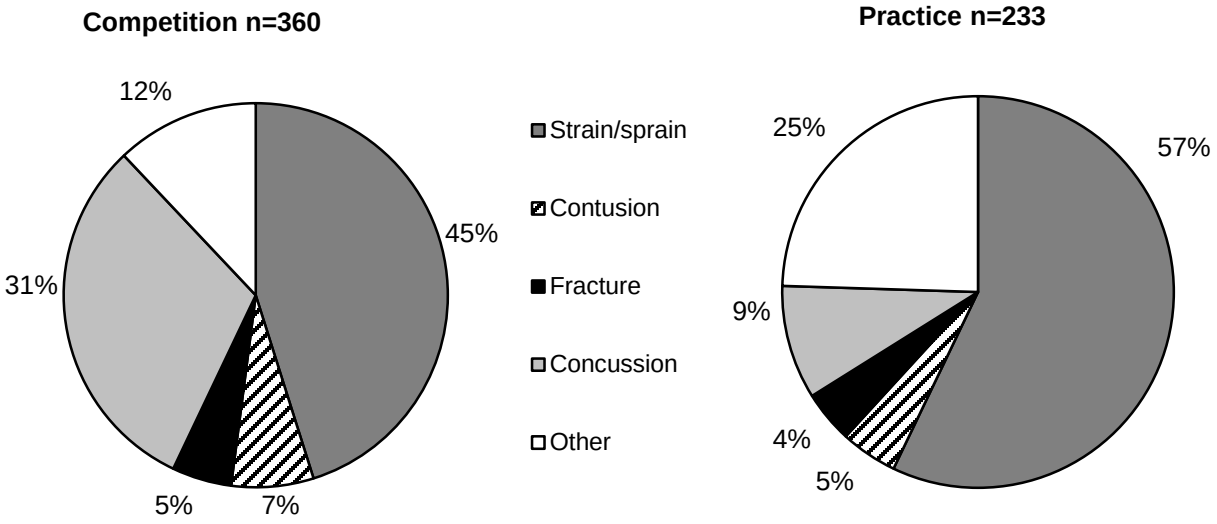


Table 8.3 Body Site of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

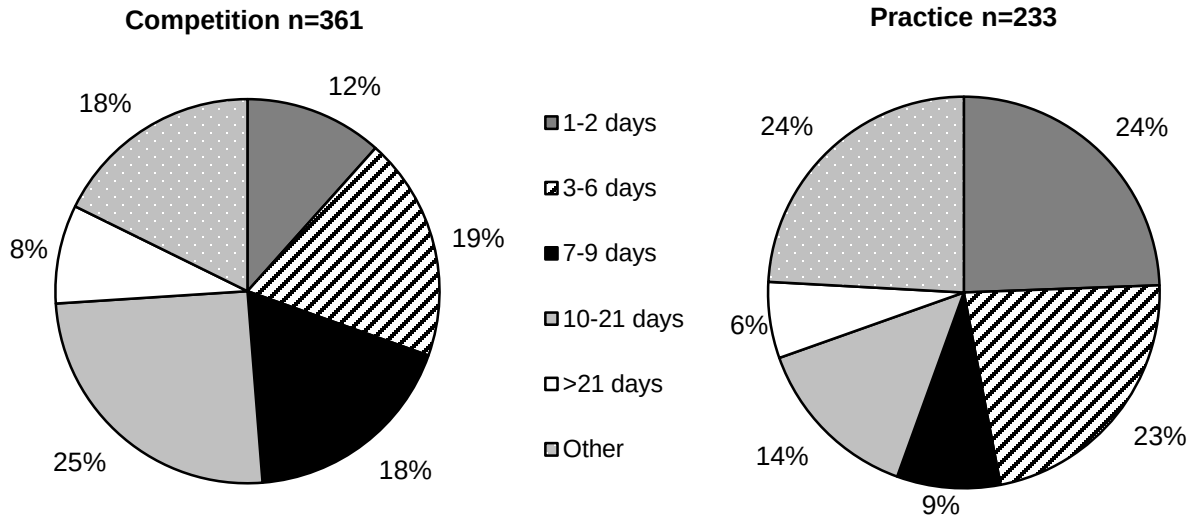
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	126	34.9%	32	13.7%	158	26.6%
Ankle	87	24.1%	65	27.9%	152	25.6%
Knee	67	18.6%	39	16.7%	106	17.8%
Hand/wrist	29	8.0%	17	7.3%	46	7.7%
Hip/thigh/upper leg	14	3.9%	24	10.3%	38	6.4%
Trunk	12	3.3%	10	4.3%	22	3.7%
Foot	6	1.7%	4	1.7%	10	1.7%
Shoulder	8	2.2%	10	4.3%	18	3.0%
Lower leg	2	0.6%	27	11.6%	29	4.9%
Arm/elbow	8	2.2%	1	0.4%	9	1.5%
Neck	1	0.3%	0	0.0%	1	0.2%
Other	1	0.3%	4	1.7%	5	0.8%
Total	**361**	**100%**	**233**	**100%**	**594**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 8.4 Ten Most Common Girls' Basketball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=361		Practice n=233		Total n=594	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	85	23.6%	64	25.3%	149	25.8%
Head/face concussion	111	30.8%	22	8.7%	133	23.1%
Knee strain/sprain	36	10.0%	18	7.1%	54	9.4%
Knee other	23	6.4%	15	5.9%	38	6.6%
Hip/thigh/upper leg sprain/strain	9	2.5%	22	8.7%	31	5.4%
Hand/wrist strain/sprain	17	4.7%	11	4.3%	28	4.9%
Lower leg other	1	0.3%	18	7.1%	19	3.3%
Hand/wrist fracture	10	2.8%	5	2.0%	15	2.6%
Knee contusion	7	1.9%	6	2.4%	13	2.3%
Head/face other	5	1.4%	6	2.4%	11	1.9%

Figure 8.2 Time Loss of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 8.5 Girls' Basketball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	N	%
Need for surgery						
Required surgery	30	8.5%	15	6.5%	45	7.7%
Did not require surgery	323	91.5%	214	93.4%	537	92.3%
Total	**353**	**100%**	**229**	**100%**	**582**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 8.3 History of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

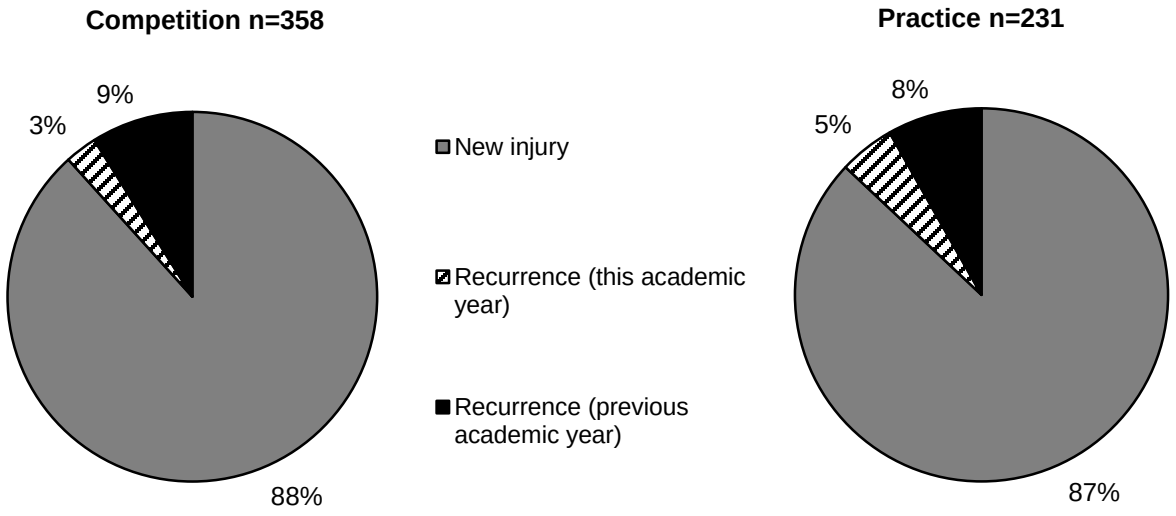


Table 8.6 Time during Season of Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	105	18.4%
Regular season	447	78.3%
Post season	19	3.3%
Total	**571**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 8.7 Competition-Related Variables for Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/Warm-ups	4	1.3%
First quarter	30	9.4%
Second quarter	88	27.7%
Third quarter	112	35.2%
Fourth quarter	84	26.4%
Total	**318**	**100%**
Court Location		
Inside lane (offense)	63	20.7%
Inside lane (defense)	87	28.5%
Between 3 point arc and lane (defense)	34	11.1%
Between 3 point arc and lane (offense)	36	11.8%
Outside 3 point arc - offense	39	12.8%
Outside 3 point arc - defense	29	9.5%
Backcourt	11	3.6%
Out of bounds	4	1.3%
Off the court	2	0.7%
Total	**305**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 8.8 Practice-Related Variables for Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	33	16.8 %
Second 1/2 hour	54	27.4%
1-2 hours into practice	100	50.8%
>2 hours into practice	10	5.1%
Total	**197**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 8.4 Player Position of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

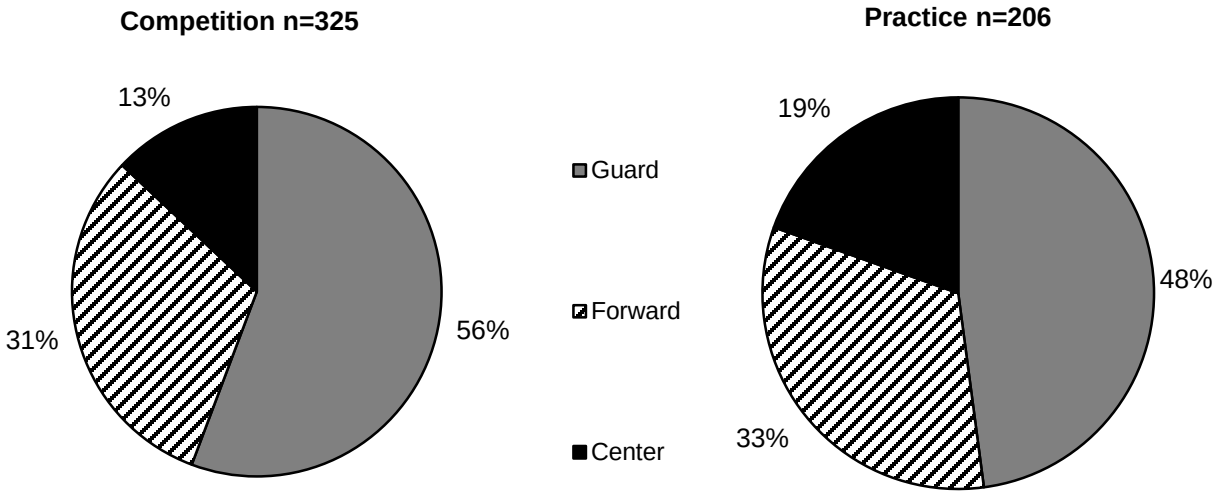


Table 8.9 Activities Leading to Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	61	18.5%	83	40.3%	144	26.9%
Rebounding	82	24.8%	29	14.1%	111	20.7%
Defending	59	17.9%	17	8.3%	76	14.2%
Chasing loose ball	55	16.7%	9	4.4%	64	11.9%
Shooting	23	7.0%	19	9.2%	42	7.8%
Ball handling/dribbling	31	9.4%	10	4.9%	41	7.6%
Conditioning	0	0.0%	21	10.2%	21	3.9%
Receiving pass	9	2.7%	10	4.9%	19	3.5%
Passing	1	0.3%	3	1.5%	4	0.7%
Other	7	2.1%	3	1.5%	10	1.9%
Total	**328**	**100%**	**204**	**100%**	**532**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 8.10 Activity Resulting in Girls' Basketball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	75	27.8%	7	20.6%	9	34.6%	16	13.7%	36	40.9%
Rebounding	63	23.3%	4	11.8%	3	11.5%	27	23.1%	14	15.9%
Defending	31	11.5%	7	20.6%	1	3.8%	27	23.1%	10	11.4%
Chasing loose ball	23	8.5%	6	17.6%	4	15.4%	24	20.5%	7	8.0%
Shooting	31	11.5%	2	5.9%	2	7.7%	4	3.4%	3	3.4%
Other	47	17.4%	8	23.5%	7	26.9%	19	16.2%	18	20.5%
Total	**270**	**100%**	**34**	**100%**	**26**	**100%**	**117**	**100%**	**88**	**100%**

IX. Wrestling Injury Epidemiology

Table 9.1 Wrestling Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**569**	**258,247**	**2.20**
Competition	247	66,284	3.73
Practice	322	191,963	1.68

Table 9.2 Demographic Characteristics of Injured Wrestlers, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=555**
Freshman	23.1%
Sophomore	24.1%
Junior	25.9%
Senior	26.8%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.9 (1.3)
BMI	
Minimum	10.7
Maximum	49.3
Mean (St. Dev.)	23.7 (4.9)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 9.1 Diagnosis of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

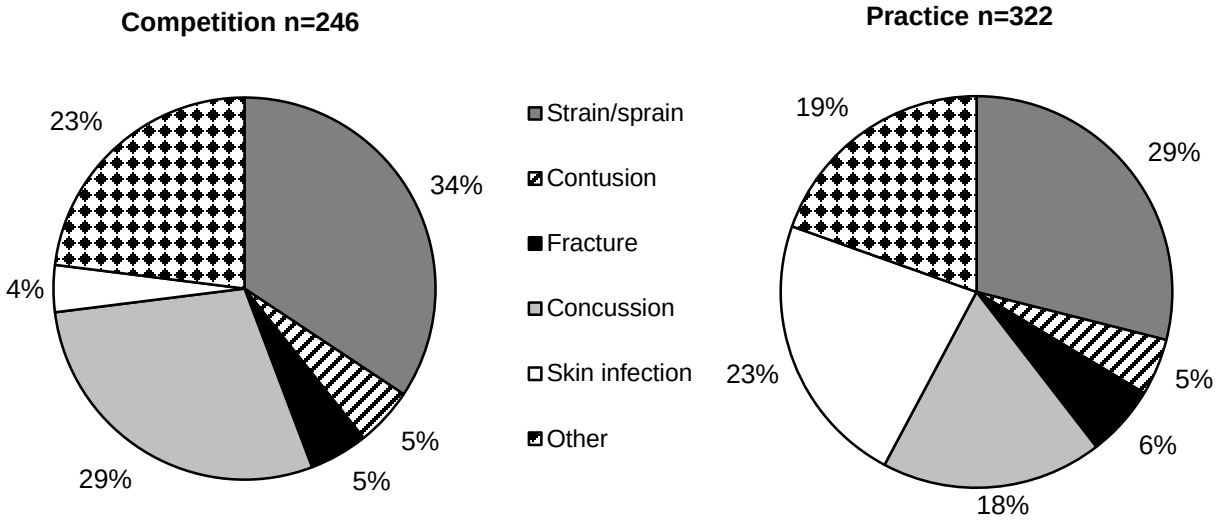


Table 9.3 Body Site of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	86	34.8%	110	34.2%	196	34.4%
Shoulder	45	18.2%	33	10.2%	78	13.7%
Knee	36	14.6%	41	12.7%	77	13.5%
Arm/elbow	28	11.3%	35	10.9%	63	11.1%
Ankle	12	4.9%	20	6.2%	32	5.6%
Trunk	6	2.4%	25	7.8%	31	5.4%
Hand/wrist	6	2.4%	22	6.8%	28	4.9%
Hip/thigh/upper leg	8	3.2%	9	2.8%	17	3.0%
Other	9	3.6%	7	2.2%	16	2.8%
Lower leg	6	2.4%	9	2.8%	15	2.6%
Neck	3	1.2%	7	2.2%	10	1.8%
Foot	2	0.8%	4	1.2%	6	1.1%
Total	**247**	**100%**	**322**	**100%**	**569**	**100%**

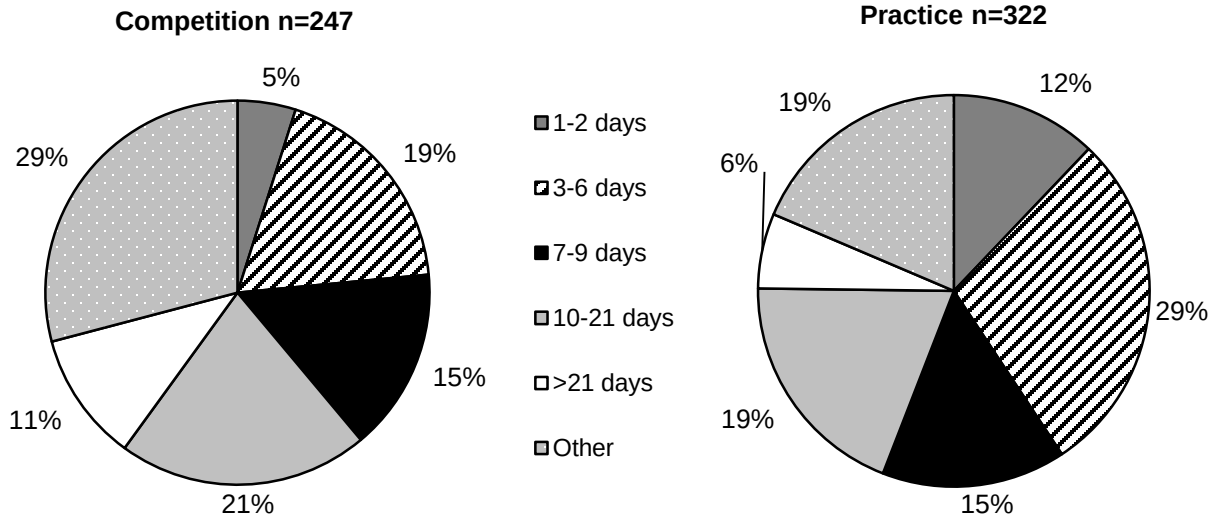
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 9.4 Ten Most Common Wrestling Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=246		Practice n=322		Total n=568	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	71	28.9%	59	18.3%	130	22.9%
Knee strain/sprain	24	9.8%	14	4.3%	38	6.7%
Head/face skin infection	6	2.4%	32	9.9%	38	6.7%
Shoulder other	22	8.9%	15	4.7%	37	6.5%
Shoulder strain/sprain	20	8.1%	16	5.0%	36	6.3%
Ankle strain/sprain	12	4.9%	19	5.9%	31	5.5%
Knee other	7	2.8%	22	6.8%	29	5.1%
Arm/elbow strain/sprain	10	4.1%	11	3.4%	21	3.7%
Arm/elbow skin infection	2	0.8%	18	5.6%	20	3.5%
Head/face other	7	2.8%	11	3.4%	18	3.2%

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 9.2 Time Loss of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 9.5 Wrestling Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	21	8.7%	17	1.9%	38	6.8%
Did not require surgery	221	91.3%	301	94.7%	522	93.2%
Total	**242**	**100%**	**318**	**100%**	**560**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 9.3 History of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

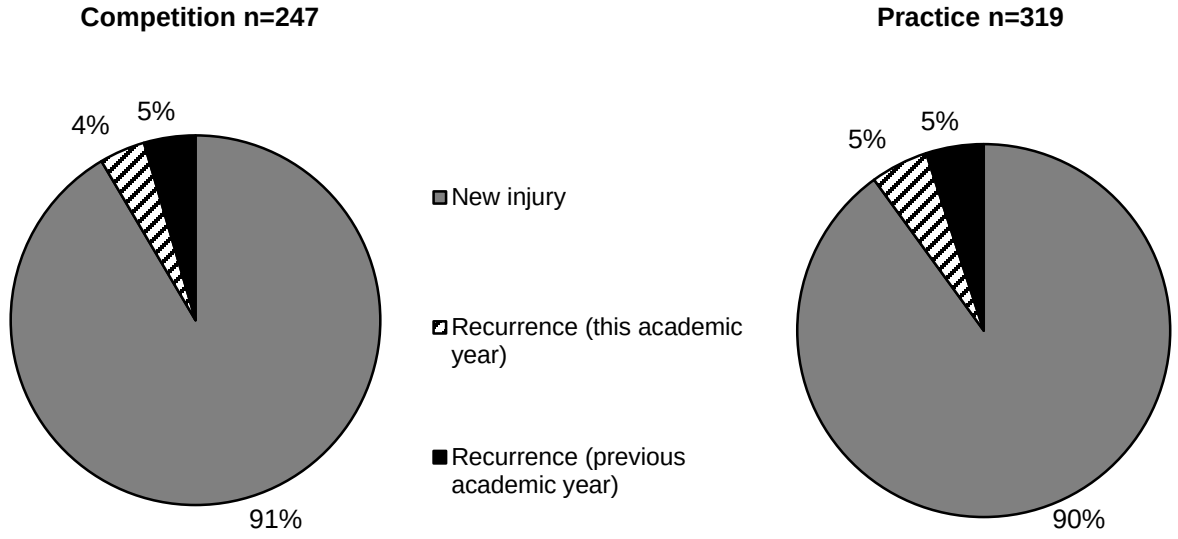


Table 9.6 Time during Season of Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	78	14.1%
Regular season	449	80.9%
Post season	28	5.0%
Total	**555**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 9.7 Competition-Related Variables for Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	5	2.4%
First period	38	18.2%
Second period	108	51.7%
Third period	57	27.3%
Overtime	1	0.5%
Total	**209**	**100%**
Mat Location*		
Within 28 ft. circle	409	90.1%
Out of bounds	18	4.0%
Off the mat	27	5.9%
Total	**454**	**100%**

*Mat location question consists of competition and practice related injuries.
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 9.8 Practice-Related Variables for Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	40	15.8%
Second 1/2 hour	55	21.7%
1-2 hours into practice	127	50.2%
>2 hours into practice	31	12.3%
Total	**253**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 9.9 Activities Leading to Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Takedown	121	53.3%	87	30.4%	208	40.5%
N/A (skin infection, overuse, etc.)	12	5.3%	70	24.5%	82	16.0%
Sparring	27	11.9%	62	21.7%	89	17.3%
Fall	11	4.8%	9	3.1%	20	3.9%
Riding	11	4.8%	9	3.1%	20	3.9%
Near fall	15	6.6%	4	1.4%	19	3.7%
Conditioning	0	0.0%	19	6.6%	19	3.7%
Escape	9	4.0%	7	2.4%	16	3.1%
Reversal	6	2.6%	6	2.1%	12	2.3%
Other	15	6.6%	13	4.5%	28	5.5%
Total	**227**	**100%**	**286**	**100%**	**513**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 9.10 Activities Resulting in Wrestling Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Takedown	67	42.9%	16	66.7%	22	73.3%	53	45.3%	3	4.0%
Near fall	7	4.5%	0	0.0%	1	3.3%	6	5.1%	0	0.0%
Riding	8	5.1%	1	4.2%	0	0.0%	4	3.4%	0	0.0%
Sparring	25	16.0%	3	12.5%	5	16.7%	38	32.5%	2	2.7%
Reversal	8	5.1%	0	0.0%	0	0.0%	2	1.7%	0	0.0%
Other	41	26.3%	4	16.7%	2	6.7%	14	12.0%	70	93.3%
Total	**156**	**100%**	**24**	**100%**	**30**	**100%**	**117**	**100%**	**75**	**100%**

X. Baseball Injury Epidemiology

Table 10.1 Baseball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**323**	**305,925**	**1.06**
Competition	178	106,274	1.67
Practice	145	199,651	0.73

Table 10.2 Demographic Characteristics of Injured Baseball Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=321**
Freshman	23.7%
Sophomore	26.5%
Junior	20.9%
Senior	29.0%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.1 (1.3)
BMI	
Minimum	17.2
Maximum	41.9
Mean (St. Dev.)	24.1 (3.5)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 10.1 Diagnosis of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

