CONVENIENCE SAMPLE SUMMARY REPORT

NATIONAL HIGH SCHOOL SPORTS-RELATED INJURY SURVEILLANCE STUDY

2014-2015 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, boys' and girls' tennis, and cheerleading. This surveillance has been conducted using the time- and cost-efficient RIO™ (Reporting Information Online) surveillance system. This study during the 2014-15 academic year was funded by the Centers for Disease Control and Prevention (CDC 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, boys' and girls' tennis, 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 22 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, dental injury, or exertional heat event 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 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, tennis, and cheerleading) were selected in an attempt to ensure at least 100 schools were reporting for each of the 22 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 $50-$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, 2014-15 School Year.*

	# Schools in Random Sample	# Schools in Convenience Sample	# Schools Total
Original Sports			
Football	95	91	186
Boys' Soccer	86	91	177
Girls' Soccer	88	94	182
Girls' Volleyball	92	87	179
Boys' Basketball	96	102	198
Girls' Basketball	95	105	200
Wrestling	79	82	161
Baseball	91	79	170
Softball	90	80	170
New Sports			
Field Hockey	20	37	57
Ice hockey	8	22	30
Boys' Lacrosse	21	48	69
Girls' Lacrosse	20	48	68
Boys' Swimming and Diving	40	68	108
Girls' Swimming and Diving	42	64	106
Boys' Track and Field	62	89	151
Girls' Track and Field	63	88	151
Boys' Cross Country	59	83	142
Girls' Cross Country	57	86	143
Cheerleading	60	83	143
Boys' Tennis	37	58	95
Girls' Tennis	39	59	98
Total	**100**	**140**	**240**

*Numbers only include schools who actually reported data for the 2014-15 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 47 weekly exposure reports: one for each week from July 28, 2014 through June 28, 2015. 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 9.4 and SPSS, version 22.0. 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, 2014-15 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Overall total	**9,273**	**5,165,857**	**1.80**
Competition	**4,891**	**1,285,926**	**3.80**
Practice	**4,353**	**3,822,140**	**1.14**
Performance	**29**	**57,791**	**0.50**
Boys' football total	3,620	919,659	3.94
Competition	1,957	157,332	12.44
Practice	1,663	762,327	2.18
Boys' soccer total	575	330,072	1.74
Competition	376	101,172	3.72
Practice	199	228,900	0.87
Girls' soccer total	832	308,502	2.70
Competition	582	98,288	5.92
Practice	250	210,214	1.19
Girls' volleyball total	372	292,543	1.27
Competition	164	97,074	1.69
Practice	208	195,469	1.06
Boys' basketball total	551	412,372	1.34
Competition	297	128,053	2.32
Practice	254	284,319	0.89
Girls' basketball total	576	312,827	1.84
Competition	347	97,541	3.56
Practice	229	215,286	1.06
Boys' wrestling total	590	264,299	2.23
Competition	244	62,792	3.89
Practice	346	201,507	1.72
Boys' baseball total	304	286,729	1.06
Competition	188	101,791	1.85
Practice	116	184,938	0.63
Girls' softball total	240	208,904	1.15
Competition	134	73,033	1.83
Practice	106	135,871	0.78
Girls' Field Hockey total	162	82,933	1.95
Competition	78	26,609	2.93
Practice	84	56,324	1.49

Table 2.1 (Continued) Injury Rates by Sport and Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Boys' Ice Hockey total	87	52,034	1.67
Competition	69	18,269	3.78
Practice	18	33,765	0.53
Boys' Lacrosse total	250	137,016	1.82
Competition	157	42,448	3.70
Practice	93	94,568	0.98
Girls' Lacrosse total	176	101,508	1.73
Competition	85	31,344	2.71
Practice	91	70,164	1.30
Boys' Swimming total	19	103,249	0.18
Competition	2	18,801	0.11
Practice	17	84,448	0.20
Girls' Swimming total	28	115,160	0.24
Competition	6	19,880	0.30
Practice	22	95,280	0.23
Boys' Track total	196	290,886	0.67
Competition	69	59,974	1.15
Practice	127	230,912	0.55
Girls' Track total	219	243,824	0.90
Competition	60	49,621	1.21
Practice	159	194,203	0.82
Cheerleading total	223	297,160	0.75
Competition	16	18,064	0.89
Practice	178	221,305	0.80
Performance	29	57,791	0.50
Boys' Cross Country total	87	148,784	0.58
Competition	14	24,000	0.58
Practice	73	124,784	0.59
Girls' Cross Country total	127	131,033	0.97
Competition	26	21,276	1.22
Practice	101	109,757	0.92

Table 2.1 (Continued) Injury Rates by Sport and Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Boys' Tennis total	12	58,997	0.20
Competition	8	18,774	0.43
Practice	4	40,223	0.10
Girls' Tennis total	27	67,366	0.40
Competition	12	19,790	0.61
Practice	15	47,576	0.32

*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, 2014-15 School Year*

	<1 day time loss	≥1 day time loss	Time loss data missing	Total
Overall				
Boys' football	2.6%	92.7%	4.7%	**100%**
Boys' soccer	1.1%	93.3%	5.5%	**100%**
Girls' soccer	2.1%	91.8%	6.1%	**100%**
Girls' volleyball	1.3%	93.2%	5.5%	**100%**
Boys' basketball	3.7%	89.6%	6.7%	**100%**
Girls' basketball	2.0%	90.4%	7.5%	**100%**
Boys' wrestling	0.8%	92.9%	6.3%	**100%**
Boys' baseball	1.6%	95.0%	3.4%	**100%**
Girls' softball	1.2%	94.5%	4.3%	**100%**
Girls' field hockey	4.1%	94.7%	1.2%	**100%**
Boys' ice hockey	4.9%	85.3%	9.8%	**100%**
Boys' lacrosse	1.1%	88.3%	10.6%	**100%**
Girls' lacrosse	0.5%	94.1%	5.3%	**100%**
Boys' swimming	5.0%	95.0%	0.0%	**100%**
Girls' swimming	0.0%	100.0%	0.0%	**100%**
Boys' track	1.9%	92.9%	5.2%	**100%**
Girls' track	2.1%	94.0%	3.9%	**100%**
Cheerleading	2.4%	89.6%	8.0%	**100%**
Boys' cross country	1.1%	92.6%	6.4%	**100%**
Girls' cross country	0.7%	91.4%	7.9%	**100%**
Boys' tennis	0.0%	100.0%	0.0%	**100%**
Girls' tennis	12.5%	84.4%	3.1%	**100%**
Total	**2.2%**	**92.3%**	**5.5%**	**100%**

*By study definition, non-time loss injuries were fractures, concussions, dental injuries, and exertional heat events. Because they accounted for less than 3% of all injuries, they are not included in any other analyses in this report.

Table 2.3 Demographic Characteristics of Injured Athletes by Sex, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

	Male	Female
Year in School	**n=5,999**	**n=2,733**
Freshman	22.7%	27.8%
Sophomore	24.2%	26.2%
Junior	25.3%	23.8%
Senior	27.8%	22.2%
Total†	**100%**	**100%**
Age (years)		
Minimum	13	13
Maximum	19	19
Mean (St. Dev.)	15.9 (1.3)	15.7 (1.2)
BMI		
Minimum	11.2	14.6
Maximum	55.2	48.6
Mean (St. Dev.)	25.2 (4.8)	22.4 (3.6)

*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, 2014-15 School Year

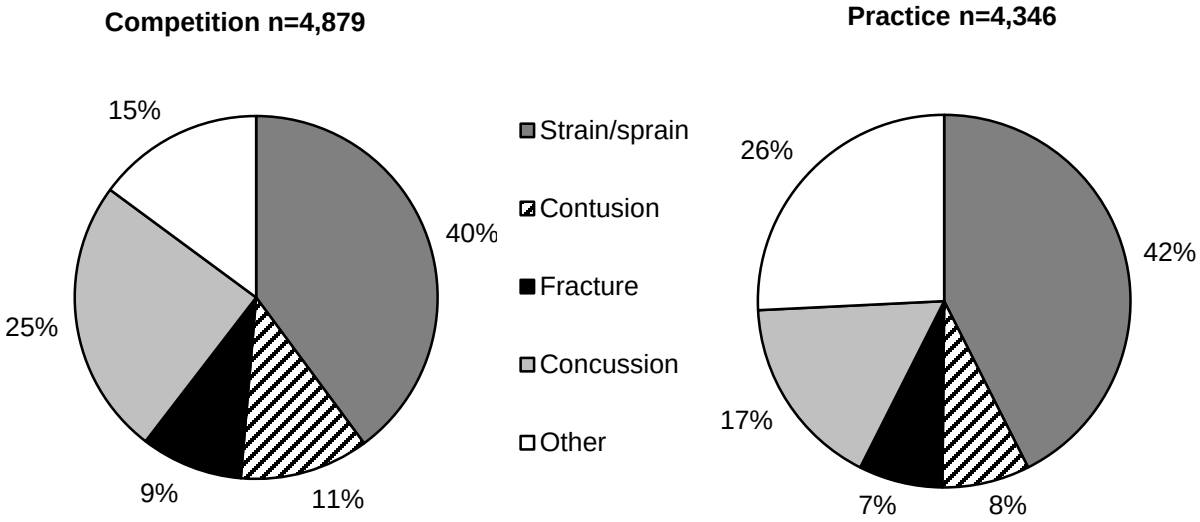


Table 2.4 Body Site of Injury by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall*	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	1,350	27.6%	882	20.3%	2,245	24.2%
Ankle	773	15.8%	670	15.4%	1,447	15.6%
Knee	733	15.0%	570	13.1%	1,303	14.1%
Hip/thigh/upper leg	400	8.2%	537	12.3%	939	10.1%
Hand/wrist	364	7.4%	323	7.4%	689	7.4%
Shoulder	362	7.4%	293	6.7%	657	7.1%
Lower leg	182	3.7%	305	7.0%	487	5.3%
Trunk	213	4.4%	260	6.0%	474	5.1%
Foot	152	3.1%	182	4.2%	334	3.6%
Arm/elbow	171	3.5%	155	3.6%	329	3.5%
Neck	76	1.6%	77	1.8%	154	1.7%
Other	115	2.4%	96	2.2%	212	2.3%
Total	**4,891**	**100%**	**4,350**	**100%**	**9,270**	**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, 2014-15 School Year

	Male		Female		Total	
	n	% of ankle injuries	n	% of ankle injuries	n	% of ankle injuries
Ankle Ligament						
Anterior talofibular ligament	592	71.5%	426	73.6%	1,018	72.4%
Calcaneofibular ligament	220	26.6%	174	30.1%	394	28.0%
Anterior tibiofibular ligament	179	21.6%	100	17.3%	279	19.8%
Posterior talofibular ligament	87	10.5%	82	14.2%	169	12.0%
Deltoid ligament	52	6.3%	40	6.9%	92	6.5%
Posterior tibiofibular ligament	41	5.0%	16	2.8%	57	4.1%
Total Ankle Injuries	**828**		**579**		**1,407**	

*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, 2014-15 School Year

	Male		Female		Total	
	n	% of knee injuries	n	% of knee injuries	n	% of knee injuries
Knee Ligament						
Patella/patellar tendon	187	22.3%	141	32.6%	328	25.8%
Medial collateral ligament	247	29.4%	79	18.3%	326	25.6%
Anterior cruciate ligament	163	19.4%	110	25.5%	273	21.5%
Torn cartilage (meniscus)	146	17.4%	78	18.1%	224	17.6%
Lateral collateral ligament	66	7.9%	25	5.8%	91	7.2%
Posterior cruciate ligament	22	2.6%	2	0.5%	24	1.9%
Total Knee Injuries	**840**		**432**		**1,272**	

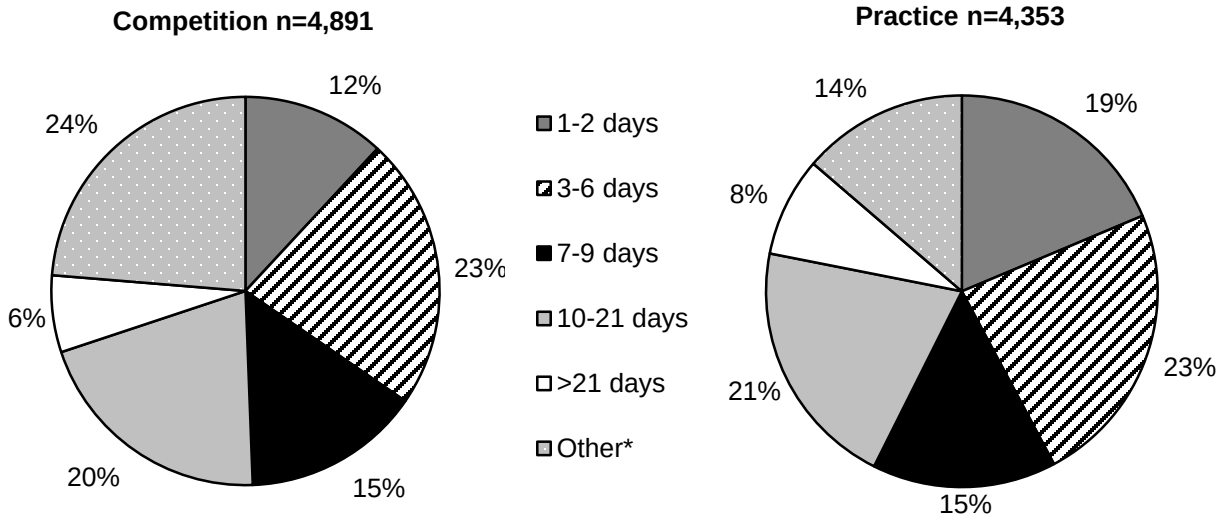
*Multiple responses allowed per injury report.
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.7 Ten Most Common Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=4,879		Practice n=4,343		Overall n=9,251	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	1,200	24.6%	727	16.7%	1,936	20.9%
Ankle strain/sprain	714	14.6%	614	14.1%	1,331	14.4%
Hip/thigh/upper leg strain/sprain	273	5.6%	431	9.9%	705	7.6%
Knee strain/sprain	434	8.9%	226	5.2%	660	7.1%
Knee other	196	4.0%	275	6.3%	471	5.1%
Shoulder other	184	3.8%	153	3.5%	337	3.6%
Hand/wrist fracture	174	3.6%	141	3.2%	316	3.4%
Shoulder strain/sprain	150	3.1%	118	2.7%	270	2.9%
Trunk strain/sprain	77	1.6%	134	3.1%	212	2.3%
Lower leg other	29	0.6%	176	4.1%	205	2.2%

†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, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	375	7.8%	210	4.9%	587	6.4%
Did not require surgery	4,452	92.2%	4,106	95.1%	8,585	93.6%
Total	**4,827**	**100%**	**4,316**	**100%**	**9,172**	**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, 2014-15 School Year

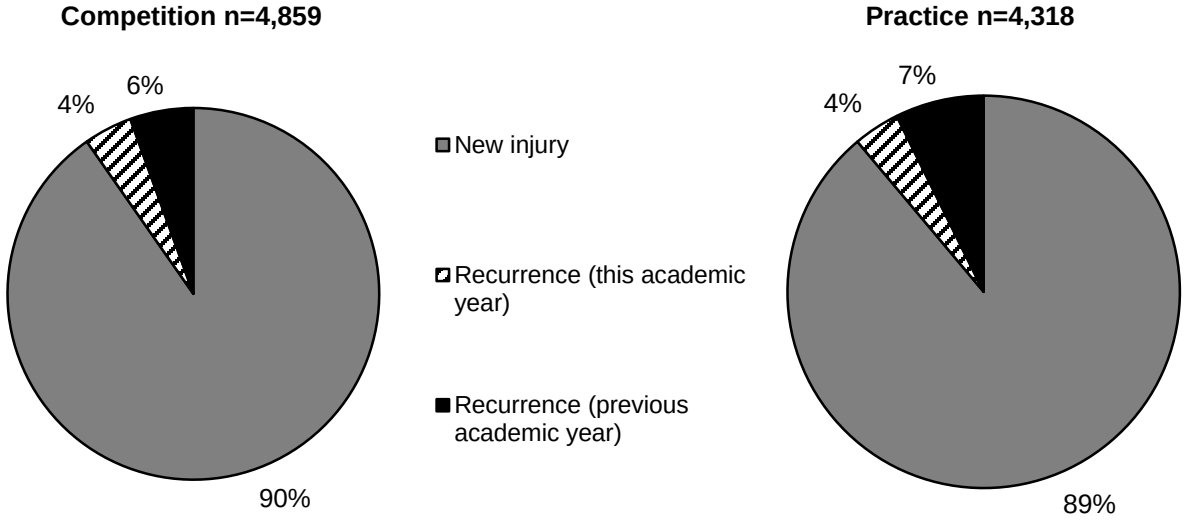


Table 2.9 Time during Season of Injury, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	1,916	20.8%
Regular season	6,924	75.3%
Post season	360	3.9%
Total	**9,200**	**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, 2014-15 School Year

	n	%
Time in Practice		
First ½ hour	479	11.8%
Second ½ hour	901	22.2%
1-2 hours into practice	2,323	57.3%
> 2 hours into practice	350	8.6%
Total	**4,053**	**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, 2014-15 School Year

	n	%
% of Injuries Evaluated by:*		
Certified athletic trainer	8,573	92.5%
General physician	2,500	27.0%
Orthopedic physician	2,076	22.4%
Neurologist	87	0.9%
Physician's assistant	86	0.9%
Chiropractor	68	0.7%
Nurse practitioner	49	0.5%
Dentist/oral surgeon	20	0.2%
Other	194	2.1%
Total	**9,273**	**100%**
% of Injuries Assessed by:*		
Evaluation	9,005	97.1%
X-ray	3,172	34.2%
MRI	987	10.6%
CT-scan	266	2.9%
Blood work/lab test	93	1.0%
Other	85	0.9%
Total	**9,273**	**100%**

*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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**3,620**	**919,659**	**3.94**
Competition	1,957	157,332	12.44
Practice	1,663	762,327	2.18

Table 3.2 Demographic Characteristics of Injured Football Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=3,538**
Freshman	23.6%
Sophomore	24.4%
Junior	24.8%
Senior	27.2%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.8 (1.4)
BMI	
Minimum	11.9
Maximum	55.2
Mean (St. Dev.)	26.4 (5.1)

*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 3.1 Diagnosis of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

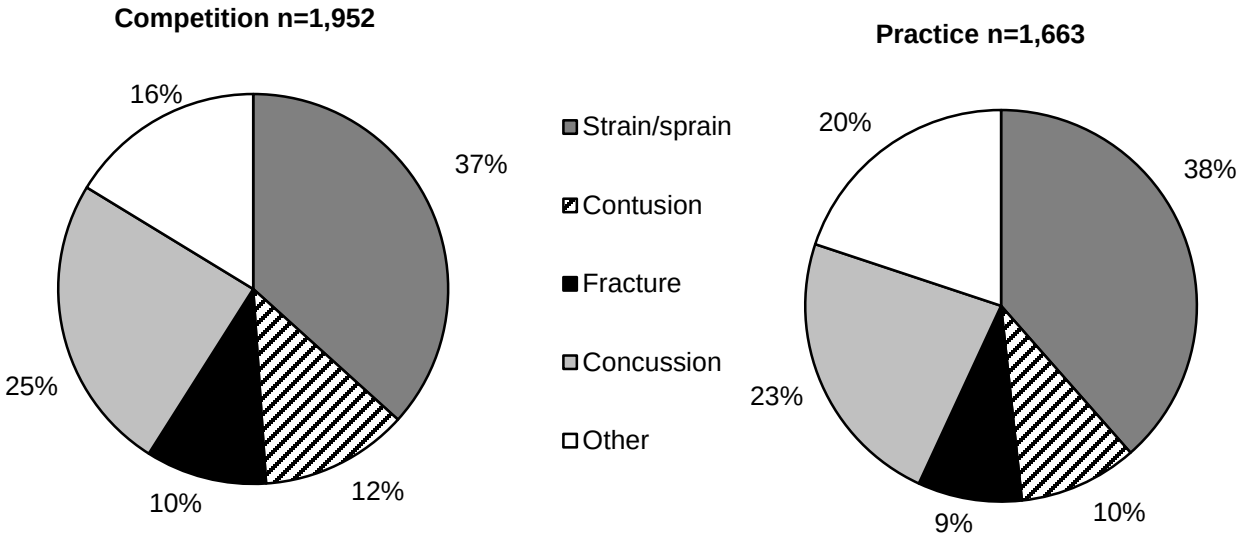


Table 3.3 Body Site of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	497	25.4%	414	24.9%	911	25.2%
Knee	314	16.0%	206	12.4%	520	14.4%
Ankle	262	13.4%	193	11.6%	455	12.6%
Shoulder	209	10.7%	138	8.3%	347	9.6%
Hand/wrist	169	8.6%	165	9.9%	334	9.2%
Hip/thigh/upper leg	119	6.1%	162	9.8%	281	7.8%
Trunk	93	4.8%	99	6.0%	192	5.3%
Lower leg	80	4.1%	75	4.5%	155	4.3%
Arm/elbow	62	3.2%	61	3.7%	123	3.4%
Foot	50	2.6%	50	3.0%	100	2.8%
Neck	42	2.1%	45	2.7%	87	2.4%
Other	60	3.1%	53	3.2%	113	3.1%
Total	**1,957**	**100%**	**1,661**	**100%**	**3,618**	**100%**

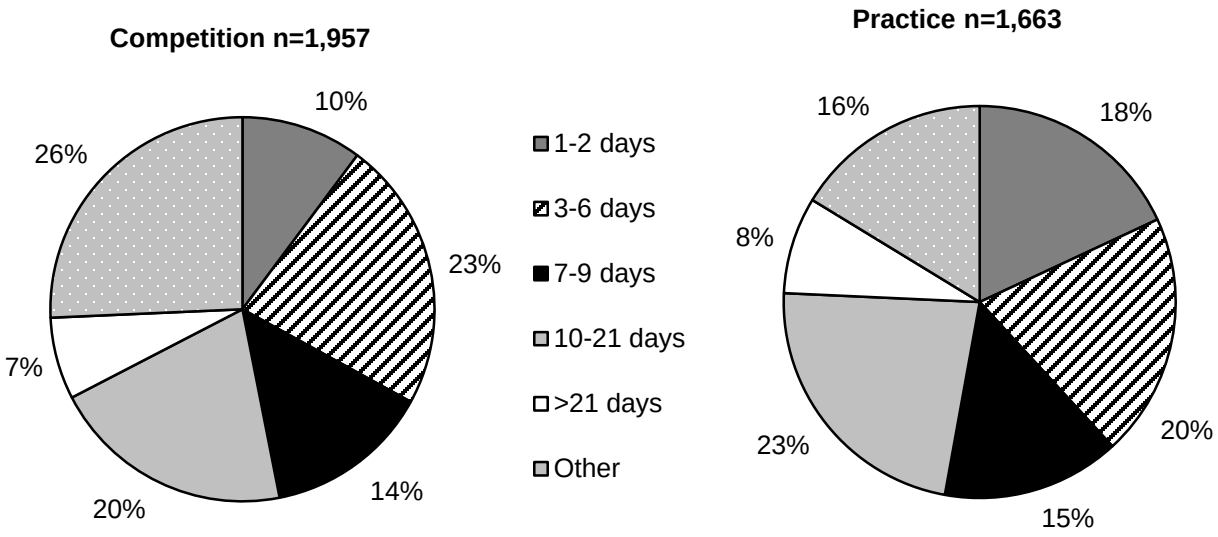
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 3.4 Ten Most Common Football Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=1,952		Practice n=1,661		Total n=3,613	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	480	24.6%	384	23.1%	864	23.9%
Ankle strain/sprain	236	12.1%	180	10.8%	416	11.5%
Knee strain/sprain	204	10.5%	109	6.6%	313	8.7%
Shoulder other	118	6.0%	77	4.6%	195	5.4%
Hip/thigh/upper leg strain/sprain	58	3.0%	126	7.6%	184	5.1%
Hand/wrist fracture	76	3.9%	74	4.5%	150	4.2%
Knee other	71	3.6%	68	4.1%	139	3.8%
Shoulder strain/sprain	73	3.7%	44	2.6%	117	3.2%
Hand/wrist strain/sprain	42	2.2%	40	2.4%	82	2.3%
Trunk contusion	50	2.6%	22	1.3%	72	2.0%

†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, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	183	9.5%	87	5.3%	270	7.5%
Did not require surgery	1,745	90.5%	1,563	94.7%	3,308	92.5%
Total	**1,928**	**100%**	**1,650**	**100%**	**3,578**	**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, 2014-15 School Year