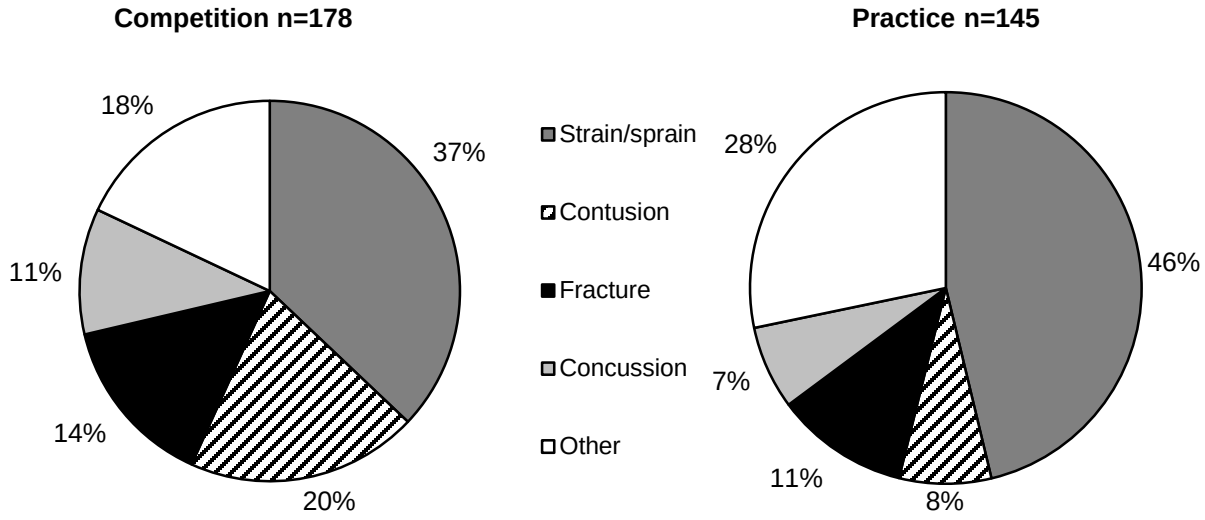


Table 10.3 Body Site of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

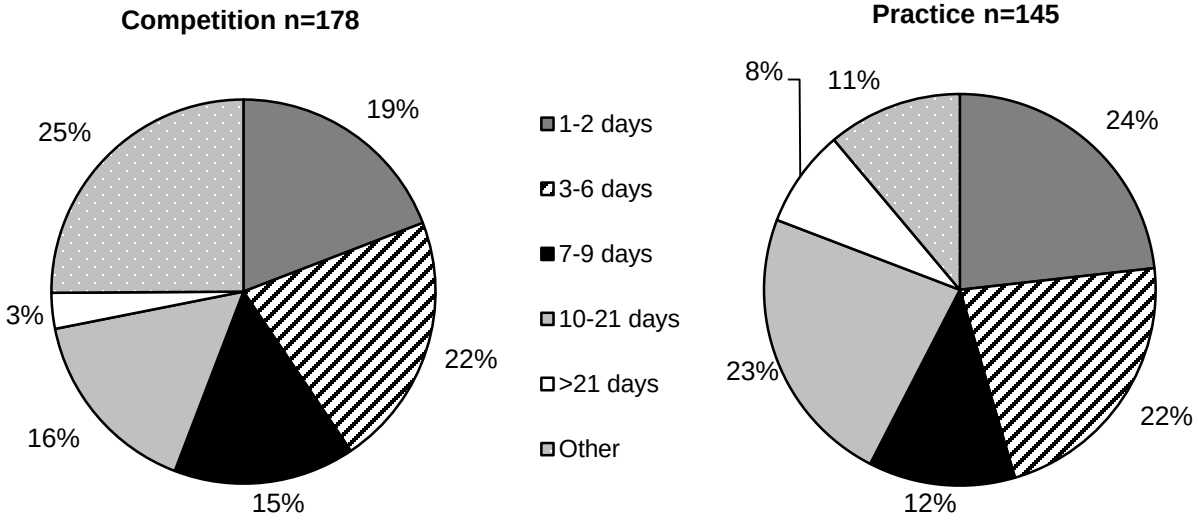
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	31	17.4%	24	16.6%	55	17.0%
Arm/elbow	23	12.9%	20	13.8%	43	13.3%
Hand/wrist	29	16.3%	18	12.4%	47	14.6%
Shoulder	12	6.7%	35	24.1%	47	14.6%
Hip/thigh/upper leg	29	16.3%	12	8.3%	41	12.7%
Ankle	14	7.9%	16	11.0%	30	9.3%
Knee	18	10.1%	7	4.8%	25	7.7%
Trunk	7	3.9%	5	3.4%	12	3.7%
Lower leg	10	5.6%	5	3.4%	15	4.6%
Neck	0	0.0%	1	0.7%	1	0.3%
Foot	4	2.2%	2	1.4%	6	1.9%
Other	1	0.6%	0	0.0%	1	0.3%
Total	**178**	**100%**	**145**	**100%**	**323**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 10.4 Ten Most Common Baseball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=178		Practice n=145		Total n=323	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	20	11.2%	11	7.6%	31	9.6%
Head/face concussion	19	10.7%	10	6.9%	29	9.0%
Ankle strain/sprain	14	7.9%	15	10.3%	29	9.0%
Shoulder strain/sprain	4	2.2%	19	13.1%	23	7.1%
Shoulder other	6	3.4%	16	11.0%	22	6.8%
Arm/elbow strain/sprain	10	5.6%	8	5.5%	18	5.6%
Arm/elbow other	5	2.8%	10	6.9%	15	4.6%
Head/face contusion	7	3.9%	5	3.4%	12	3.7%
Trunk strain/sprain	6	3.4%	5	3.4%	11	3.4%
Knee strain/sprain	6	3.4%	4	2.8%	10	3.1%

Figure 10.2 Time Loss of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 10.5 Baseball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	15	8.5%	7	4.9%	21	6.8%
Did not require surgery	162	91.5%	137	95.1%	299	93.2%
Total	**177**	**100%**	**144**	**100%**	**321**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 10.3 History of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

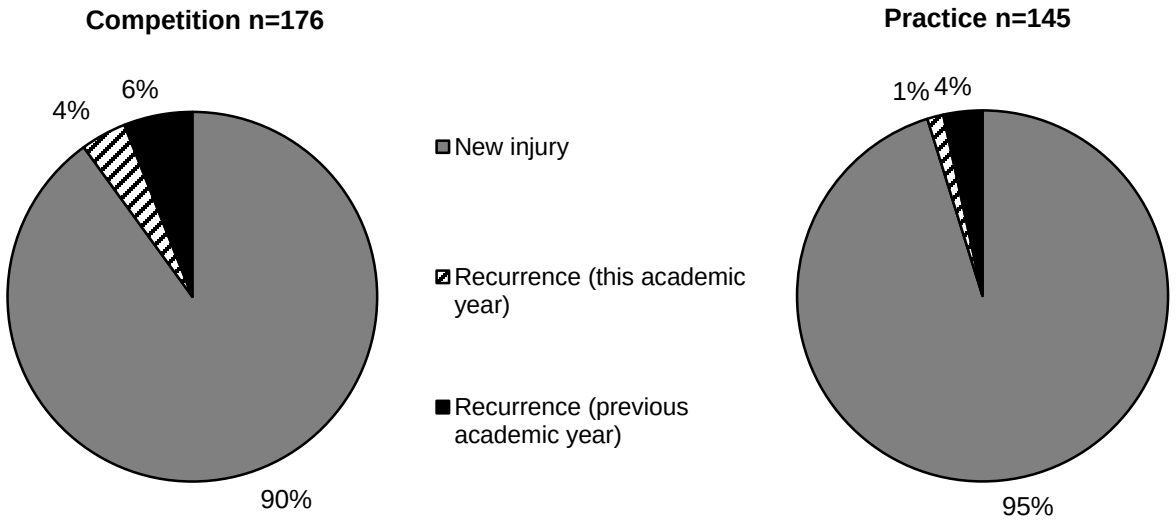


Table 10.6 Time during Season of Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	78	24.7%
Regular season	227	71.8%
Post season	11	3.5%
Total	**316**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 10.7 Competition-Related Variables for Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	8	5.0%
First inning	12	7.5%
Second inning	15	9.4%
Third inning	23	14.4%
Fourth inning	38	23.8%
Fifth inning	27	16.9%
Sixth inning	28	17.5%
Seventh inning	7	4.4%
Extra innings	2	1.3%
Total	**160**	**100%**
Field Location		
Home plate	53	31.7%
First base	20	12.0%
Second base	31	18.6%
Third base	12	7.2%
Infield	5	3.0%
Pitcher's mound	20	12.0%
Outfield	17	10.2%
Foul territory	3	1.8%
Other	6	3.6%
Total	**167**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 10.8 Practice-Related Variables for Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	16	12.2%
Second 1/2 hour	25	19.1%
1-2 hours into practice	77	58.8%
>2 hours into practice	13	9.9%
Total	**131**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 10.4 Player Position of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

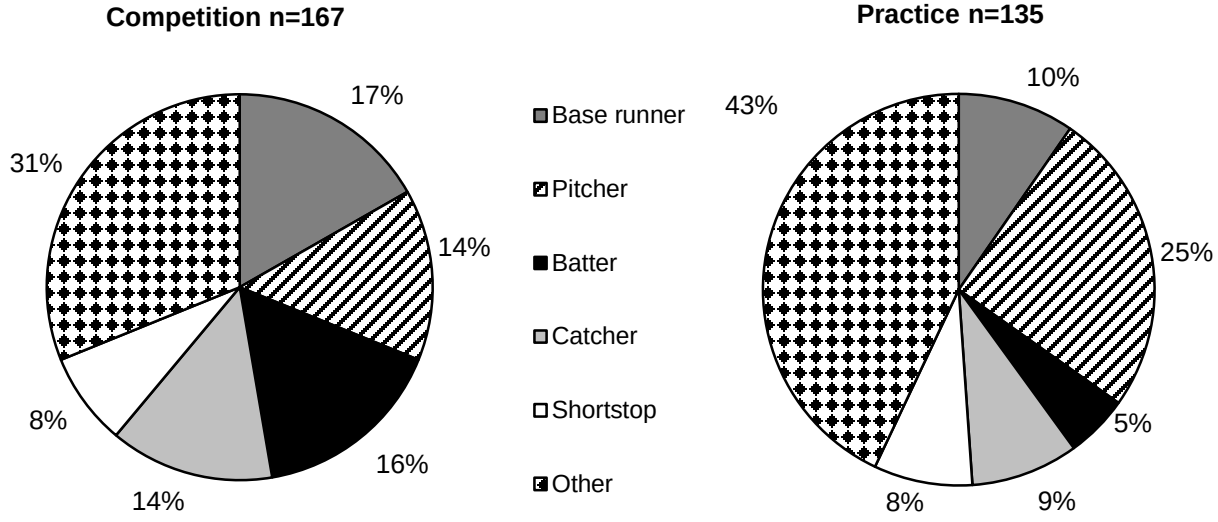


Table 10.9 Activities Leading to Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running bases	40	23.0%	15	10.6%	55	17.4%
Pitching	20	11.5%	26	18.3%	46	14.6%
Fielding a batted ball	19	10.9%	26	18.3%	45	14.2%
Batting	29	16.7%	11	7.7%	40	12.7%
Throwing (not pitching)	5	2.9%	23	16.2%	28	8.9%
Sliding	22	12.6%	6	4.2%	28	8.9%
Catching	14	8.0%	7	4.9%	21	6.6%
General play	9	5.2%	10	7.0%	19	6.0%
Other	10	5.7%	4	2.8%	14	4.4%
Fielding a thrown ball	6	3.4%	4	2.8%	10	3.2%
Conditioning	0	0.0%	10	7.0%	10	3.2%
Total	**174**	**100%**	**142**	**100%**	**316**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 10.10 Activity Resulting in Baseball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running bases	33	25.8%	8	17.4%	4	9.5%	5	17.9%	5	6.9%
Pitching	26	20.3%	1	2.2%	1	2.4%	1	3.6%	17	23.6%
Fielding a batted ball	14	10.9%	7	15.2%	10	23.8%	7	25.0%	7	9.7%
Batting	7	5.5%	12	26.1%	11	26.2%	3	10.7%	7	9.7%
Throwing (not pitching)	17	13.3%	2	4.3%	0	0.0%	0	0.0%	9	12.5%
Other	31	24.2%	16	34.8%	16	38.1%	12	42.9%	27	37.5%
Total	**128**	**100%**	**46**	**100%**	**42**	**100%**	**28**	**100%**	**72**	**100%**

XI. Softball Injury Epidemiology

Table 11.1 Softball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**263**	**228,469**	**1.15**
Competition	111	77,196	1.44
Practice	152	151,273	1.00

Table 11.2 Demographic Characteristics of Injured Softball Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=257**
Freshman	27.6%
Sophomore	28.4%
Junior	25.7%
Senior	18.3%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.8 (1.2)
BMI	
Minimum	15.0
Maximum	42.7
Mean (St. Dev.)	24.4 (5.1)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 11.1 Diagnosis of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

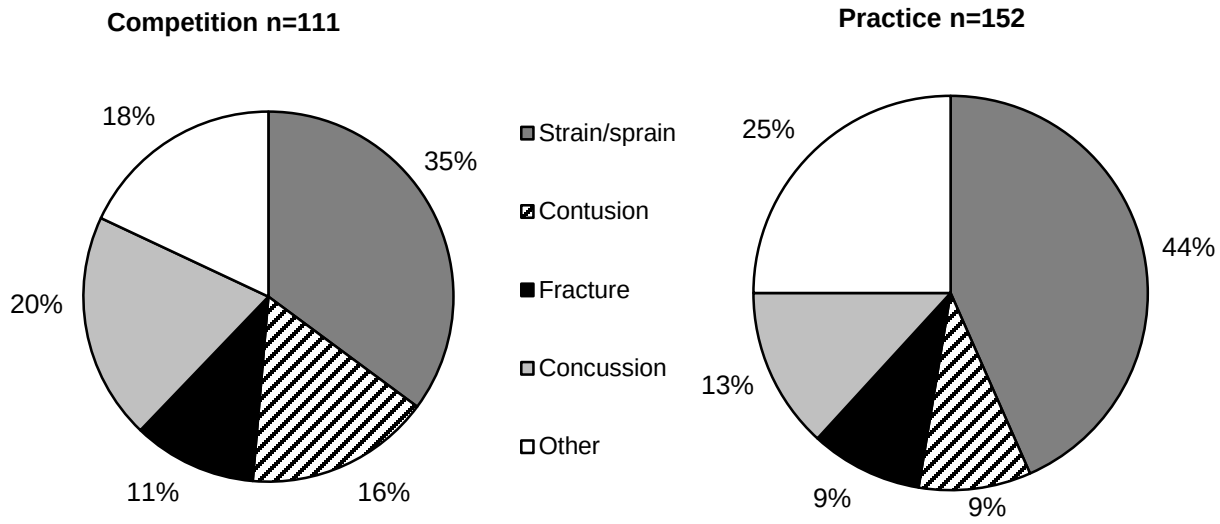


Table 11.3 Body Site of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

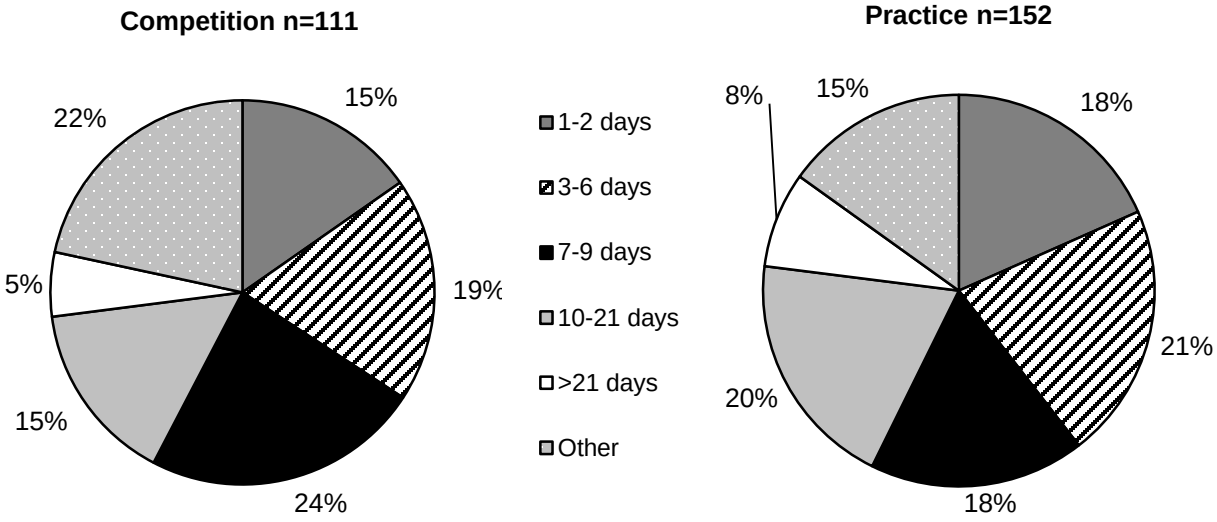
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	31	27.9%	34	22.4%	65	24.7%
Ankle	17	15.3%	28	18.4%	45	17.1%
Knee	18	16.2%	12	7.9%	30	11.4%
Shoulder	9	8.1%	23	15.1%	32	12.2%
Hand/wrist	15	13.5%	12	7.9%	27	10.3%
Hip/thigh/upper leg	9	8.1%	14	9.2%	23	8.7%
Arm/elbow	3	2.7%	7	4.6%	10	3.8%
Lower leg	5	4.5%	5	3.3%	10	3.8%
Trunk	2	1.8%	12	7.9%	14	5.3%
Foot	2	1.8%	3	2.0%	5	1.9%
Neck	0	0.0%	0	0.0%	0	0.0%
Other	0	0.0%	2	1.3%	2	0.8%
Total	**111**	**100%**	**152**	**100%**	**263**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 11.4 Ten Most Common Softball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=111		Practice n=152		Total n=263	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	22	19.8%	20	13.2%	42	16.0%
Ankle strain/sprain	16	14.4%	24	15.8%	40	15.2%
Shoulder other	5	4.5%	15	9.9%	20	7.6%
Knee strain/sprain	11	9.9%	7	4.6%	18	6.8%
Hip/thigh/upper leg strain/sprain	7	6.3%	9	5.9%	16	6.1%
Hand/wrist fracture	9	8.1%	5	3.3%	14	5.3%
Shoulder strain/sprain	4	3.6%	8	5.3%	12	4.6%
Head/face fracture	2	1.8%	6	3.9%	8	3.0%
Head/face other	5	4.5%	3	2.0%	8	3.0%
Head/face contusion	2	1.8%	5	3.3%	7	2.7%

Figure 11.2 Time Loss of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 11.5 Softball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	10	9.3%	6	4.1%	16	6.2%
Did not require surgery	98	90.7%	142	95.9%	240	93.8%
Total	**108**	**100%**	**148**	**100%**	**256**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 11.3 History of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

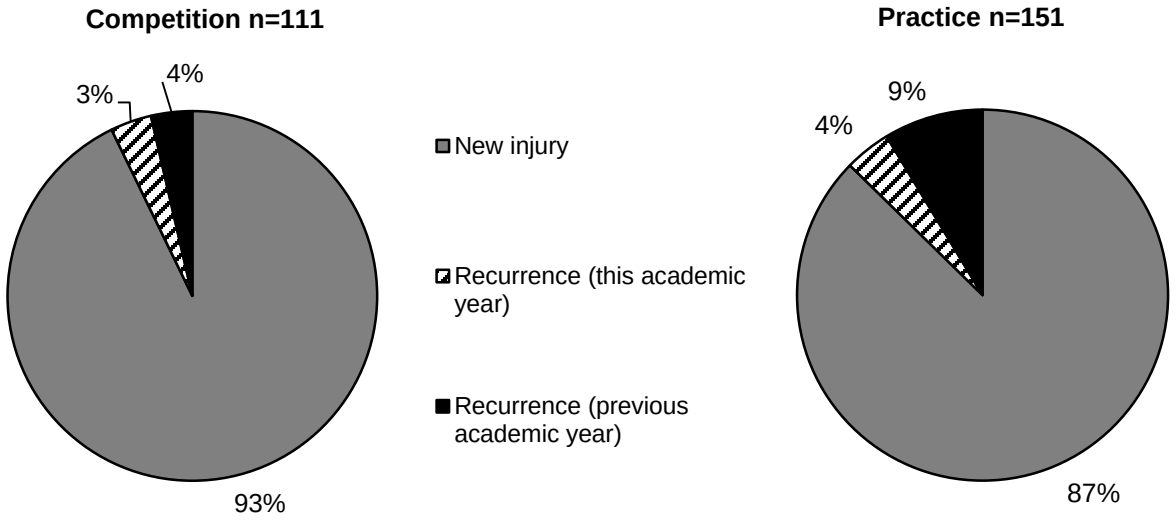


Table 11.6 Time during Season of Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	57	22.2%
Regular season	187	72.8%
Post season	13	5.1%
Total	**257**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 11.7 Competition-Related Variables for Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	16	16.2%
First inning	8	8.1%
Second inning	9	9.1%
Third inning	16	16.2%
Fourth inning	20	20.2%
Fifth inning	16	16.2%
Sixth inning	10	10.1%
Seventh inning	3	3.0%
Extra innings	1	1.0%
Total	**99**	**100%**
Field Location		
Home plate	16	15.1%
First base	8	7.5%
Second base	22	20.8%
Third base	13	12.3%
Outfield	12	11.3%
Pitcher's mound	8	7.5%
Infield	21	19.8%
Foul territory	4	3.8%
Other	2	1.9%
Total	**106**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 11.8 Practice-Related Variables for Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	10	7.4%
Second 1/2 hour	28	20.7%
1-2 hours into practice	84	62.2%
>2 hours into practice	13	9.6%
Total	**135**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 11.4 Player Position of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

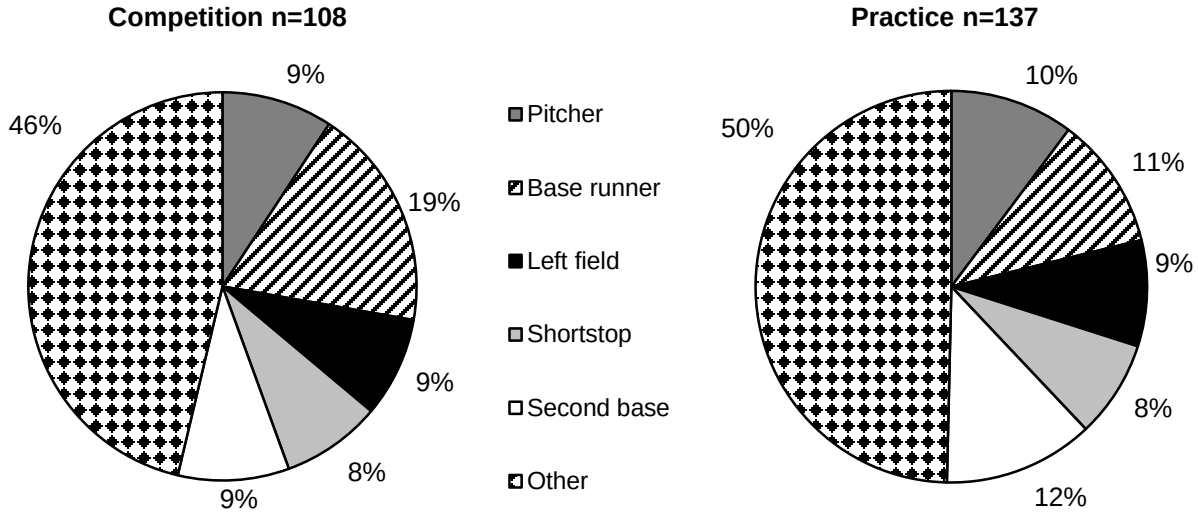


Table 11.9 Activities Leading to Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Fielding a batted ball	30	27.8%	21	14.4%	51	20.1%
Running bases	19	17.6%	20	13.7%	39	15.4%
Throwing (not pitching)	6	5.6%	22	15.1%	28	11.0%
Sliding	16	14.8%	11	7.5%	27	10.6%
General play	3	2.8%	21	14.4%	24	9.4%
Fielding a thrown ball	8	7.4%	15	10.3%	23	9.1%
Pitching	6	5.6%	8	5.5%	14	5.5%
Conditioning	0	0.0%	13	8.9%	13	5.1%
Catching	4	3.7%	8	5.5%	12	4.7%
Batting	7	6.5%	5	3.4%	12	4.7%
Coaching	1	0.9%	0	0.0%	1	0.4%
Other	8	7.4%	2	1.4%	10	3.9%
Total	**108**	**100%**	**146**	**100%**	**254**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 11.10 Activity Resulting in Softball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Fielding a batted ball	15	14.6%	8	25.8%	9	34.6%	12	28.6%	7	13.5%
Running bases	26	25.2%	6	19.4%	1	3.8%	5	11.9%	1	1.9%
Throwing (not pitching)	11	10.7%	2	6.5%	0	0.0%	2	4.8%	13	25.0%
Sliding	12	11.7%	1	3.2%	6	23.1%	5	11.9%	3	5.8%
General play	10	9.7%	1	3.2%	0	0.0%	3	7.1%	10	19.2%
Other	29	28.2%	13	41.9%	10	38.5%	15	35.7%	18	34.6%
Total	**103**	**100%**	**31**	**100%**	**26**	**100%**	**42**	**100%**	**52**	**100%**

XII. Girls' Field Hockey Injury Epidemiology

Table 12.1 Girls' Field Hockey Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**124**	**91,048**	**1.36**
Competition	61	29,115	2.10
Practice	63	61,933	1.02

Table 12.2 Demographic Characteristics of Injured Girls' Field Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=122**
Freshman	23.0%
Sophomore	24.6%
Junior	27.0%
Senior	25.4%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.5 (1.3)
BMI	
Minimum	14.0
Maximum	31.9
Mean (St. Dev.)	22.0 (2.7)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 12.1 Diagnosis of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

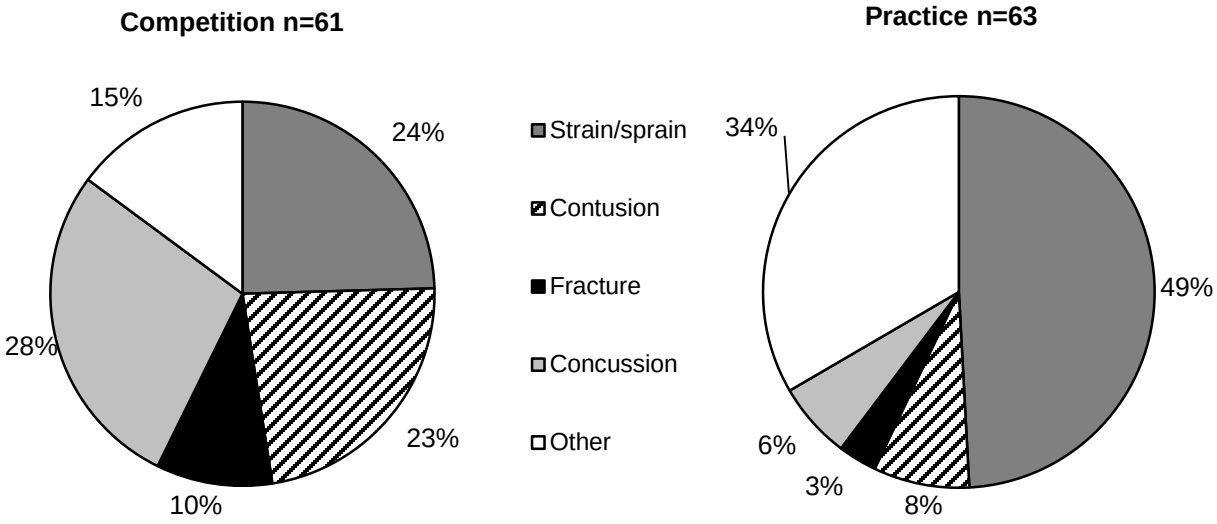


Table 12.3 Body Site of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

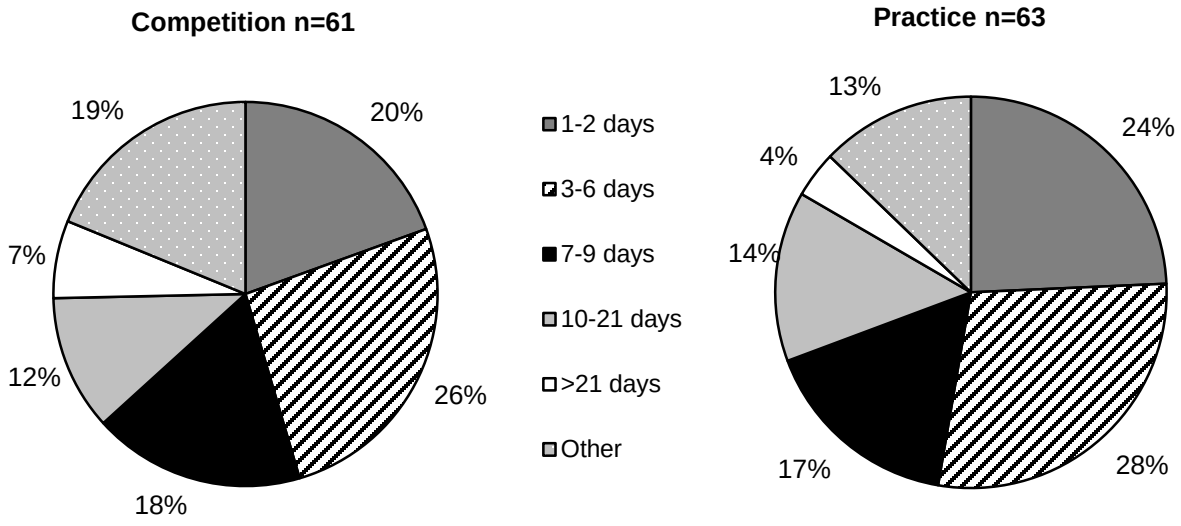
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	22	36.1%	5	7.9%	27	21.8%
Knee	8	13.1%	13	20.6%	21	16.9%
Hip/thigh/upper leg	5	8.2%	14	22.2%	19	15.3%
Ankle	8	13.1%	9	14.3%	17	13.7%
Hand/wrist	13	21.3%	1	1.6%	14	11.3%
Lower leg	2	3.3%	5	7.9%	7	5.6%
Foot	0	0.0%	6	9.5%	6	4.8%
Trunk	2	3.3%	4	6.3%	6	4.8%
Neck	1	1.6%	0	0.0%	1	0.8%
Shoulder	0	0.0%	0	0.0%	0	0.0%
Other	0	0.0%	6	9.5%	6	4.8%
Total	**61**	**100%**	**63**	**100%**	**124**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 12.4 Ten Most Common Girls' Field Hockey Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=61		Practice n=63		Total n=124	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	17	27.9%	4	6.3%	21	16.9%
Hip/thigh/upper leg strain/sprain	3	4.9%	14	22.2%	17	13.7%
Ankle strain/sprain	7	11.5%	8	12.7%	15	12.1%
Knee other	2	3.3%	8	12.7%	10	8.1%
Knee sprain/strain	3	4.9%	5	7.9%	8	6.5%
Hand/wrist fracture	5	8.2%	1	1.6%	6	4.8%
Hand/wrist contusion	6	9.8%	0	0.0%	6	4.8%
Lower leg other	2	3.3%	3	4.8%	5	4.0%
Head/face contusion	2	3.3%	1	1.6%	3	2.4%
Knee contusion	3	4.9%	0	0.0%	3	2.4%

Figure 12.2 Time Loss of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 12.5 Girls' Field Hockey Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	2	3.4%	2	3.2%	4	3.3%
Did not require surgery	56	96.6%	60	96.8%	116	96.7%
Total	**58**	**100%**	**62**	**100%**	**120**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 12.3 History of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

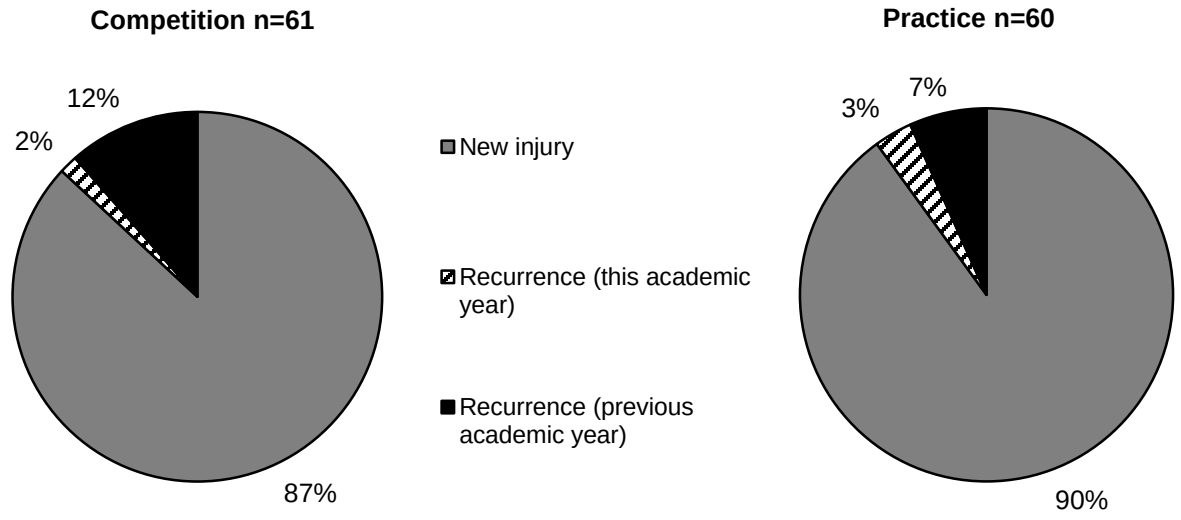


Table 12.6 Time during Season of Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	29	23.6%
Regular season	91	74.0%
Post season	3	2.4%
Total	**123**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 12.7 Competition-Related Variables for Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	3	5.4%
First half	16	28.6%
Second half	37	66.1%
Overtime	-	0.0%
Total	**56**	**100%**
Field Location		
Between 25-yard line and center line	24	42.9%
Within 25-yard line	15	27.3%
Goal area/circle	13	23.6%
Within 16-yard arc	5	9.1%
Sideline	2	3.6%
Other	2	3.6%
Total	**56**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 12.8 Practice-Related Variables for Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	7	11.9%
Second 1/2 hour	11	18.6%
1-2 hours into practice	38	64.4%
>2 hours into practice	3	5.1%
Total	**59**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 12.4 Player Position of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

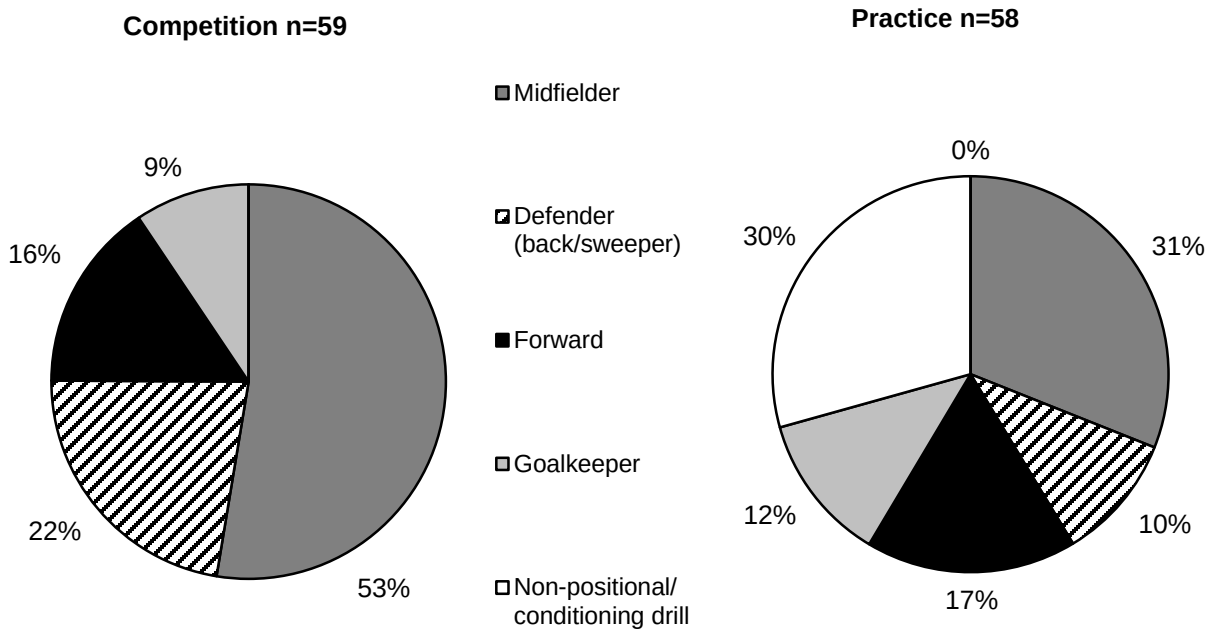


Table 12.9 Activities Leading to Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	13	22.0%	16	26.2%	29	24.2%
Conditioning	0	0.0%	22	36.1%	22	18.3%
Defending	19	32.2%	1	1.6%	20	16.7%
Ball handling/dribbling	5	8.5%	5	8.2%	10	8.3%
Chasing a loose ball	6	10.2%	5	8.2%	11	9.2%
Goaltending	3	5.1%	6	9.8%	9	7.5%
Passing	4	6.8%	1	1.6%	5	4.2%
Receiving pass	1	1.7%	1	1.6%	2	1.7%
Shooting	4	6.8%	1	1.6%	5	4.2%
Blocking shot	4	6.8%	0	0.0%	4	3.3%
Other	0	0.0%	3	4.9%	3	2.5%
Total	**59**	**100%**	**61**	**100%**	**120**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 12.10 Activity Resulting in Girls' Field Hockey Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	13	29.5%	6	31.6%	1	14.3%	3	15.0%	6	20.0%
Conditioning	12	27.3%	0	0.0%	0	0.0%	0	0.0%	10	33.3%
Defending	3	6.8%	10	52.6%	1	14.3%	2	10.0%	4	13.3%
Chasing a loose ball	4	9.1%	1	5.3%	2	28.6%	4	20.0%	0	0.0%
Ball handling/dribbling	4	9.1%	0	0.0%	1	14.3%	3	15.0%	2	6.7%
Other	8	18.2%	2	10.5%	2	28.6%	8	40.0%	8	26.7%
Total	**44**	**100%**	**19**	**100%**	**7**	**100%**	**20**	**100%**	**30**	**100%**

XIII. Boys' Ice Hockey Injury Epidemiology

Table 13.1 Boys' Ice Hockey Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**99**	**45,180**	**2.19**
Competition	85	16,039	5.30
Practice	14	29,141	0.48

Table 13.2 Demographic Characteristics of Injured Boys' Ice Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=96**
Freshman	25.0%
Sophomore	22.9%
Junior	22.9%
Senior	29.2%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.0 (1.3)
BMI	
Minimum	18.0
Maximum	32.3
Mean (St. Dev.)	24.6 (3.1)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 13.1 Diagnosis of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

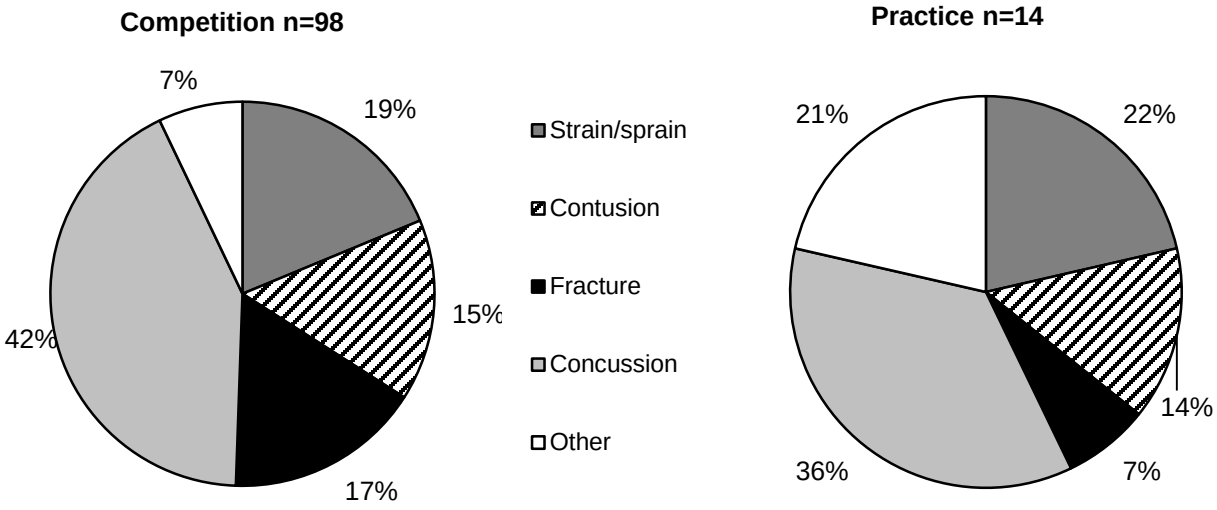


Table 13.3 Body Site of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	38	44.7%	5	35.7%	43	43.4%
Shoulder	9	10.6%	2	14.3%	11	11.1%
Knee	8	9.4%	3	21.4%	11	11.1%
Hand/wrist	6	7.1%	1	7.1%	7	7.1%
Trunk	6	7.1%	0	0.0%	6	6.1%
Hip/thigh/upper leg	2	2.4%	2	14.3%	4	4.0%
Ankle	3	3.5%	1	7.1%	4	4.0%
Arm/elbow	2	2.4%	0	0.0%	2	2.0%
Neck	2	2.4%	0	0.0%	2	2.0%
Lower leg	2	2.4%	0	0.0%	2	2.0%
Foot	1	1.2%	0	0.0%	1	1.0%
Other	6	7.1%	0	0.0%	6	6.1%
Total	**85**	**100%**	**14**	**100%**	**99**	**100%**

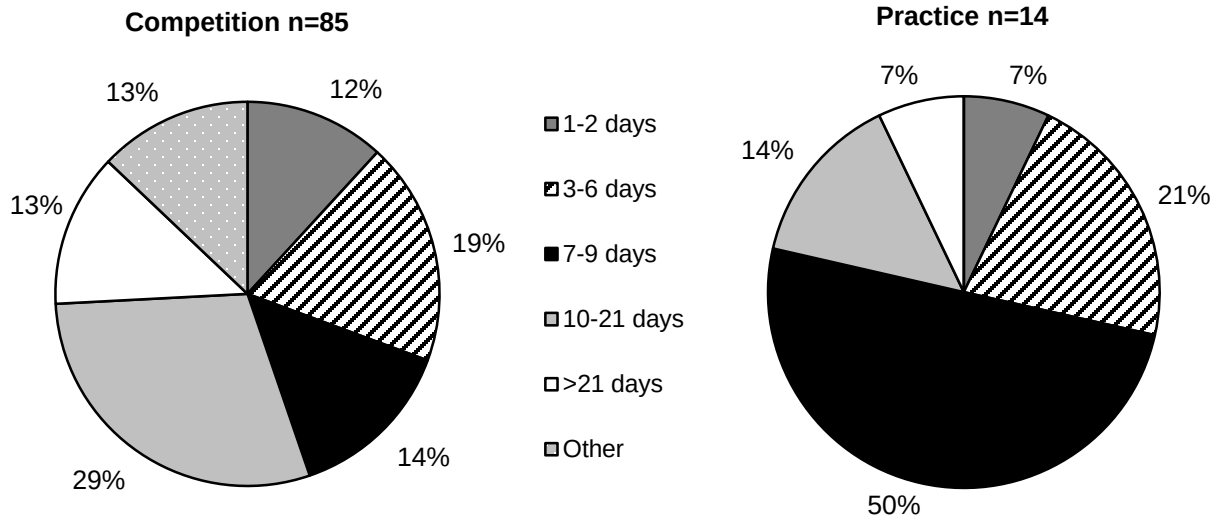
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 13.4 Ten Most Common Boys' Ice Hockey Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=85		Practice n=14		Total n=99	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	36	42.4%	5	35.7%	41	41.4%
Knee strain/sprain	6	7.1%	0	0.0%	6	6.1%
Shoulder strain/sprain	3	3.5%	2	14.3%	5	5.1%
Hand/wrist fracture	4	4.7%	1	7.1%	5	5.1%
Knee contusion	2	2.4%	1	7.1%	3	3.0%
Other fracture	3	3.5%	0	0.0%	3	3.0%
Trunk contusion	3	3.5%	0	0.0%	3	3.0%
Hip/thigh/upper leg strain/sprain	0	0.0%	2	14.3%	2	2.0%
Ankle strain/sprain	2	2.4%	0	0.0%	2	2.0%
Hip/thigh/upper leg contusion	2	2.4%	0	0.0%	2	2.0%

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 13.2 Time Loss of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 13.5 Boys' Ice Hockey Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	5	5.9%	0	0.0%	5	5.1%
Did not require surgery	80	94.1%	14	100.0%	94	94.9%
Total	**85**	**100%**	**14**	**100%**	**99**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 13.3 History of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

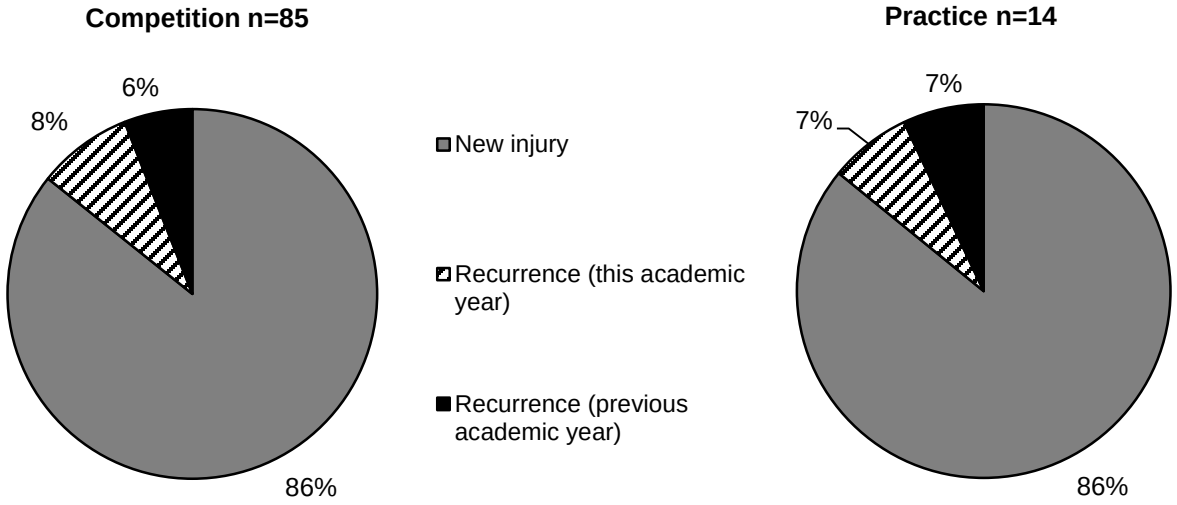


Table 13.6 Time during Season of Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	9	9.1%
Regular season	88	89.9%
Post season	2	2.0%
Total	**99**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 13.7 Competition-Related Variables for Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Warm-ups	1	1.4%
First period	11	15.5%
Second period	35	49.3%
Third period	24	33.8%
Overtime	-	0.0%
Total	**71**	**100%**
Rink Location		
Between goal line and blue line	22	29.3%
Corner	21	28.0%
Neutral zone	13	17.3%
Behind goal	7	9.3%
Goal area	5	6.7%
Bench	4	5.3%
Face-off circle	2	2.7%
Other	1	1.3%
Total	**75**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 13.8 Practice-Related Variables for Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	2	20.0 %
Second 1/2 hour	3	30.0%
1-2 hours into practice	4	40.0%
>2 hours into practice	1	10.0%
Total	**10**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 13.4 Player Position of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

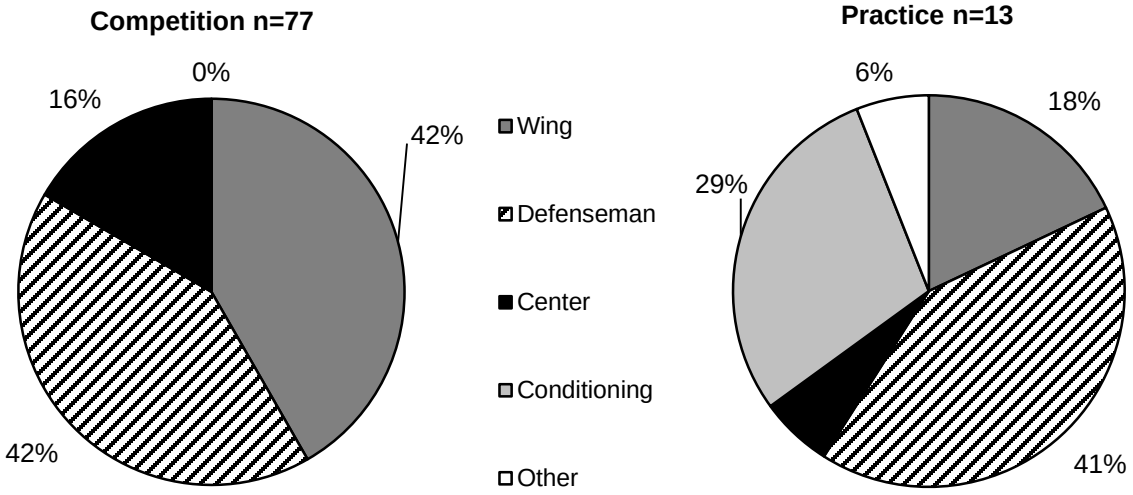


Table 13.9 Activities Leading to Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Being checked	27	35.5%	4	33.3%	31	35.2%
Skating	26	34.2%	3	25.0%	29	33.0%
Chasing loose puck	9	11.8%	0	0.0%	9	10.2%
goal tending	2	2.6%	2	16.7%	4	4.5%
Checking	2	2.6%	1	8.3%	3	3.4%
Passing	2	2.6%	0	0.0%	2	2.3%
Line change	1	1.3%	0	0.0%	1	1.1%
Shooting	1	1.3%	0	0.0%	1	1.1%
Receiving pass	0	0.0%	0	0.0%	0	0.0%
Other	6	7.9%	2	16.7%	8	9.1%
Total	**76**	**100%**	**12**	**100%**	**88**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 13.10 Activity Resulting in Boys' Ice Hockey Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Skating	6	35.3%	3	21.4%	7	46.7%	9	26.5%	4	50.0%
Shooting	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	12.5%
Passing	1	5.9%	0	0.0%	0	0.0%	1	2.9%	0	0.0%
Checking	3	17.6%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Being checked	3	17.6%	5	35.7%	4	26.7%	16	47.1%	3	37.5%
Other	4	23.5%	6	42.9%	4	26.7%	8	23.5%	0	0.0%
Total	**17**	**100%**	**14**	**100%**	**15**	**100%**	**34**	**100%**	**8**	**100%**

XIV. Boys' Lacrosse Injury Epidemiology

Table 14.1 Boys' Lacrosse Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**224**	**133,692**	**1.68**
Competition	145	39,696	3.65
Practice	79	93,996	0.84

Table 14.2 Demographic Characteristics of Injured Boys' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=215**
Freshman	20.9%
Sophomore	22.8%
Junior	23.7%
Senior	32.6%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	19
Mean (St. Dev.)	16.3 (1.3)
BMI	
Minimum	18.79
Maximum	33.1
Mean (St. Dev.)	24.1 (2.7)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 14.1 Diagnosis of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