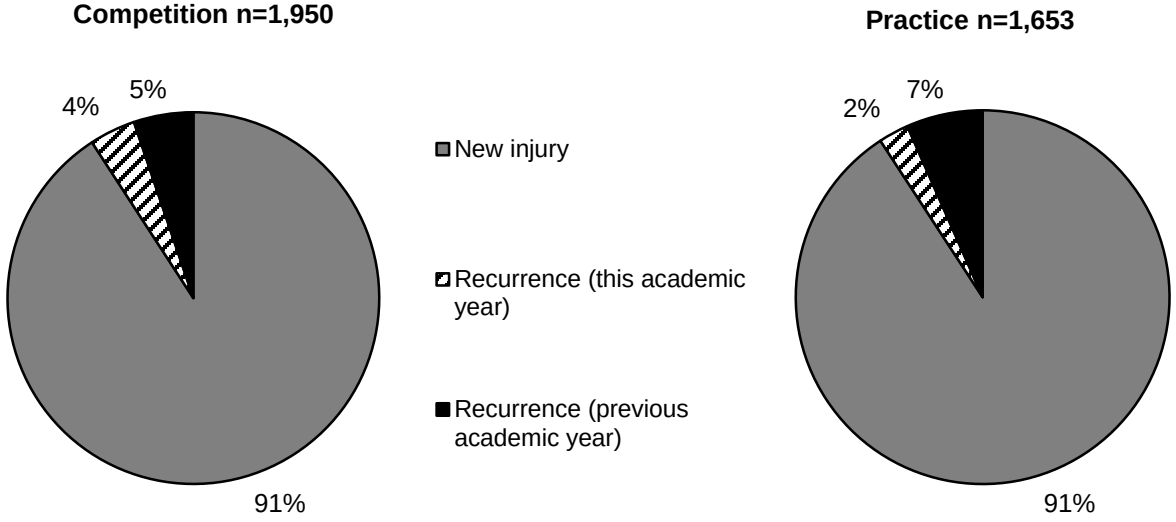


Table 3.6 Time during Season of Football Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	863	24.0%
Regular season	2,597	72.3%
Post season	131	3.7%
Total	**3,591**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	19	1.1%
First quarter	184	10.3%
Second quarter	555	31.1%
Third quarter	552	31.0%
Fourth quarter	471	26.4%
Overtime	1	0.1%
Total	**1,782**	**100%**
Field Location		
Between the 20 yard lines	1,366	77.7%
Red zone (20 yard line to goal line)	342	19.5%
End zone	29	1.6%
Off the field	21	1.2%
Total	**1,758**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	140	9.0%
Second 1/2 hour	308	19.8%
1-2 hours into practice	916	58.9%
>2 hours into practice	192	12.3%
Total	**1,556**	**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, 2014-15 School Year

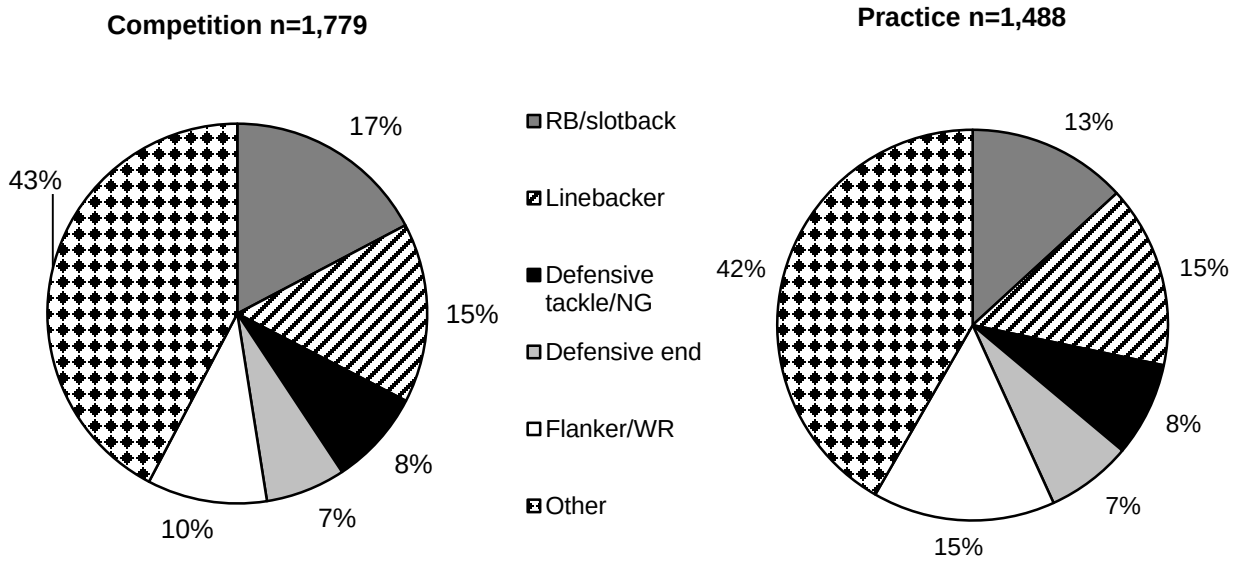


Table 3.9 Activities Leading to Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Being tackled	618	34.0%	297	19.2%	915	27.2%
Tackling	482	26.5%	273	17.6%	755	22.4%
Blocking	272	14.9%	261	16.9%	533	15.8%
Being blocked	159	8.7%	123	7.9%	282	8.4%
N/A (e.g., overuse, heat illness, etc.)	37	2.0%	174	11.2%	211	6.3%
Stepped on/fell on/kicked	104	5.7%	102	6.6%	206	6.1%
Rotation around a planted foot/inversion	70	3.8%	113	7.3%	183	5.4%
Uneven playing surface	7	0.4%	35	2.3%	42	1.2%
Contact with ball	7	0.4%	31	2.0%	38	1.1%
Contact with blocking sled/dummy	0	0.0%	16	1.0%	16	0.5%
Contact with goal posts/yard marker/etc.	0	0.0%	4	0.3%	4	0.1%
Other	64	3.5%	119	7.7%	183	5.4%
Total	**1,820**	**100%**	**1,548**	**100%**	**3,368**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Being tackled	295	23.1%	143	37.3%	88	28.5%	275	34.3%	112	18.8%
Tackling	192	15.1%	92	24.0%	76	24.6%	256	32.0%	137	23.0%
Blocking	221	17.3%	48	12.5%	41	13.3%	136	17.0%	86	14.5%
Being blocked	82	6.4%	35	9.1%	20	6.5%	102	12.7%	43	7.2%
No contact (overuse/illness)	92	7.2%	2	0.5%	3	1.0%	2	0.2%	112	18.8%
Other	393	30.8%	63	16.4%	81	26.2%	30	3.7%	105	17.6%
Total	**1,275**	**100%**	**383**	**100%**	**309**	**100%**	**801**	**100%**	**595**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**575**	**330,072**	**1.74**
Competition	376	101,172	3.72
Practice	199	228,900	0.87

Table 4.2 Demographic Characteristics of Injured Boys' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=556**
Freshman	20.0%
Sophomore	20.1%
Junior	23.7%
Senior	36.2%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	16.0 (1.3)
BMI	
Minimum	13.7
Maximum	34.9
Mean (St. Dev.)	22.4 (2.7)

*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, 2014-15 School Year

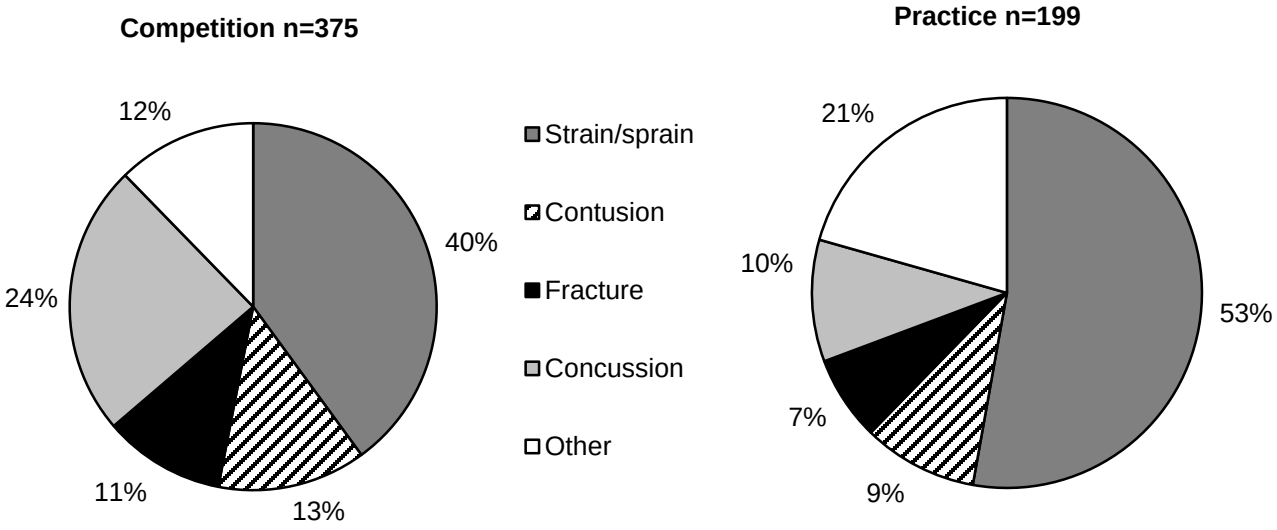


Table 4.3 Body Site of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	111	29.5%	24	12.1%	135	23.5%
Hip/thigh/upper leg	55	14.6%	50	25.1%	105	18.3%
Ankle	54	14.4%	34	17.1%	88	15.3%
Knee	55	14.6%	29	14.6%	84	14.6%
Lower leg	24	6.4%	15	7.5%	39	6.8%
Foot	18	4.8%	18	9.0%	36	6.3%
Trunk	18	4.8%	11	5.5%	29	5.0%
Hand/wrist	11	2.9%	10	5.0%	21	3.7%
Shoulder	10	2.7%	2	1.0%	12	2.1%
Arm/elbow	9	2.4%	1	0.5%	10	1.7%
Neck	3	0.8%	1	0.5%	4	0.7%
Other	8	2.1%	4	2.0%	12	2.1%
Total	**376**	**100%**	**199**	**100%**	**575**	**100%**

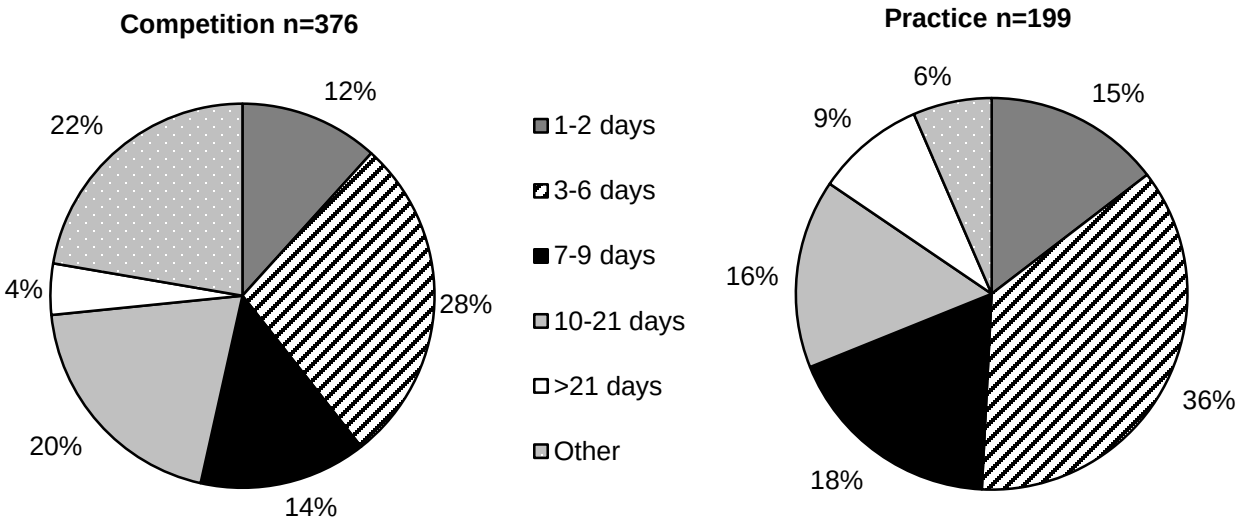
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 4.4 Ten Most Common Boys' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=375		Practice n=199		Total n=574	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	90	24.0%	20	10.1%	110	19.2%
Hip/thigh/upper leg strain/sprain	42	11.2%	42	21.1%	84	14.6%
Ankle strain/sprain	49	13.1%	28	14.1%	77	13.4%
Knee strain/sprain	33	8.8%	11	5.5%	44	7.7%
Knee other	15	4.0%	14	7.0%	29	5.1%
Trunk strain/sprain	6	1.6%	10	5.0%	16	2.8%
Foot contusion	9	2.4%	6	3.0%	15	2.6%
Lower leg strain/sprain	8	2.1%	5	2.5%	13	2.3%
Hip/thigh/upper leg contusion	10	2.7%	3	1.5%	13	2.3%
Hand/wrist fracture	7	1.9%	5	2.5%	12	2.1%

†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, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	25	6.8%	3	1.5%	28	4.9%
Did not require surgery	345	93.2%	194	98.5%	539	95.1%
Total	**370**	**100%**	**197**	**100%**	**567**	**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, 2014-15 School Year

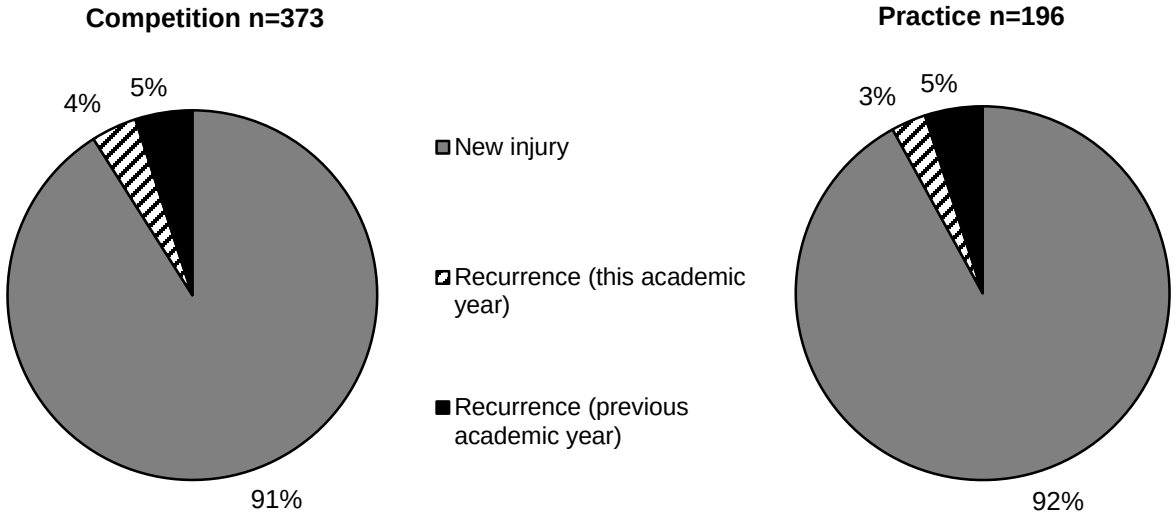


Table 4.6 Time during Season of Boys' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	99	17.3%
Regular season	442	77.3%
Post season	31	5.4%
Total	**572**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	5	1.5%
First half	101	30.0%
Second half	228	67.7%
Overtime	3	0.9%
Total	**337**	**100%**
Field Location		
Top of goal box extended to center line (offense)	106	33.0%
Top of goal box extended to center line (defense)	75	23.4%
Goal box (defense)	43	13.4%
Side of goal box (offense)	36	11.2%
Side of goal box (defense)	30	9.3%
Goal box (offense)	25	7.8%
Off the field	6	1.9%
Total	**321**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	14	7.4%
Second 1/2 hour	46	24.3%
1-2 hours into practice	114	60.3%
>2 hours into practice	15	7.9%
Total	**189**	**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, 2014-15 School Year

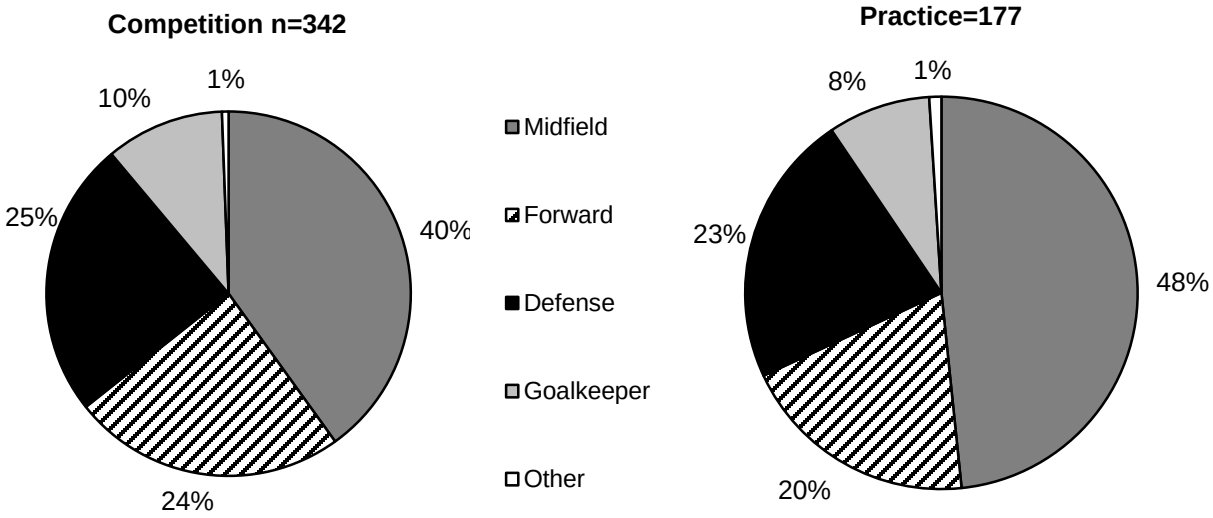


Table 4.9 Activities Leading to Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	73	21.2%	64	34.6%	137	25.9%
Defending	48	14.0%	18	9.7%	66	12.5%
Chasing loose ball	46	13.4%	13	7.0%	59	11.2%
Shooting (foot)	23	6.7%	21	11.4%	44	8.3%
Ball handling/dribbling	30	8.7%	13	7.0%	43	8.1%
Heading ball	33	9.6%	8	4.3%	41	7.8%
Goaltending	28	8.1%	12	6.5%	40	7.6%
Passing (foot)	18	5.2%	8	4.3%	26	4.9%
Receiving pass	19	5.5%	2	1.1%	21	4.0%
Conditioning	0	0.0%	19	10.3%	19	3.6%
Receiving a slide tackle	12	3.5%	2	1.1%	14	2.6%
Blocking shot	6	1.7%	2	1.1%	8	1.5%
Attempting a slide tackle	3	0.9%	0	0.0%	3	0.6%
Other	5	1.5%	3	1.6%	8	1.5%
Total	**344**	**100%**	**185**	**100%**	**529**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	67	27.9%	11	18.3%	12	24.0%	16	16.3%	30	37.5%
Defending	24	10.0%	12	20.0%	4	8.0%	20	20.4%	6	7.5%
Ball handling/ dribbling	24	10.0%	8	13.3%	5	10.0%	3	3.1%	3	3.8%
Chasing loose ball	31	12.9%	6	10.0%	6	12.0%	9	9.2%	7	8.8%
Heading ball	4	1.7%	4	6.7%	3	6.0%	24	24.5%	6	7.5%
Other	90	37.5%	19	31.7%	20	40.0%	26	26.5%	28	34.9%
Total	**240**	**100%**	**60**	**100%**	**50**	**100%**	**98**	**100%**	**80**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**832**	**308,502**	**2.70**
Competition	582	98,288	5.92
Practice	250	210,214	1.19

Table 5.2 Demographic Characteristics of Injured Girls' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=813**
Freshman	29.2%
Sophomore	26.3%
Junior	23.7%
Senior	20.8%
Total†	**100%**
Age (years)	
Minimum	12
Maximum	19
Mean (St. Dev.)	15.6 (1.2)
BMI	
Minimum	15.1
Maximum	32.6
Mean (St. Dev.)	22.2 (2.9)

*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 5.1 Diagnosis of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

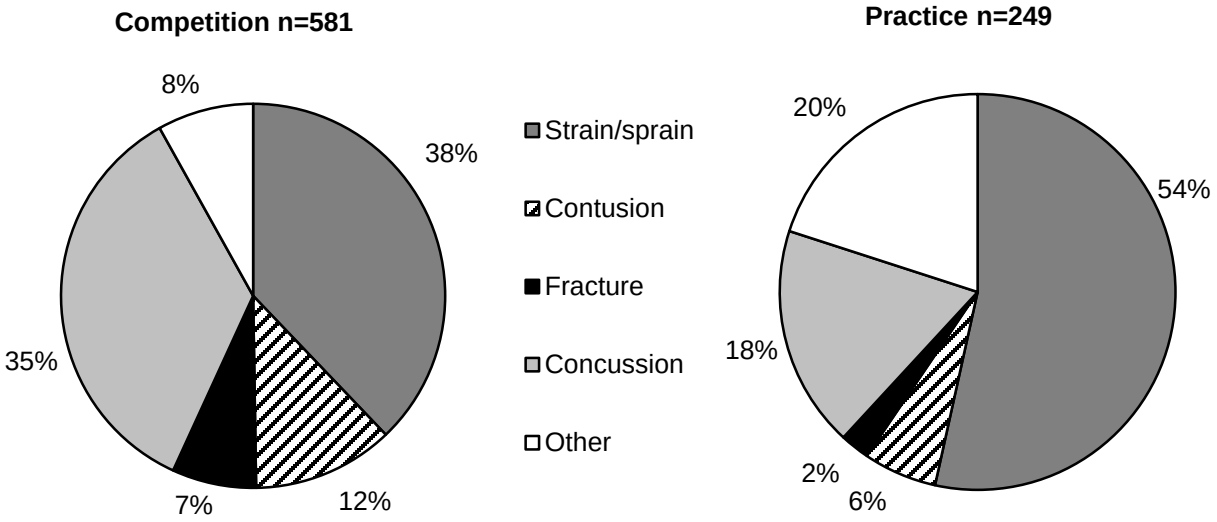


Table 5.3 Body Site of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	222	38.1%	52	20.8%	274	32.9%
Ankle	100	17.2%	60	24.0%	160	19.2%
Knee	104	17.9%	29	11.6%	133	16.0%
Hip/thigh/upper leg	41	7.0%	52	20.8%	93	11.2%
Lower leg	26	4.5%	24	9.6%	50	6.0%
Foot	29	5.0%	13	5.2%	42	5.0%
Trunk	14	2.4%	6	2.4%	20	2.4%
Hand/wrist	11	1.9%	6	2.4%	17	2.0%
Arm/elbow	12	2.1%	2	0.8%	14	1.7%
Shoulder	10	1.7%	0	0.0%	10	1.2%
Neck	6	1.0%	3	1.2%	9	1.1%
Other	7	1.2%	3	1.2%	10	1.2%
Total	**582**	**100%**	**250**	**100%**	**832**	**100%**

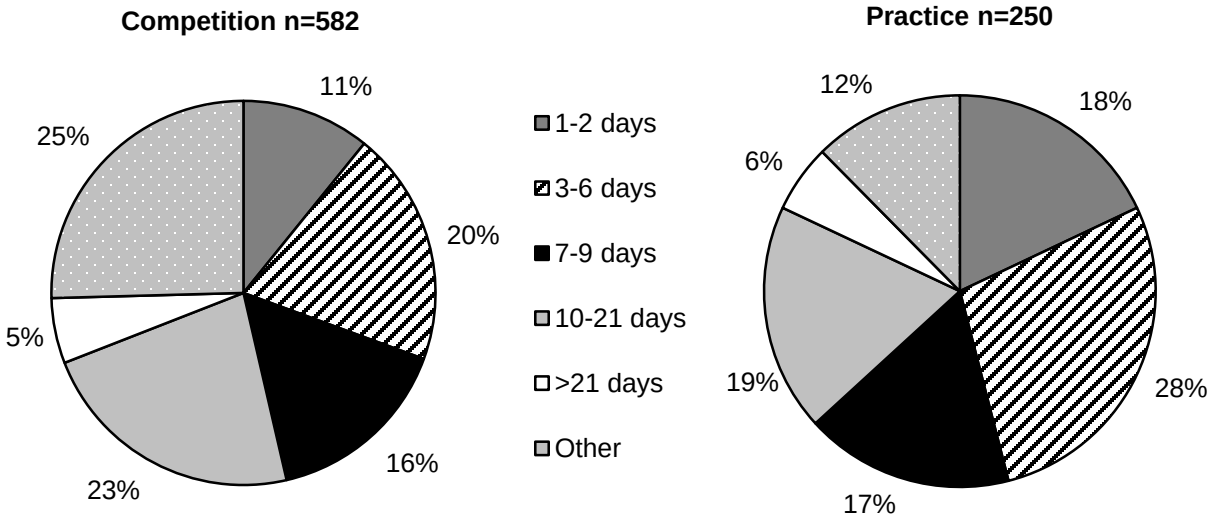
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 5.4 Ten Most Common Girls' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=581		Practice n=249		Total n=830	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	203	34.9%	45	18.1%	248	29.9%
Ankle strain/sprain	91	15.7%	55	22.1%	146	17.6%
Knee strain/sprain	67	11.5%	8	3.2%	75	9.0%
Hip/thigh/upper leg strain/sprain	26	4.5%	48	19.3%	74	8.9%
Knee other	20	3.4%	18	7.2%	38	4.6%
Lower leg other	6	1.0%	16	6.4%	22	2.7%
Knee contusion	16	2.8%	2	0.8%	18	2.2%
Foot strain/sprain	11	1.9%	5	2.0%	16	1.9%
Lower leg contusion	11	1.9%	1	0.4%	12	1.4%
Hip/thigh/upper leg contusion	11	1.9%	0	0.0%	11	1.3%