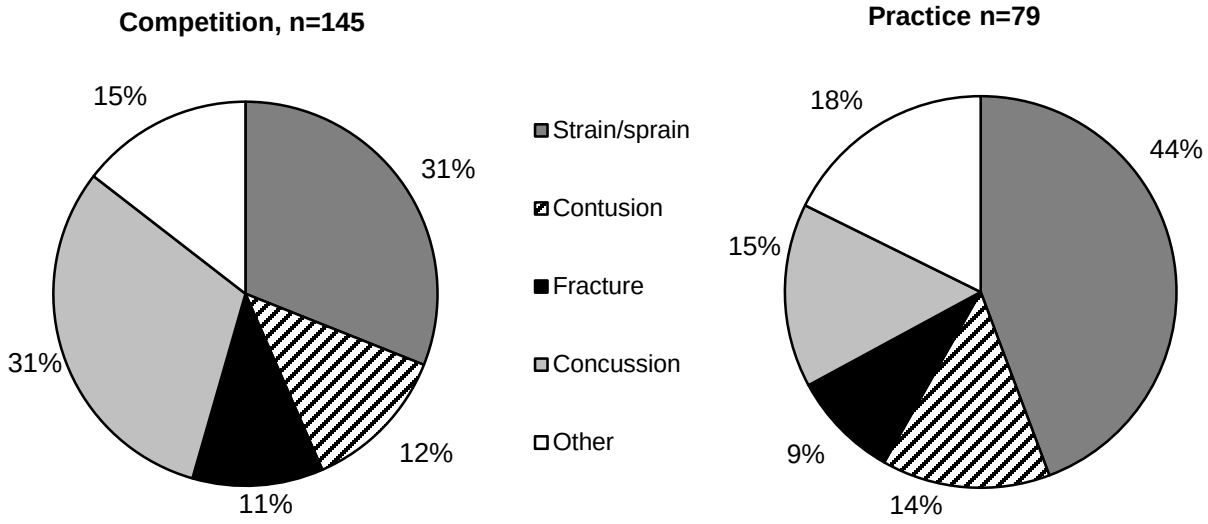


Table 14.3 Body Site of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

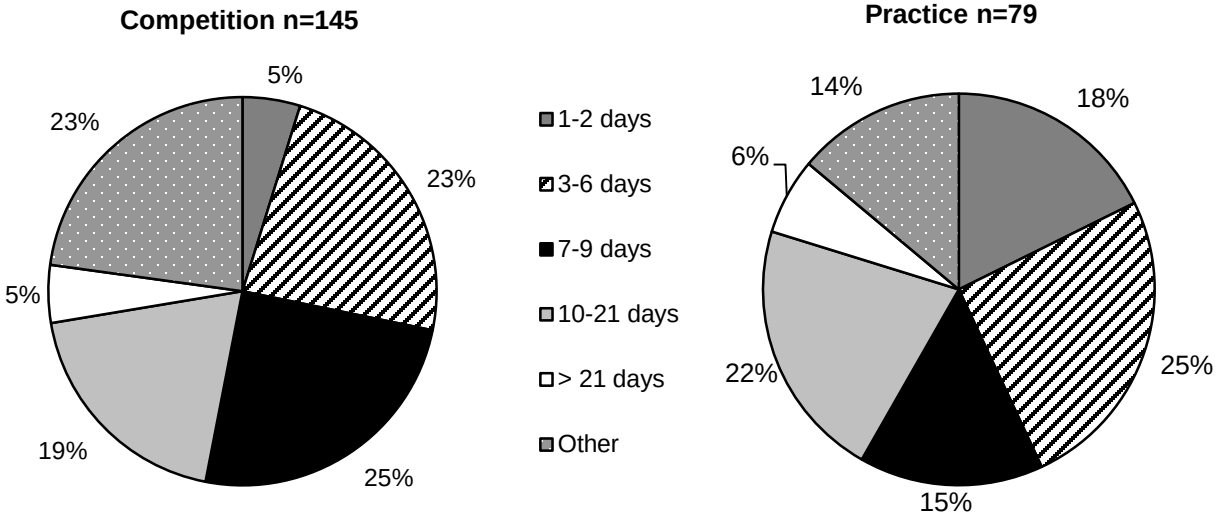
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	49	34.0%	15	19.0%	64	28.7%
Knee	11	7.6%	12	15.2%	23	10.3%
Ankle	14	9.7%	9	11.4%	23	10.3%
Hand/wrist	12	8.3%	8	10.1%	20	9.0%
Trunk	12	8.3%	8	10.1%	20	9.0%
Hip/thigh/upper leg	9	6.3%	10	12.7%	19	8.5%
Shoulder	15	10.4%	3	3.8%	18	8.1%
Lower leg	7	4.9%	4	5.1%	11	4.9%
Foot	6	4.2%	3	3.8%	9	4.0%
Arm/elbow	3	2.1%	5	6.3%	8	3.6%
Neck	0	0.0%	0	0.0%	0	0.0%
Other	6	4.2%	2	2.5%	8	3.6%
Total	**144**	**100%**	**79**	**100%**	**223**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 14.4 Ten Most Common Boys' Lacrosse Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=144		Practice n=79		Total n=223	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	45	31.3%	12	15.2%	57	25.6%
Ankle strain/sprain	13	9.0%	9	11.4%	22	9.9%
Hip/thigh/upper leg strain/sprain	6	4.2%	8	10.1%	14	6.3%
Knee strain/sprain	8	5.6%	4	5.1%	12	5.4%
Hand/wrist fracture	7	4.9%	5	6.3%	12	5.4%
Trunk strain/sprain	5	3.5%	6	7.6%	11	4.9%
Knee other	2	1.4%	6	7.6%	8	3.6%
Shoulder other	6	4.2%	1	1.3%	7	3.1%
Head/face other	4	2.8%	3	3.8%	7	3.1%
Shoulder strain/sprain	5	3.5%	1	1.3%	6	2.7%

Figure 14.2 Time Loss of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 14.5 Boys' Lacrosse Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	9	6.5%	5	6.5%	14	6.5%
Did not require surgery	130	93.5%	72	93.5%	202	93.5%
Total	**139**	**100%**	**77**	**100%**	**216**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 14.3 History of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

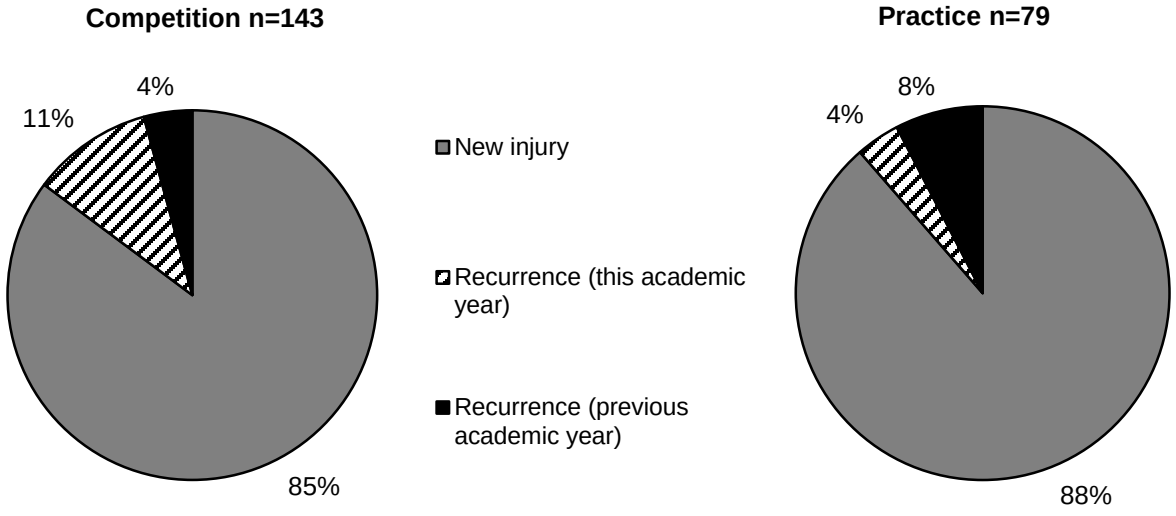


Table 14.6 Time during Season of Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	45	20.3%
Regular season	172	77.5%
Post season	5	2.3%
Total	**222**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 14.7 Competition-Related Variables for Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	3	2.2%
First quarter	9	6.5%
Second quarter	39	28.3%
Third quarter	43	31.2%
Fourth quarter	41	29.7%
Overtime	3	2.2%
Total	**138**	**100%**
Field Location		
Midfield	43	31.4%
Goal area	49	35.8%
Defensive area	28	20.4%
Wing area	14	10.2%
Sideline	3	2.2%
Total	**137**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 14.8 Practice-Related Variables for Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First ½ hour	10	13.5%
Second ½ hour	17	23.0%
1-2 hours into practice	39	52.7%
> 2 hours into practice	8	10.8%
Total	**74**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 14.4 Player Position of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

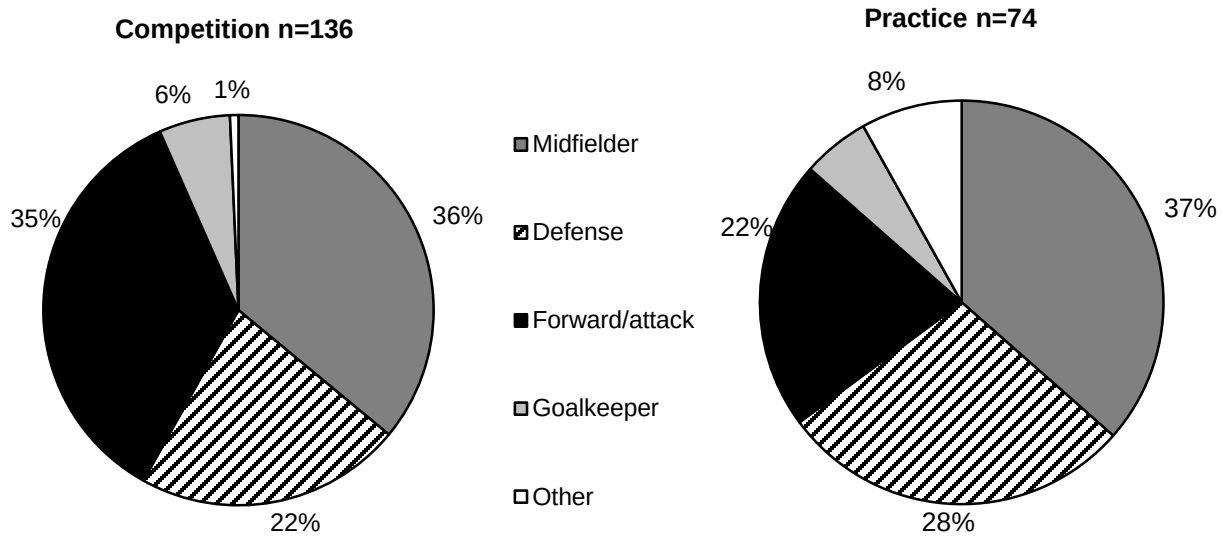


Table 14.9 Activities Leading to Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	28	20.0%	22	29.3%	50	23.3%
Being body checked	18	12.9%	3	4.0%	21	9.8%
Shooting	16	11.4%	4	5.3%	20	9.3%
Being crosse/stick checked	12	8.6%	7	9.3%	19	8.8%
Chasing loose ball	9	6.4%	9	12.0%	18	8.4%
Body checking	14	10.0%	3	4.0%	17	7.9%
Defending	10	7.1%	4	5.3%	14	6.5%
Ball handling/cradling	7	5.0%	3	4.0%	10	4.7%
Conditioning	0	0.0%	10	13.3%	10	4.7%
Receiving pass	7	5.0%	3	4.0%	10	4.7%
Goaltending	7	5.0%	1	1.3%	8	3.7%
Blocking shot	3	2.1%	4	5.3%	7	3.3%
Passing	6	4.3%	0	0.0%	6	2.8%
Crosse/stick checking	2	1.4%	1	1.3%	3	1.4%
Face-off	0	0.0%	0	0.0%	0	0.0%
Other	1	0.7%	1	1.3%	2	0.9%
Total	**140**	**100%**	**75**	**100%**	**215**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 14.10 Activity Resulting in Boys' Lacrosse Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General Play	29	38.2%	3	10.3%	1	4.5%	11	20.0%	6	18.2%
Being Body Checked	4	5.3%	2	6.9%	0	0.0%	13	23.6%	2	6.1%
Shooting	5	6.6%	3	10.3%	1	4.5%	2	3.6%	9	27.3%
Being Crosse/Stick Checked	2	2.6%	7	24.1%	6	27.3%	1	1.8%	3	9.1%
Chasing Loose Ball	6	7.9%	0	0.0%	3	13.6%	3	5.5%	6	18.2%
Other	30	39.5%	14	48.3%	11	50.0%	25	45.5%	7	21.2%
Total	**76**	**100%**	**29**	**100%**	**22**	**100%**	**55**	**100%**	**33**	**100%**

XV. Girls' Lacrosse Injury Epidemiology

Table 15.1 Girls' Lacrosse Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**110**	**99,347**	**1.11**
Competition	53	30,286	1.75
Practice	57	69,061	0.83

Table 15.2 Demographic Characteristics of Injured Girls' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=109**
Freshman	22.0%
Sophomore	16.5%
Junior	30.3%
Senior	31.2%
Total	**100%**
Age (years)	
Minimum	14
Maximum	19
Mean (St. Dev.)	16.1 (1.4)
BMI	
Minimum	17.1
Maximum	37.9
Mean (St. Dev.)	22.9 (4.5)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 15.1 Diagnosis of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

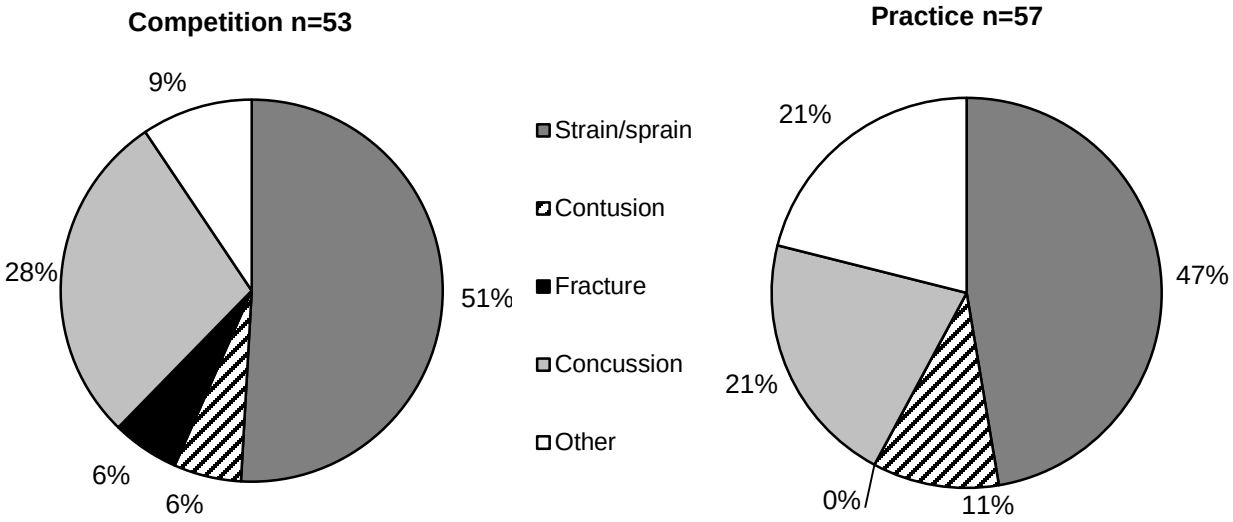


Table 15.3 Body Site of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

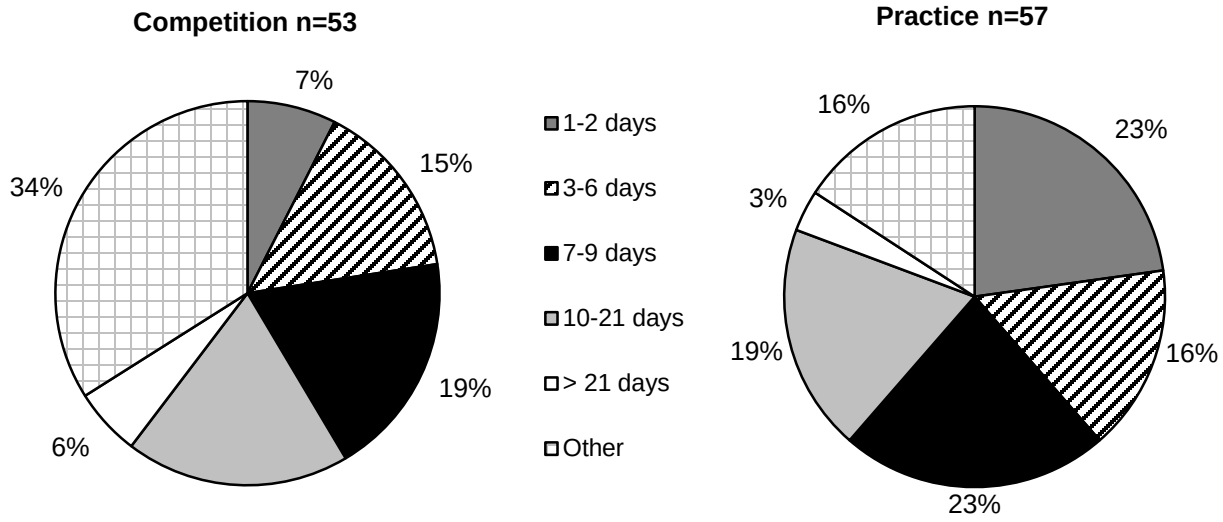
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	16	30.2%	14	24.6%	30	27.3%
Ankle	7	13.2%	15	26.3%	22	20.0%
Knee	12	22.6%	4	7.0%	16	14.5%
Hip/thigh/upper leg	5	9.4%	10	17.5%	15	13.6%
Hand/wrist	7	13.2%	2	3.5%	9	8.2%
Lower leg	1	1.9%	6	10.5%	7	6.4%
Foot	3	5.7%	3	5.3%	6	5.5%
Shoulder	2	3.8%	1	1.8%	3	2.7%
Trunk	0	0.0%	1	1.8%	1	0.9%
Neck	0	0.0%	1	1.8%	1	0.9%
Arm/elbow	0	0.0%	0	0.0%	0	0.0%
Other	0	0.0%	0	0.0%	0	0.0%
Total	**53**	**100%**	**57**	**100%**	**110**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 15.4 Ten Most Common Girls' Lacrosse Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=53		Practice n=57		Total n=110	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	15	28.3%	12	21.1%	27	24.5%
Ankle strain/sprain	7	13.2%	13	22.8%	20	18.2%
Hip/thigh/upper leg strain/sprain	3	5.7%	8	14.0%	11	10.0%
Knee strain/sprain	11	20.8%	0	0.0%	11	10.0%
Knee other	1	1.9%	4	7.0%	5	4.5%
Hand/wrist strain/sprain	4	7.5%	0	0.0%	4	3.6%
Lower leg strain/sprain	1	1.9%	3	5.3%	4	3.6%
Hand/wrist contusion	1	1.9%	2	3.5%	3	2.7%
Hip/thigh/upper leg other	1	1.9%	2	3.5%	3	2.7%
Head/face other	1	1.9%	1	1.8%	2	1.8%

Figure 15.2 Time Loss of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 15.5 Girls' Lacrosse Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	11	21.6%	1	1.9%	12	11.1%
Did not require surgery	40	78.4%	56	98.2%	96	88.9%
Total	**52**	**100%**	**57**	**100%**	**108**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 15.3 History of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

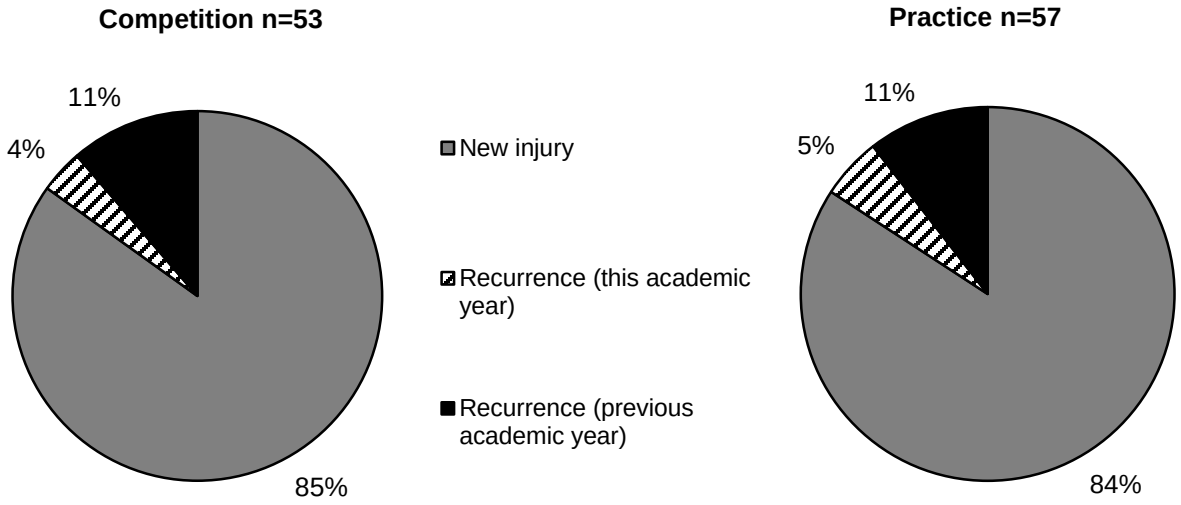


Table 15.6 Time during Season of Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	18	16.4%
Regular season	87	79.1%
Post season	5	4.5%
Total	**110**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 15.7 Competition-Related Variables for Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Competition		
Pre-Competition-Warm-ups	2	3.9%
First half	16	31.4%
Second half	33	64.7%
Overtime	-	0.0%
Total	**51**	**100%**
Field Location		
Midfield (between restraining lines)	30	58.8%
Critical scoring area (including the fan and arc)	12	23.5%
Goal circle	7	13.7%
Sideline	1	2.0%
Center circle	1	0.9%
Endline	-	0.0%
Total	**51**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 15.8 Practice-Related Variables for Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	4	7.3%
Second 1/2 hour	14	25.5%
1-2 hours into practice	34	30.9%
>2 hours into practice	3	5.5%
Total	**55**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 15.4 Player Position of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

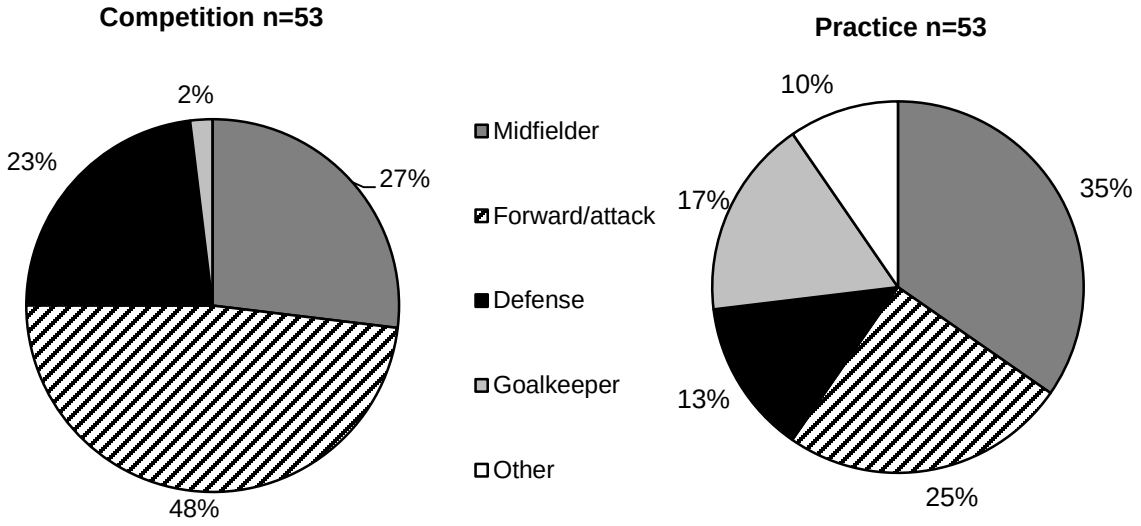


Table 15.9 Activities Leading to Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Activity						
General play	15	28.3%	22	40.0%	37	34.3%
Defending	8	15.1%	6	10.9%	14	13.0%
Conditioning	0	0.0%	10	18.2%	10	9.3%
Ball handling/cradling	9	17.0%	1	1.8%	10	9.3%
Chasing loose ball	6	11.3%	1	1.8%	7	6.5%
Goaltending	1	1.9%	5	9.1%	6	5.6%
Receiving pass	2	3.8%	4	7.3%	6	5.6%
Passing	2	3.8%	3	5.5%	5	4.6%
Being body checked	3	5.7%	0	0.0%	3	2.8%
Shooting	1	1.9%	1	1.8%	2	1.9%
Crosse/stick checking	2	3.8%	0	0.0%	2	1.9%
Blocking shot	0	0.0%	1	1.8%	1	0.9%
Draw	1	1.9%	0	0.0%	1	0.9%
Other	3	5.7%	1	1.8%	4	3.7%
Total	**53**	**100%**	**55**	**100%**	**108**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 15.10 Activity Resulting in Girls' Lacrosse Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	23	42.6%	1	12.5%	0	0.0%	6	22.2%	7	43.8%
Defending	7	13.0%	1	12.5%	1	33.3%	4	14.8%	1	6.3%
Ball handling/cradling	6	11.1%	1	12.5%	1	33.3%	0	0.0%	2	12.5%
Conditioning	7	13.0%	0	0.0%	0	0.0%	0	0.0%	3	18.8%
Chasing loose ball	4	7.4%	0	0.0%	0	0.0%	2	7.4%	1	6.3%
Other	7	13.0%	5	62.5%	1	33.3%	15	55.6%	2	12.5%
Total	**54**	**100%**	**8**	**100%**	**3**	**100%**	**27**	**100%**	**16**	**100%**

XVI. Boys' Swimming and Diving Injury Epidemiology

Table 16.1 Boys' Swimming and Diving Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**22**	**97,228**	**0.23**
Competition	3	17,314	0.17
Practice	19	79,914	0.24

Table 16.2 Demographic Characteristics of Injured Boys' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=21**
Freshman	23.8%
Sophomore	9.5%
Junior	28.6%
Senior	38.1%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.0 (1.3)
BMI	
Minimum	20.3
Maximum	27.5
Mean (St. Dev.)	22.8 (1.7)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 16.1 Diagnosis of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

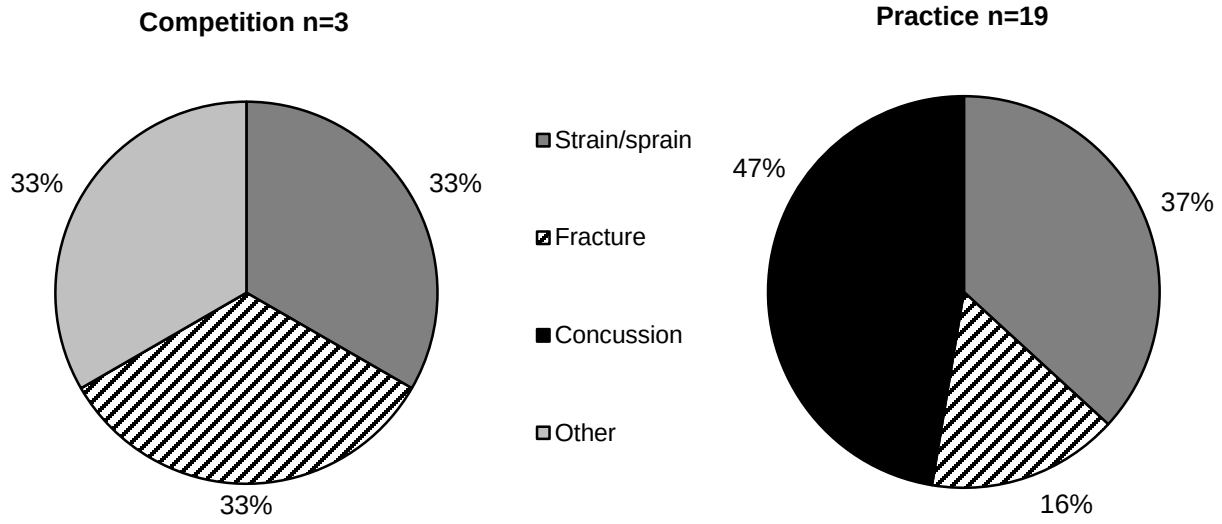


Table 16.3 Body Site of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

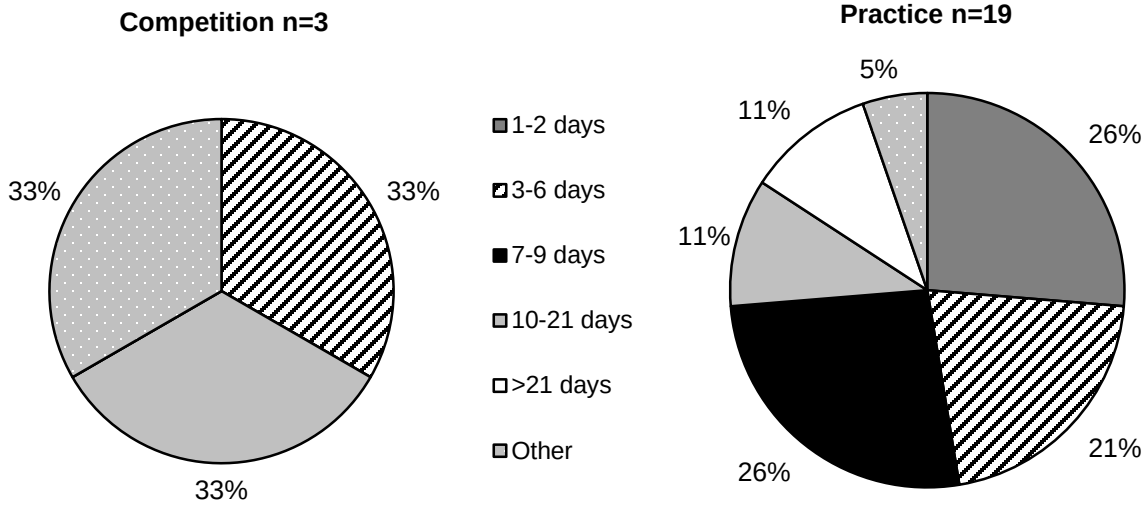
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Shoulder	1	33.3%	8	42.1%	9	40.9%
Trunk	0	0.0%	5	26.3%	5	22.7%
Head/face	0	0.0%	4	21.1%	4	18.2%
Foot	0	0.0%	2	10.5%	2	9.1%
Knee	1	33.3%	0	0.0%	1	4.5%
Hand/wrist	1	33.3%	0	0.0%	1	4.5%
Total	**3**	**100%**	**19**	**100%**	**22**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 16.4 Most Common Boys' Swimming and Diving Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=3		Practice n=19		Total n=22	
	n	%	n	%	n	%
Diagnosis						
Shoulder other	-	0.0%	5	26.3%	5	22.7%
Shoulder strain/sprain	1	33.3%	3	15.8%	4	18.2%
Trunk strain/sprain	-	0.0%	4	21.1%	4	18.2%
Head/face concussion	-	0.0%	3	15.8%	3	13.6%
Foot other	-	0.0%	2	10.5%	2	9.1%
Knee strain/sprain	-	0.0%	1	5.3%	1	4.5%
Knee other	1	33.3%	-	0.0%	1	4.5%
Head/face other	-	0.0%	1	5.3%	1	4.5%
Hand/wrist fracture	1	33.3%	-	0.0%	1	4.5%
Total	**3**	**100%**	**19**	**100%**	**22**	**100%**

Figure 16.2 Time Loss of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 16.5 Boys' Swimming and Diving Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	---	0.0%	--	0.0%	--	0.0%
Did not require surgery	3	100.0%	19	100%	22	100%
Total	**3**	**100%**	**19**	**100%**	**22**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 16.3 History of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

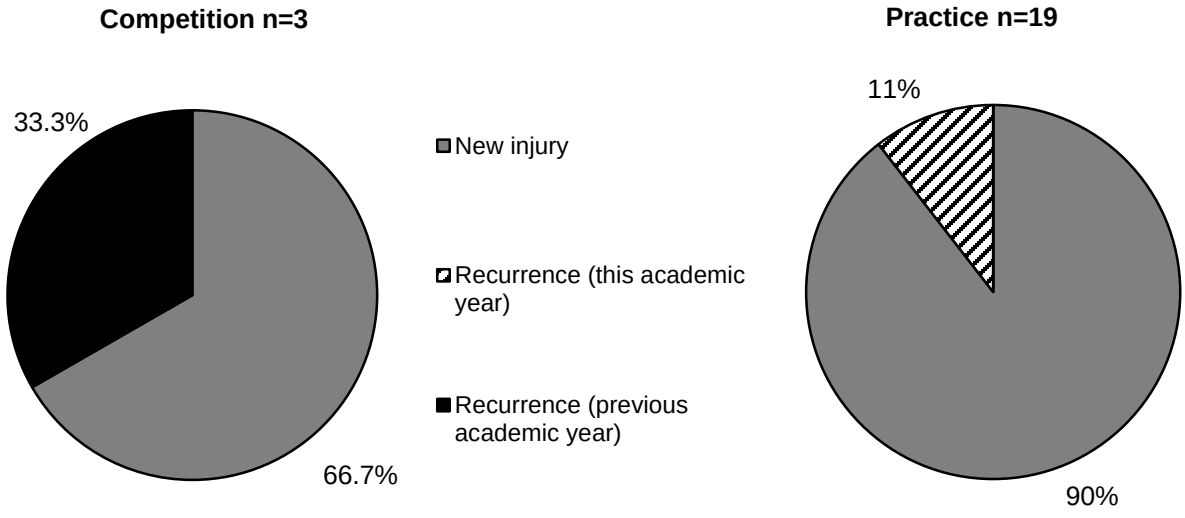


Table 16.6 Time during Season of Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	4	18.2%
Regular season	17	77.3%
Post season	1	4.5%
Total	**22**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 16.7 Pool Location for Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Pool Location		
In pool	17	81.0%
Starting platform	2	9.5%
Poolside	-	0.0%
Other	2	9.5%
Total	**21**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 16.8 Practice-Related Variables for Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	3	20.0%
Second 1/2 hour	3	20.0%
1-2 hours into practice	9	60.0%
>2 hours into practice	-	0.0%
Total	**15**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 16.9 Activities Leading to Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Swimming	1	33.3%	10	100.0%	11	57.9%
Flip turn off wall	1	33.3%	3	18.8%	4	21.1%
Diving off board/platform/block	0	-	2	12.5%	2	10.5%
Touch turn off wall	1	33.3%	0	-	1	5.3%
Other	0	-	1	6.3%	1	5.3%
Total	**3**	**100%**	**16**	**100%**	**19**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 16.10 Activity Resulting in Boys' Swimming and Diving Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Swimming	5	83.3%	--	--	0	0.0%	0	0.0%	6	60.0%
Flip turn off wall	0	0.0%	--	--	0	0.0%	2	100.0%	2	20.0%
Diving off board/platform/block	0	0.0%	--	--	0	0.0%	0	0.0%	2	20.0%
Touch turn off wall	0	0.0%	--	--	1	100.0%	0	0.0%	0	0.0%
Other	1	16.7%	--	--	0	0.0%	0	0.0%	0	0.0%
Total	**8**	100%	--	--	**1**	100%	**2**	100%	**10**	100%

XVII. Girls' Swimming and Diving Injury Epidemiology

Table 17.1 Girls' Swimming and Diving Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**34**	**122,557**	**0.28**
Competition	6	21,648	0.28
Practice	28	100,909	0.28

Table 17.2 Demographic Characteristics of Injured Girls' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=32**
Freshman	18.8%
Sophomore	31.3%
Junior	34.4%
Senior	15.6%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.7 (1.3)
BMI	
Minimum	16.4
Maximum	29.1
Mean (St. Dev.)	21.5 (3.0)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 17.1 Diagnosis of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

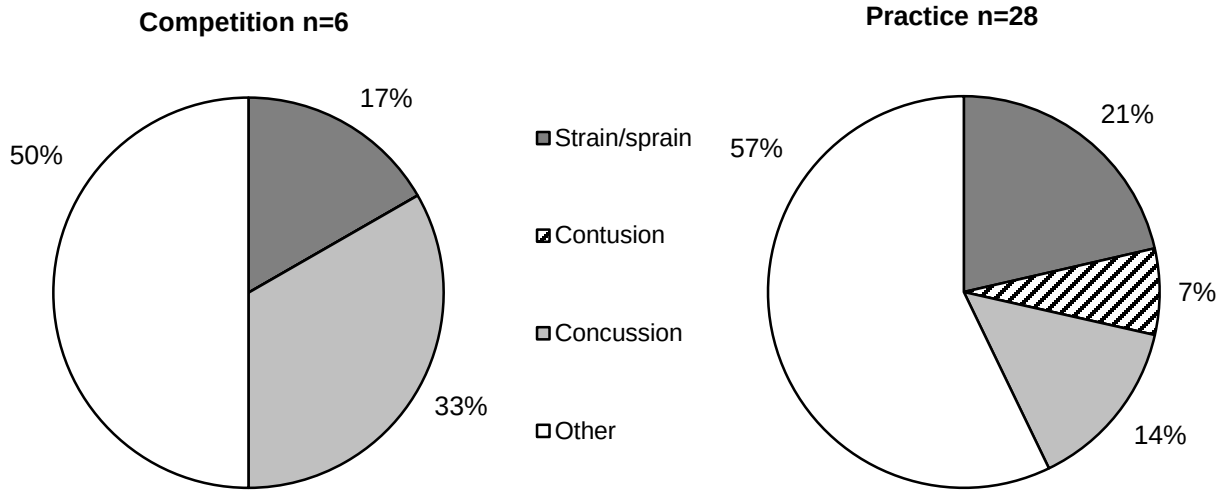


Table 17.3 Body Site of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

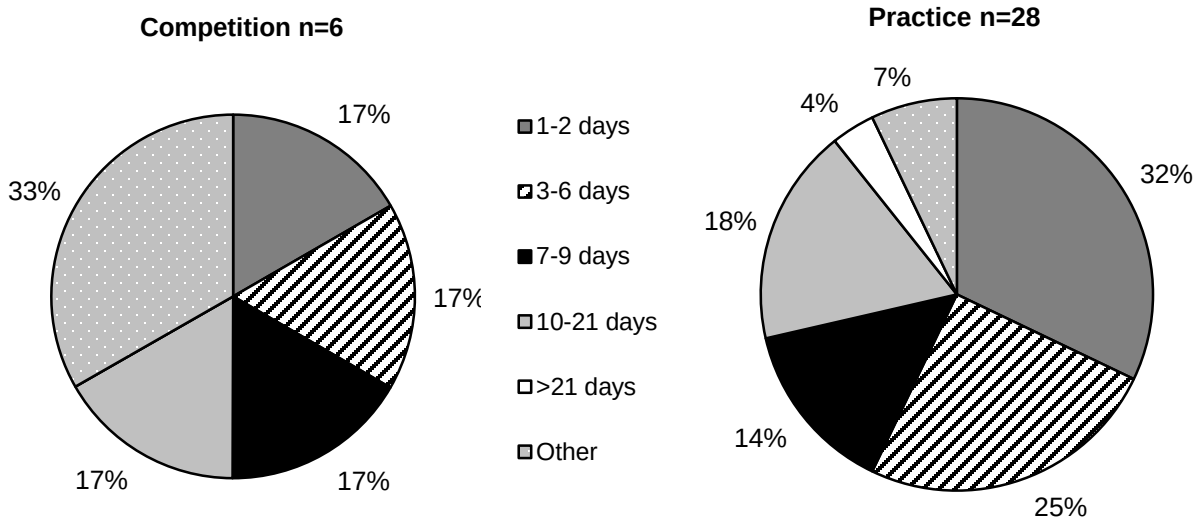
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Shoulder	2	33.3%	15	53.6%	17	50.0%
Head/face	2	33.3%	6	21.4%	8	23.5%
Knee	0	0.0%	3	10.7%	3	8.8%
Foot	1	16.7%	2	7.1%	3	8.8%
Trunk	1	16.7%	0	0.0%	1	2.9%
Lower leg	0	0.0%	1	3.6%	1	2.9%
Arm/elbow	0	0.0%	1	3.6%	1	2.9%
Other	0	0.0%	0	0.0%	0	0.0%
Total	**6**	**100%**	**28**	**100%**	**34**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 17.4 Ten Most Common Girls' Swimming and Diving Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=6		Practice n=28		Total n=34	
	n	%	n	%	n	%
Diagnosis						
Shoulder other	2	33.3%	10	35.7%	12	35.3%
Head/face concussion	2	33.3%	4	14.3%	6	17.6%
Shoulder strain/sprain	0	0.0%	5	17.9%	5	14.7%
Knee other	0	0.0%	3	10.7%	3	8.8%
Foot other	1	16.7%	1	3.6%	2	5.9%
Trunk strain/sprain	1	16.7%	0	0.0%	1	2.9%
Foot strain/sprain	0	0.0%	1	3.6%	1	2.9%
Arm/elbow other	0	0.0%	1	3.6%	1	2.9%
Head/face contusion	0	0.0%	1	3.6%	1	2.9%
Head/face other	0	0.0%	1	3.6%	1	2.9%

Figure 17.2 Time Loss of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 17.5 Girls' Swimming and Diving Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	1	16.7%	0	0.0%	1	2.9%
Did not require surgery	5	83.3%	28	100.0%	33	97.1%
Total	**6**	**100%**	**28**	**100%**	**34**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 17.3 History of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

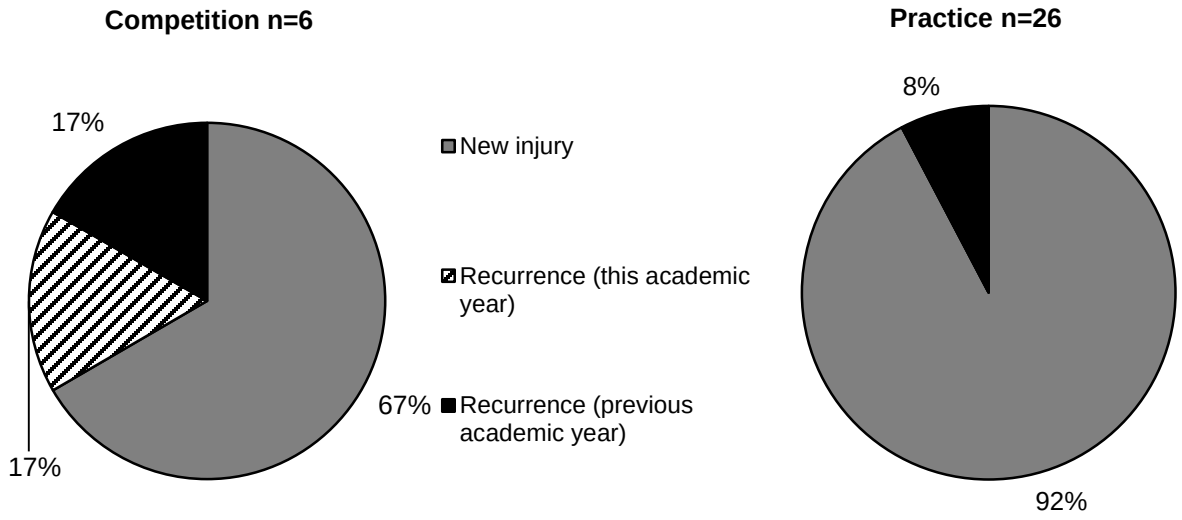


Table 17.6 Time during Season of Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	6	17.6%
Regular season	28	82.4%
Post season	-	-
Total	**34**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 17.7 Competition-Related Variables for Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Pool Location		
In pool	27	87.1%
Starting platform/board/blocks	2	6.5%
Poolside	2	6.5%
Other	-	0.0%
Total	**31**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 17.8 Practice-Related Variables for Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	7	25.9%
Second 1/2 hour	7	25.9%
1-2 hours into practice	11	40.7%
>2 hours into practice	2	7.4%
Total	**27**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 17.9 Activities Leading to Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Swimming	2	40.0%	17	65.4%	19	61.3%
Flip turn off wall	2	40.0%	4	15.4%	6	19.4%
Diving off board/platform/block	0	0.0%	2	7.7%	2	6.5%
Touch turn off wall	-	0.0%	-	0.0%	-	0.0%
Other	1	20.0%	3	11.5%	4	12.9%
Total	**5**	**100%**	**26**	**100%**	**31**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 17.10 Activity Resulting in Girls' Swimming and Diving Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Swimming	6	86%	0	0%	--	--	1	25%	12	67%
Flip turn off wall	1	14%	2	100.0%	--	--	1	25%	2	11%
Diving off board/platform/block	0	0%	0	0%	--	--	0	0%	2	11%
Other	0	0%	0	0%	--	--	2	50%	2	11%
Total	**7**	**100%**	**2**	**100%**	**--**	**--**	**4**	**100%**	**18**	**100%**

XVIII. Boys' Track and Field Injury Epidemiology

Table 18.1 Boys' Track and Field Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**210**	**337,996**	**0.62**
Competition	75	65,338	1.15
Practice	135	272,658	0.50

Table 18.2 Demographic Characteristics of Injured Boys' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=208**
Freshman	18.9%
Sophomore	25.7%
Junior	25.7%
Senior	29.6%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	16.2 (1.3)
BMI	
Minimum	16.6
Maximum	35.9
Mean (St. Dev.)	23.1 (3.2)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 18.1 Diagnosis of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

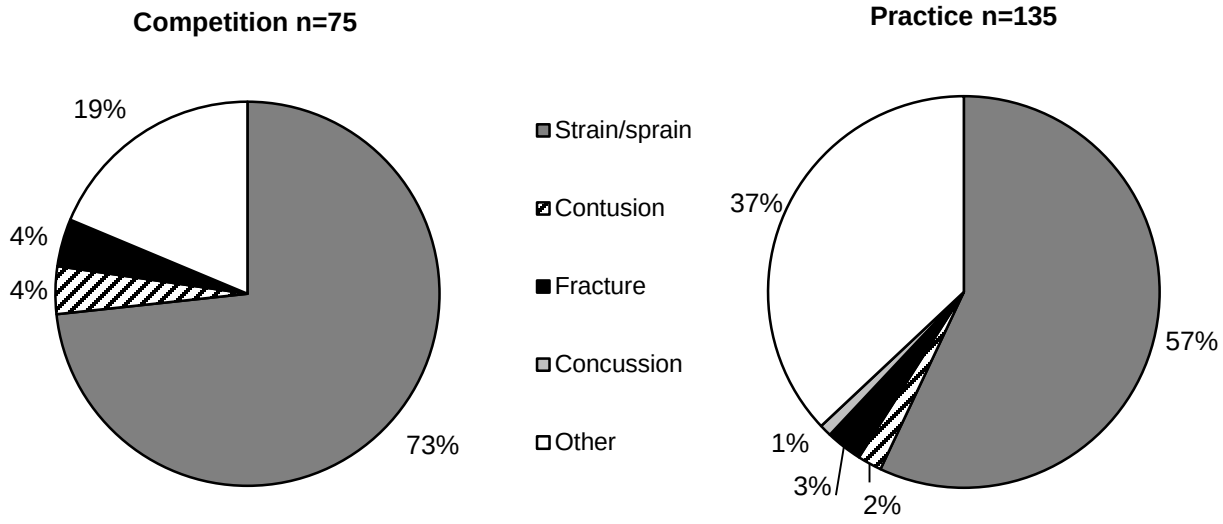


Table 18.3 Body Site of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

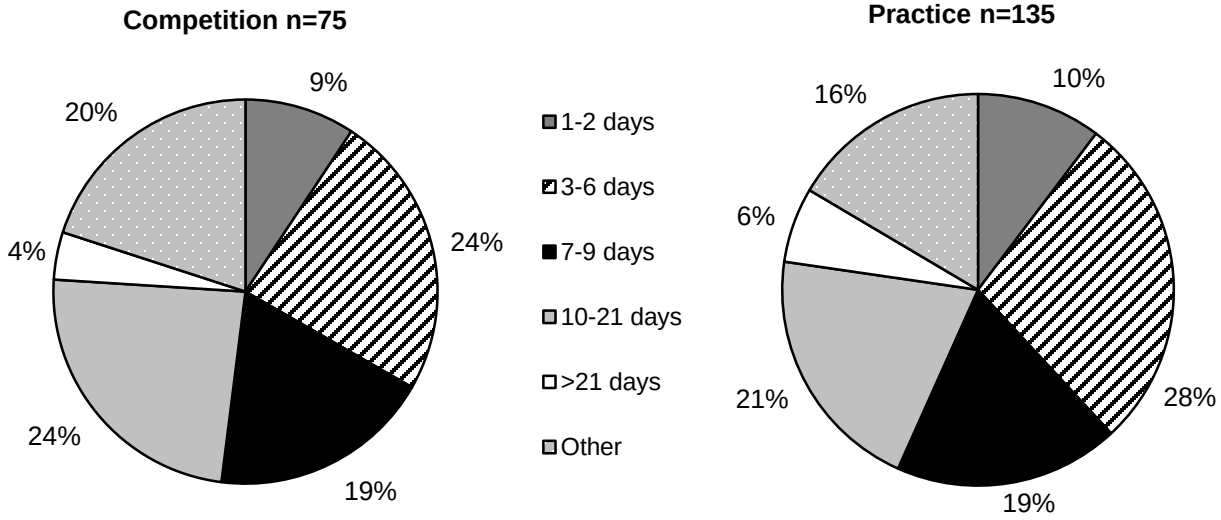
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Hip/thigh/upper leg	42	56.0%	53	39.3%	95	45.2%
Lower leg	7	9.3%	25	18.5%	32	15.2%
Knee	7	9.3%	16	11.9%	23	11.0%
Ankle	5	6.7%	11	8.1%	16	7.6%
Foot	2	2.7%	9	6.7%	11	5.2%
Trunk	7	9.3%	4	3.0%	11	5.2%
Head/face	2	2.7%	6	4.4%	8	3.8%
Shoulder	1	1.3%	6	4.4%	7	3.3%
Hand/wrist	2	2.7%	3	2.2%	5	2.4%
Arm/elbow	0	0.0%	1	0.7%	1	0.5%
Other	0	0.0%	1	0.7%	1	0.5%
Total	**75**	**100%**	**135**	**100%**	**210**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 18.4 Ten Most Common Boys' Track and Field Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=75		Practice n=135		Total n=210	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	38	50.7%	50	37.0%	88	41.9%
Lower leg other	1	1.3%	16	11.9%	17	8.1%
Knee other	4	5.3%	10	7.4%	14	6.7%
Ankle strain/sprain	5	6.7%	9	6.7%	14	6.7%
Lower leg strain/sprain	4	5.3%	8	5.9%	12	5.7%
Hip/thigh/upper leg other	4	5.3%	3	2.2%	7	3.3%
Trunk strain/sprain	4	5.3%	3	2.2%	7	3.3%
Knee strain/sprain	2	2.7%	5	3.7%	7	3.3%
Foot other	0	0.0%	6	4.4%	6	2.9%
Head/face other	2	2.7%	3	2.2%	5	2.4%

Figure 18.2 Time Loss of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 18.5 Boys' Track and Field Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	3	4.1%	4	3.0%	7	3.4%
Did not require surgery	70	95.9%	130	97.0%	200	96.6%
Total	**73**	**100%**	**134**	**100%**	**207**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 18.3 History of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