†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, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	46	8.0%	12	4.8%	58	7.0%
Did not require surgery	531	92.0%	238	95.2%	769	93.0%
Total	**577**	**100%**	**250**	**100%**	**827**	**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, 2014-15 School Year

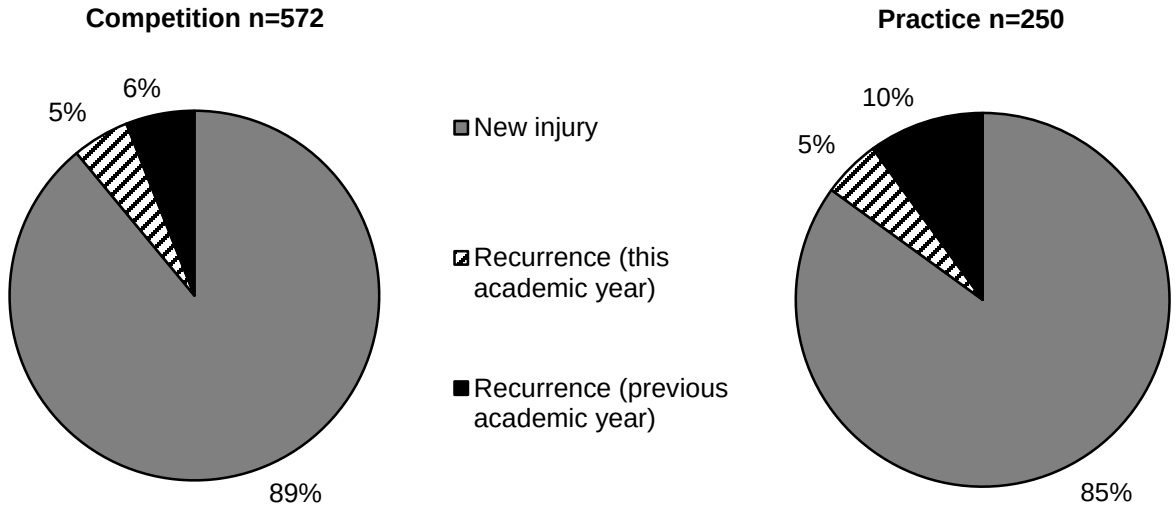


Table 5.6 Time during Season of Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	130	15.8%
Regular season	652	79.0%
Post season	43	5.2%
Total	**825**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	6	1.1%
First half	191	36.6%
Second half	324	62.1%
Overtime	1	0.2%
Total	**522**	**100.0%**
Field Location		
Top of goal box extended to center line (offense)	149	29.8%
Top of goal box extended to center line (defense)	90	18.0%
Goal box (defense)	86	17.2%
Side of goal box (offense)	62	12.4%
Goal box (offense)	56	11.2%
Side of goal box (defense)	53	10.6%
Off the field	4	0.8%
Total	**500**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	21	8.9%
Second 1/2 hour	56	23.8%
1-2 hours into practice	143	60.9%
>2 hours into practice	15	6.4%
Total	**235**	**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, 2014-15 School Year

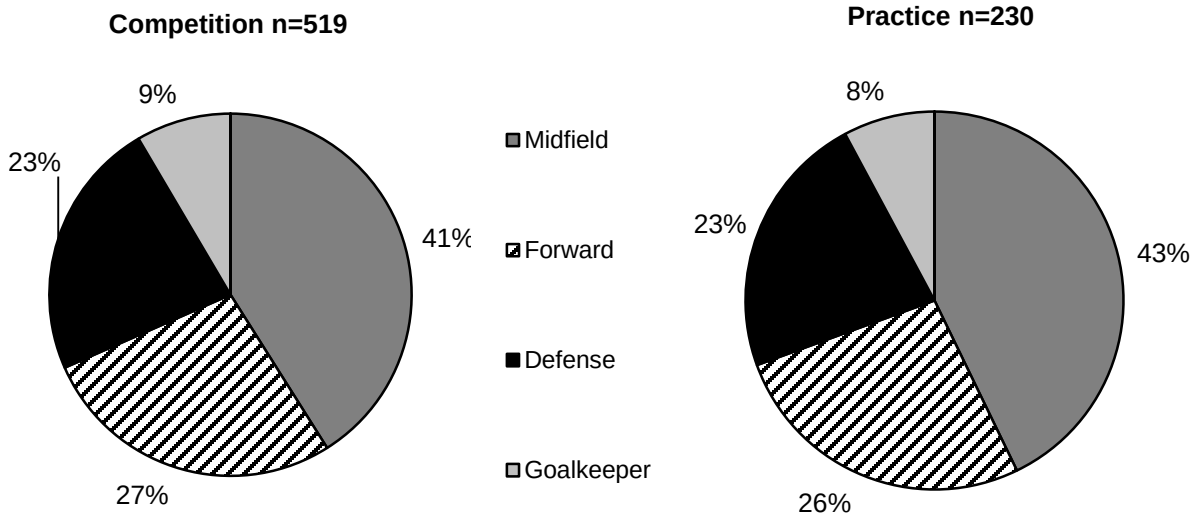


Table 5.9 Activities Leading to Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	93	17.6%	63	27.6%	156	20.6%
Defending	117	22.1%	19	8.3%	136	18.0%
Ball handling/dribbling	56	10.6%	29	12.7%	85	11.2%
Heading ball	71	13.4%	11	4.8%	82	10.8%
Chasing loose ball	61	11.5%	12	5.3%	73	9.6%
Goaltending	34	6.4%	8	3.5%	42	5.5%
Passing (foot)	26	4.9%	15	6.6%	41	5.4%
Shooting (foot)	20	3.8%	16	7.0%	36	4.8%
Receiving pass	24	4.5%	8	3.5%	32	4.2%
Conditioning	0	0.0%	28	12.3%	28	3.7%
Blocking shot	12	2.3%	4	1.8%	16	2.1%
Receiving a slide tackle	5	0.9%	2	0.9%	7	0.9%
Attempting a slide tackle	4	0.8%	2	0.9%	6	0.8%
Other	6	1.1%	11	4.8%	17	2.2%
Total	**529**	**100%**	**228**	**100%**	**757**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	74	23.1%	11	14.9%	2	4.8%	36	15.9%	33	35.5%
Defending	53	16.5%	23	31.1%	8	19.0%	43	19.0%	9	9.7%
Chasing loose ball	37	11.5%	7	9.5%	9	21.4%	15	6.6%	4	4.3%
Heading ball	3	0.9%	2	2.7%	4	9.5%	69	30.5%	4	4.3%
Ball handling /dribbling	46	14.6%	8	10.8%	6	14.3%	11	4.9%	14	15.1%
Other	108	33.6%	23	31.1%	13	31.0%	52	23.0%	29	31.2%
Total	**321**	**100%**	**74**	**100%**	**42**	**100%**	**226**	**100%**	**93**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**372**	**292,543**	**1.27**
Competition	164	97,074	1.69
Practice	208	195,469	1.06

Table 6.2 Demographic Characteristics of Injured Girls' Volleyball Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=362**
Freshman	54.6%
Sophomore	33.0%
Junior	7.6%
Senior	4.9%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.5 (1.2)
BMI	
Minimum	16.5
Maximum	31.4
Mean (St. Dev.)	21.4 (2.6)

*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, 2014-15 School Year

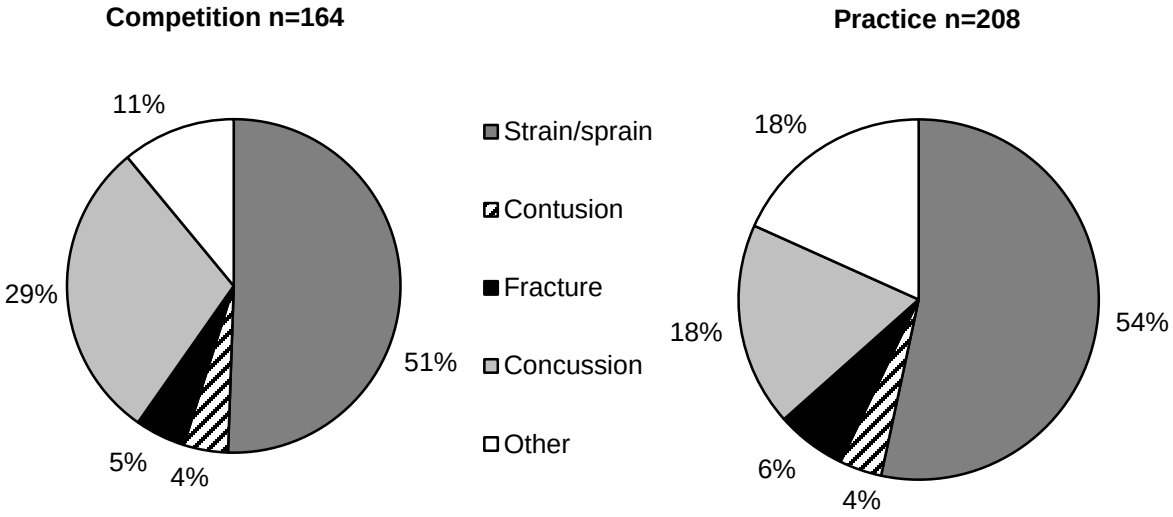


Table 6.3 Body Site of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

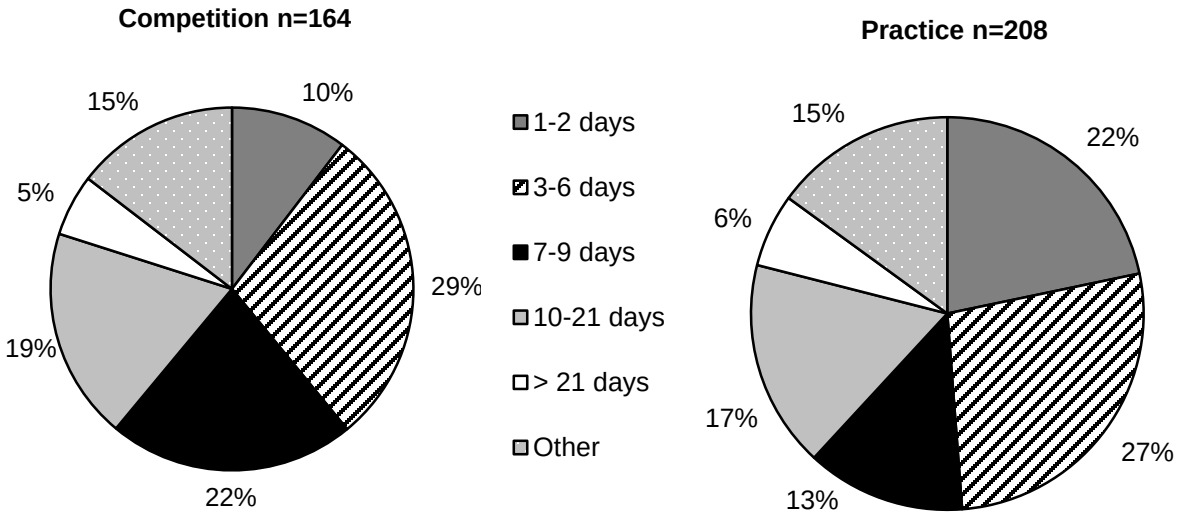
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Ankle	51	31.1%	67	32.2%	118	31.7%
Head/face	51	31.1%	42	20.2%	93	25.0%
Hand/wrist	10	6.1%	16	7.7%	26	7.0%
Knee	15	9.1%	17	8.2%	32	8.6%
Trunk	11	6.7%	12	5.8%	23	6.2%
Shoulder	10	6.1%	16	7.7%	26	7.0%
Hip/thigh/upper leg	5	3.0%	9	4.3%	14	3.8%
Lower leg	5	3.0%	9	4.3%	14	3.8%
Arm/elbow	4	2.4%	10	4.8%	14	3.8%
Foot	1	0.6%	7	3.4%	8	2.2%
Neck	1	0.6%	1	0.5%	2	0.5%
Other	0	0.0%	2	1.0%	2	0.5%
Total	**164**	**100%**	**208**	**100%**	**372**	**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, 2014-15 School Year

	Competition n=164		Practice n=208		Total n=372	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	48	29.3%	63	30.3%	111	29.8%
Head/face concussion	48	29.3%	38	18.3%	86	23.1%
Knee other	5	3.0%	10	4.8%	15	4.0%
Knee strain/sprain	8	4.9%	6	2.9%	14	3.8%
Hip/thigh/upper leg strain/sprain	4	2.4%	9	4.3%	13	3.5%
Shoulder strain/sprain	4	2.4%	9	4.3%	13	3.5%
Shoulder other	6	3.7%	7	3.4%	13	3.5%
Hand/wrist strain/sprain	4	2.4%	7	3.4%	11	3.0%
Arm/elbow other	2	1.2%	5	2.4%	7	1.9%
Hand/wrist fracture	2	1.2%	4	1.9%	6	1.6%

Figure 6.2 Time Loss of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	6	3.7%	8	3.8%	14	3.8%
Did not require surgery	156	96.3%	200	96.2%	356	96.2%
Total	**162**	**100%**	**208**	**100%**	**370**	**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, 2014-15 School Year

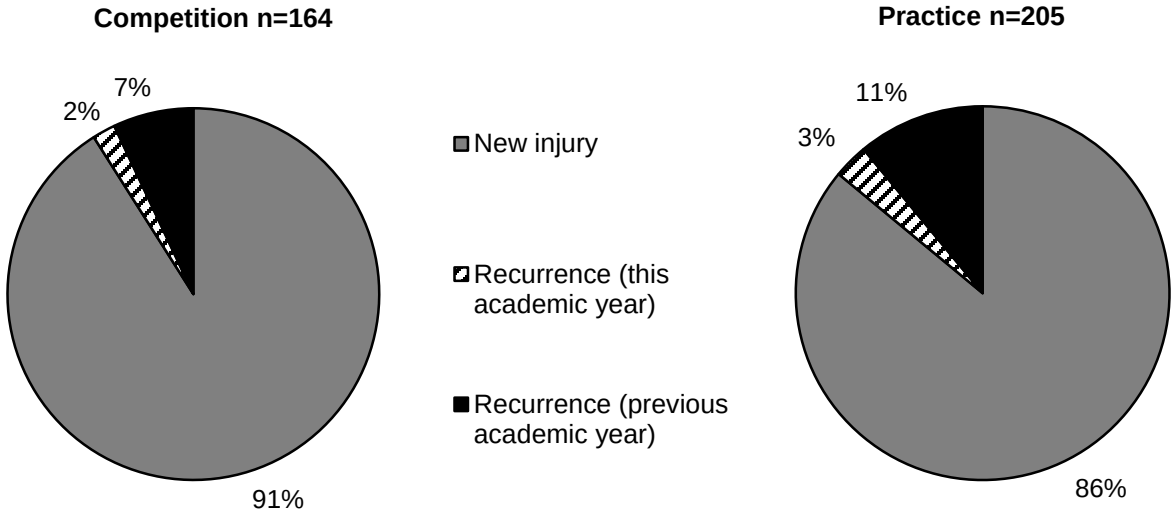


Table 6.6 Time during Season of Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	72	19.6%
Regular season	284	77.4%
Post season	11	3.0%
Total	**367**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	31	21.7%
First set	17	11.9%
Second set	57	39.9%
Third set	30	21.0%
Fourth set	6	4.2%
Fifth set	2	1.4%
Total	**143**	**100%**
Court Location		
Right forward	32	23.7%
Middle forward	27	20.0%
Left back	23	17.0%
Left forward	17	12.6%
Outside the playable area	11	8.1%
At the net	10	7.4%
Right back (server)	8	5.9%
Outside court (your side)	7	5.2%
Total	**135**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	23	11.9%
Second 1/2 hour	45	23.2%
1-2 hours into practice	114	58.8%
>2 hours into practice	12	6.2%
Total	**194**	**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, 2014-15 School Year

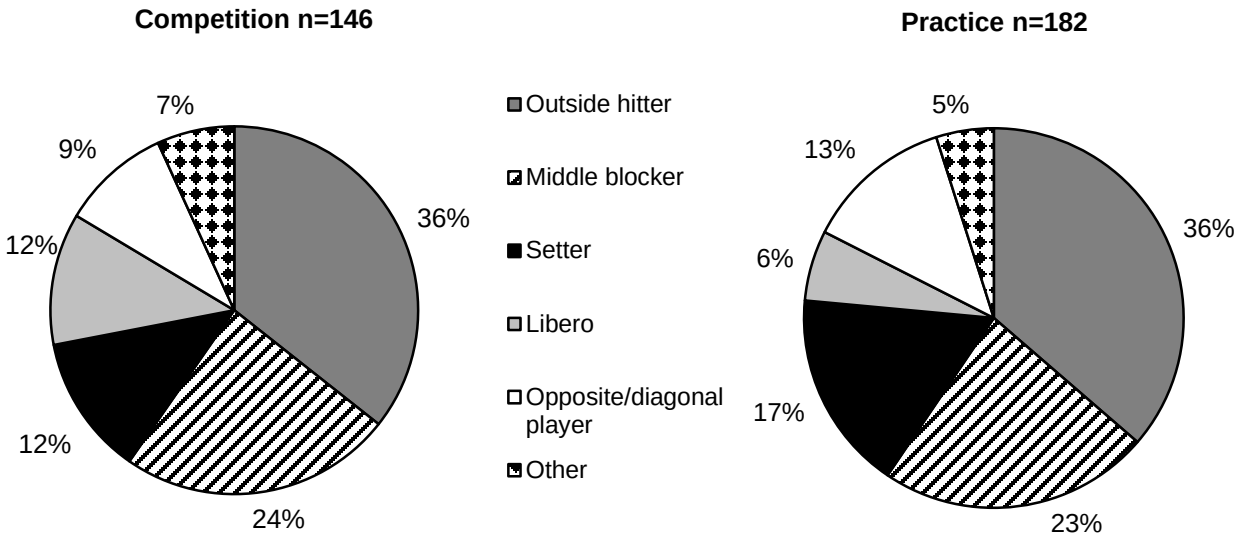


Table 6.9 Activities Leading to Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Activity						
Blocking	35	23.2%	42	22.3%	77	22.7%
General play	23	15.2%	49	26.1%	72	21.2%
Digging	33	21.9%	24	12.8%	57	16.8%
Spiking	21	13.9%	17	9.0%	38	11.2%
Passing	17	11.3%	7	3.7%	24	7.1%
Serving	9	6.0%	15	8.0%	24	7.1%
Setting	5	3.3%	12	6.4%	17	5.0%
Conditioning	0	0.0%	16	8.5%	16	4.7%
Other	8	5.3%	6	3.2%	14	4.1%
Total	**151**	**100%**	**188**	**100%**	**339**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	30	17.3%	3	20.0%	1	5.3%	19	23.5%	19	37.3%
Blocking	61	35.3%	2	13.3%	6	31.6%	5	6.2%	3	5.9%
Digging	17	9.8%	3	20.0%	4	21.1%	26	32.1%	7	13.7%
Spiking	22	12.7%	0	0.0%	3	15.8%	6	7.4%	7	13.7%
Passing	7	4.0%	2	13.3%	4	21.1%	9	11.1%	2	3.9%
Other	36	20.8%	5	33.3%	1	5.3%	16	19.8%	13	25.5%
Total	**173**	**100%**	**15**	**100%**	**19**	**100%**	**81**	**100%**	**51**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**551**	**412,372**	**1.34**
Competition	297	128,053	2.32
Practice	254	284,319	0.89

Table 7.2 Demographic Characteristics of Injured Boys' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=535**
Freshman	23.6%
Sophomore	25.4%
Junior	25.4%
Senior	25.6%
Total†	**100%**
Age (years)	
Minimum	14.0
Maximum	19.0
Mean (St. Dev.)	16.0 (1.2)
BMI	
Minimum	13.8
Maximum	34.3
Mean (St. Dev.)	24.5 (2.8)

*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, 2014-15 School Year

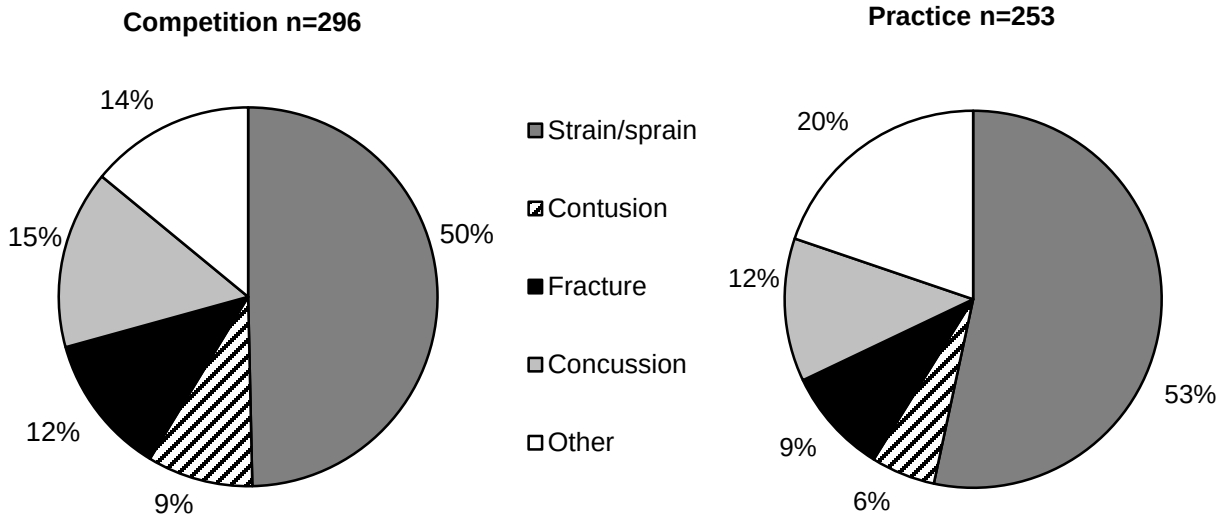


Table 7.3 Body Site of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Ankle	92	31.0%	85	33.5%	177	32.1%
Head/face	69	23.2%	43	16.9%	112	20.3%
Knee	30	10.1%	34	13.4%	64	11.6%
Hand/wrist	37	12.5%	28	11.0%	65	11.8%
Hip/thigh/upper leg	15	5.1%	16	6.3%	31	5.6%
Trunk	12	4.0%	15	5.9%	27	4.9%
Shoulder	16	5.4%	8	3.1%	24	4.4%
Foot	9	3.0%	13	5.1%	22	4.0%
Lower leg	7	2.4%	7	2.8%	14	2.5%
Arm/elbow	7	2.4%	3	1.2%	10	1.8%
Other	3	1.0%	2	0.8%	5	0.9%
Total	**297**	**100%**	**254**	**100%**	**551**	**100%**