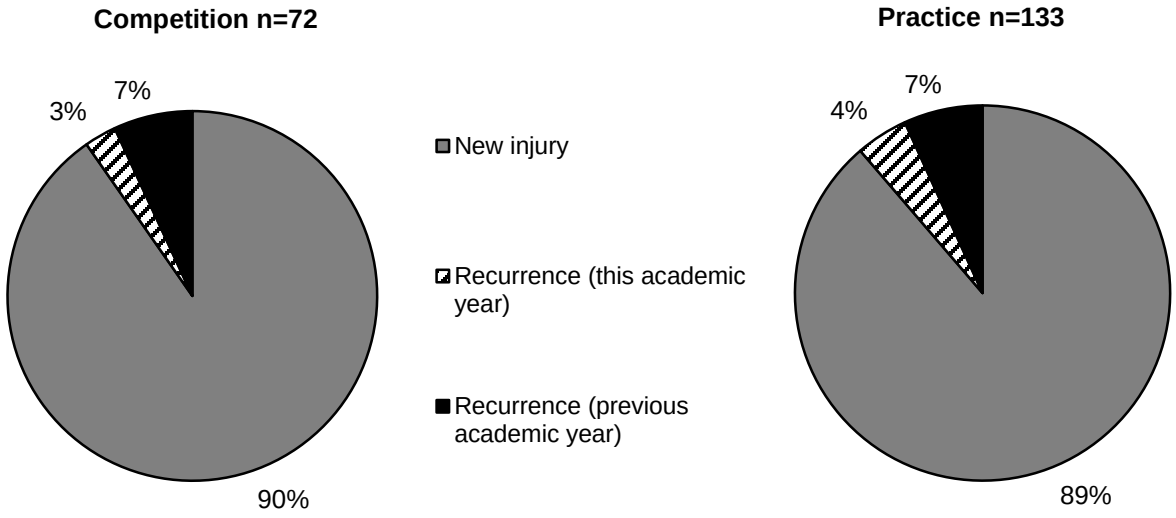


Table 18.6 Time during Season of Boys' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	31	15.6%
Regular season	161	80.9%
Post season	7	3.5%
Total	**199**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 18.7 Practice-Related Variables for Boys' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	19	17.0%
Second 1/2 hour	29	25.9%
1-2 hours into practice	56	50.0%
>2 hours into practice	8	7.1%
Total	**112**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 18.8 Activities Leading to Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	44	60.3%	82	66.7%	126	64.3%
Jumping/landing	16	21.9%	12	9.8%	28	14.3%
Throwing	1	1.4%	10	8.1%	11	5.6%
Running hurdles	5	6.8%	5	4.1%	10	5.1%
Conditioning	0	0.0%	9	7.3%	9	4.6%
Baton hand off	1	1.4%	1	0.8%	2	1.0%
Warming up	1	1.4%	0	0.0%	1	0.5%
Hit by shotput/javelin/discus/hammer	1	1.4%	0	0.0%	1	0.5%
Other	4	5.5%	4	3.3%	8	4.1%
Total	**73**	**100%**	**123**	**100%**	**196**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 18.10 Activity Resulting in Boys' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running	86	67.2%	1	25.0%	2	33.3%	0	0.0%	37	67.3%
Jumping/landing	17	13.3%	3	75.0%	2	33.3%	1	33.3%	5	9.1%
Throwing	6	4.7%	0	0.0%	0	0.0%	1	33.3%	4	7.3%
Running hurdles	6	4.7%	0	0.0%	1	16.7%	0	0.0%	3	5.5%
Conditioning	7	5.5%	0	0.0%	0	0.0%	0	0.0%	2	3.6%
Other	6	4.7%	0	0.0%	1	16.7%	1	33.3%	4	7.3%
Total	**128**	**100%**	**4**	**100%**	**6**	**100%**	**3**	**100%**	**55**	**100%**

XIX. Girls' Track and Field Injury Epidemiology

Table 19.1 Girls' Track and Field Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**242**	**285,266**	**0.85**
Competition	49	53,852	0.91
Practice	193	231,414	0.83

Table 19.2 Demographic Characteristics of Injured Girls' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=236**
Freshman	24.2%
Sophomore	28.0%
Junior	30.5%
Senior	17.4%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.9 (1.2)
BMI	
Minimum	16.8
Maximum	28.1
Mean (St. Dev.)	20.7 (2.1)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 19.1 Diagnosis of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

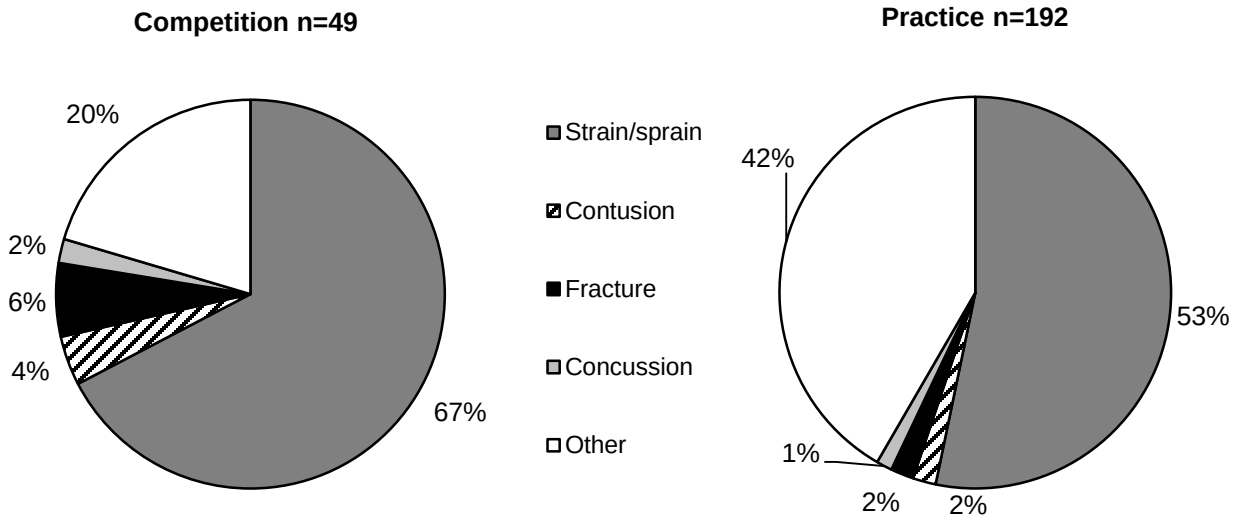


Table 19.3 Body Site of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

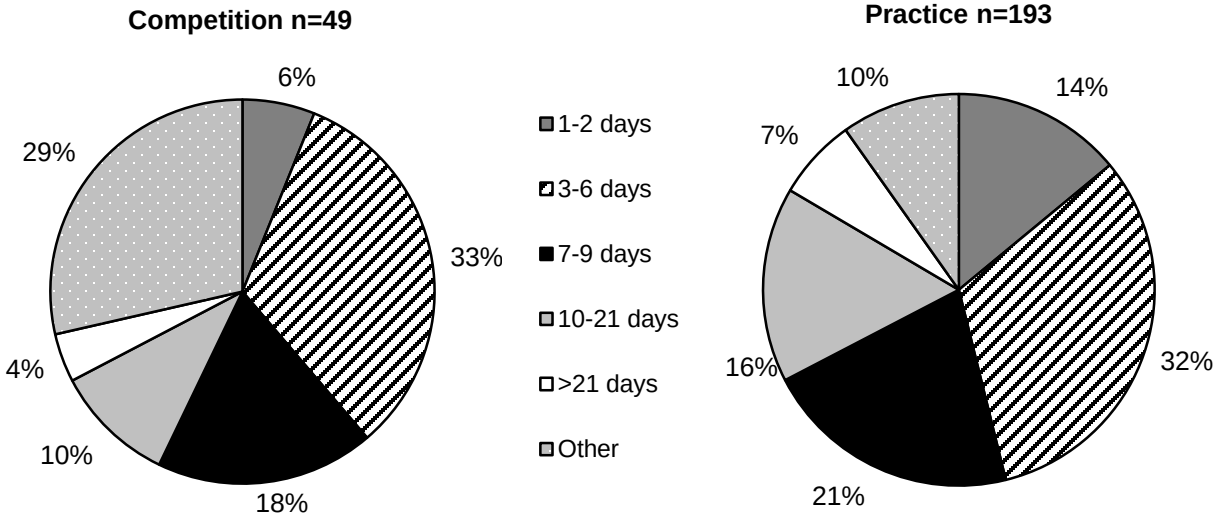
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Hip/thigh/upper leg	25	51.0%	75	38.9%	100	41.3%
Lower leg	4	8.2%	51	26.4%	55	22.7%
Knee	4	8.2%	22	11.4%	26	10.7%
Ankle	6	12.2%	17	8.8%	23	9.5%
Foot	3	6.1%	13	6.7%	16	6.6%
Arm/elbow	2	4.1%	4	2.1%	6	2.5%
Head/face	2	4.1%	3	1.6%	5	2.1%
Trunk	2	4.1%	2	1.0%	4	1.7%
Shoulder	1	2.0%	1	0.5%	2	0.8%
Hand/wrist	0	0.0%	2	1.0%	2	0.8%
Neck	0	0.0%	1	0.5%	1	0.4%
Other	0	0.0%	2	1.0%	2	0.8%
Total	**49**	**100%**	**193**	**100%**	**242**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 19.4 Ten Most Common Girls' Track and Field Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=49		Practice n=192		Total n=241	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	21	42.9%	67	34.9%	88	36.5%
Lower leg other	3	6.1%	39	20.3%	42	17.4%
Ankle strain/sprain	5	10.2%	17	8.9%	22	9.1%
Knee other	2	4.1%	18	9.4%	20	8.3%
Lower leg strain/sprain	1	2.0%	11	5.7%	12	5.0%
Foot other	1	2.0%	10	5.2%	11	4.6%
Hip/thigh/upper leg other	3	6.1%	7	3.6%	10	4.1%
Knee strain/sprain	2	4.1%	3	1.6%	5	2.1%
Head/face concussion	1	2.0%	2	1.0%	3	1.2%
Trunk strain/sprain	2	4.1%	1	0.5%	3	1.2%

Figure 19.2 Time Loss of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 19.5 Girls' Track and Field Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	2	4.2%	3	1.6%	5	2.1%
Did not require surgery	46	95.8%	187	98.4%	233	97.9%
Total	**48**	**100%**	**190**	**100%**	**238**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 19.3 History of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

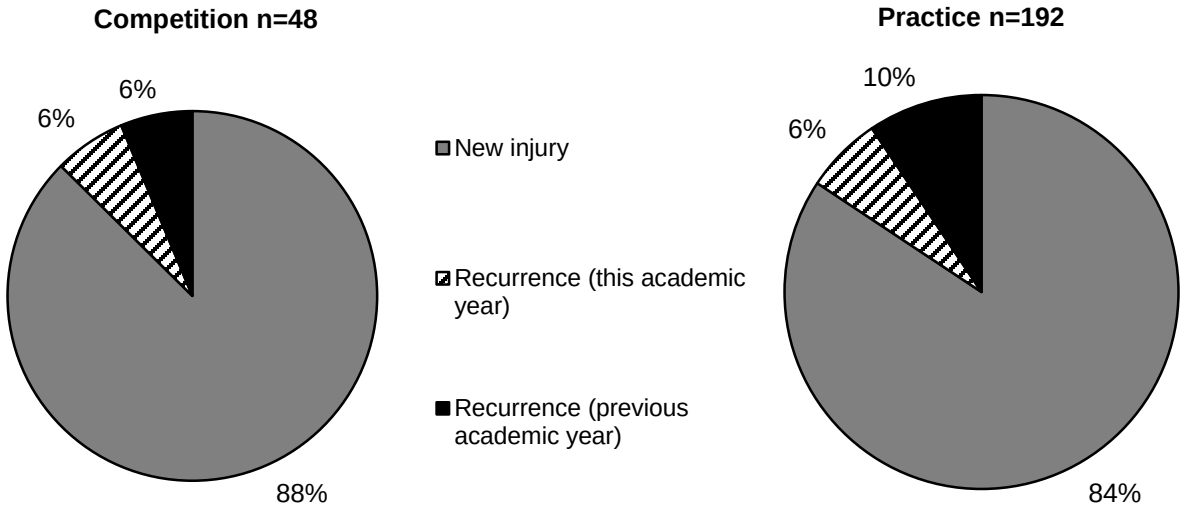


Table 19.6 Time during Season of Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	54	23.6%
Regular season	167	72.9%
Post season	8	3.5%
Total	**229**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 19.7 Practice-Related Variables for Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	30	19.4%
Second 1/2 hour	46	29.7%
1-2 hours into practice	68	43.9%
>2 hours into practice	11	7.1%
Total	**155**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 19.8 Activities Leading to Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	22	47.8%	122	70.5%	144	65.8%
Jumping/landing	11	23.9%	16	9.2%	27	12.3%
Running hurdles	6	13.0%	13	7.5%	19	8.7%
Conditioning	0	0.0%	8	4.6%	8	3.7%
Warming up	3	6.5%	2	1.2%	5	2.3%
Throwing	1	2.2%	3	1.7%	4	1.8%
Leaving Block	0	0.0%	4	2.3%	4	1.8%
Baton hand off	0	0.0%	2	1.2%	2	0.9%
Hit by shotput/discus/javelin/hammer	0	0.0%	1	0.6%	1	0.5%
Other	3	6.5%	2	1.2%	5	2.3%
Total	**46**	**100%**	**173**	**100%**	**219**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 19.10 Activity Resulting in Girls' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running	77	60.6%	1	20.0%	4	44.4%	2	66.7%	59	79.7%
Jumping/landing	18	14.2%	1	20.0%	2	22.2%	0	0.0%	6	8.1%
Running hurdles	11	8.7%	0	0.0%	3	33.3%	0	0.0%	5	6.8%
Conditioning	5	3.9%	1	20.0%	0	0.0%	0	0.0%	2	2.7%
Warming up	3	2.4%	1	20.0%	0	0.0%	1	33.3%	0	0.0%
Other	13	10.2%	1	20.0%	0	0.0%	0	0.0%	2	2.7%
Total	**127**	**100%**	**5**	**100%**	**9**	**100%**	**3**	**100%**	**74**	**100%**

XX. Boys' Cross Country Injury Epidemiology

Table 20.1 Boys' Cross Country Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**111**	**154,015**	**0.72**
Competition	24	27,011	0.89
Practice	87	127,004	0.69

Table 20.2 Demographic Characteristics of Injured Boys' Cross Country Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=107**
Freshman	15.0%
Sophomore	26.2%
Junior	29.0%
Senior	29.9%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.8 (1.2)
BMI	
Minimum	17.5
Maximum	25.8
Mean (St. Dev.)	21.7 (1.9)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 20.1 Diagnosis of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

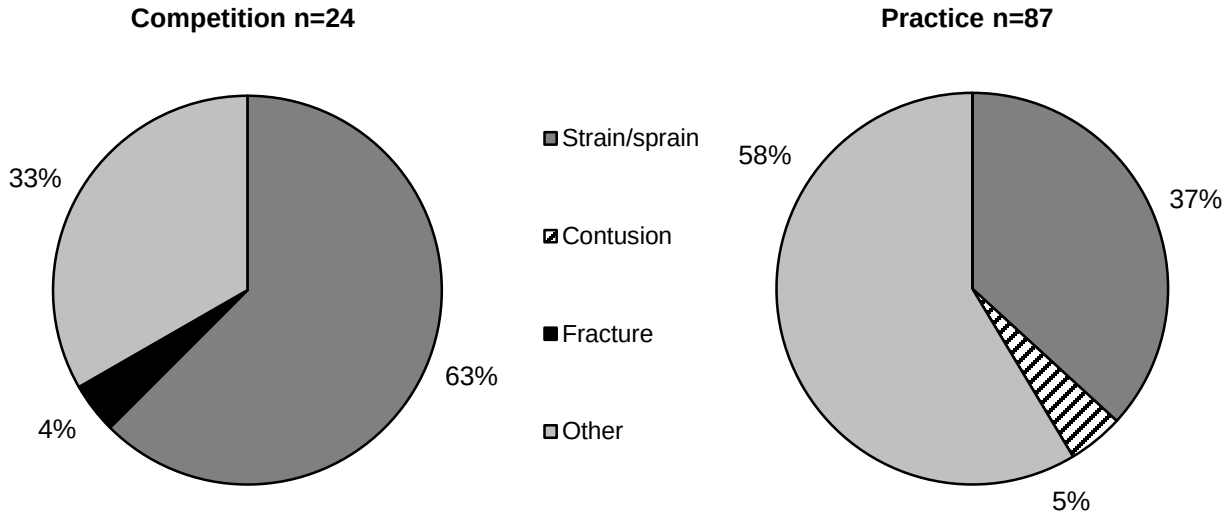


Table 20.3 Body Site of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

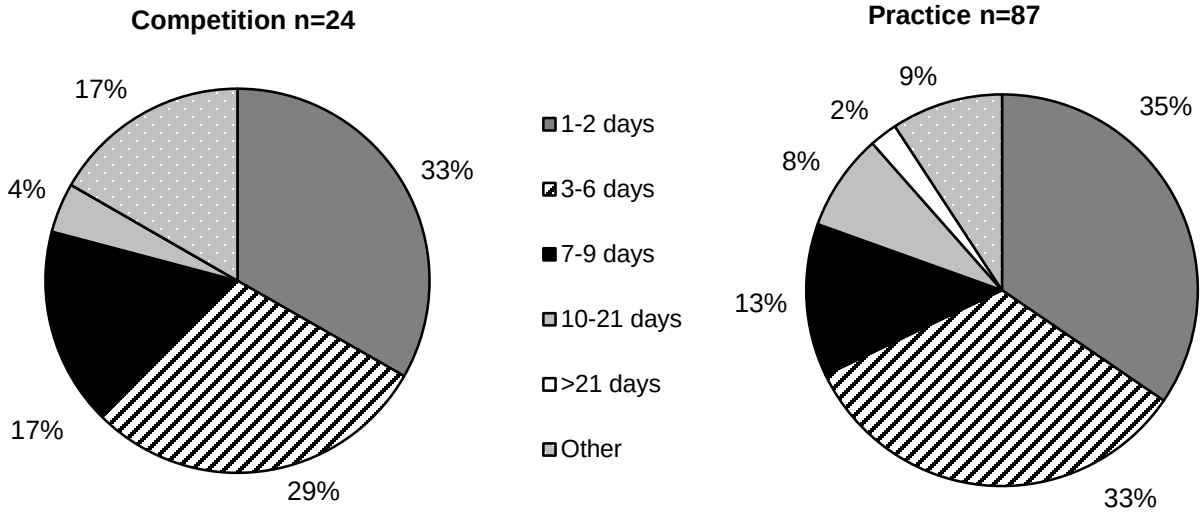
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Lower leg	4	16.7%	26	29.9%	30	27.0%
Hip/thigh/upper leg	6	25.0%	18	20.7%	24	21.6%
Knee	1	4.2%	17	19.5%	18	16.2%
Ankle	8	33.3%	8	9.2%	16	14.4%
Foot	1	4.2%	10	11.5%	11	9.9%
Trunk	2	8.3%	4	4.6%	6	5.4%
Neck	1	4.2%	0	0.0%	1	0.9%
Shoulder	0	0.0%	1	1.1%	1	0.9%
Hand/wrist	0	0.0%	1	1.1%	1	0.9%
Other	1	4.2%	2	2.3%	3	2.7%
Total	**24**	**100%**	**87**	**100%**	**111**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 20.4 Ten Most Common Boys' Cross Country Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=24		Practice n=87		Total n=111	
	n	%	n	%	n	%
Diagnosis						
Lower leg other	1	0.4%	19	21.8%	20	18.0%
Hip/thigh/upper leg strain/sprain	3	1.2%	13	14.9%	16	14.4%
Knee other	1	0.4%	13	14.9%	14	12.6%
Ankle strain/sprain	8	3.3%	3	3.4%	11	9.9%
Lower leg strain/sprain	1	0.4%	9	10.3%	10	9.0%
Foot other	1	0.4%	7	8.0%	8	7.2%
Hip/thigh/upper leg other	2	0.8%	5	5.7%	7	6.3%
Trunk strain/sprain	2	0.8%	3	3.4%	5	4.5%
Other other	1	0.4%	2	2.3%	3	2.7%
Knee contusion	0	0.0%	3	3.4%	3	2.7%

Figure 20.2 Time Loss of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 20.5 Boys' Cross Country Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	--	0.0%	--	0.0%	--	0.0%
Did not require surgery	24	100.0%	87	100.0%	111	100.0%
Total	**24**	**100%**	**87**	**100%**	**111**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 20.3 History of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

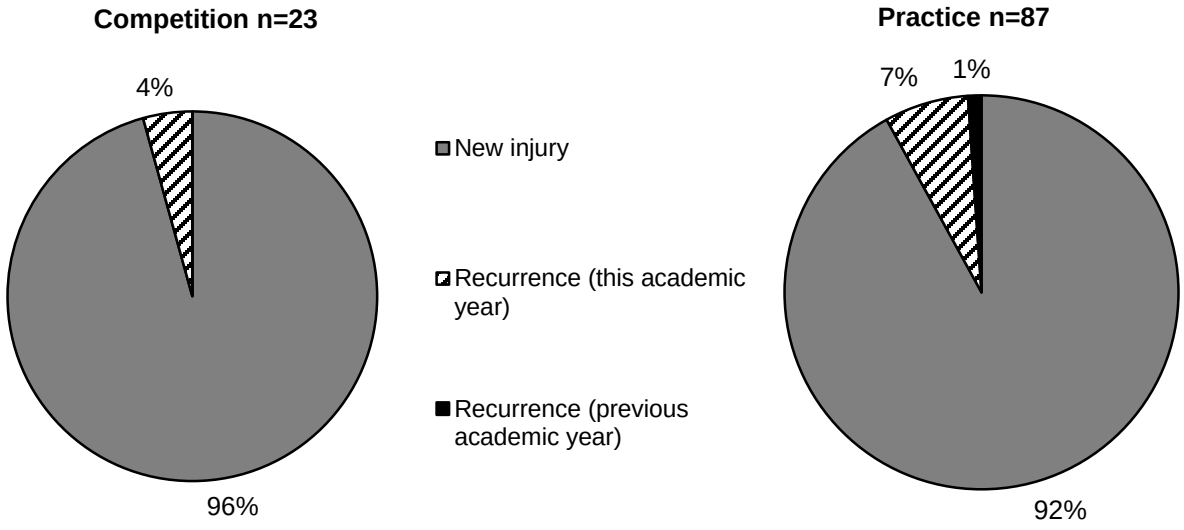


Table 20.6 Time during Season of Boys' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	22	20.4%
Regular season	84	77.8%
Post season	2	1.9%
Total	**108**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 20.7 Practice-Related Variables for Boys' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	12	17.9%
Second 1/2 hour	21	31.3%
1-2 hours into practice	31	46.3%
>2 hours into practice	3	4.5%
Total	**67**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 20.8 Activities Leading to Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	22	100.0%	57	77.0%	79	82.1%
Conditioning	--	0.0%	8	10.8%	8	8.3%
Warming up	--	0.0%	7	9.5%	7	7.3%
Cooling down	--	0.0%	--	0.0%	--	0.0%
Other	--	0.0%	2	2.7%	2	2.1%
Total	**22**	**100%**	**74**	**100%**	**96**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 20.10 Activity Resulting in Boys' Cross Country Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running hurdles	37	86.0%	2	66.7%	1	100.0%	--	--	39	79.6%
Conditioning	4	9.3%	0	0.0%	0	0.0%	--	--	4	8.2%
Warming up	2	4.7%	1	33.3%	0	0.0%	--	--	4	8.2%
Other	0	0.0%	0	0.0%	0	0.0%	--	--	2	4.1%
Total	**43**	**100.0%**	**3**	**100.0%**	**1**	**100.0%**	**--**	**--**	**49**	**100%**

XXI. Girls' Cross Country Injury Epidemiology

Table 21.1 Girls' Cross Country Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**104**	**137,420**	**0.76**
Competition	11	23,096	0.48
Practice	93	114,324	0.81

Table 21.2 Demographic Characteristics of Injured Girls' Cross Country Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=104**
Freshman	29.8%
Sophomore	27.9%
Junior	23.1%
Senior	19.2%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.4 (1.1)
BMI	
Minimum	16.3
Maximum	30.1
Mean (St. Dev.)	21.0 (2.6)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 21.1 Diagnosis of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