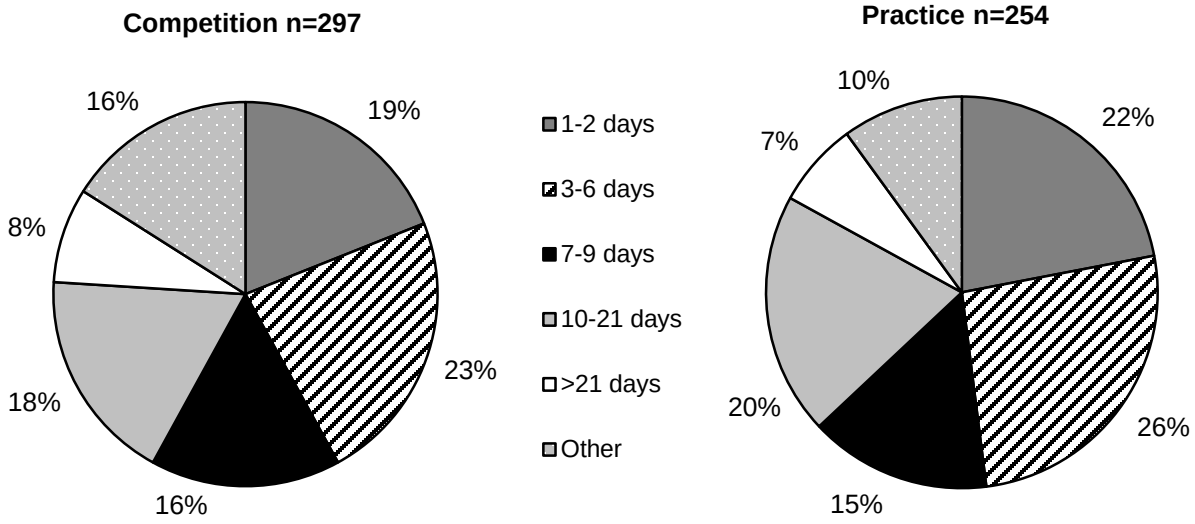
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 7.4 Ten Most Common Boys' Basketball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=296		Practice n=253		Total n=549	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	87	29.4%	82	32.4%	169	30.8%
Head/face concussion	44	14.9%	31	12.3%	75	13.7%
Knee other	12	4.1%	20	7.9%	32	5.8%
Hand/wrist fracture	17	5.7%	15	5.9%	32	5.8%
Knee strain/sprain	14	4.7%	10	4.0%	24	4.4%
Hand/wrist strain/sprain	16	5.4%	6	2.4%	22	4.0%
Hip/thigh/upper leg strain/sprain	7	2.4%	13	5.1%	20	3.6%
Head/face other	12	4.1%	8	3.2%	20	3.6%
Shoulder other	8	2.7%	5	2.0%	13	2.4%
Foot strain/sprain	5	1.7%	7	2.8%	12	2.2%

†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, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	19	6.4%	11	4.4%	30	5.5%
Did not require surgery	276	93.6%	240	95.6%	516	94.5%
Total	**295**	**100%**	**251**	**100%**	**546**	**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, 2014-15 School Year

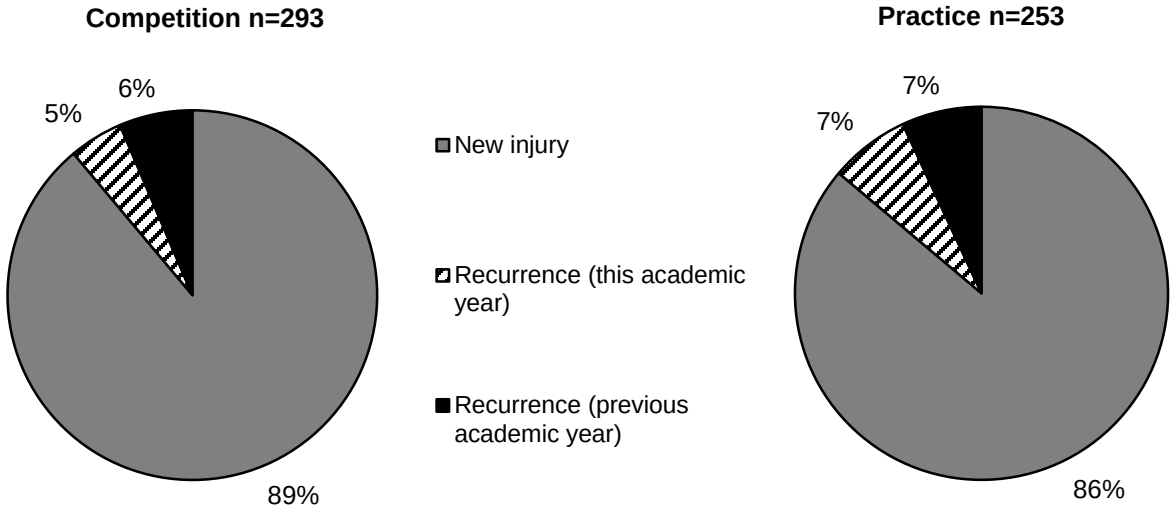


Table 7.6 Time during Season of Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	96	17.5%
Regular season	436	79.4%
Post season	17	3.1%
Total	**549**	**100%**

†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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition-warm-ups	4	1.5%
First quarter	28	10.6%
Second quarter	83	31.4%
Third quarter	77	29.2%
Fourth quarter	70	26.5%
Overtime	2	0.8%
Total	**264**	**100%**
Court Location		
Inside lane (defense)	82	32.5%
Inside lane (offense)	64	25.4%
Between 3 pt arc and lane (defense)	31	12.3%
Between 3 pt arc and lane (offense)	26	10.3%
Outside 3 point arc - offense	18	7.1%
Outside 3 point arc - defense	17	6.7%
Backcourt	7	2.8%
Out of bounds	4	1.6%
Off the court	3	1.2%
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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	31	13.1%
Second 1/2 hour	58	24.5%
1-2 hours into practice	129	54.4%
>2 hours into practice	19	8.0%
Total	**237**	**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, 2014-15 School Year

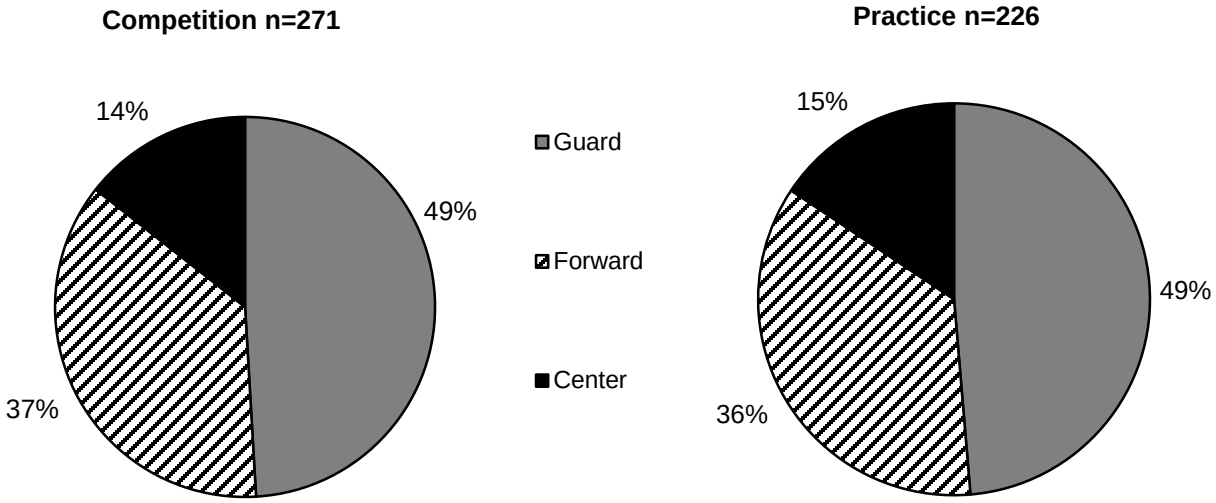


Table 7.9 Activities Leading to Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	47	17.5%	78	34.7%	125	25.3%
Rebounding	65	24.2%	56	24.9%	121	24.5%
Defending	61	22.7%	15	6.7%	76	15.4%
Shooting	31	11.5%	21	9.3%	52	10.5%
Chasing loose ball	27	10.0%	14	6.2%	41	8.3%
Ball handling/dribbling	17	6.3%	8	3.6%	25	5.1%
Receiving pass	9	3.3%	9	4.0%	18	3.6%
Conditioning	0	0.0%	18	8.0%	18	3.6%
Passing	3	1.1%	3	1.3%	6	1.2%
Other	8	3.0%	2	0.9%	10	2.0%
Total	**269**	**100%**	**225**	**100%**	**494**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Rebounding	88	34.0%	10	25.0%	6	11.3%	8	13.6%	9	11.0%
General play	67	25.9%	10	25.0%	11	20.8%	5	8.5%	31	37.8%
Defending	28	10.8%	9	22.5%	9	17.0%	19	32.2%	11	13.4%
Shooting	32	12.4%	2	5.0%	6	11.3%	5	8.5%	7	8.5%
Chasing loose ball	8	3.1%	3	7.5%	9	17.0%	13	22.0%	8	9.8%
Other	36	13.8%	6	15.0%	12	22.6%	9	15.2%	16	19.5%
Total	**259**	**100%**	**40**	**100%**	**53**	**100%**	**59**	**100%**	**82**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**576**	**312,827**	**1.84**
Competition	347	97,541	3.56
Practice	229	215,286	1.06

Table 8.2 Demographic Characteristics of Injured Girls' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=561**
Freshman	25.8%
Sophomore	27.6%
Junior	21.4%
Senior	25.1%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.7 (1.3)
BMI	
Minimum	16.6
Maximum	38.3
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 8.1 Diagnosis of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

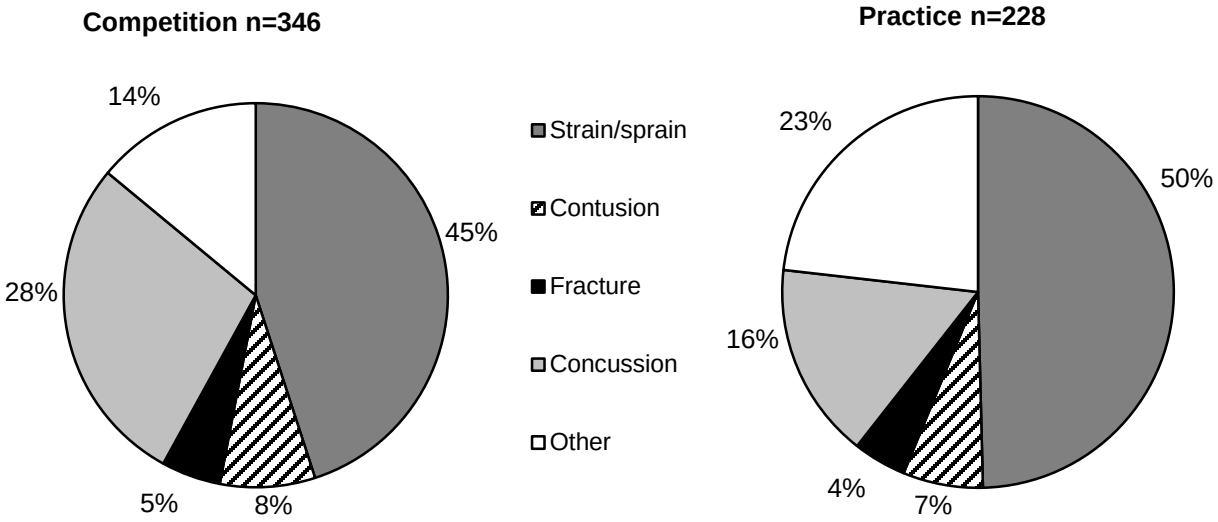


Table 8.3 Body Site of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

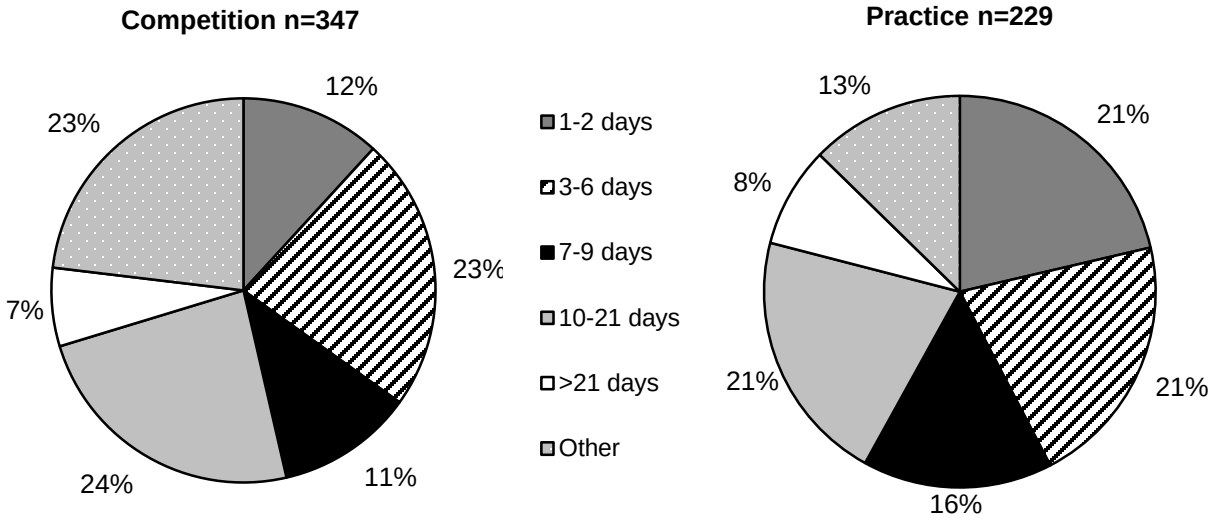
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Ankle	90	25.9%	59	25.8%	149	25.9%
Head/face	102	29.4%	42	18.3%	144	25.0%
Knee	73	21.0%	50	21.8%	123	21.4%
Hand/wrist	26	7.5%	13	5.7%	39	6.8%
Hip/thigh/upper leg	11	3.2%	23	10.0%	34	5.9%
Lower leg	5	1.4%	15	6.6%	20	3.5%
Foot	11	3.2%	8	3.5%	19	3.3%
Trunk	9	2.6%	9	3.9%	18	3.1%
Shoulder	10	2.9%	6	2.6%	16	2.8%
Arm/elbow	5	1.4%	4	1.7%	9	1.6%
Neck	3	0.9%	0	0.0%	3	0.5%
Other	2	0.6%	0	0.0%	2	0.3%
Total	**347**	**100%**	**229**	**100%**	**576**	**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, 2014-15 School Year

	Competition n=346		Practice n=228		Total n=574	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	88	25.4%	55	24.1%	143	24.9%
Head/face concussion	97	28.0%	37	16.2%	134	23.3%
Knee strain/sprain	39	11.3%	19	8.3%	58	10.1%
Knee other	24	6.9%	22	9.6%	46	8.0%
Hip/thigh/upper leg sprain/strain	7	2.0%	19	8.3%	26	4.5%
Knee contusion	10	2.9%	8	3.5%	18	3.1%
Hand/wrist strain/sprain	10	2.9%	7	3.1%	17	3.0%
Hand/wrist fracture	12	3.5%	5	2.2%	17	3.0%
Lower leg other	2	0.6%	11	4.8%	13	2.3%
Trunk other	3	0.9%	6	2.6%	9	1.6%

Figure 8.2 Time Loss of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	N	%
Need for surgery						
Required surgery	31	9.1%	13	5.8%	44	7.8%
Did not require surgery	311	90.9%	211	94.2%	522	92.2%
Total	**342**	**100%**	**224**	**100%**	**566**	**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, 2014-15 School Year

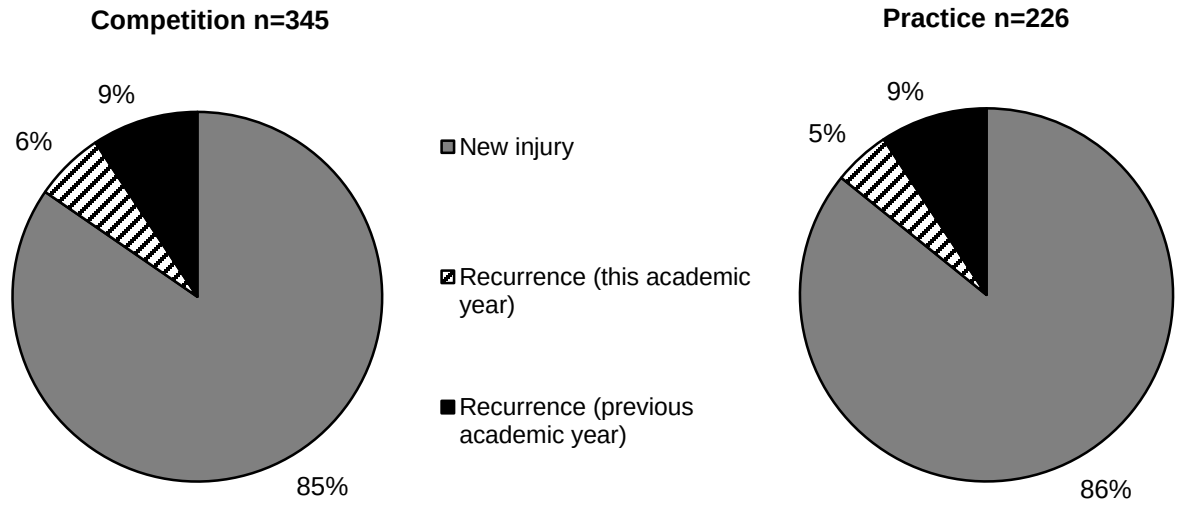


Table 8.6 Time during Season of Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	98	17.1%
Regular season	452	78.9%
Post season	23	4.0%
Total	**573**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/Warm-ups	12	3.9%
First quarter	28	9.1%
Second quarter	85	27.7%
Third quarter	105	34.2%
Fourth quarter	76	24.8%
Overtime	1	0.3%
Total	**307**	**100%**
Court Location		
Inside lane (defense)	66	23.1%
Inside lane (offense)	45	15.7%
Between 3 point arc and lane (defense)	43	15.0%
Between 3 point arc and lane (offense)	37	12.9%
Outside 3 point arc - offense	35	12.2%
Outside 3 point arc - defense	30	10.5%
Backcourt	16	5.6%
Off the court	8	2.8%
Out of bounds	6	2.1%
Total	**286**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	29	13.3%
Second 1/2 hour	41	18.8%
1-2 hours into practice	131	60.1%
>2 hours into practice	17	7.8%
Total	**218**	**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, 2014-15 School Year

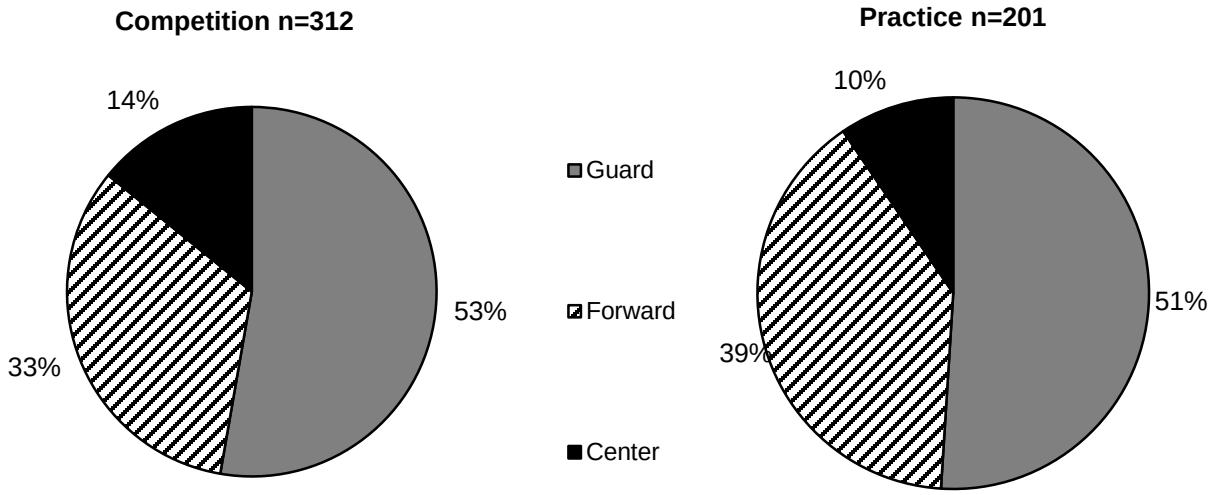


Table 8.9 Activities Leading to Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	81	25.4%	68	33.5%	149	28.5%
Defending	70	21.9%	26	12.8%	96	18.4%
Rebounding	56	17.6%	30	14.8%	86	16.5%
Chasing loose ball	46	14.4%	12	5.9%	58	11.1%
Shooting	17	5.3%	19	9.4%	36	6.9%
Ball handling/dribbling	23	7.2%	12	5.9%	35	6.7%
Receiving pass	13	4.1%	9	4.4%	22	4.2%
Conditioning	0	0.0%	21	10.3%	21	4.0%
Passing	5	1.6%	2	1.0%	7	1.3%
Other	7	2.2%	3	1.5%	10	1.9%
Total	**319**	**100%**	**203**	**100%**	**522**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	72	29.0%	8	20.0%	2	7.4%	19	16.1%	48	54.5%
Rebounding	40	16.1%	9	22.5%	6	22.2%	20	16.9%	10	11.4%
Defending	43	17.3%	8	20.0%	5	18.5%	29	24.6%	11	12.5%
Chasing loose ball	21	8.5%	4	10.0%	2	7.4%	29	24.6%	2	2.3%
Shooting	24	9.7%	3	7.5%	0	0.0%	7	5.9%	2	2.3%
Other	48	19.4%	8	20.0%	12	44.5%	14	11.9%	15	17.0%
Total	**248**	**100%**	**40**	**100%**	**27**	**100%**	**118**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**590**	**264,299**	**2.23**
Competition	244	62,792	3.89
Practice	346	201,507	1.72

Table 9.2 Demographic Characteristics of Injured Wrestlers, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=563**
Freshman	24.9%
Sophomore	25.9%
Junior	27.0%
Senior	22.2%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.8 (1.3)
BMI	
Minimum	16.8
Maximum	41.7
Mean (St. Dev.)	23.9 (4.8)

*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, 2014-15 School Year

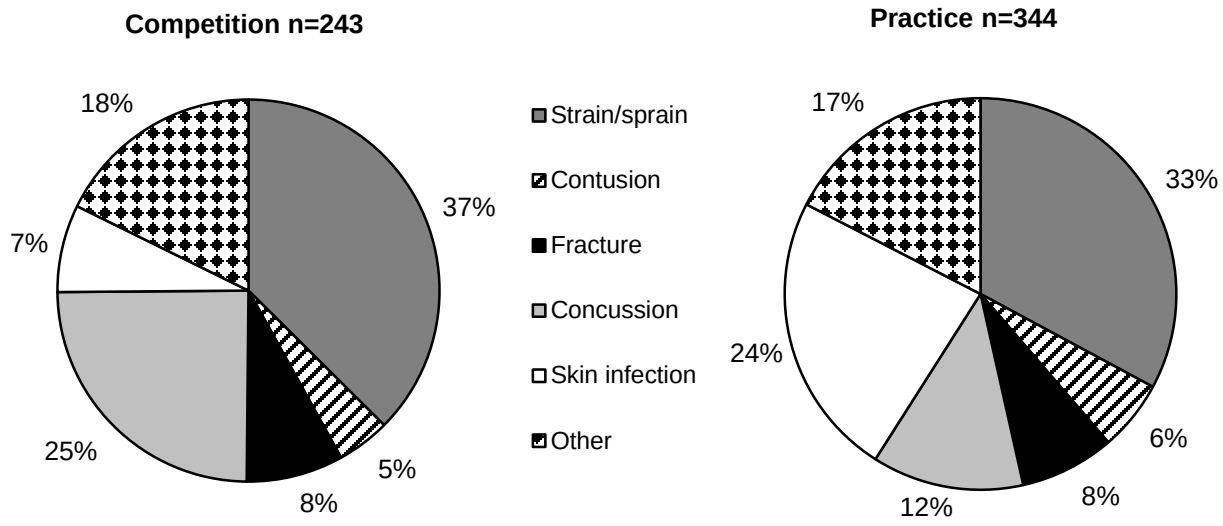


Table 9.3 Body Site of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	74	30.3%	80	23.2%	154	26.1%
Knee	39	16.0%	56	16.2%	95	16.1%
Shoulder	29	11.9%	46	13.3%	75	12.7%
Arm/elbow	21	8.6%	30	8.7%	51	8.7%
Trunk	17	7.0%	29	8.4%	46	7.8%
Ankle	17	7.0%	26	7.5%	43	7.3%
Hand/wrist	16	6.6%	21	6.1%	37	6.3%
Neck	10	4.1%	15	4.3%	25	4.2%
Hip/thigh/upper leg	9	3.7%	14	4.1%	23	3.9%
Foot	3	1.2%	8	2.3%	11	1.9%
Lower leg	0	0.0%	6	1.7%	6	1.0%
Other	9	3.7%	14	4.1%	23	3.9%
Total	**244**	**100%**	**345**	**100%**	**589**	**100%**

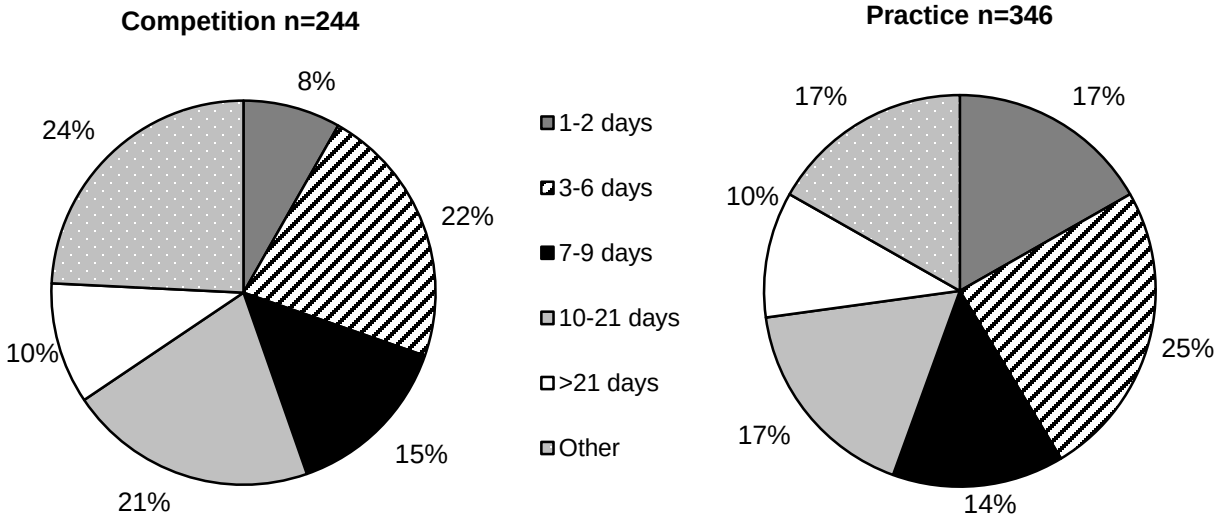
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 9.4 Ten Most Common Wrestling Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=243		Practice n=343		Total n=586	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	57	23.5%	43	12.5%	100	17.1%
Shoulder strain/sprain	21	8.6%	29	8.5%	50	8.5%
Knee strain/sprain	21	8.6%	24	7.0%	45	7.7%
Ankle strain/sprain	17	7.0%	24	7.0%	41	7.0%
Knee other	13	5.3%	23	6.7%	36	6.1%
Head/face skin infection	9	3.7%	25	7.3%	34	5.8%
Arm/elbow skin infection	3	1.2%	18	5.2%	21	3.6%
Hand/wrist fracture	12	4.9%	9	2.6%	21	3.6%
Shoulder other	7	2.9%	11	3.2%	18	3.1%
Arm/elbow strain/sprain	11	4.5%	6	1.7%	17	2.9%

†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, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	18	7.5%	23	6.7%	41	7.1%
Did not require surgery	221	92.5%	319	93.3%	540	92.9%
Total	**239**	**100%**	**342**	**100%**	**581**	**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, 2014-15 School Year

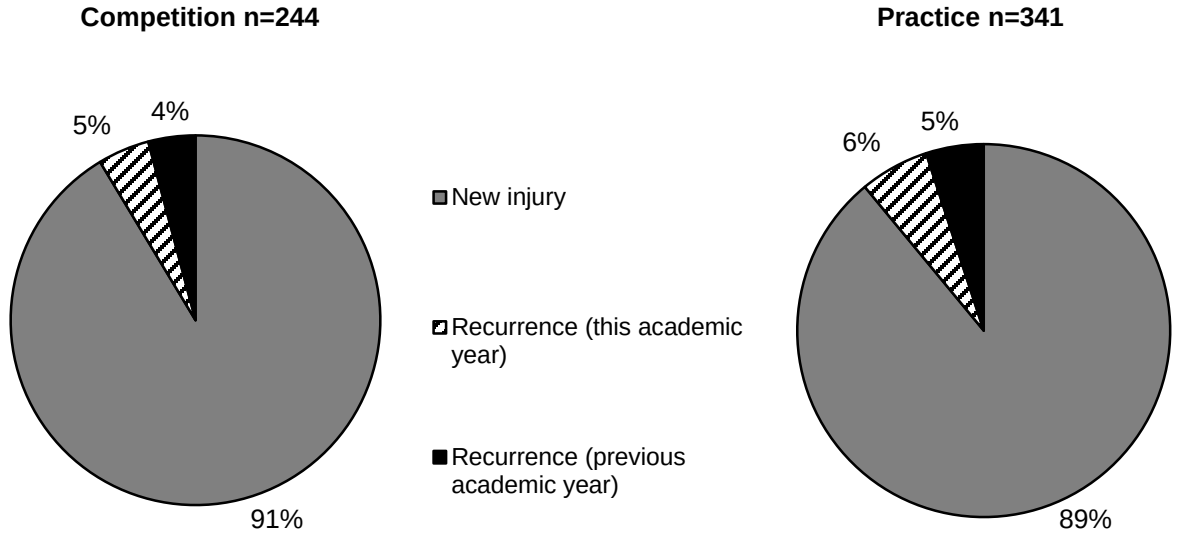


Table 9.6 Time during Season of Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	101	17.2%
Regular season	460	78.4%
Post season	26	4.4%
Total	**587**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	8	3.9%
First period	46	22.2%
Second period	97	46.9%
Third period	56	27.1%
Total	**207**	**100%**
Mat Location*		
Within 28 ft. circle	430	88.7%
Out of bounds	18	3.7%
Off the mat	37	7.6%
Total	**485**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	48	16.6%
Second 1/2 hour	62	21.4%
1-2 hours into practice	165	56.9%
>2 hours into practice	15	5.2%
Total	**290**	**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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Takedown	125	56.3%	91	29.4%	216	40.7%
Sparring	23	10.4%	70	22.7%	93	17.5%
N/A (skin infection, overuse, etc.)	15	6.8%	70	22.7%	85	16.0%
Escape	11	5.0%	13	4.2%	24	4.5%
Conditioning	1	0.5%	20	6.5%	21	4.0%
Riding	12	5.4%	6	1.9%	18	3.4%
Fall	7	3.2%	10	3.2%	17	3.2%
Reversal	8	3.6%	8	2.6%	16	3.0%
Near fall	9	4.1%	3	1.0%	12	2.3%
Other	11	5.0%	18	5.8%	29	5.5%
Total	**222**	**100%**	**309**	**100%**	**531**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Takedown	82	42.7%	16	55.2%	21	20.0%	57	62.6%	39	22.3%
Near fall	7	3.6%	1	3.4%	1	2.4%	1	1.1%	2	1.1%
Riding	12	6.3%	1	3.4%	1	2.4%	1	1.1%	3	1.7%
Sparring	38	19.8%	6	20.7%	7	16.7%	18	19.8%	24	13.7%
Reversal	7	3.6%	1	3.4%	0	0.0%	3	3.3%	5	2.9%
Other	46	24.0%	4	13.8%	12	28.6%	11	12.1%	102	58.3%
Total	**192**	**100%**	**29**	**100%**	**42**	**100%**	**91**	**100%**	**175**	**100%**

X. Baseball Injury Epidemiology

Table 10.1 Baseball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**304**	**286,729**	**1.06**
Competition	188	101,791	1.85
Practice	116	184,938	0.63

Table 10.2 Demographic Characteristics of Injured Baseball Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=295**
Freshman	18.3%
Sophomore	30.5%
Junior	24.7%
Senior	26.4%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	16.2 (1.6)
BMI	
Minimum	16.5
Maximum	34.2
Mean (St. Dev.)	23.5 (3.9)

*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 10.1 Diagnosis of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

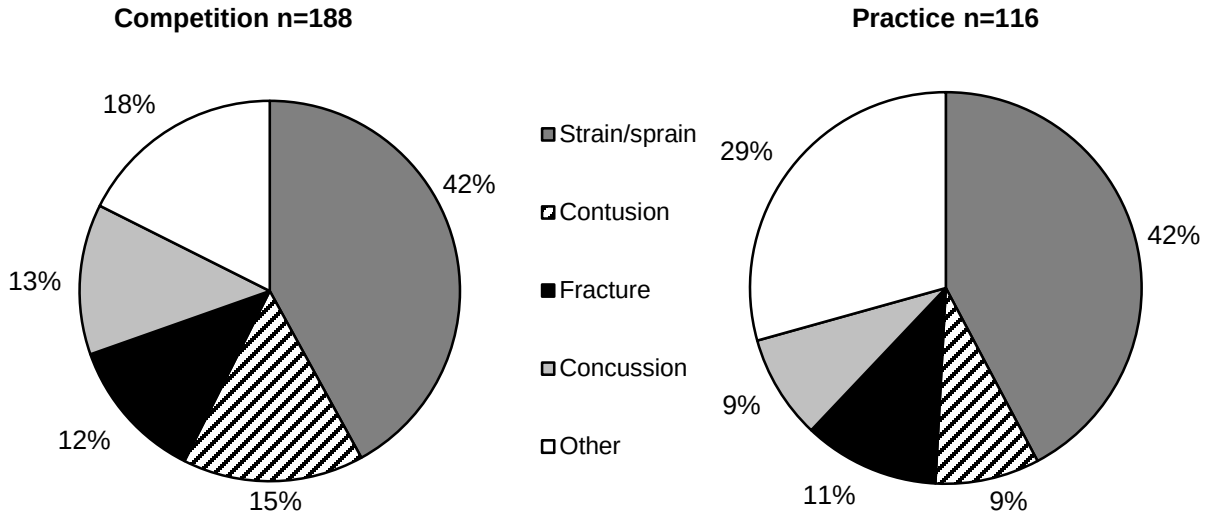


Table 10.3 Body Site of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

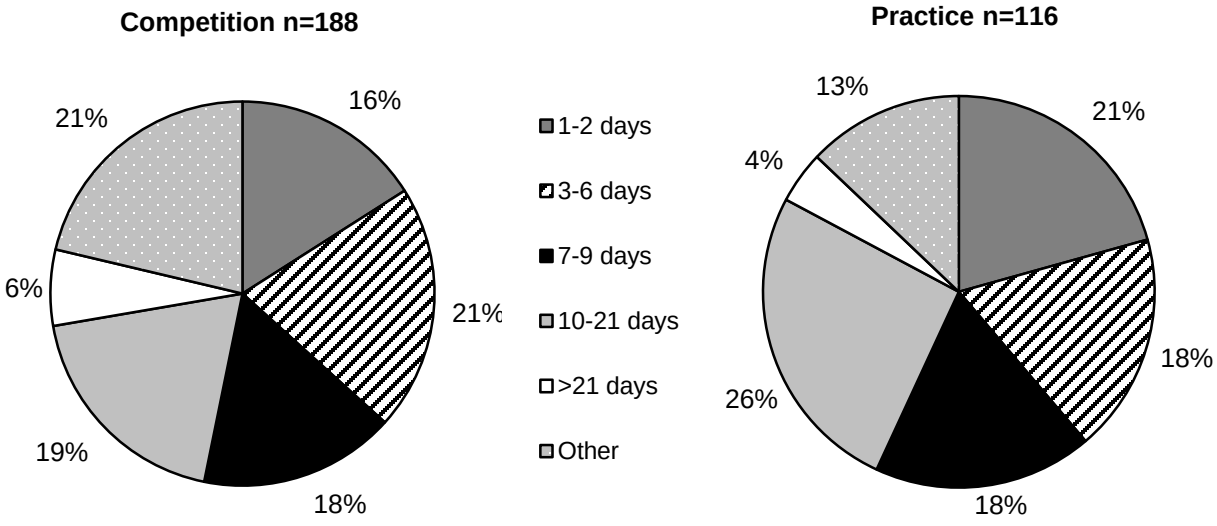
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	38	20.2%	27	23.3%	65	21.4%
Shoulder	22	11.7%	25	21.6%	47	15.5%
Arm/elbow	25	13.3%	19	16.4%	44	14.5%
Hand/wrist	29	15.4%	5	4.3%	34	11.2%
Hip/thigh/upper leg	23	12.2%	8	6.9%	31	10.2%
Ankle	18	9.6%	11	9.5%	29	9.5%
Knee	15	8.0%	7	6.0%	22	7.2%
Trunk	10	5.3%	10	8.6%	20	6.6%
Lower leg	4	2.1%	2	1.7%	6	2.0%
Foot	2	1.1%	2	1.7%	4	1.3%
Neck	1	0.5%	0	0.0%	1	0.3%
Other	1	0.5%	0	0.0%	1	0.3%
Total	**188**	**100%**	**116**	**100%**	**304**	**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, 2014-15 School Year

	Competition n=188		Practice n=116		Total n=304	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	24	12.8%	10	8.6%	34	11.2%
Ankle strain/sprain	16	8.5%	11	9.5%	27	8.9%
Hip/thigh/upper leg strain/sprain	20	10.6%	6	5.2%	26	8.6%
Arm/elbow strain/sprain	15	8.0%	8	6.9%	23	7.6%
Shoulder strain/sprain	10	5.3%	12	10.3%	22	7.2%
Shoulder other	10	5.3%	11	9.5%	21	6.9%
Hand/wrist fracture	15	8.0%	4	3.4%	19	6.3%
Arm/elbow other	7	3.7%	7	6.0%	14	4.6%
Trunk strain/sprain	7	3.7%	6	5.2%	13	4.3%
Head/face fracture	4	2.1%	7	6.0%	11	3.6%

Figure 10.2 Time Loss of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	12	6.4%	17	14.9%	29	8.6%
Did not require surgery	175	93.6%	97	85.1%	272	90.4%
Total	**187**	**100%**	**114**	**100%**	**301**	**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, 2014-15 School Year

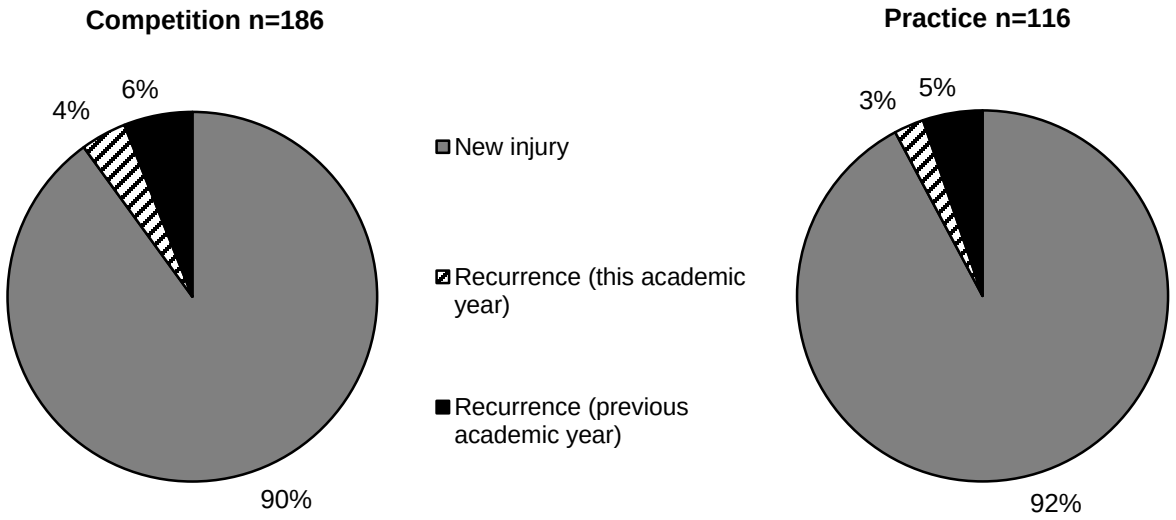


Table 10.6 Time during Season of Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	67	22.3%
Regular season	221	73.4%
Post season	13	4.3%
Total	**301**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	14	8.2%
First inning	6	3.5%
Second inning	18	10.6%
Third inning	39	22.9%
Fourth inning	34	20.0%
Fifth inning	28	16.5%
Sixth inning	25	14.7%
Seventh inning	4	2.4%
Extra innings	2	1.2%
Total	**170**	**100%**
Field Location		
Home plate	43	24.3%
First base	34	19.2%
Second base	23	13.0%
Third base	14	7.9%
Infield	8	4.5%
Pitcher's mound	27	15.3%
Outfield	19	10.7%
Foul territory	5	2.8%
Other	4	2.3%
Total	**177**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	16	14.5%
Second 1/2 hour	28	25.5%
1-2 hours into practice	63	57.3%
>2 hours into practice	3	2.7%
Total	**110**	**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, 2014-15 School Year

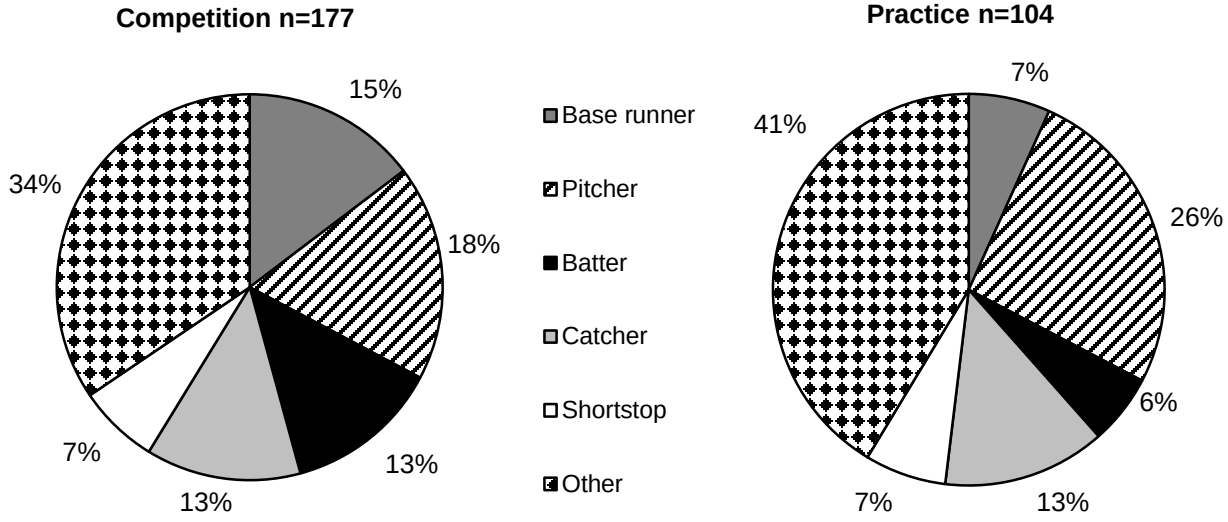


Table 10.9 Activities Leading to Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Fielding a batted ball	34	18.8%	17	15.7%	51	17.6%
Pitching	26	14.4%	23	21.3%	49	17.0%
Running bases	36	19.9%	9	8.3%	45	15.6%
Batting	25	13.8%	9	8.3%	34	11.8%
Catching	14	7.7%	10	9.3%	24	8.3%
Throwing (not pitching)	6	3.3%	16	14.8%	22	7.6%
Sliding	16	8.8%	5	4.6%	21	7.3%
Fielding a thrown ball	14	7.7%	4	3.7%	18	6.3%
General play	5	2.8%	6	5.6%	11	3.8%
Conditioning	0	0.0%	5	4.6%	5	1.7%
Other	5	2.8%	4	3.7%	9	3.1%
Total	**181**	**100%**	**108**	**100%**	**289**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running bases	30	24.6%	2	5.1%	2	5.9%	3	10.3%	8	12.3%
Pitching	32	26.2%	5	12.8%	0	0.0%	1	3.4%	11	16.9%
Fielding a batted ball	12	9.8%	12	30.8%	10	29.4%	6	20.7%	11	16.9%
Batting	8	6.6%	8	20.5%	5	14.7%	6	20.7%	7	10.8%
Throwing (not pitching)	13	10.7%	0	0.0%	0	0.0%	1	3.4%	8	12.3%
Other	27	22.1%	12	30.8%	17	50.0%	12	41.4%	20	30.8%
Total	**122**	**100%**	**39**	**100%**	**34**	**100%**	**29**	**100%**	**65**	**100%**

XI. Softball Injury Epidemiology

Table 11.1 Softball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**240**	**208,904**	**1.15**
Competition	134	73,033	1.83
Practice	106	135,871	0.78

Table 11.2 Demographic Characteristics of Injured Softball Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=235**
Freshman	31.5%
Sophomore	31.1%
Junior	22.1%
Senior	15.3%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.7 (1.2)
BMI	
Minimum	16.6
Maximum	34.3
Mean (St. Dev.)	22.2 (3.9)

*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 11.1 Diagnosis of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

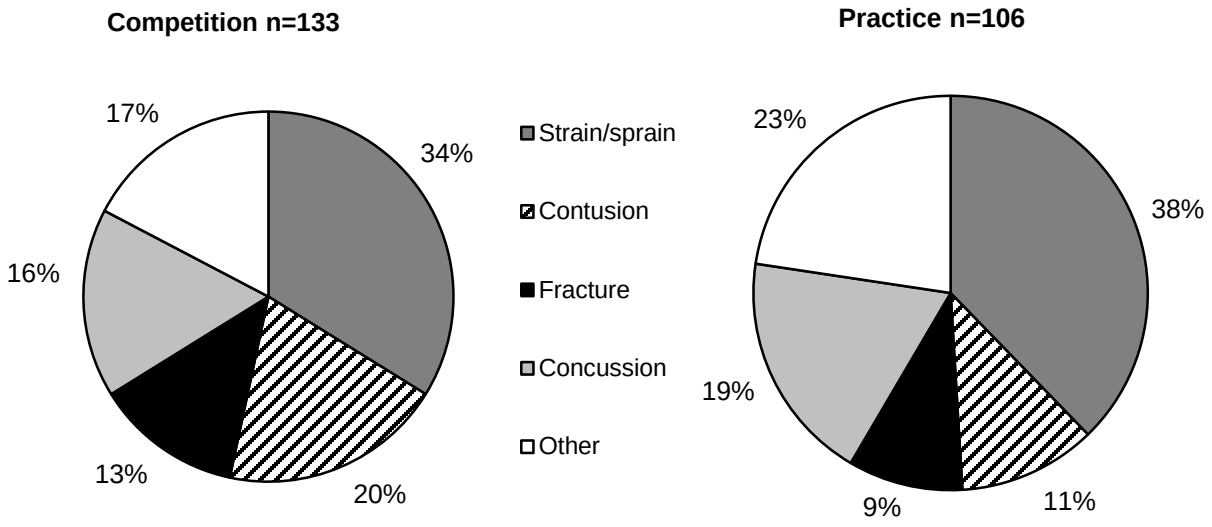


Table 11.3 Body Site of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

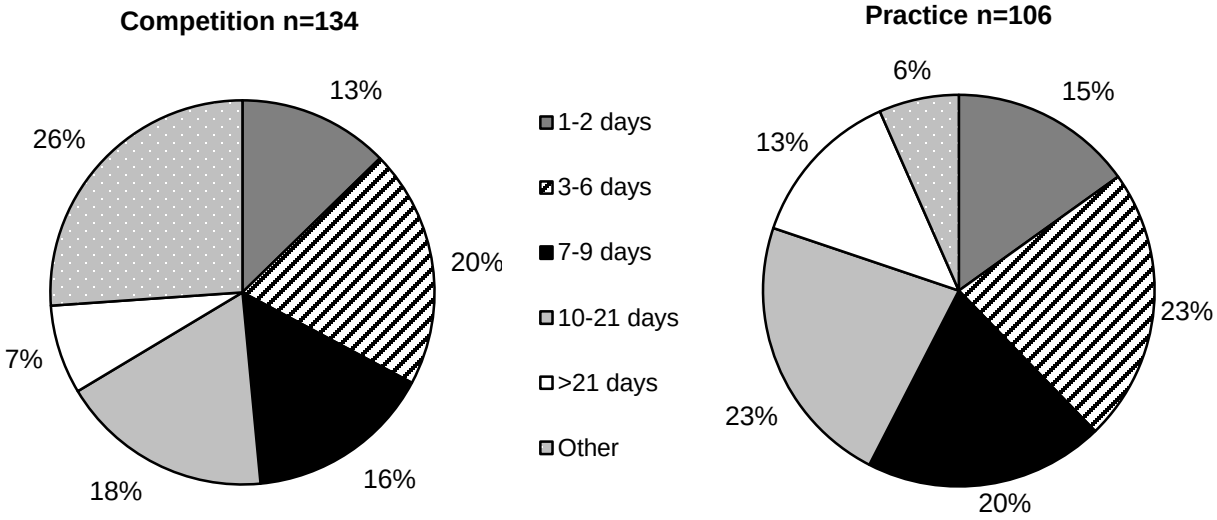
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	32	23.9%	33	31.1%	65	27.1%
Hand/wrist	23	17.2%	16	15.1%	39	16.3%
Ankle	16	11.9%	12	11.3%	28	11.7%
Knee	19	14.2%	9	8.5%	28	11.7%
Shoulder	9	6.7%	12	11.3%	21	8.8%
Hip/thigh/upper leg	11	8.2%	9	8.5%	20	8.3%
Arm/elbow	10	7.5%	7	6.6%	17	7.1%
Trunk	5	3.7%	4	3.8%	9	3.8%
Lower leg	6	4.5%	1	0.9%	7	2.9%
Foot	2	1.5%	1	0.9%	3	1.3%
Neck	1	0.7%	0	0.0%	1	0.4%
Other	0	0.0%	2	1.9%	2	0.8%
Total	**134**	**100%**	**106**	**100%**	**240**	**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, 2014-15 School Year