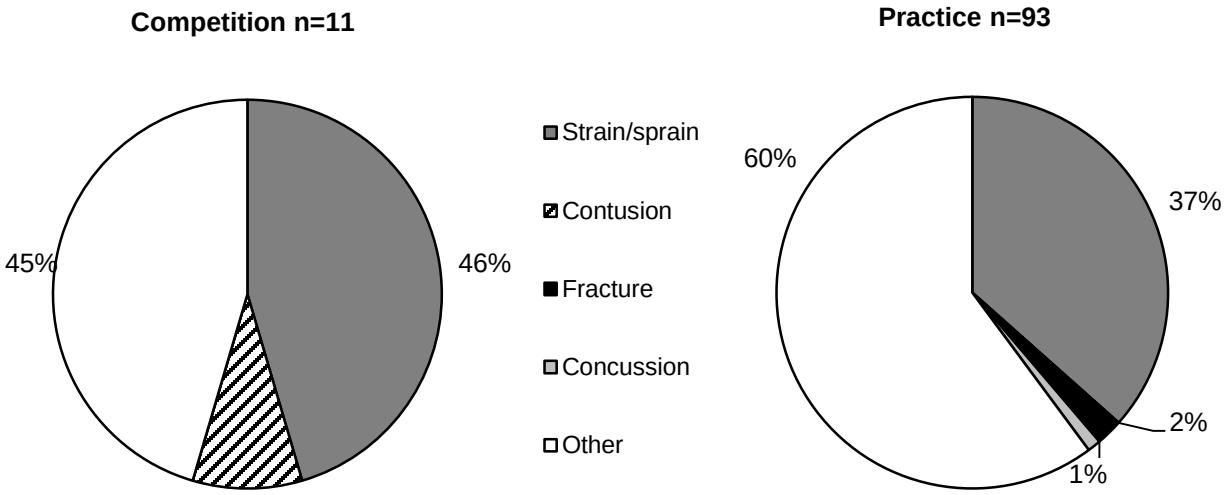


Table 21.3 Body Site of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

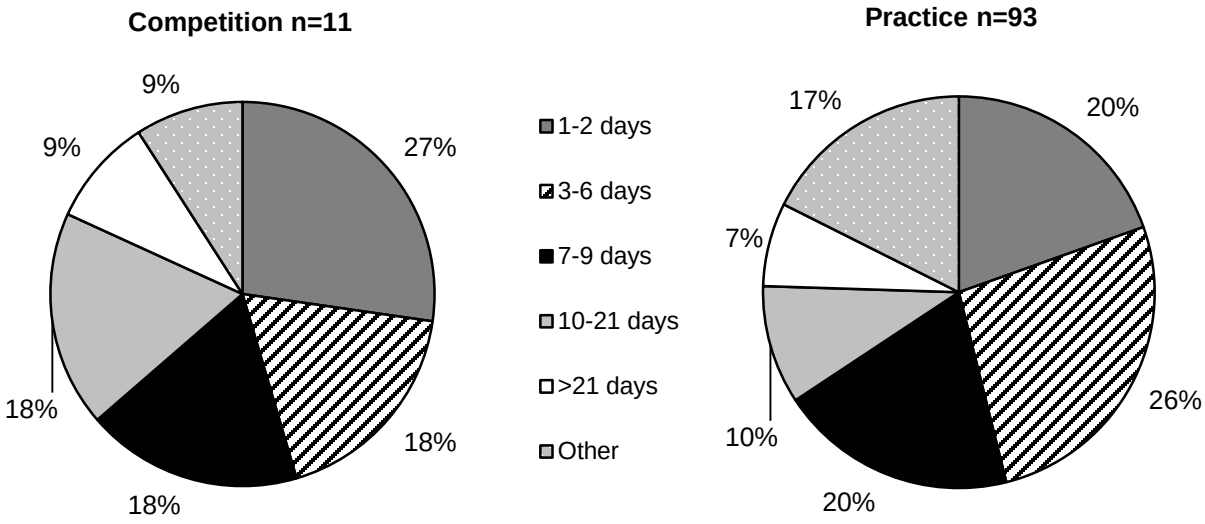
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Lower leg	1	9.1%	25	26.9%	26	25.0%
Ankle	3	27.3%	16	17.2%	19	18.3%
Knee	2	18.2%	17	18.3%	19	18.3%
Hip/thigh/upper leg	1	9.1%	17	18.3%	18	17.3%
Foot	1	9.1%	14	15.1%	15	14.4%
Trunk	1	9.1%	2	2.2%	3	2.9%
Head/face	0	0.0%	2	2.2%	2	1.9%
Shoulder	1	9.1%	0	0.0%	1	1.0%
Hand/wrist	1	9.1%	0	0.0%	1	1.0%
Other	--		--		--	
Total	**11**	**100%**	**93**	**100%**	**104**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 21.4 Ten Most Common Girls' Cross Country Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=11		Practice n=93		Total n=104	
	n	%	n	%	n	%
Diagnosis						
Lower leg other	1	9.1%	21	22.6%	22	21.2%
Ankle strain/sprain	3	27.3%	14	15.1%	17	16.3%
Knee other	1	9.1%	15	16.1%	16	15.4%
Hip/thigh/upper leg strain/sprain	1	9.1%	10	10.8%	11	10.6%
Foot other	0	0.0%	9	9.7%	9	8.7%
Hip/thigh/upper leg other	0	0.0%	7	7.5%	7	6.7%
Lower leg strain/sprain	0	0.0%	4	4.3%	4	3.8%
Foot strain/sprain	0	0.0%	4	4.3%	4	3.8%
Trunk other	1	9.1%	1	1.1%	2	1.9%
Knee strain/sprain	0	0.0%	2	2.2%	2	1.9%

Figure 21.2 Time Loss of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 21.5 Girls' Cross Country Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	1	1.0%	1	0.8%
Did not require surgery	22	100.0%	99	99.0%	121	99.2%
Total	**22**	**100%**	**100**	**100%**	**122**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 21.3 History of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

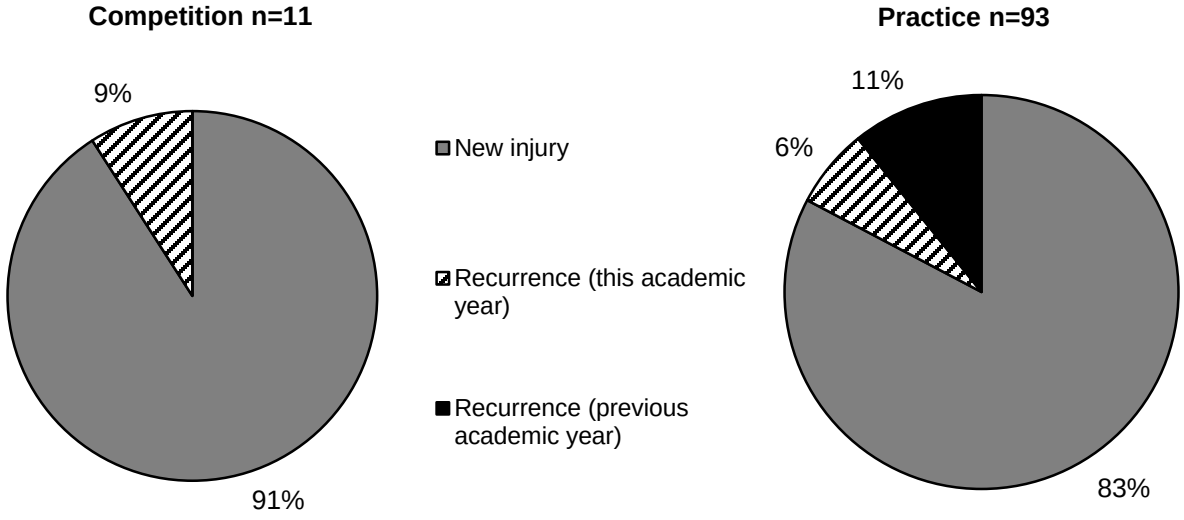


Table 21.6 Time during Season of Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	23	22.3%
Regular season	76	73.8%
Post season	4	3.9%
Total	**103**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 21.7 Practice-Related Variables for Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	15	19.2%
Second 1/2 hour	16	20.5%
1-2 hours into practice	41	52.6%
>2 hours into practice	6	7.7%
Total	**78**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 21.8 Activities Leading to Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	9	81.8%	70	81.4%	79	81.4%
Conditioning	0	0.0%	6	7.0%	6	6.2%
Warming up	1	9.1%	7	8.1%	8	8.2%
Cooling down	0	0.0%	1	1.2%	1	1.0%
Other	1	9.1%	2	2.3%	3	3.1%
Total	**11**	**100%**	**86**	**100%**	**97**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 21.10 Activity Resulting in Girls' Cross Country Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running	26	70.3%	1	100.0%	2	100.0%	0	0.0%	50	89.3%
Warming up	6	16.2%	0	0.0%	0	0.0%	1	100.0%	1	1.8%
Conditioning	2	5.4%	0	0.0%	0	0.0%	0	0.0%	4	7.1%
Cooling down	1	2.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Other	2	5.4%	0	0.0%	0	0.0%	0	0.0%	1	1.8%
Total	**37**	**100%**	**1**	**100%**	**2**	**100%**	**1**	**100%**	**56**	**100%**

XXII. Cheerleading Injury Epidemiology

Table 22.1 Cheerleading Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**222**	**306,318**	**0.72**
Competition	15	18,206	0.82
Practice	185	228,377	0.81
Performance	22	59,735	0.37

Table 22.2 Demographic Characteristics of Injured Cheerleading Athletes, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year*

Year in School	**n=214**
Freshman	27.1%
Sophomore	24.8%
Junior	29.4%
Senior	18.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.5 (1.2)
BMI	
Minimum	15.9
Maximum	34.7
Mean (St. Dev.)	22.2 (6.0)

*All analyses in this chapter present un-weighted data.
†Throughout this report, totals and n's represent the total un-weighted number of injury reports containing a valid response for the particular question. Due to a low level of non-response, these totals are always similar but are not always equal to the total number of injuries.

Figure 22.1 Diagnosis of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

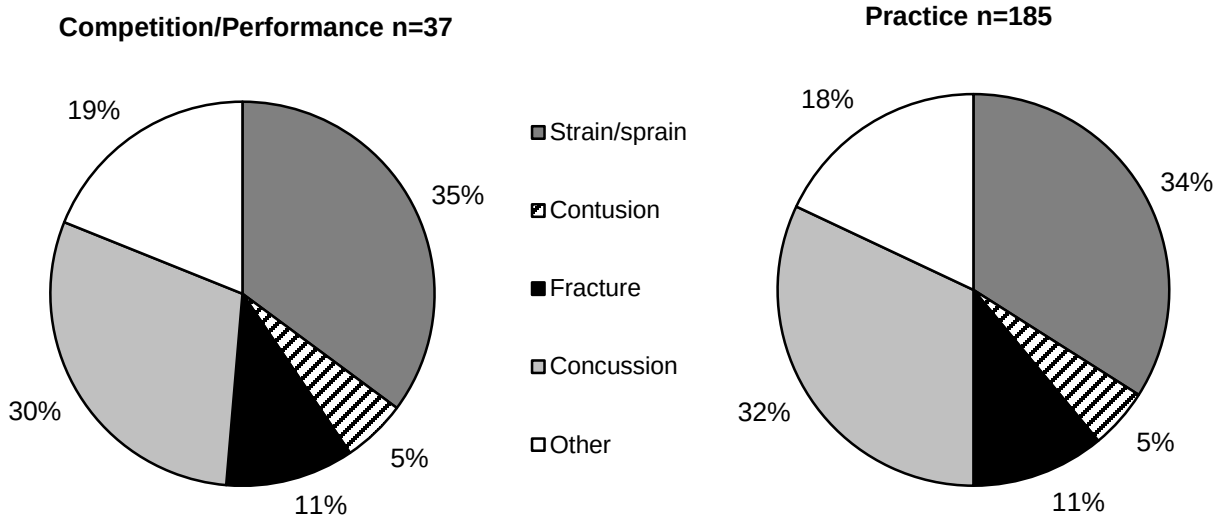


Table 22.3 Body Site of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

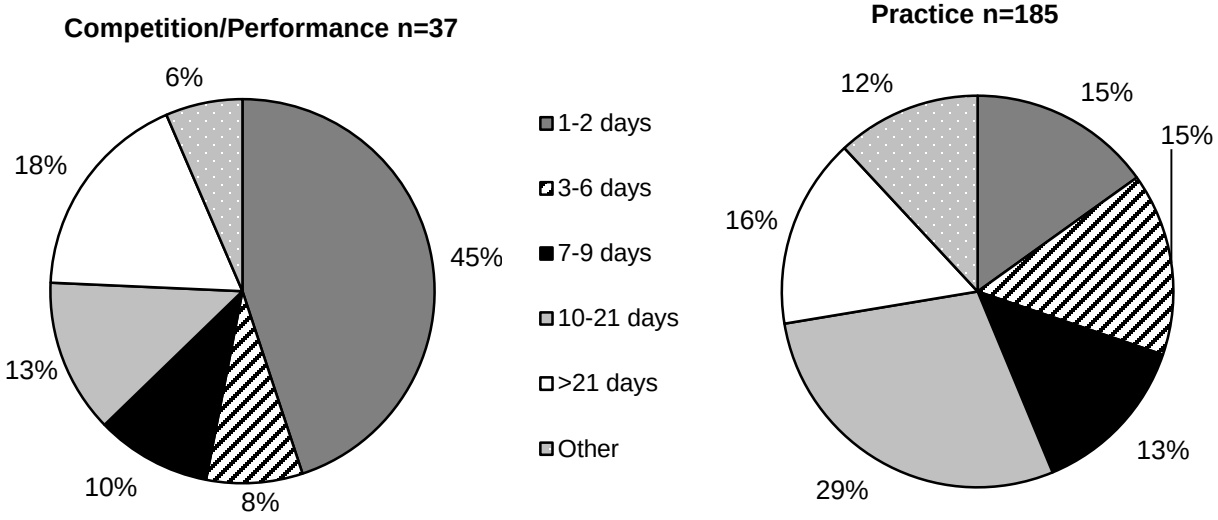
	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Body Site								
Head/face	2	13.3%	82	44.3%	10	45.5%	94	42.3%
Hand/wrist	1	6.7%	23	12.4%	3	13.6%	27	12.2%
Ankle	2	13.3%	19	10.3%	3	13.6%	24	10.8%
Knee	3	20.0%	16	8.6%	2	9.1%	21	9.5%
Trunk	0	0.0%	13	7.0%	3	13.6%	16	7.2%
Shoulder	1	6.7%	8	4.3%	0	0.0%	9	4.1%
Arm/elbow	2	13.3%	7	3.8%	0	0.0%	9	4.1%
Hip/thigh/upper leg	1	6.7%	6	3.2%	0	0.0%	7	3.2%
Foot	2	13.3%	4	2.2%	0	0.0%	6	2.7%
Lower leg	1	6.7%	4	2.2%	0	0.0%	5	2.3%
Neck	0	0.0%	2	1.1%	0	0.0%	2	0.9%
Other	0	0.0%	1	0.5%	1	4.5%	2	0.9%
Total	**15**	**100%**	**185**	**100%**	**22**	**100%**	**222**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 22.4 Ten Most Common Cheerleading Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition n=15		Practice n=185		Performance n=22		Total n=222	
	n	%	n	%	n	%	n	%
Diagnosis								
Head/face concussion	2	13.3%	71	38.4%	9	40.9%	82	36.9%
Ankle strain/sprain	2	13.3%	19	10.3%	2	9.1%	23	10.4%
Hand/wrist strain/sprain	1	6.7%	16	8.6%	0	0.0%	17	7.7%
Knee other	2	13.3%	8	4.3%	0	0.0%	10	4.5%
Trunk strain/sprain	0	0.0%	7	3.8%	2	9.1%	9	4.1%
Knee strain/sprain	1	6.7%	5	2.7%	2	9.1%	8	3.6%
Hip/thigh/upper leg strain/sprain	1	6.7%	6	3.2%	0	0.0%	7	3.2%
Head/face fracture	0	0.0%	5	2.7%	1	4.5%	6	2.7%
Arm/elbow strain/sprain	1	6.7%	4	2.2%	0	0.0%	5	2.3%
Head/face contusion	0	0.0%	5	2.7%	0	0.0%	5	2.3%

Figure 22.2 Time Loss of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year



*Other category is made up of medical disqualification for season, medical disqualification for career, athlete chooses not to continue, and season ended before athlete returned to play

Table 22.5 Cheerleading Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Need for surgery								
Required surgery	0	0.0%	7	3.8%	2	10.6%	9	4.1%
Did not require surgery	15	100.0%	178	96.2%	17	89.5%	210	95.9%
Total	**15**	**100%**	**185**	**100%**	**19**	**100%**	**219**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Figure 22.3 History of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

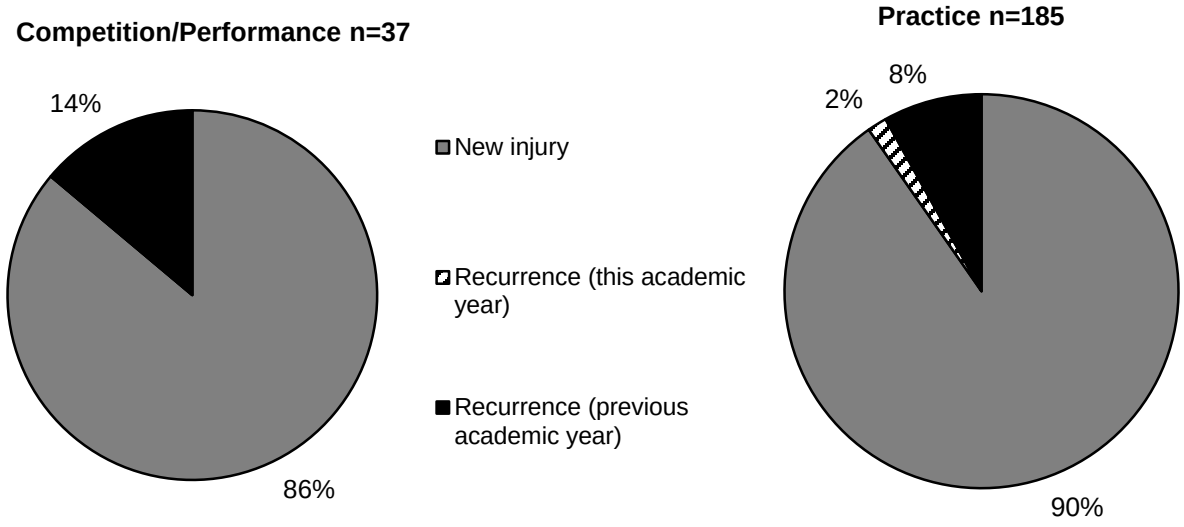


Table 22.6 Time during Season of Cheerleading Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Season		
Preseason	34	15.6%
Regular season	179	82.1%
Post season	5	2.3%
Total	**218**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 22.7 Practice-Related Variables for Cheerleading Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	n	%
Time in Practice		
First 1/2 hour	11	7.1%
Second 1/2 hour	40	26.0%
1-2 hours into practice	92	59.7%
>2 hours into practice	11	7.1%
Total	**154**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 22.8 Activities Leading to Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Activity								
Stunt	2	14.3%	61	33.9%	7	33.3%	70	32.6%
Tumbling	5	35.7%	38	21.1%	4	19.0%	47	21.9%
Toss	2	14.3%	32	17.8%	4	19.0%	38	17.7%
Pyramid	3	21.4%	27	15.0%	3	14.3%	33	15.3%
Jump	0	0.0%	6	3.3%	1	4.8%	7	3.3%
Warm-up	1	7.1%	4	2.2%	0	0.0%	5	2.3%
Other	1	7.1%	12	6.7%	2	9.5%	15	7.0%
Total	**14**	**100%**	**180**	**100%**	**21**	**100%**	**215**	**100%**

†Totals and n's are not always equal due to slight rounding or missing responses.

Table 22.10 Activity Resulting in Cheerleading Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Partner stunt	20	27.0%	4	22.2%	5	35.7%	36	45.0%	5	17.2%
Toss	10	13.5%	5	27.8%	1	7.1%	20	25.0%	2	6.9%
Pyramid	6	8.1%	3	16.7%	4	28.6%	17	21.3%	3	10.3%
Moving tumbling	19	25.7%	2	11.1%	1	7.1%	1	1.3%	6	20.7%
Standing tumbling	6	8.1%	3	16.7%	3	21.4%	4	5.0%	2	6.9%
Other	13	17.6%	1	5.6%	0	0.0%	2	2.5%	11	37.9%
Total	**74**	**100%**	**18**	**100%**	**14**	**100%**	**80**	**100%**	**29**	**100%**

XXIII. Gender Differences within Sports

23.1 Boys' and Girls' Soccer

Table 23.1 Comparison of Boys' and Girls' Soccer Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' soccer	Girls' soccer*	RR (95% CI)†
Total	1.53	**2.59**	**1.69 (1.51, 1.89)**
Competition	3.22	**5.74**	**1.78 (1.55, 2.05)**
Practice	0.80	**1.20**	**1.51 (1.25, 1.83)**

*Throughout this chapter, rate ratios (RR) and injury proportion ratios (IPR) compare the gender with a higher injury rate/proportion (bolded) to the gender with a lower injury rate/proportion.
†Throughout this chapter, statistically significant RR and IPR are bolded.

Table 23.10 Comparison of Body Sites of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Body Site			
Head/face	24.0%	**30.1%**	**1.26 (1.04, 1.52)**
Hip/thigh/upper leg	**19.4%**	9.9%	**1.97 (1.49, 2.60)**
Ankle	18.0%	**21.1%**	1.20 (0.93, 1.47)
Knee	13.5%	**19.6%**	**1.46 (1.12, 1.90)**
Foot	**4.0%**	3.8%	1.04 (0.59, 1.81)
Lower leg	**8.5%**	5.8%	1.57 (0.98, 2.21)
Hand/wrist	**3.8%**	2.2%	1.68 (0.88, 3.20)
Trunk	2.4%	**3.7%**	1.56 (0.80, 3.02)
Shoulder	**2.4%**	1.1%	2.26 (0.93, 5.48)
Arm/elbow	**1.0%**	0.8%	1.25 (0.39, 4.09)
Neck	**1.2%**	0.5%	2.26 (0.64, 7.99)
Other	**2.0%**	1.4%	1.37 (0.59, 3.20)
Total	**100%**	**100%**	--

†Totals do not always equal 100% due to slight rounding.

Table 23.11 Comparison of Diagnoses of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Strain/sprain	43.5%	**44.2%**	1.02 (0.90, 1.16)
Concussion	20.0%	**28.3%**	**1.41 (1.15, 1.74)**
Contusion	**13.1%**	9.6%	1.36 (0.99, 1.87)
Fracture	**9.1%**	5.5%	**1.65 (1.10, 2.47)**
Other	**14.3%**	12.4%	1.16 (0.87, 1.54)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.12 Most Common Boys' and Girls' Soccer Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Head/face concussion	20.0%	**28.3%**	**1.41 (1.15, 1.74)**
Hip/thigh/upper leg strain/sprain	**14.7%**	12.2%	**1.89 (1.37, 2.61)**
Ankle strain/sprain	15.0%	**19.1%**	1.27 (0.98, 1.63)
Knee strain/sprain	7.3%	**11.2%**	**1.53 (1.05, 2.21)**

*Only includes diagnoses accounting for >5% of boys' or girls' soccer injuries.

Table 23.13 Comparison of Time Loss of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Time Loss			
1-2 days	**15.6%**	12.0%	1.31 (0.98, 1.73)
3-6 days	**24.4%**	19.5%	**1.25 (1.01,1.54)**
7-9 days	14.5%	**17.9%**	1.24 (0.95, 1.61)
10-21 days	20.4%	**22.1%**	1.08 (0.87, 1.35)
22 days or more	5.9%	**7.1%**	1.20 (0.78, 1.84)
Other	19.2%	**21.4%**	1.12 (0.89, 1.40)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.14 Comparison of Mechanisms of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Mechanism			
Contact with another player	**31.8%**	31.2%	1.02 (0.86, 1.21)
N/A (overuse, heat illness, conditioning, etc.)	**16.7%**	13.3%	1.26 (0.96, 1.65)
Stepped on/fell on/kicked	**11.7%**	11.2%	1.04 (0.75, 1.43)
Contact with ball	10.8%	**16.2%**	**1.50 (1.10, 2.04)**
Rotation around planted foot/inversion	11.0%	**12.2%**	1.11 (0.80, 1.53)
Slide tackle	**4.4%**	3.5%	1.28 (0.73, 2.26)
Uneven playing surface	3.6%	**4.4%**	1.23 (0.69, 2.19)
Contact with goal	0.4%	**0.7%**	1.64 (0.32, 8.40)
Other	9.5%	**7.2%**	
Total	**100%**	**100%**	--

†Totals do not always equal 100% due to slight rounding.

Table 23.15 Comparison of Activities of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Activity			
General play	28.1%	**28.3%**	1.01 (0.84, 1.21)
Defending	13.1%	**16.1%**	1.23 (0.92, 1.64)
Heading ball	7.7%	**9.3%**	1.20 (0.82, 1.77)
Chasing loose ball	9.2%	**9.3%**	1.01 (0.70, 1.45)
Ball handling/dribbling	**10.7%**	8.6%	1.25 (0.88, 1.78)
Goaltending	5.4%	**6.8%**	1.27 (0.79, 2.02)
Shooting (foot)	**5.4%**	4.0%	1.33 (0.79 2.25)
Passing (foot)	3.4%	**3.6%**	1.05 (0.57, 1.94)
Conditioning	5.2%	**5.5%**	1.08 (0.66, 1.76)
Receiving pass	**4.9%**	3.5%	1.42 (0.82, 2.48)
Blocking shot	1.3%	**1.4%**	1.08 (0.39, 2.94)
Attempting slide tackle	**1.7%**	1.0%	1.77 (0.65, 4.84)
Receiving slide tackle	**1.5%**	1.0%	1.55 (0.55, 4.38)
Other	**2.4%**	1.7%	1.42 (0.63, 3.19)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

23.2 Boys' and Girls' Basketball

Table 23.2 Comparison of Boys' and Girls' Basketball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' basketball	Girls' basketball	RR (95% CI)
Total	1.49	**1.89**	**1.27 (1.13, 1.42)**
Competition	2.44	**3.68**	**1.51 (1.30, 1.76)**
Practice	1.07	**1.08**	1.01 (0.85, 1.20)

Table 23.20 Comparison of Body Sites of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Body Site			
Ankle	**34.5%**	25.6%	**1.35 (1.13, 1.61)**
Head/face	20.1%	**26.6%**	**1.33 (1.08, 1.63)**
Knee	14.1%	**17.8%**	1.26 (0.97, 1.65)
Hand/wrist	7.5%	**7.7%**	1.04 (0.70, 1.54)
Hip/thigh/upper leg	**6.5%**	6.4%	1.01 (0.65, 1.56)
Trunk	2.7%	**3.7%**	1.36 (0.72, 2.57)
Lower leg	3.6%	**4.9%**	1.37 (0.79, 2.37)
Foot	**4.1%**	1.7%	2.42 (1.17, 5.03)
Shoulder	2.4%	**3.0%**	1.27 (0.64, 2.54)
Arm/elbow	**3.1%**	1.5%	(0.92, 4.46)
Neck	**0.5%**	0.2%	(0.32, 29.1)
Other	**1.0%**	0.8%	(0.37, 3.95)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.21 Comparison of Diagnoses of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Strain/sprain	**51.7%**	49.9%	1.03 (0.93, 1.16)
Concussion	12.2%	**22.4%**	**1.83 (1.41, 2.38)**
Fracture	**8.0%**	4.7%	**1.69 (1.08, 2.67)**
Contusion	**7.7%**	6.1%	1.26 (0.83, 1.93)
Other	**20.4%**	16.9%	1.21 (0.95, 1.54)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.22 Most Common Boys' and Girls' Basketball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Ankle strain/sprain	**32.8%**	25.1%	1.31 (1.09, 1.57)
Head/face concussion	12.2%	**22.4%**	**1.83 (1.41, 2.38)**
Knee strain/sprain	6.1%	**9.1%**	1.49 (0.99, 2.23)
Knee other	5.8%	**6.4%**	1.11 (0.71, 1.73)

*Only includes diagnoses accounting for >5% of boys' or girls' basketball injuries.