	Competition n=133		Practice n=106		Total n=239	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	22	16.5%	20	18.9%	42	17.6%
Ankle strain/sprain	14	10.5%	11	10.4%	25	10.5%
Knee other	11	8.3%	5	4.7%	16	6.7%
Hip/thigh/upper leg strain/sprain	7	5.3%	7	6.6%	14	5.9%
Hand/wrist strain/sprain	5	3.8%	8	7.5%	13	5.4%
Hand/wrist fracture	8	6.0%	4	3.8%	12	5.0%
Shoulder other	5	3.8%	7	6.6%	12	5.0%
Head/face contusion	6	4.5%	5	4.7%	11	4.6%
Hand/wrist contusion	7	5.3%	3	2.8%	10	4.2%
Knee strain/sprain	7	5.3%	3	2.8%	10	4.2%

Figure 11.2 Time Loss of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	8	6.1%	5	4.8%	13	5.5%
Did not require surgery	124	93.9%	100	95.2%	224	94.5%
Total	**132**	**100%**	**105**	**100%**	**237**	**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, 2014-15 School Year

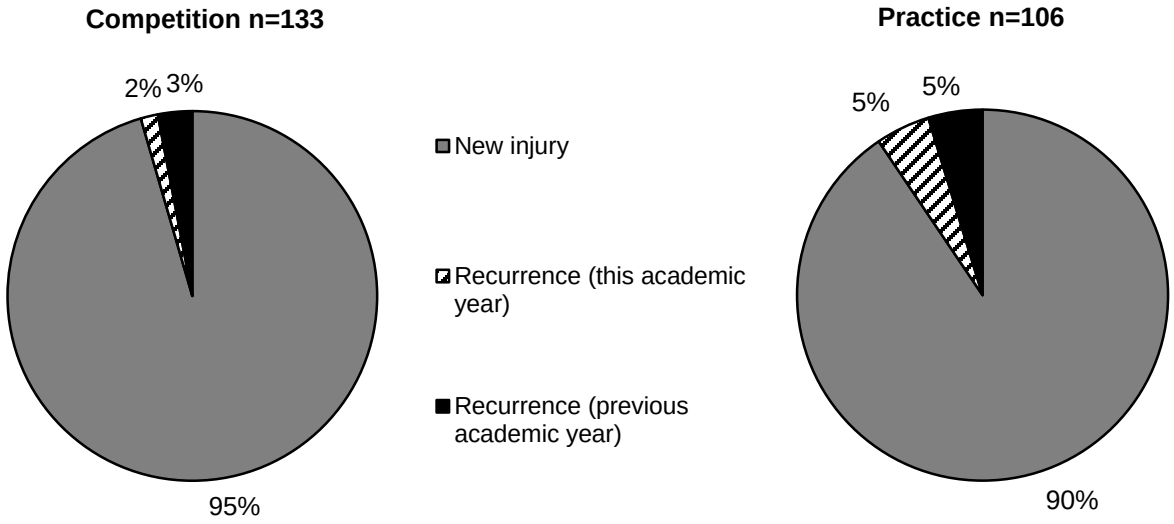


Table 11.6 Time during Season of Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	47	20.0%
Regular season	183	77.5%
Post season	6	2.5%
Total	**236**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	20	16.7%
First inning	7	5.8%
Second inning	11	9.2%
Third inning	14	11.7%
Fourth inning	29	24.2%
Fifth inning	21	17.5%
Sixth inning	10	8.3%
Seventh inning	6	5.0%
Extra innings	2	1.7%
Total	**120**	**100%**
Field Location		
Home plate	27	20.9%
First base	20	15.5%
Second base	21	16.3%
Third base	11	8.5%
Outfield	16	7.8%
Pitcher's mound	12	9.3%
Infield	10	12.4%
Foul territory	6	4.7%
Other	6	4.7%
Total	**129**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	12	12.0%
Second 1/2 hour	13	13.0%
1-2 hours into practice	66	66.0%
>2 hours into practice	9	9.0%
Total	**100**	**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, 2014-15 School Year

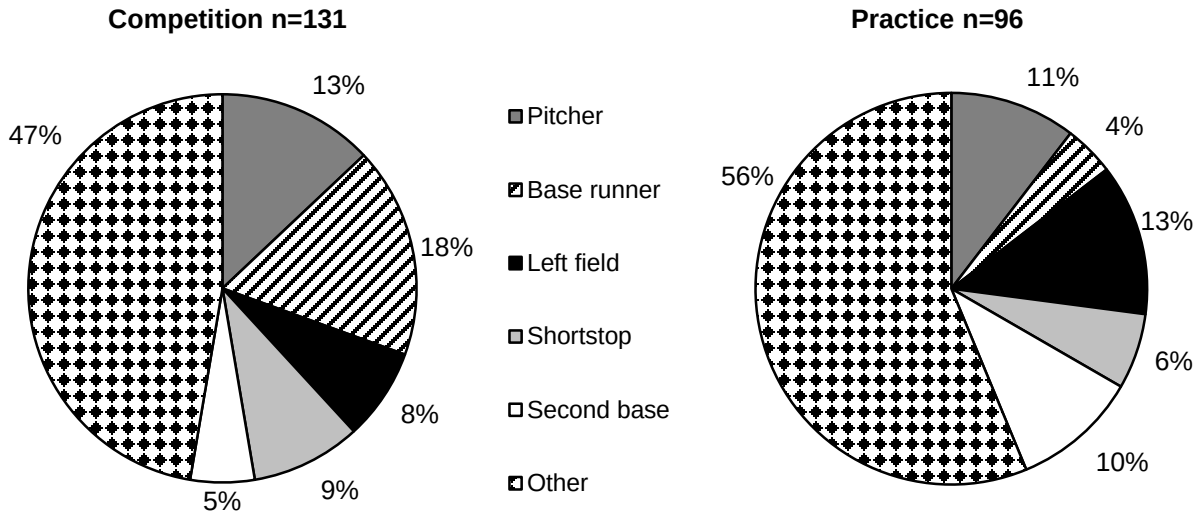


Table 11.9 Activities Leading to Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Fielding a batted ball	25	19.2%	16	16.0%	41	17.8%
Running bases	28	21.5%	8	8.0%	36	15.7%
Throwing (not pitching)	8	6.2%	22	22.0%	30	13.0%
Sliding	18	13.8%	4	4.0%	22	9.6%
General play	4	3.1%	7	7.0%	11	4.8%
Fielding a thrown ball	11	8.5%	9	9.0%	20	8.7%
Pitching	12	9.2%	7	7.0%	19	8.3%
Conditioning	1	0.8%	5	5.0%	6	2.6%
Catching	7	5.4%	12	12.0%	19	8.3%
Batting	10	7.7%	4	4.0%	14	6.1%
Other	6	4.6%	6	6.0%	12	5.2%
Total	**130**	**100%**	**100**	**100%**	**230**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Fielding a batted ball	11	13.8%	12	31.6%	8	29.6%	8	19.5%	1	2.3%
Running bases	20	25.0%	2	5.3%	2	7.4%	4	9.8%	8	18.6%
Throwing (not pitching)	11	13.8%	1	2.6%	1	3.7%	7	17.1%	10	23.3%
Sliding	7	8.8%	1	2.6%	6	22.2%	3	7.3%	5	11.6%
General play	4	5.0%	2	5.3%	0	0.0%	3	7.3%	2	4.7%
Other	27	33.8%	20	52.6%	10	37.0%	16	39.0%	17	39.5%
Total	**80**	**100%**	**38**	**100%**	**27**	**100%**	**41**	**100%**	**43**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**162**	**82,933**	**1.95**
Competition	78	26,609	2.93
Practice	84	56,324	1.49

Table 12.2 Demographic Characteristics of Injured Girls' Field Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=159**
Freshman	27.0%
Sophomore	20.8%
Junior	27.7%
Senior	24.5%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.4 (1.3)
BMI	
Minimum	17.8
Maximum	28.3
Mean (St. Dev.)	21.8 (2.4)

*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, 2014-15 School Year

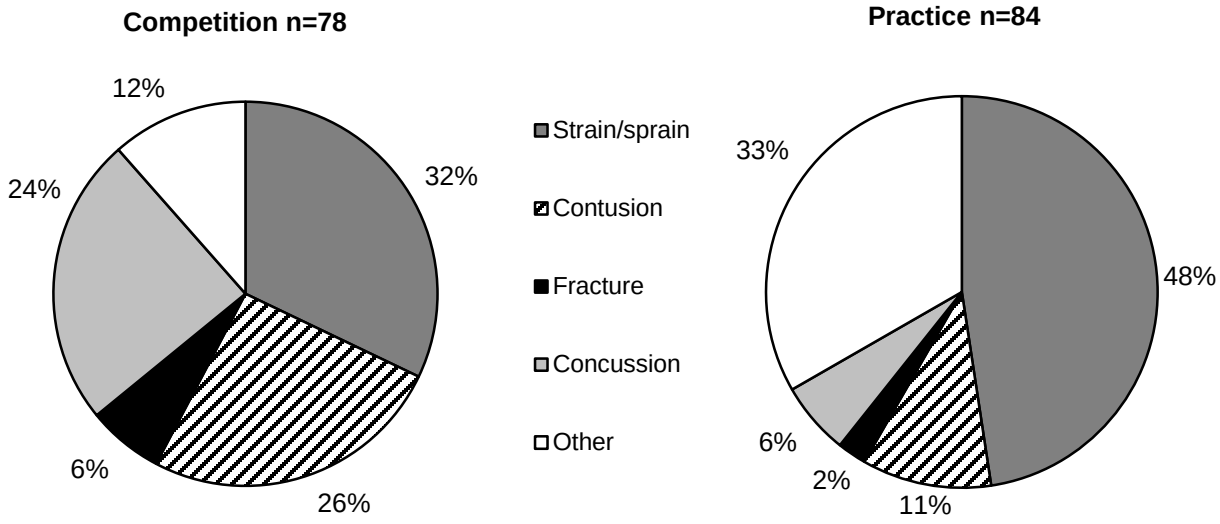


Table 12.3 Body Site of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

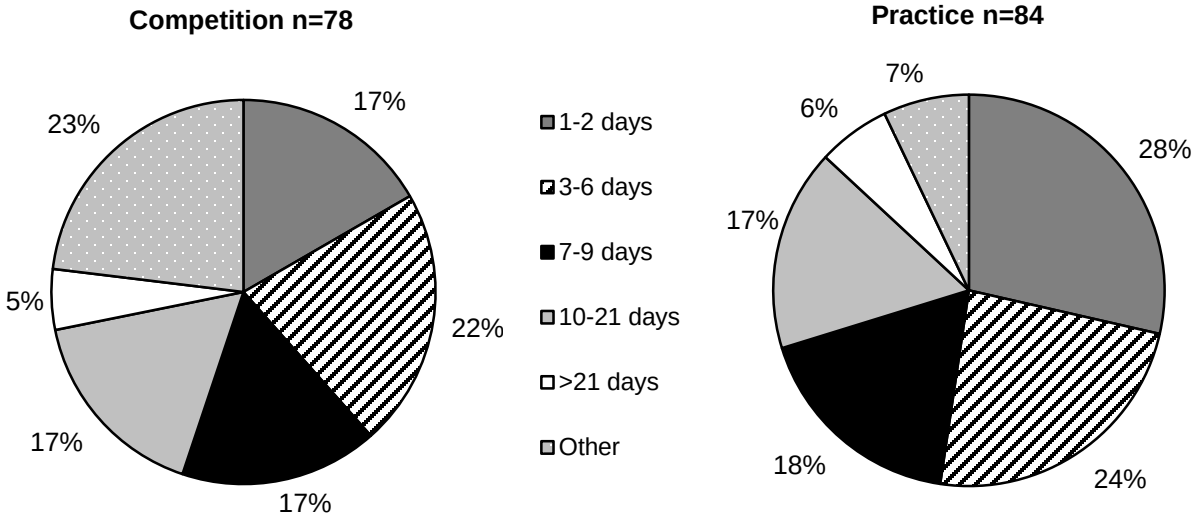
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	26	33.3%	8	9.5%	34	21.0%
Hip/thigh/upper leg	5	6.4%	28	33.3%	33	20.4%
Ankle	12	15.4%	10	11.9%	22	13.6%
Lower leg	6	7.7%	10	11.9%	16	9.9%
Knee	7	9.0%	8	9.5%	15	9.3%
Trunk	5	6.4%	9	10.7%	14	8.6%
Hand/wrist	8	10.3%	3	3.6%	11	6.8%
Foot	3	3.8%	4	4.8%	7	4.3%
Shoulder	2	2.6%	1	1.2%	3	1.9%
Arm/elbow	2	2.6%	0	0.0%	2	1.2%
Neck	1	1.3%	0	0.0%	1	0.6%
Other	1	1.3%	3	3.6%	4	2.5%
Total	**78**	**100%**	**84**	**100%**	**162**	**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, 2014-15 School Year

	Competition n=78		Practice n=84		Total n=162	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	3	3.8%	24	28.6%	27	16.7%
Head/face concussion	19	24.4%	5	6.0%	24	14.8%
Ankle strain/sprain	12	15.4%	7	8.3%	19	11.7%
Lower leg other	1	1.3%	8	9.5%	9	5.6%
Trunk strain/sprain	3	3.8%	5	6.0%	8	4.9%
Knee strain/sprain	4	5.1%	2	2.4%	6	3.7%
Head/face contusion	5	6.4%	1	1.2%	6	3.7%
Trunk other	2	2.6%	4	4.8%	6	3.7%
Hand/wrist contusion	4	5.1%	1	1.2%	5	3.1%
Hand/wrist fracture	3	3.8%	2	2.4%	5	3.1%

Figure 12.2 Time Loss of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	2	2.6%	3	3.6%	5	3.1%
Did not require surgery	75	97.4%	81	96.4%	156	96.9%
Total	**77**	**100%**	**84**	**100%**	**161**	**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, 2014-15 School Year

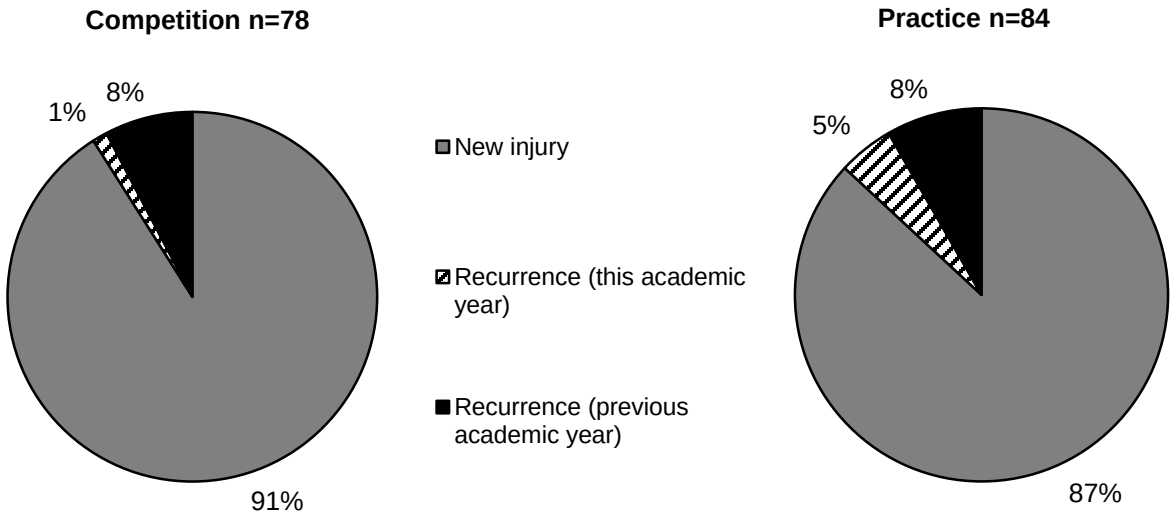


Table 12.6 Time during Season of Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	51	31.7%
Regular season	103	64.0%
Post season	7	4.3%
Total	**161**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	5	6.9%
First half	21	29.2%
Second half	46	63.9%
Total	**72**	**100%**
Field Location		
Between 25-yard line and center line	34	47.9%
Within 25-yard line	18	25.4%
Goal area/circle	9	12.7%
Within 16-yard arc	6	8.5%
Sideline	2	2.8%
Other	2	2.8%
Total	**71**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	15	18.1%
Second 1/2 hour	18	21.7%
1-2 hours into practice	42	50.6%
>2 hours into practice	8	9.6%
Total	**83**	**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, 2014-15 School Year

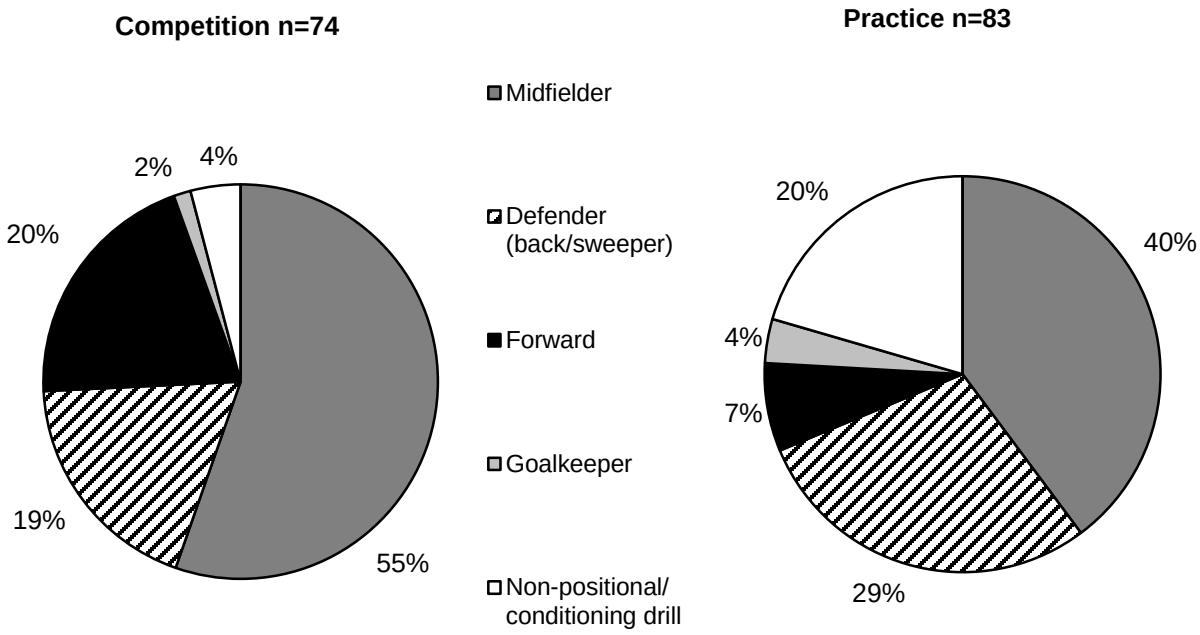


Table 12.9 Activities Leading to Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Activity						
General play	18	24.7%	29	35.4%	47	30.3%
Conditioning	0	0.0%	29	35.4%	29	18.7%
Defending	26	35.6%	8	9.8%	34	21.9%
Ball handling/dribbling	9	12.3%	3	3.7%	12	7.7%
Chasing a loose ball	10	13.7%	4	4.9%	14	9.0%
Goaltending	1	1.4%	2	2.4%	3	1.9%
Passing	2	2.7%	1	1.2%	3	1.9%
Receiving pass	4	5.5%	2	2.4%	6	3.9%
Shooting	2	2.7%	2	2.4%	4	2.6%
Other	1	1.4%	2	2.4%	3	1.9%
Total	**73**	**100%**	**82**	**100%**	**155**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	22	34.9%	6	21.4%	2	28.6%	6	27.3%	11	31.4%
Conditioning	17	27.0%	0	0.0%	1	14.3%	0	0.0%	11	31.4%
Defending	4	6.3%	13	46.4%	4	57.1%	7	31.8%	6	17.1%
Chasing a loose ball	7	11.1%	3	10.7%	0	0.0%	2	9.1%	2	5.7%
Ball handling/dribbling	3	4.8%	3	10.7%	0	0.0%	6	27.3%	0	0.0%
Other	10	15.9%	3	10.7%	0	0.0%	1	4.5%	5	14.3%
Total	**63**	**100%**	**28**	**100%**	**7**	**100%**	**22**	**100%**	**35**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**87**	**52,034**	**1.67**
Competition	69	18,269	3.78
Practice	18	33,765	0.53

Table 13.2 Demographic Characteristics of Injured Boys' Ice Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=86**
Freshman	17.4%
Sophomore	22.1%
Junior	23.3%
Senior	37.2%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.2 (1.3)
BMI	
Minimum	17.9
Maximum	27.5
Mean (St. Dev.)	23.0 (2.9)

*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 13.1 Diagnosis of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

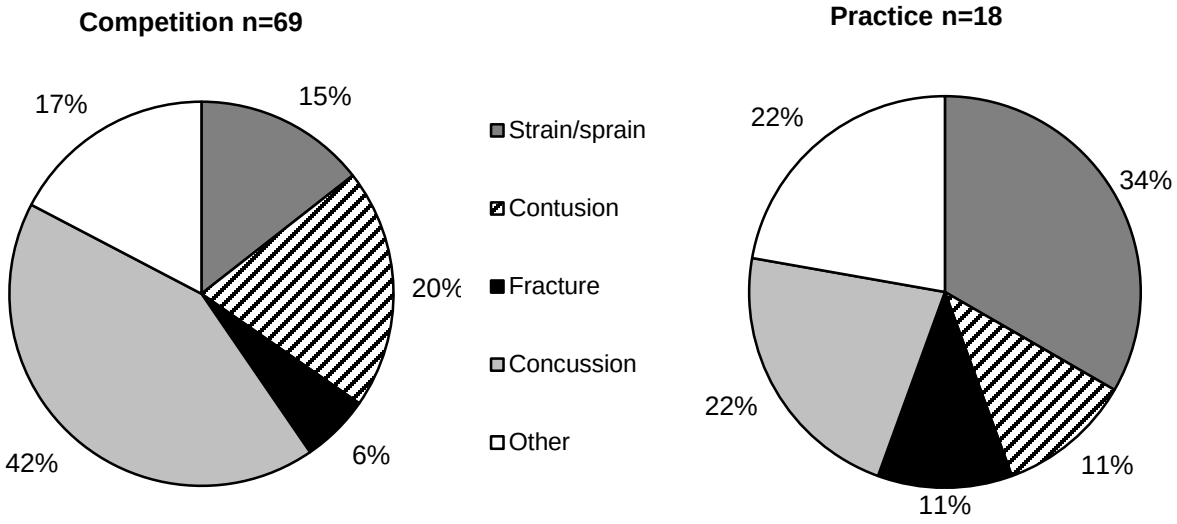


Table 13.3 Body Site of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	31	44.9%	5	27.8%	36	41.1%
Shoulder	14	20.3%	3	16.7%	17	19.5%
Knee	1	1.4%	2	11.1%	3	3.4%
Hand/wrist	3	4.3%	2	11.1%	5	5.7%
Trunk	4	5.8%	1	5.6%	5	5.7%
Hip/thigh/upper leg	8	11.5%	3	16.7%	11	12.6%
Ankle	0	0.0%	2	11.1%	2	2.3%
Arm/elbow	4	5.8%	0	0.0%	4	4.6%
Lower leg	1	1.4%	0	0.0%	1	1.1%
Other	3	4.3%	0	0.0%	3	3.4%
Total	**69**	**100%**	**18**	**100%**	**87**	**100%**

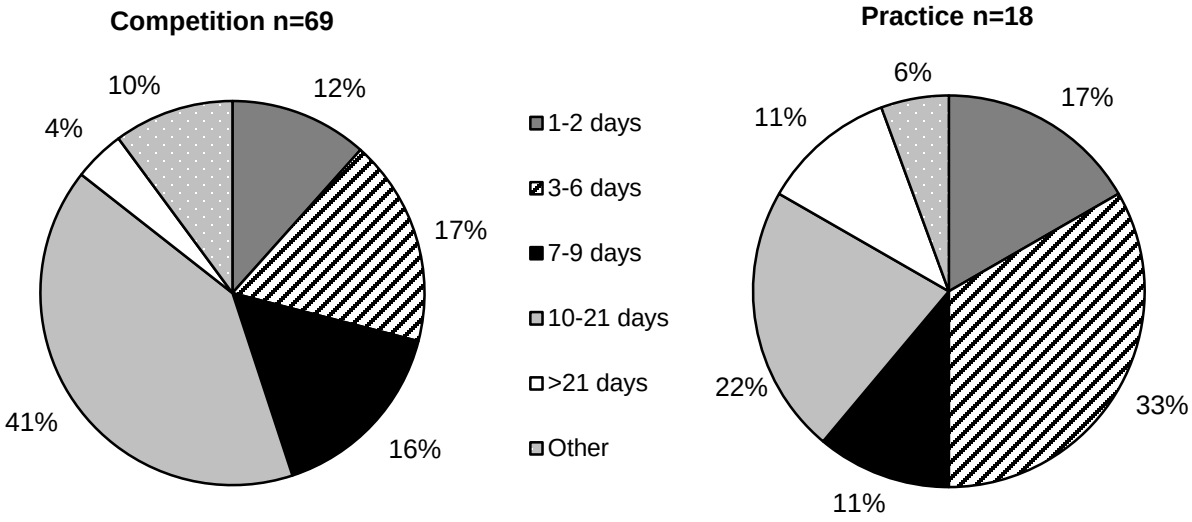
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 13.4 Ten Most Common Boys' Ice Hockey Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=69		Practice n=18		Total n=87	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	29	42.0%	4	22.2%	33	37.9%
Shoulder other	7	10.1%	2	11.1%	9	10.3%
Shoulder strain/sprain	6	8.7%	1	5.6%	7	8.0%
Hip/thigh/upper leg contusion	5	7.2%	1	5.6%	6	6.9%
Hip/thigh/upper leg strain/sprain	3	4.3%	2	11.1%	5	5.7%
Hand/wrist fracture	2	2.9%	2	11.1%	4	4.6%
Knee contusion	1	1.4%	1	5.6%	2	2.3%
Ankle strain/sprain	0	0.0%	2	11.1%	2	2.3%
Trunk contusion	2	2.9%	0	0.0%	2	2.3%
Head/face other	1	1.4%	1	5.6%	2	2.3%

†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, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	2	2.9%	0	0.0%	2	2.3%
Did not require surgery	67	97.1%	18	100.0%	85	97.7%
Total	**69**	**100%**	**18**	**100%**	**87**	**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, 2014-15 School Year

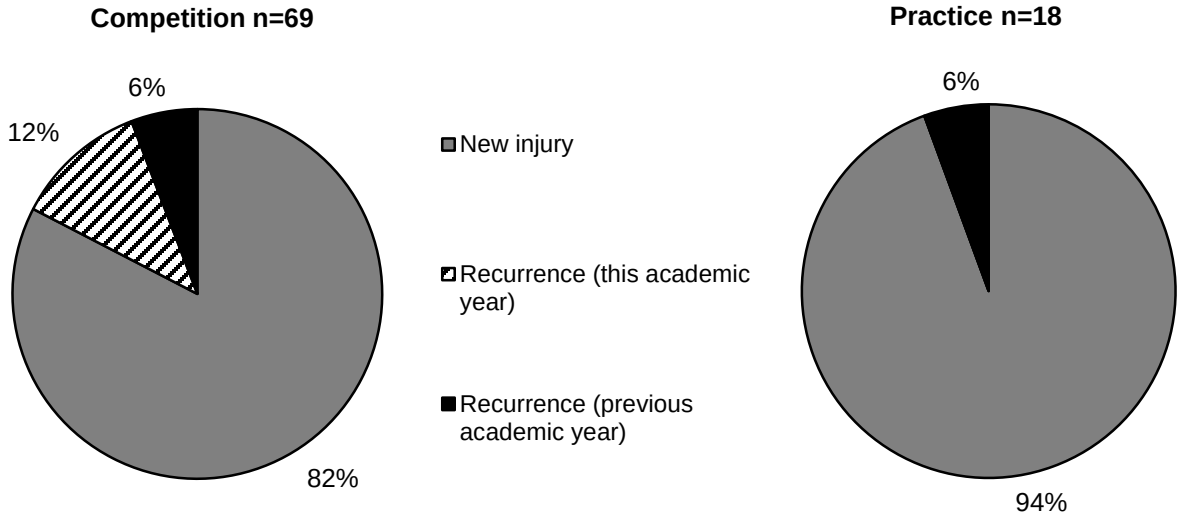


Table 13.6 Time during Season of Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	5	5.7%
Regular season	75	86.2%
Post season	7	8.0%
Total	**87**	**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, 2014-15 School Year

	n	%
Time in Competition		
Warm-ups	1	1.8%
First period	7	12.5%
Second period	33	58.9%
Third period	15	26.8%
Total	**56**	**100%**
Rink Location		
Between goal line and blue line	22	36.7%
Neutral zone	11	18.3%
Corner	9	15.0%
Behind goal	8	13.3%
Goal area	6	10.0%
Bench	2	3.3%
Face-off circle	1	1.7%
Other	1	1.7%
Total	**60**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	4	22.2%
Second 1/2 hour	6	33.3%
1-2 hours into practice	7	38.9%
>2 hours into practice	1	5.6%
Total	**18**	**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, 2014-15 School Year

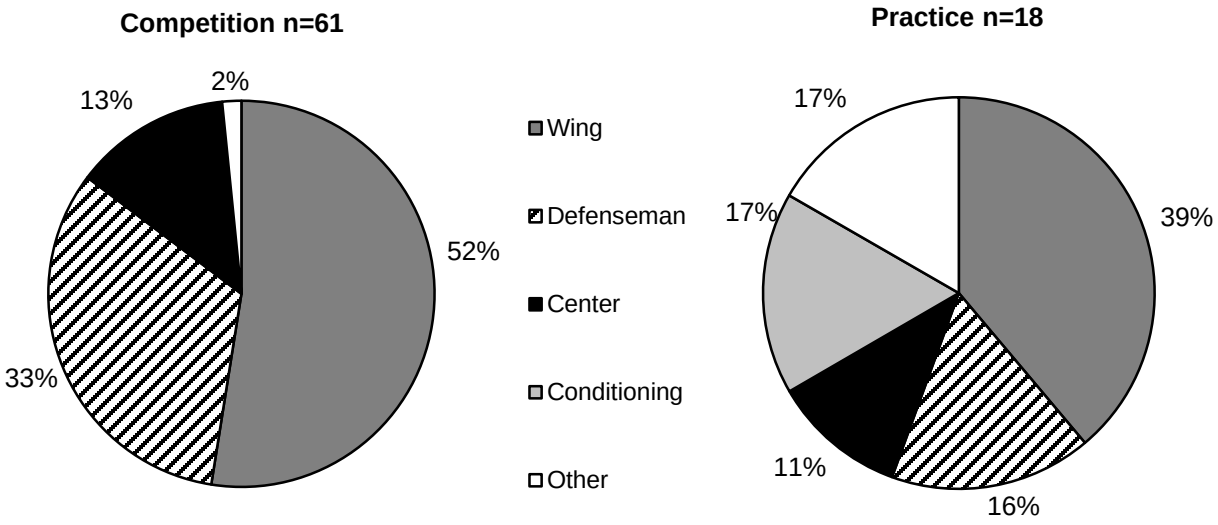


Table 13.9 Activities Leading to Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Skating	21	34.4%	5	27.8%	26	32.9%
Being checked	19	31.1%	5	27.8%	24	30.4%
Chasing loose puck	8	13.1%	1	5.6%	9	11.4%
Receiving pass	4	6.6%	1	5.6%	5	6.3%
Checking	4	6.6%	0	0.0%	4	5.1%
Goal tending	1	1.6%	2	11.1%	3	3.8%
Passing	1	1.6%	0	0.0%	1	1.3%
Line change	1	1.6%	0	0.0%	1	1.3%
Shooting	0	0.0%	1	5.6%	1	1.3%
Other	2	3.3%	3	16.7%	5	6.3%
Total	**61**	**100%**	**18**	**100%**	**79**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Skating	2	14.3%	5	35.7%	3	60.0%	13	41.9%	3	20.0%
Shooting	1	7.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Passing	0	0.0%	0	0.0%	0	0.0%	1	3.2%	0	0.0%
Checking	1	7.1%	0	0.0%	0	0.0%	1	3.2%	2	13.3%
Being checked	7	50.0%	6	42.9%	0	0.0%	7	22.6%	4	26.7%
Other	3	21.5%	3	21.4%	2	40.0%	9	29.1%	6	40.0%
Total	**14**	**100%**	**14**	**100%**	**5**	**100%**	**31**	**100%**	**15**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**250**	**137,016**	**1.82**
Competition	157	42,448	3.70
Practice	93	94,568	0.98

Table 14.2 Demographic Characteristics of Injured Boys' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=247**
Freshman	25.1%
Sophomore	23.9%
Junior	24.3%
Senior	26.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	16.1 (1.2)
BMI	
Minimum	16.3
Maximum	36.7
Mean (St. Dev.)	24.0 (3.3)

*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, 2014-15 School Year

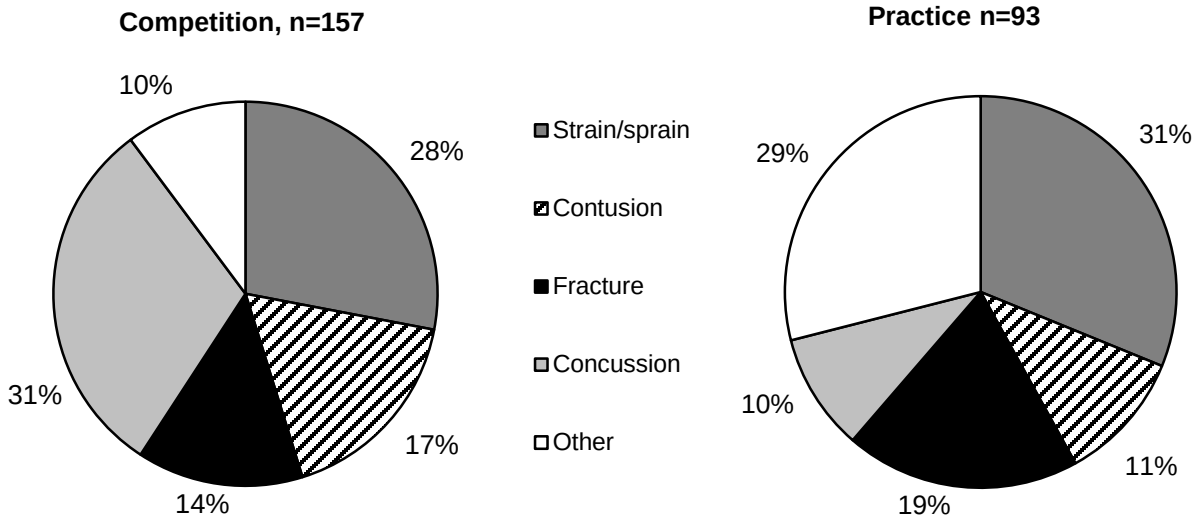


Table 14.3 Body Site of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

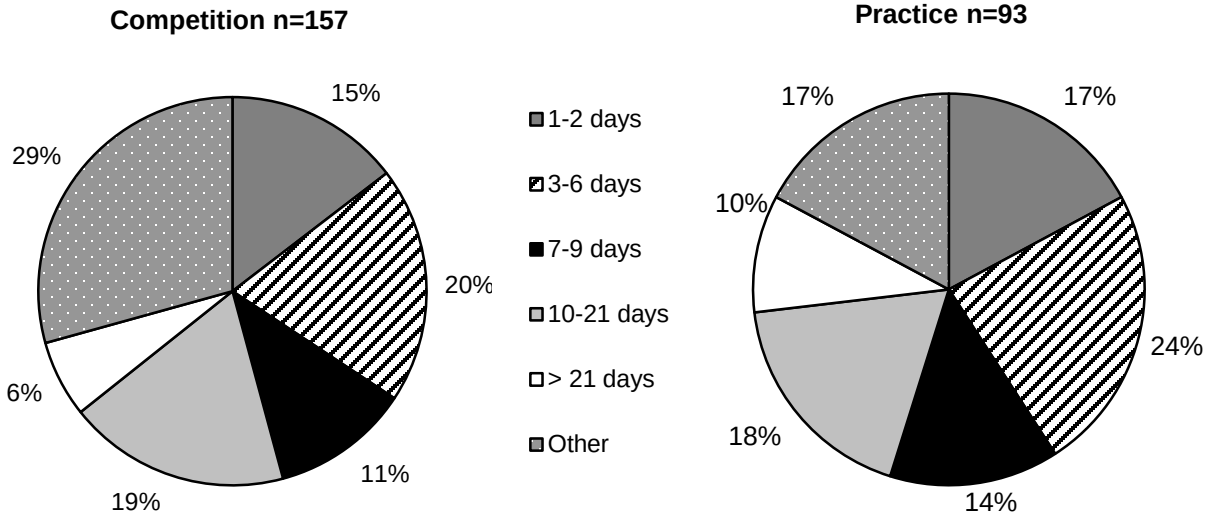
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	55	35.0%	13	14.0%	68	27.2%
Knee	17	10.8%	14	15.1%	31	12.4%
Ankle	12	7.6%	14	15.1%	26	10.4%
Hand/wrist	13	8.3%	13	14.0%	26	10.4%
Hip/thigh/upper leg	13	8.3%	7	7.5%	20	8.0%
Shoulder	13	8.3%	7	7.5%	20	8.0%
Lower leg	5	3.2%	8	8.6%	13	5.2%
Trunk	9	5.7%	3	3.2%	12	4.8%
Arm/elbow	7	4.5%	4	4.3%	11	4.4%
Foot	1	0.6%	6	6.5%	7	2.8%
Neck	5	3.2%	0	0.0%	5	2.0%
Other	7	4.5%	4	4.3%	11	4.4%
Total	**157**	**100%**	**93**	**100%**	**250**	**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, 2014-15 School Year

	Competition n=157		Practice n=93		Total n=250	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	48	30.6%	9	9.7%	57	22.8%
Ankle strain/sprain	11	7.0%	12	12.9%	23	9.2%
Hand/wrist fracture	11	7.0%	11	11.8%	22	8.8%
Hip/thigh/upper leg strain/sprain	10	6.4%	6	6.5%	16	6.4%
Knee strain/sprain	8	5.1%	4	4.3%	12	4.8%
Knee other	3	1.9%	8	8.6%	11	4.4%
Shoulder other	5	3.2%	6	6.5%	11	4.4%
Knee contusion	6	3.8%	2	2.2%	8	3.2%
Shoulder strain/sprain	6	3.8%	1	1.1%	7	2.8%
Lower leg other	0	0.0%	6	6.5%	6	2.4%

Figure 14.2 Time Loss of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	9	5.8%	6	6.5%	15	6.1%
Did not require surgery	146	94.2%	86	93.5%	232	93.9%
Total	**155**	**100%**	**92**	**100%**	**247**	**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, 2014-15 School Year

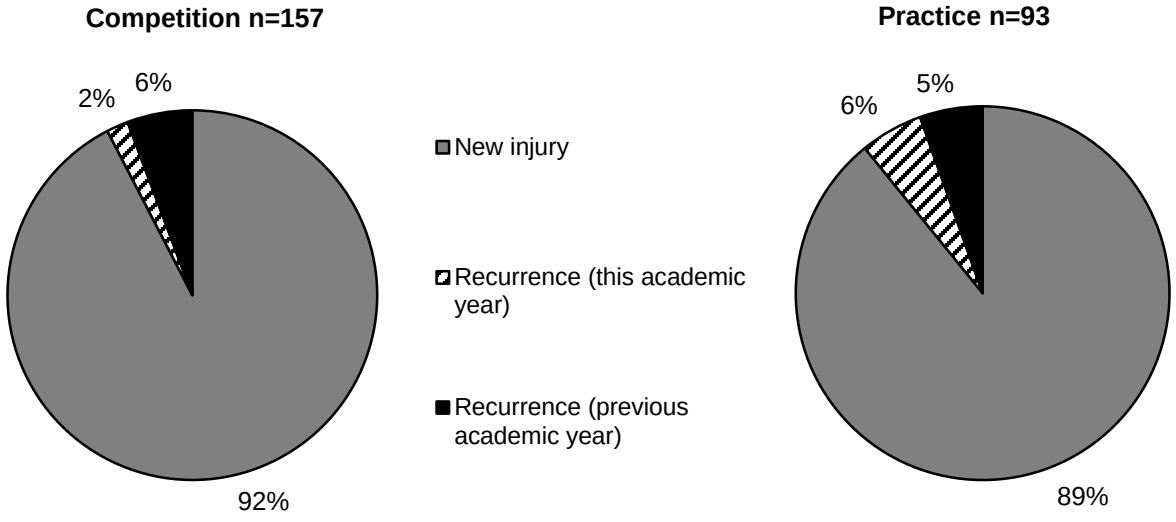


Table 14.6 Time during Season of Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	38	15.3%
Regular season	200	80.6%
Post season	10	4.0%
Total	**248**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	0	0.0%
First quarter	11	7.3%
Second quarter	42	28.0%
Third quarter	51	34.0%
Fourth quarter	45	30.0%
Overtime	1	0.7%
Total	**150**	**100%**
Field Location		
Midfield	53	35.3%
Goal area	46	30.7%
Defensive area	29	19.3%
Wing area	20	13.3%
Sideline	2	0.8%
Total	**150**	**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, 2014-15 School Year

	n	%
Time in Practice		
First ½ hour	16	18.0%
Second ½ hour	26	29.2%
1-2 hours into practice	45	50.6%
> 2 hours into practice	2	2.2%
Total	**89**	**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, 2014-15 School Year

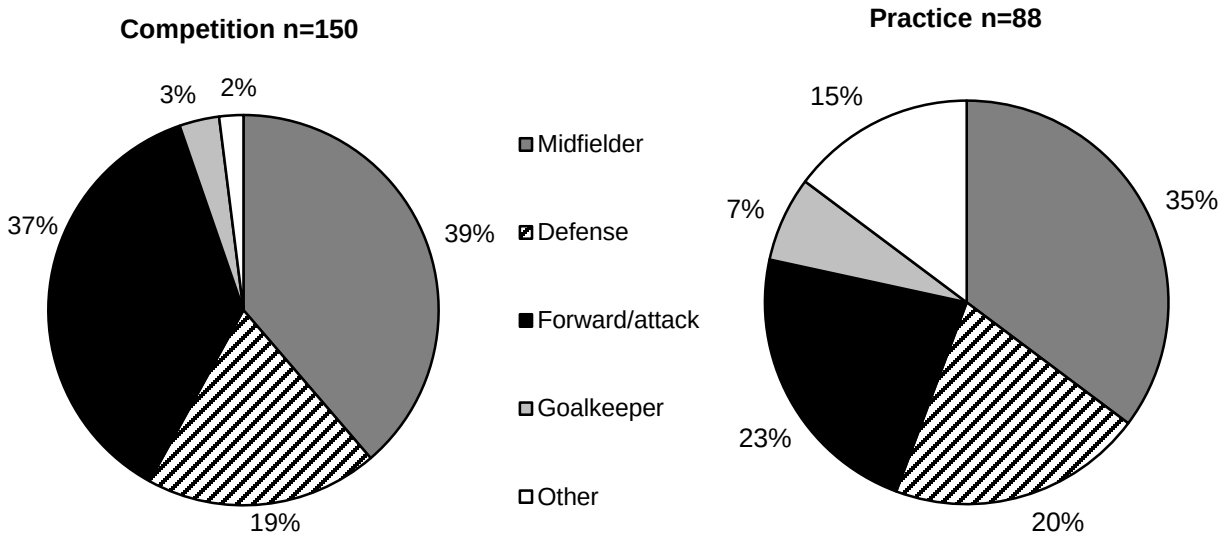


Table 14.9 Activities Leading to Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	21	13.8%	21	23.9%	42	17.5%
Being crosse/stick checked	19	12.5%	8	9.1%	27	11.3%
Defending	15	9.9%	12	13.6%	27	11.3%
Chasing loose ball	14	9.2%	8	9.1%	22	9.2%
Body checking	13	8.6%	5	5.7%	18	7.5%
Ball handling/cradling	12	7.9%	4	4.5%	16	6.7%
Being body checked	13	8.6%	2	2.3%	15	6.3%
Shooting	12	7.9%	2	2.3%	14	5.8%
Conditioning	0	0.0%	13	14.8%	13	5.4%
Receiving pass	9	5.9%	2	2.3%	11	4.6%
Goaltending	3	2.0%	4	4.5%	7	2.9%
Crosse/stick checking	7	4.6%	0	0.0%	7	2.9%
Blocking shot	3	2.0%	1	1.1%	4	1.7%
Passing	2	1.3%	2	2.3%	4	1.7%
Face-off	4	2.6%	0	0.0%	4	1.7%
Other	5	3.3%	4	4.5%	9	3.8%
Total	**152**	**100%**	**88**	**100%**	**240**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General Play	18	25.7%	6	16.2%	4	10.3%	7	13.5%	7	16.7%
Being Body Checked	2	2.9%	3	8.1%	0	0.0%	6	11.5%	4	9.5%
Shooting	5	7.1%	1	2.7%	1	2.6%	5	9.6%	2	4.8%
Being Crosse/Stick Checked	2	2.9%	7	18.9%	11	28.2%	4	7.7%	3	7.1%
Chasing Loose Ball	11	15.7%	2	5.4%	1	2.6%	7	13.5%	1	2.4%
Other	32	45.7%	18	48.7%	22	56.3%	23	44.2%	25	59.5%
Total	**70**	**100%**	**37**	**100%**	**39**	**100%**	**52**	**100%**	**42**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**176**	**101,508**	**1.73**
Competition	85	31,344	2.71
Practice	91	70,164	1.30

Table 15.2 Demographic Characteristics of Injured Girls' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=172**
Freshman	30.2%
Sophomore	20.9%
Junior	25.0%
Senior	23.8%
Total	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.9 (1.3)
BMI	
Minimum	17.3
Maximum	36.6
Mean (St. Dev.)	22.7 (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 15.1 Diagnosis of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

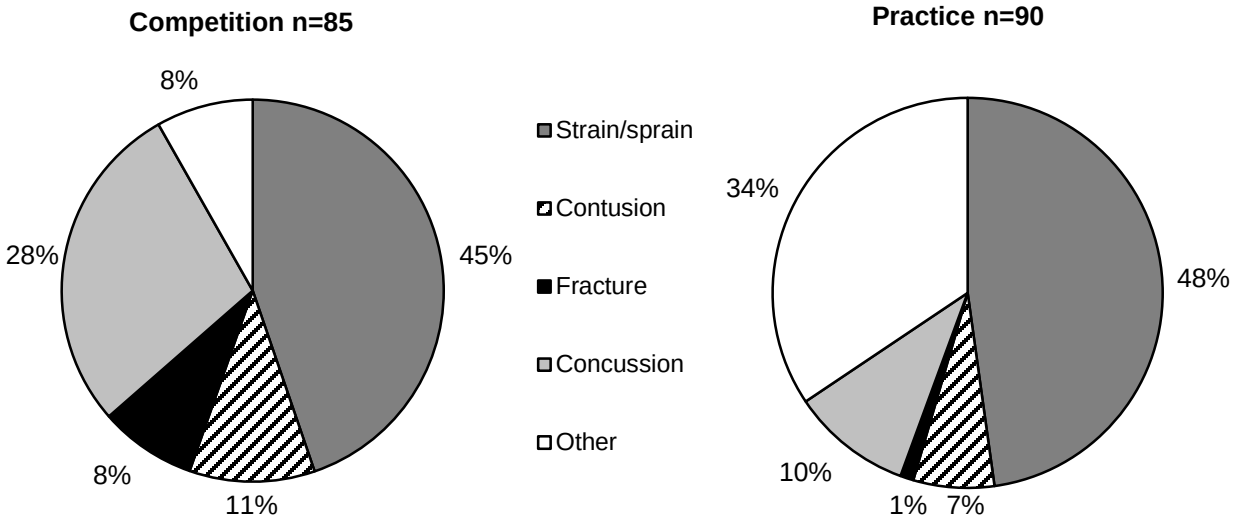


Table 15.3 Body Site of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

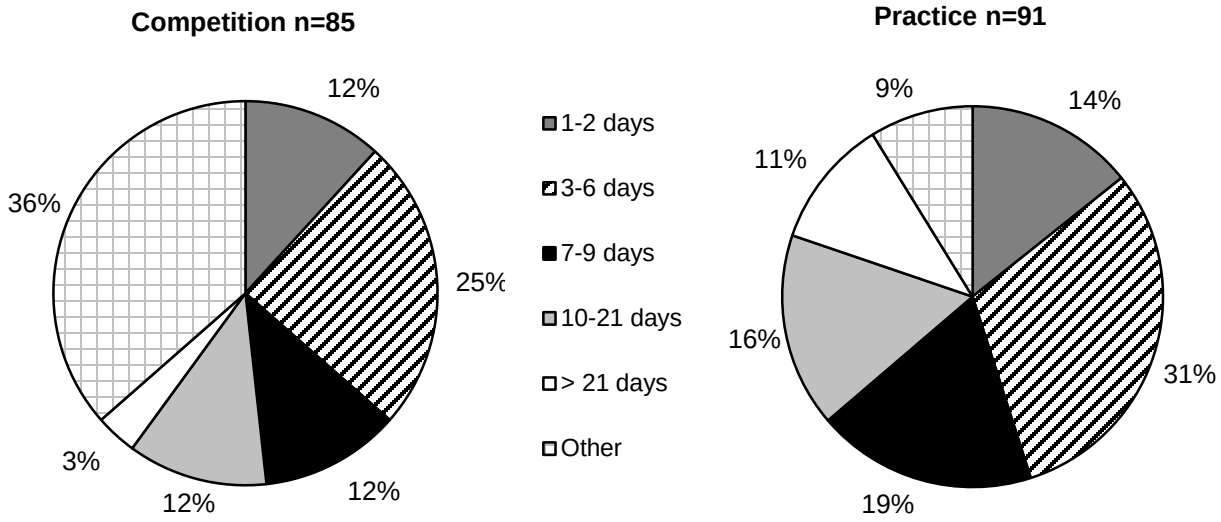
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	25	29.4%	14	15.4%	39	22.2%
Ankle	17	20.0%	20	22.0%	37	21.0%
Knee	14	16.5%	19	20.9%	33	18.8%
Hip/thigh/upper leg	13	15.3%	9	9.9%	22	12.5%
Foot	6	7.1%	7	7.7%	13	7.4%
Lower leg	0	0.0%	10	11.0%	10	5.7%
Hand/wrist	6	7.1%	2	2.2%	8	4.5%
Shoulder	1	1.2%	4	4.4%	5	2.8%
Trunk	0	0.0%	4	4.4%	4	2.3%
Neck	0	0.0%	1	1.1%	1	0.6%
Arm/elbow	1	1.2%	0	0.0%	1	0.6%
Other	2	2.4%	1	1.1%	3	1.7%
Total	**85**	**100%**	**91**	**100%**	**176**	**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, 2014-15 School Year