Table 23.23 Comparison of Time Loss of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Time Loss			
1-2 days	**19.7%**	18.2%	1.09 (0.86, 1.37)
3-6 days	**23.3%**	21.7%	1.07 (0.87, 1.33)
7-9 days	**15.1%**	15.0%	1.01 (0.77, 1.32)
10-21 days	18.9%	**21.7%**	1.15 (0.91, 1.44)
22 days or more	**9.4%**	7.9%	1.18 (0.82, 1.72)
Other	13.6%	**15.5%**	1.14 (0.86, 1.50)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.24 Comparison of Mechanisms of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Mechanism			
Collision with another player	28.3%	**28.7%**	1.01 (0.84, 1.22)
Jumping/landing	**27.8%**	18.1%	**1.54 (1.23, 1.92)**
Stepped on/fell on/kicked	8.8%	**8.8%**	1.01 (0.69, 1.47)
Rotation around a planted foot/inversion	12.4%	**15.0%**	1.21 (0.89, 1.62)
N/A (e.g., overuse, heat illness, etc.)	8.0%	**13.2%**	**1.64 (1.15, 2.34)**
Contact with ball	4.4%	**4.5%**	1.03 (0.60, 1.78)
Other	10.2%	**11.7%**	1.15 (0.82 (1.61)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.35 Comparison of Activities of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Activity			
Rebounding	**31.5%**	20.7%	**1.52 (1.23, 1.87)**
General play	20.8%	**26.9%**	**1.29 (1.04, 1.61)**
Defending	12.2%	**14.2%**	1.17 (0.86, 1.59)
Shooting	**9.9%**	7.8%	1.27 (0.86, 1.87)
Chasing loose ball	7.9%	**11.9%**	**1.52 (1.05, 2.20)**
Ball handling/dribbling	5.8%	**7.6%**	1.32 (0.84, 2.07)
Receiving pass	**5.1%**	3.5%	1.43 (0.80, 2.53)
Conditioning	2.8%	**3.9%**	1.40 (0.97, 2.68)
Other	**4.1%**	3.4%	1.23 (0.67, 2.26)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

23.3 Boys' Baseball and Girls' Softball

Table 23.3 Comparison of Baseball and Softball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Baseball	Softball	RR (95% CI)
Total	1.06	**1.15**	1.09 (0.93, 1.28)
Competition	**1.67**	1.44	1.16 (0.92, 1.48)
Practice	0.73	**1.00**	**1.38 (1.10, 1.74)**

Table 23.30 Comparison of Body Sites of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Baseball	Softball	IPR (95% CI)
Body Site			
Head/face	17.0%	**24.7%**	**1.45 (1.05, 2.00)**
Arm/elbow	**13.3%**	3.8%	**3.50 (1.79, 6.83)**
Hand/wrist	**14.6%**	10.3%	1.42 (0.91, 2.21)
Shoulder	**14.6%**	12.2%	1.20 (0.79, 1.82)
Hip/thigh/upper leg	**12.7%**	8.7%	1.45 (0.90, 2.36)
Ankle	9.3%	**17.1%**	**1.84 (1.20, 2.84)**
Trunk	3.7%	**5.3%**	1.43 (0.67, 3.04)
Knee	7.7%	**11.4%**	**1.47 (0.89, 2.44)**
Lower leg	**4.6%**	3.8%	1.22 (0.59, 2.67)
Foot	1.9%	**1.9%**	1.02 (0.32, 3.32)
Neck	**0.3%**	0.0%	---
Other	0.3%	**0.8%**	2.46 (0.22, 26.94)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.31 Comparison of Diagnoses of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Strain/sprain	**41.2%**	39.9%	1.03 (0.85, 1.26)
Contusion	**14.2%**	12.2%	1.17 (0.77, 1.78)
Concussion	9.0%	**16.0%**	**1.78 (1.14, 2.77)**
Fracture	**13.0%**	9.9%	1.32 (0.83, 2.09)
Other	**22.6%**	22.1%	1.03 (0.76, 1.39)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.32 Most Common Baseball and Softball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Head/face concussion	9.0%	**16.0%**	**1.78 (1.14, 2.77)**
Hip/thigh/upper leg strain/sprain	**9.6%**	6.1%	1.58 (0.88, 2.82)
Ankle strain/sprain	9.0%	**15.2%**	**1.69 (1.08, 2.66)**
Shoulder other	6.8%	**7.6%**	1.12 (0.62, 2.00)
Hand/wrist fracture	**6.2%**	5.3%	1.16 (0.60, 2.26)

*Only includes diagnoses accounting for >5% of baseball or softball injuries.

Table 23.33 Comparison of Time Loss of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Baseball	Softball	IPR (95% CI)
Time Loss			
1-2 days	**20.7%**	17.1%	**1.21 (0.86, 1.71)**
3-6 days	**21.7%**	20.2%	1.08 (0.78, 1.48)
7-9 days	13.9%	**20.2%**	**1.45 (1.01, 2.08)**
10-21 days	**19.5%**	17.9%	1.09 (0.78, 1.54)
22 days or more	5.6%	**6.8%**	1.23 (0.65, 2.31)
Other	**18.6%**	17.9%	1.04 (0.74, 1.47)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.34 Comparison of Mechanisms of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Mechanism			
Contact with another player	9.3%	**9.4%**	1.02 (0.61, 1.70)
Throwing - pitching	**11.2%**	3.1%	**3.56 (1.68, 7.54)**
N/A (overuse, heat illness, conditioning, etc.)	10.3%	**15.0%**	1.50 (0.94, 2.27)
Hit by batted ball	9.0%	**11.8%**	1.32 (0.81, 2.14)
Hit by pitch	**7.1%**	4.3%	1.63 (0.81, 3.29)
Contact with bases	9.0%	**11.4%**	1.27 (0.78, 2.08)
Contact with thrown ball (non-pitch)	4.8%	**12.6%**	**2.62 (1.45, 4.73)**
Throwing - not pitching	8.9%	**11.0%**	1.24 (0.76, 2.05)
Rotation around a planted foot/inversion	8.7%	**9.8%**	1.14 (0.68, 1.91)
Other	**22.8%**	18.5%	1.23 (0.89, 1.71)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.35 Comparison of Activities of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Activity			
Pitching	**14.6%**	5.5%	**2.64 (1.49, 4.69)**
Fielding a batted ball	14.2%	**20.1%**	1.41 (0.98, 2.03)
Running bases	**17.4%**	15.4%	1.13 (0.78, 1.65)
Batting	**12.7%**	4.7%	**2.68 (1.44, 5.00)**
Throwing (not pitching)	8.9%	**11.0%**	1.24 (0.76, 2.05)
Fielding a thrown ball	3.2%	**9.1%**	**2.86 (1.39, 5.90)**
General play	6.0%	**9.4%**	1.57 (0.88, 2.80)
Sliding	8.9%	**10.6%**	1.20 (0.76, 1.98)
Catching	**6.6%**	4.7%	1.41 (0.71, 2.80)
Conditioning	3.2%	**5.1%**	1.62 (0.72, 3.63)
Other	**4.4%**	3.9%	1.13 (0.51, 2.49)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

23.4 Boys' and Girls' Swimming

Table 23.4 Comparison of Boys' and Girls' Swimming Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' swimming	Girls' swimming	RR (95% CI)
Total	0.23	**0.28**	1.23 (0.72, 2.10)
Competition	0.17	**0.28**	1.60 (0.40, 6.40)
Practice	0.24	**0.28**	1.17 (0.65, 2.09)

Table 23.40 Comparison of Body Sites of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Body Site			
Shoulder	40.9%	**50.0%**	1.22 (0.67, 2.24)
Head/face	18.2%	**23.5%**	1.29 (0.44, 3.79)
Knee	4.5%	**8.8%**	1.94 (0.22, 17.50)
Hip/Thigh/upper leg	**---**	---	---
Trunk	**22.7%**	2.9%	7.73 (0.97, 61.8)
Lower leg	**---**	**2.9%**	---
Foot	**9.1%**	8.8%	1.03 (0.19, 5.68)
Ankle	---	**---**	---
Arm/elbow	---	**2.9%**	---
Hand/wrist	**4.5%**	**---**	---
Other	---	**---**	---
Total	**100%**	**100%**	**---**

†Totals do not always equal 100% due to slight rounding.

Table 23.41 Comparison of Diagnoses of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Strain/sprain	**36.4%**	20.6%	1.77 (0.75, 4.18)
Concussion	13.6%	**17.6%**	1.29 (0.36, 4.65)
Fracture	**4.5%**	**---**	---
Contusion	---	**5.9%**	---
Other	45.5%	**55.9%**	1.23 (0.71, 2.12)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.42 Most Common Boys' and Girls' Swimming Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Shoulder other	22.7%	**35.3%**	1.55 (0.63, 3.80)
Head/face concussion	13.6%	**17.6%**	1.29 (0.36, 4.65)
Trunk other	**4.5%**	---	**---**
Trunk strain/sprain	**18.2%**	2.9%	6.18 (0.74, 51.7)
Shoulder strain/sprain	**18.2%**	14.7%	1.24 (0.37, 4.11)

*Only includes diagnoses accounting for >5% of baseball or softball injuries.

Table 23.43 Comparison of Time Loss of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Time Loss			
1-2 days	22.7%	**29.4%**	1.29 (0.51, 3.28)
3-6 days	22.7%	**23.5%**	1.03 (0.39, 2.76)
7-9 days	**22.7%**	14.7%	1.54 (0.51, 4.73)
10-21 days	13.6%	**17.6%**	1.29 (0.36, 4.65)
22 days or more	**9.1%**	2.9%	3.09 (0.30, 32.1)
Other	**9.1%**	11.8%	1.29 (0.26, 6.48)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.44 Comparison of Mechanisms of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Mechanism			
N/A (overuse, heat illness, conditioning, etc.)	**65.0%**	64.5%	1.01 (0.67, 1.53)
Contact with wall	**25.0%**	6.5%	3.88 (0.83, 18.1)
Contact with another person	---	**9.7%**	---
Other	10.0%	**19.4%**	1.94 (0.43, 8.67)
Total	**100%**	**100%**	**---**

†Totals do not always equal 100% due to slight rounding.

Table 23.45 Comparison of Activities of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Activity			
Swimming	57.9%	**61.3%**	1.06 (0.66, 1.70)
Flip turn off wall	**21.1%**	19.4%	1.09 (0.35, 3.36)
Diving off board/platform/starting platform	10.5%	**6.5%**	1.63 (0.25, 10.6)
Other	10.5%	**12.9%**	1.23 (0.25, 6.06)
Total	**100%**	**100%**	

†Totals do not always equal 100% due to slight rounding.

23.5 Boys' and Girls' Track and Field

Table 23.5 Comparison of Boys' and Girls' Track and Field Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' track	Girls' track	RR (95% CI)
Total	0.62	**0.85**	**1.37 (1.13, 1.64)**
Competition	**1.15**	0.91	1.26 (0.88, 1.81)
Practice	0.50	**0.83**	**1.68 (1.35, 2.10)**

Table 23.50 Comparison of Body Sites of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' track	Girls' track	IPR (95% CI)
Body Site			
Hip/thigh/upper leg	**45.2%**	41.3%	1.10 (0.89, 1.35)
Lower leg	15.2%	**22.7%**	**1.49 (1.01, 2.21)**
Ankle	7.6%	**9.5%**	1.25 (0.68, 2.30)
Knee	**11.0%**	10.7%	1.02 (0.60, 1.73)
Trunk	**5.2%**	1.7%	3.17 (1.02, 9.80)
Foot	5.2%	**6.6%**	1.26 (0.60, 2.66)
Shoulder	**3.3%**	0.8%	4.03 (0.85, 19.21)
Head/face	**3.8%**	2.1%	1.84 (0.61, 5.56)
Arm/elbow	0.5%	**2.5%**	5.21 (0.63, 42.9)
Hand/wrist	**2.4%**	0.8%	2.88 (0.57, 17.71)
Neck	**---**	0.4%	**---**
Other	0.5%	**0.8%**	1.74 (0.16, 19.00)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.51 Comparison of Diagnoses of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Strain/sprain	**65.2%**	56.4%	1.16 (0.99, 1.34)
Contusion	1.9%	**2.5%**	1.31 (0.37, 4.57)
Fracture	2.9%	**3.7%**	1.31 (0.47, 3.61)
Concussion	**1.4%**	1.2%	1.15 (0.23, 5.63)
Other	28.6%	**36.1%**	1.26 (0.96, 1.66)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.52 Most Common Boys' and Girls' Track and Field Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Hip/thigh/upper leg strain/sprain	**41.9%**	36.4%	1.15 (0.92, 1.45)
Lower leg other	8.1%	**17.4%**	**2.14 (1.26, 3.65)**
Hip/thigh/upper leg other	3.3%	**4.1%**	1.24 (0.48, 3.20)
Ankle strain/sprain	6.7%	**9.1%**	1.36 (0.72, 2.60)
Lower leg strain/sprain	**5.7%**	5.0%	1.15 (0.53, 2.51)
Knee other	6.7%	**8.3%**	1.24 (0.64, 2.39)

*Only includes diagnoses accounting for >5% of baseball or softball injuries.

Table 23.53 Comparison of Time Loss of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' track	Girls' track	IPR (95% CI)
Time Loss			
1-2 days	10.0%	**12.4%**	1.24 (0.73, 2.10)
3-6 days	30.0%	**32.2%**	1.07 (0.82, 1.42)
7-9 days	19.0%	**20.7%**	1.09 (0.75, 1.57)
10-21 days	**23.3%**	14.9%	**1.57 (1.06, 2.31)**
22 days or more	5.3%	**6.2%**	1.18 (0.57, 2.52)
Other	**12.4%**	13.6%	1.10 (0.68, 1.78)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.54 Comparison of Mechanisms of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Mechanism			
N/A (e.g., overuse, heat illness, conditioning, etc.)	56.8%	**61.2%**	1.08 (0.92, 1.27)
Contact with ground/track/surface	**13.2%**	6.8%	1.92 (1.04, 3.54)
Fall/trip	**6.8%**	5.0%	1.36 (0.63, 2.67)
Rotation around planted foot/inversion	3.7%	**5.5%**	1.49 (0.60, 3.70)
Contact with field equipment	2.6%	**7.8%**	2.95 (1.11, 7.84)
Uneven playing surface	**1.6%**	0.5%	3.46 (0.36, 32.97)
Stepped on/kicked	1.1%	**1.4%**	1.30 (0.22, 7.71)
Contact with another person	**---**	---	
Other	**14.2%**	11.9%	1.20 (0.72, 1.98)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.55 Comparison of Activities of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Activity			
Running	64.3%	**65.8%**	1.02 (0.89, 1.18)
Jumping/landing	**14.3%**	12.3%	1.16 (0.71, 1.90)
Conditioning	**4.6%**	3.7%	1.26 (0.50, 3.19)
Throwing	**5.6%**	1.8%	3.07 (0.99, 9.50)
Running hurdles	5.1%	**8.7%**	1.70 (0.81, 3.57)
Warming up	0.5%	**2.3%**	4.48 (0.53, 37.97)
Leaving block	---	**1.8%**	---
Hit by shot put/discus/javelin/hammer	0.5%	**0.5%**	1.11 (0.70, 17.74)
Other	**5.1%**	3.2%	1.60 (0.94, 1.02)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

23.6 Boys' and Girls' Cross Country

Table 23.6 Comparison of Boys' and Girls' Cross Country Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' cross country	Girls' cross country	RR (95% CI)
Total	0.72	**0.76**	1.05 (0.80, 1.37)
Competition	**0.89**	0.48	1.87 (0.91, 3.81)
Practice	0.69	**0.81**	1.19 (0.89, 1.59)

Table 23.60 Comparison of Body Sites of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Body Site			
Lower leg	**27.0%**	25.0%	1.08 (0.69, 1.70)
Hip/thigh/upper leg	**21.6%**	17.3%	1.25 (0.72, 2.16)
Knee	16.2%	**18.3%**	1.13 (0.63, 2.03)
Ankle	14.4%	**18.3%**	1.27 (0.69, 2.33)
Foot	9.9%	**14.4%**	1.46 (0.70, 3.02)
Trunk	**5.4%**	2.9%	1.87 (0.48, 7.30)
Head/face	**---**	1.9%	---
Hand/wrist	0.9%	**1.0%**	1.07 (0.07, 16.84)
Shoulder	0.9%	**1.0%**	1.07 (0.07, 16.84)
Neck	0.9%	**---**	---
Other	**2.7%**	---	
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.61 Comparison of Diagnoses of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Diagnosis			
Strain/sprain	**42.3%**	37.5%	1.13 (0.81, 1.57)
Contusion	**3.6%**	1.0%	3.75 (0.43, 32.99)
Fracture	0.9%	**1.9%**	2.14 (0.20, 23.19)
Concussion	**---**	1.0%	---
Other	53.2%	**58.7%**	1.10 (0.87, 1.40)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.62 Most Common Boys' and Girls' Cross Country Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Diagnosis			
Lower leg other	18.0%	**21.2%**	1.17 (0.68, 2.02)
Hip/thigh/upper leg strain sprain	6.3%	**6.7%**	1.07 (0.39, 2.94)
Lower leg strain/sprain	**9.0%**	3.8%	2.34 (0.76, 7.24)
Hip/thigh/upper leg other	**14.4%**	10.6%	1.36 (0.66, 2.80)
Ankle strain/sprain	9.9%	**16.3%**	1.65 (0.81, 3.35)
Knee other	12.6%	**15.4%**	1.22 (0.63, 2.37)

*Only includes diagnoses accounting for >5% of baseball or softball injuries.

Table 23.63 Comparison of Time Loss of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Time Loss			
1-2 days	**34.2%**	26.9%	1.27 (0.84, 1.91)
3-6 days	**32.4%**	20.2%	**1.61 (1.01, 2.56)**
7-9 days	13.5%	**15.4%**	1.14 (0.59, 2.18)
10-21 days	7.2%	**13.5%**	1.87 (0.82, 4.27)
22 days or more	1.8%	**7.7%**	4.27 (0.93, 19.6)
Other	10.8%	**16.3%**	1.51 (0.76, 3.01)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.64 Comparison of Mechanisms of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Track Mechanism			
Overuse	55.9%	**57.4%**	1.03 (0.81, 1.31)
Contact with ground/track/surface	5.9%	**7.9%**	1.35 (0.49, 3.74)
Fall/trip	**8.8%**	6.9%	1.27 (0.49, 3.29)
Rotation around planted foot/inversion	**---**	**5.0%**	---
Contact with obstacle	**1.0%**	---	---
Uneven surface	15.7%	**16.8%**	1.07 (0.57, 2.00)
N/A (e.g., heat illness, conditioning, etc.)	**7.8%**	1.0%	**7.92 (1.01, 62.2)**
Contact with another person	**1.0%**	**---**	---
Other	3.9%	**5.0%**	1.26 (0.35, 4.57)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

Table 23.65 Comparison of Activities of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2013-14 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Track Activity			
Running	**82.3%**	81.4%	1.01 (0.89, 1.15)
Conditioning	**8.3%**	6.2%	1.35 (0.49, 3.74)
Warming up	7.3%	**8.2%**	1.13 (0.43, 3.00)
Cooldown	---	**1.0%**	---
Other	2.1%	**3.1%**	1.49 (0.25, 8.69)
Total	**100%**	**100%**	---

†Totals do not always equal 100% due to slight rounding.

XXIV. Reporter Demographics & Compliance

During the 2013-14 school year, 293 ATs were invited to participate in the study at the beginning of the school year. ATs were expected to report for every week in which they were enrolled. For example, an AT who joined the study as a replacement school in week 10 was not expected to report for weeks 1-9. Overall, 259 enrolled ATs reported an average of 36 study weeks. The majority of ATs (87.7%) reported all the weeks during which they were enrolled, with only 12.3% of ATs missing over 10 weeks. Because internal validity checks conducted during the first six years of the study consistently found high sensitivity, specificity, positive predictive values, and negative predictive values, internal validity checks will be conducted every other year. Internal validity checks during the 2012-13 academic year yielded 95.8% sensitivity, 100.0% specificity, a positive predictive value of 100.0%, and a negative predictive value of 98.2%.

Prior to the start of the 2013-14 High School RIO™ study, participating ATs were asked to complete a short demographics survey. Over 80% (82.8%) of participating high schools were public schools, with the remainder being private. All ATs except for five provided services to athletes of their high school on 5 or more days each week. About three quarters (73.5%) of ATs participating during the 2013-14 study year had previously participated in the High School RIO™ study.

An online "End of Season" survey gave all participating ATs (both in the original study as well as in the expanded study (n=259) including those ATs who did not report any data) the opportunity to provide feedback on their experiences with High School RIO™. This survey was completed by 122 ATs (46.9%). Average reporting time burdens were 21 minutes for the weekly exposure report and 10 minutes for the injury report form. Using a 5 point Likert scale, RIO™ was overwhelmingly reported to be either very easy (56.6%) or somewhat easy (36.1%) to use (5

and 4 on the Likert scale, respectively), with ATs being either very satisfied (62.3%) or somewhat satisfied (32.8%) with the study (5 and 4 on the Likert scale, respectively). Suggestions provided by ATs, such as the addition or clarification of questions or answer choices, will be used to improve the National High School Sports-Related Injury Surveillance Study for the 2014-15 school year.

XXV. Summary

High school sports play an important role in the adoption and maintenance of a physically active lifestyle among millions of US adolescents. Too often injury prevention in this population is overlooked as sports-related injuries are thought to be unavoidable. In reality, sports-related injuries are largely preventable through the application of evidence-based preventive interventions. Such preventive interventions can include educational campaigns, introduction of new/improved protective equipment, rule changes, other policy changes, etc. The morbidity, mortality, and disability caused by high school sports-related injuries can be reduced through the development and implementation of improved injury diagnosis and treatment modalities as well as through effective prevention strategies. However, surveillance of exposure based injury rates in a large nationally disperse sample of high school athletes and subsequent epidemiologic analysis of patterns of injury are needed to drive evidence-based prevention practices.

Prior to the implementation of the High School Sports-Related Injury Surveillance Study by Dr. Comstock, the study of high school sports-related injuries had largely been limited by an inability to calculate injury rates due to a lack of exposure data (i.e., frequency of participation in athletic activities including training, practice, and competition), an inability to compare findings across groups (i.e., sports/activities, genders, schools, and levels of competition), or an inability to generalize findings from small non-representative samples. The value of national injury surveillance studies that collect injury, exposure, and risk factor data from representative samples has been well demonstrated by the National Collegiate Athletic Association's Injury Surveillance System (NCAA ISS). Data collected by the NCAA ISS since 1982 has been used to develop preventive interventions including changes in coaching habits, increased use of protective equipment, and rule changes which have had proven success in reducing injuries among collegiate athletes. For example, NCAA ISS data has been used to develop several interventions

intended to reduce the number of preseason heat-related football injuries including the elimination of consecutive days of multiple practices, daily hour limitations, and a gradual increase in equipment for conditioning and heat acclimation. Additionally, several committees have considered NCAA ISS data when making recommendations including the NCAA Committee on Competitive Safeguards and Medical Aspects of Sports' recommendation for mandatory eye protection in women's lacrosse, the NCAA Men's Ice Hockey Rules Committee's recommendation for stricter penalties for hitting from behind, checking into the boards, and not wearing a mouthpiece, and the NCAA Men's Basketball Rules Committee's recent discussions of widening the free-throw lane to prevent injuries related to player contact. Unfortunately, because an equivalent injury surveillance system to collect injury and exposure data from a nationally representative sample of high school athletes had not previously existed, injury prevention efforts targeted to reduce injury rates in this population were based largely upon data collected from collegiate athletes. This is unacceptable because distinct biophysiological differences (e.g., lower muscle mass, immature growth plates, etc.) means high school athletes are not merely miniature versions of their collegiate counterparts.

The successful implementation and maintenance of the National High School Sports-Related Injury Surveillance Study demonstrates the value of a national injury surveillance system at the high school level. Dr. Comstock and her research staff are committed to maintaining a permanent national high school sports injury surveillance system.

While the health benefits of a physically active lifestyle including sports participation are undeniable, participants are at risk of injury because a certain endemic level of injury can be expected during any physical activity, especially those with a competitive component. However, injury rates among high school athletes should be reduced to the lowest possible level without

discouraging adolescents from engaging in this important form of physical activity. This goal can best be accomplished by monitoring injury rates and patterns of injury among high school athletes over time; investigating the etiology of preventable injuries; and developing, implementing, and evaluating evidence-based preventive interventions. Surveillance systems such as the model used for this study are critical in achieving these goals.