	Competition n=85		Practice n=90		Total n=175	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	15	17.6%	20	22.2%	35	20.0%
Head/face concussion	24	28.2%	9	10.0%	33	18.9%
Knee strain/sprain	10	11.8%	7	7.8%	17	9.7%
Hip/thigh/upper leg strain/sprain	9	10.6%	7	7.8%	16	9.7%
Knee other	1	1.2%	11	12.2%	12	6.9%
Lower leg other	0	0.0%	10	11.1%	10	5.7%
Foot other	2	2.4%	4	4.4%	6	3.4%
Foot strain/sprain	3	3.5%	2	2.2%	5	2.9%
Head/face contusion	1	1.2%	3	3.3%	4	2.3%
Hip/thigh/upper leg contusion	3	3.5%	1	1.1%	4	2.3%

Figure 15.2 Time Loss of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	11	13.1%	2	2.2%	13	7.5%
Did not require surgery	73	86.9%	88	97.8%	161	92.5%
Total	**84**	**100%**	**90**	**100%**	**174**	**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, 2014-15 School Year

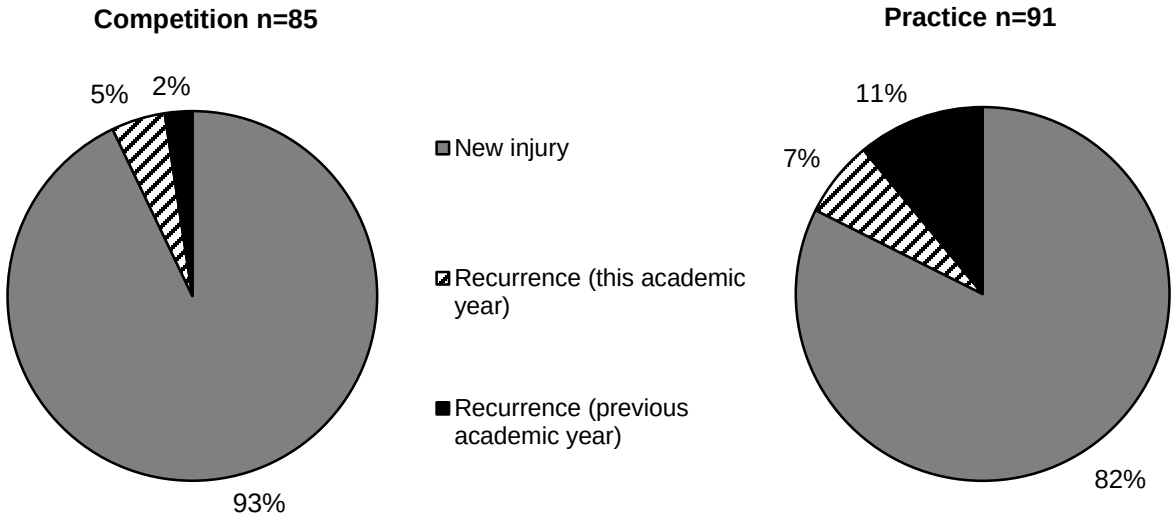


Table 15.6 Time during Season of Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	37	21.2%
Regular season	132	75.4%
Post season	6	3.4%
Total	**175**	**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, 2014-15 School Year

	n	%
Time in Competition		
Pre-Competition-Warm-ups	3	3.8%
First half	21	26.9%
Second half	54	69.2%
Total	**78**	**100%**
Field Location		
Midfield (between restraining lines)	33	43.4%
Critical scoring area (including the fan and arc)	25	32.9%
Goal circle	10	13.2%
Sideline	7	9.2%
Center circle	0	0.0%
Endline	1	1.3%
Total	**76**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	17	19.5%
Second 1/2 hour	15	17.2%
1-2 hours into practice	52	59.8%
>2 hours into practice	3	3.4%
Total	**87**	**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, 2014-15 School Year

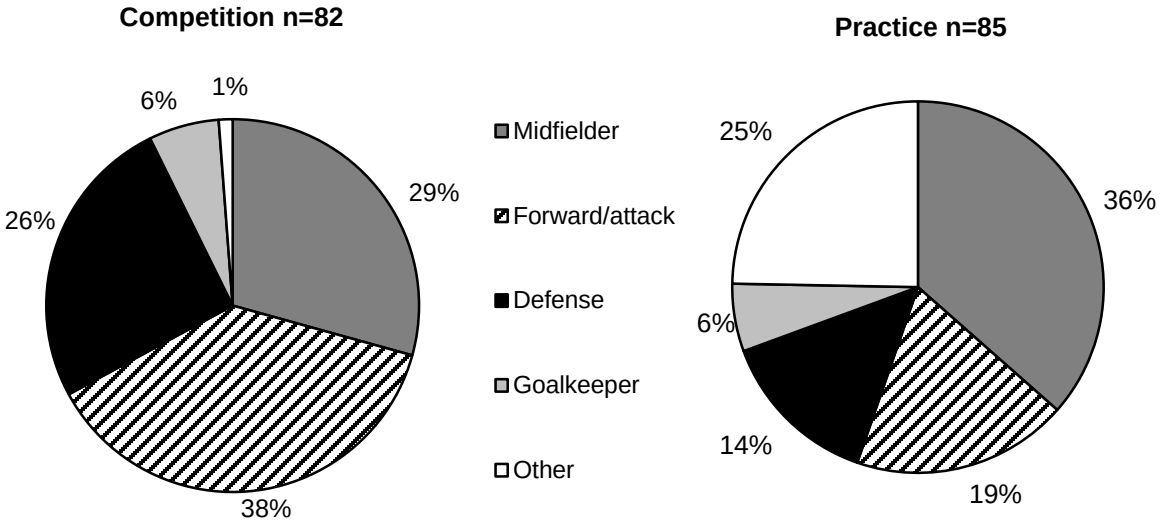


Table 15.9 Activities Leading to Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	15	18.5%	31	35.6%	46	27.4%
Defending	13	16.0%	10	11.5%	23	13.7%
Chasing loose ball	11	13.6%	7	8.0%	18	10.7%
Conditioning	0	0.0%	14	16.1%	14	8.3%
Ball handling/cradling	9	11.1%	3	3.4%	12	7.1%
Shooting	8	9.9%	4	4.6%	12	7.1%
Goaltending	5	6.2%	3	3.4%	8	4.8%
Receiving pass	3	3.7%	5	5.7%	8	4.8%
Being body checked	7	8.6%	0	0.0%	7	4.2%
Being crosse/stick checked	3	3.7%	1	1.1%	2	2.4%
Blocking shot	2	2.5%	1	1.1%	3	1.8%
Passing	0	0.0%	2	2.3%	2	1.2%
Body checking	2	2.5%	0	0.0%	2	1.2%
Crosse/stick checking	0	0.0%	1	1.1%	1	0.6%
Other	3	3.7%	5	5.7%	8	4.8%
Total	**81**	**100%**	**87**	**100%**	**168**	**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, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
General play	24	30.8%	2	13.3%	1	12.5%	1	3.4%	18	48.6%
Defending	15	19.2%	0	0.0%	1	12.5%	5	17.2%	2	5.4%
Ball handling/cradling	8	10.3%	0	0.0%	1	12.5%	3	10.3%	0	0.0%
Conditioning	2	2.6%	0	0.0%	0	0.0%	0	0.0%	11	29.7%
Chasing loose ball	10	12.8%	2	13.3%	2	25.0%	4	13.8%	0	0.0%
Other	19	24.3%	11	73.4%	3	37.5%	16	55.3%	6	16.3%
Total	**78**	**100%**	**15**	**100%**	**8**	**100%**	**29**	**100%**	**37**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**19**	**103,249**	**0.18**
Competition	2	18,801	0.11
Practice	17	84,448	0.20

Table 16.2 Demographic Characteristics of Injured Boys' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=19**
Freshman	15.8%
Sophomore	31.6%
Junior	26.3%
Senior	26.3%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.1 (1.2)
BMI	
Minimum	14.1
Maximum	25.7
Mean (St. Dev.)	22.0 (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 16.1 Diagnosis of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

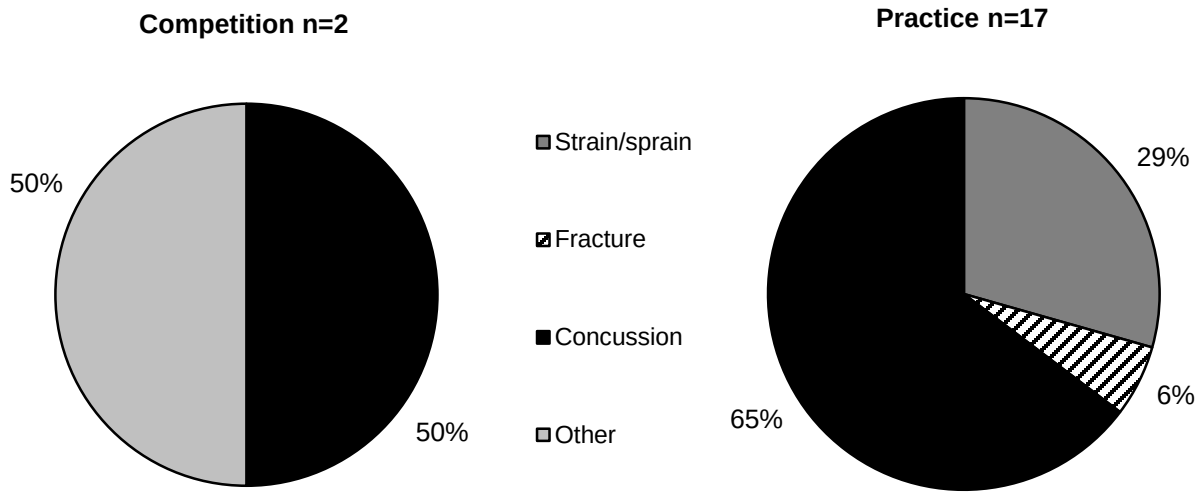


Table 16.3 Body Site of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

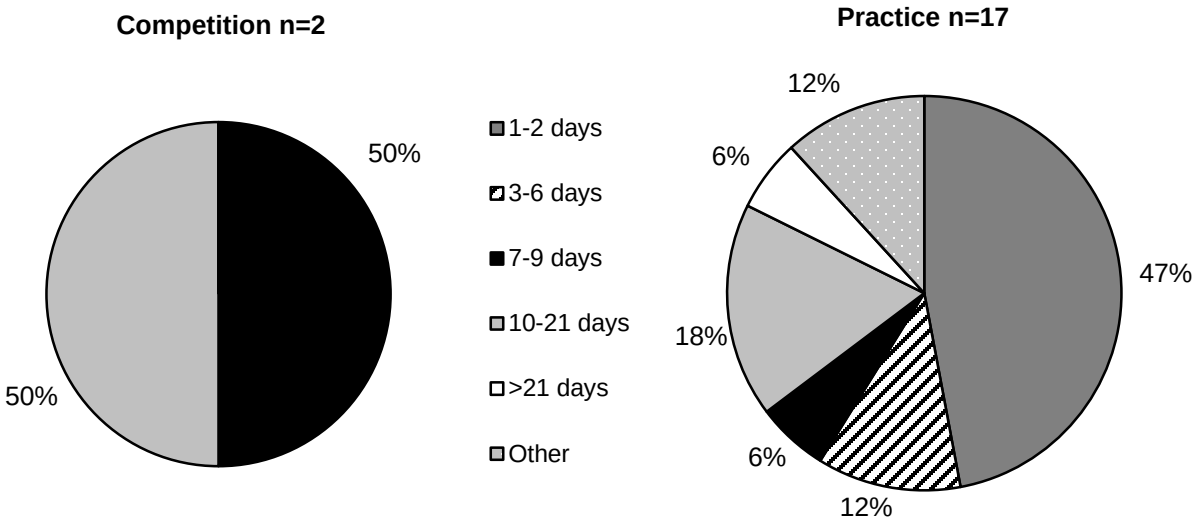
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Shoulder	0	0.0%	8	47.1%	8	42.1%
Trunk	0	0.0%	4	23.5%	4	21.1%
Head/face	1	50.0%	2	11.8%	3	15.8%
Knee	0	0.0%	2	11.8%	2	10.5%
Foot	0	0.0%	1	5.9%	1	5.3%
Other	1	5.0%	0	0.0%	1	5.3%
Total	**2**	**100%**	**17**	**100%**	**19**	**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, 2014-15 School Year

	Competition n=2		Practice n=17		Total n=19	
	n	%	n	%	n	%
Diagnosis						
Shoulder other	0	0.0%	6	35.3%	6	31.6%
Shoulder strain/sprain	0	0.0%	2	11.8%	2	10.5%
Trunk strain/sprain	0	0.0%	2	11.8%	2	10.5%
Head/face concussion	1	50.0%	1	5.9%	2	10.5%
Trunk other	0	0.0%	2	11.8%	2	10.5%
Knee strain/sprain	0	0.0%	1	5.9%	1	5.3%
Head/face other	0	0.0%	1	5.9%	1	5.3%
Knee other	0	0.0%	1	5.9%	1	5.3%
Foot other	0	0.0%	1	5.9%	1	5.3%

Figure 16.2 Time Loss of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	2	11.8%	2	10.6%
Did not require surgery	2	100%	15	88.2%	17	89.5%
Total	**2**	**100%**	**17**	**100%**	**19**	**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, 2014-15 School Year

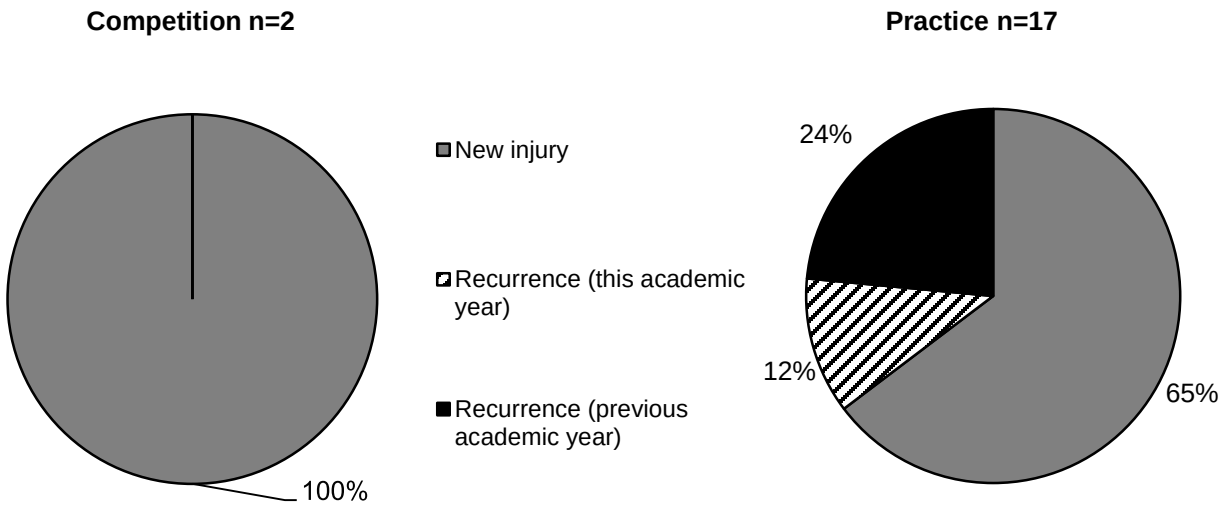


Table 16.6 Time during Season of Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	7	38.9%
Regular season	8	44.4%
Post season	3	16.7%
Total	**18**	**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, 2014-15 School Year

	n	%
Pool Location		
In pool	12	70.6%
Poolside	3	17.6%
Starting platform	1	5.9%
Other	1	5.9%
Total	**17**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	2	11.8%
Second 1/2 hour	6	35.3%
1-2 hours into practice	8	47.1%
>2 hours into practice	1	5.9%
Total	**17**	**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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Swimming	0	0.0%	6	50.0%	6	42.9%
Flip turn off wall	0	0.0%	1	8.3%	1	7.1%
Diving off board/platform/block	0	0.0%	1	8.3%	1	7.1%
Touch turn off wall	1	50.0%	0	0.0%	1	7.1%
Other	1	50.0%	4	33.3%	5	35.7%
Total	**2**	**100%**	**12**	**100%**	**14**	**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, 2014-15 School Year

	Diagnosis					
	Strain/Sprain		Concussion		Other	
	n	%	n	%	n	%
Activity						
Swimming	2	50.0%	0	0.0%	4	50.0%
Flip turn off wall	1	25.0%	0	0.0%	0	0.0%
Diving off board/platform/block	0	0.0%	0	0.0%	1	12.5%
Touch turn off wall	0	0.0%	1	50.0%	0	0.0%
Other	1	25.0%	1	50.0%	3	37.5%
Total	**4**	**100%**	**2**	**100%**	**8**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**28**	**115,160**	**0.24**
Competition	6	19,880	0.30
Practice	22	95,280	0.23

Table 17.2 Demographic Characteristics of Injured Girls' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=28**
Freshman	14.3%
Sophomore	28.6%
Junior	28.6%
Senior	28.6%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.9 (1.2)
BMI	
Minimum	17.9
Maximum	28.7
Mean (St. Dev.)	22.4 (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 17.1 Diagnosis of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

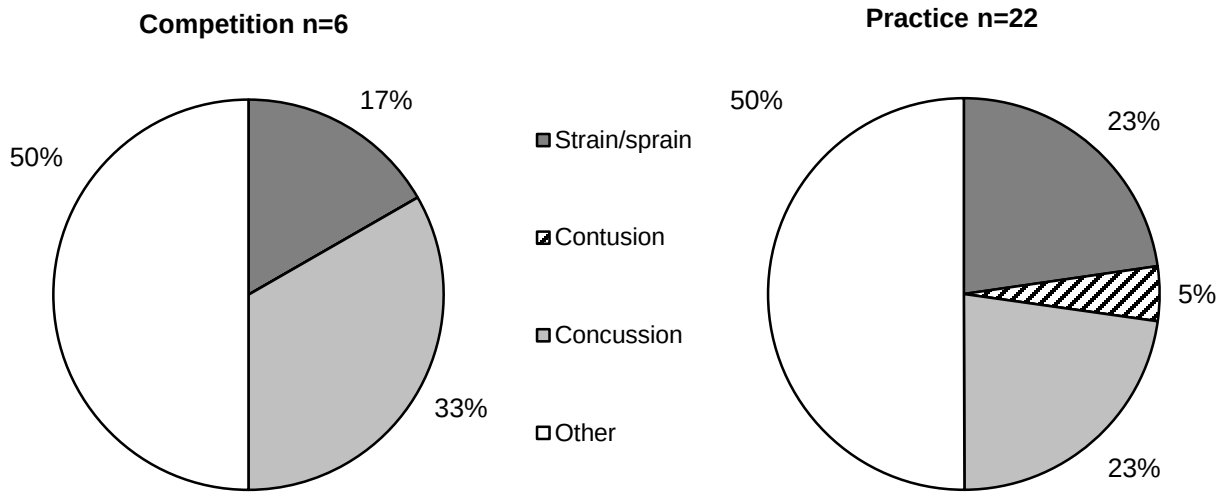


Table 17.3 Body Site of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

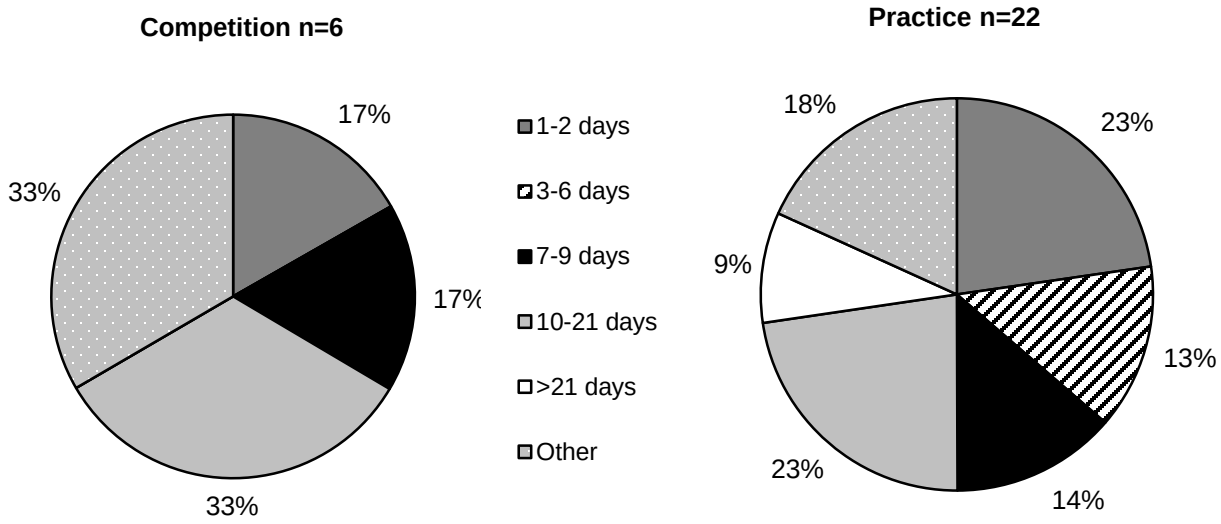
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	1	16.7%	6	27.3%	7	25.0%
Shoulder	1	16.7%	5	22.7%	6	21.4%
Knee	1	16.7%	4	18.2%	5	17.9%
Trunk	1	16.7%	3	13.6%	4	14.3%
Hip/thigh/upper leg	0	0.0%	2	9.1%	2	7.1%
Neck	1	16.7%	1	4.5%	2	7.1%
Hand/wrist	0	0.0%	1	4.5%	1	3.6%
Other	1	16.7%	0	0.0%	1	3.6%
Total	**6**	**100%**	**22**	**100%**	**28**	**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, 2014-15 School Year

	Competition n=6		Practice n=22		Total n=28	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	1	16.7%	5	22.7%	6	21.4%
Knee other	1	16.7%	4	18.2%	5	17.9%
Shoulder strain/sprain	0	0.0%	3	13.6%	3	10.7%
Shoulder other	1	16.7%	2	9.1%	3	10.7%
Trunk other	0	0.0%	3	13.6%	1	3.6%
Head/face contusion	0	0.0%	1	4.5%	1	3.6%
Hip/thigh/upper leg strain/sprain	0	0.0%	1	4.5%	1	3.6%
Hand/wrist strain/sprain	0	0.0%	1	4.5%	1	3.6%
Trunk strain/sprain	1	16.7%	0	0.0%	1	3.6%
Hip/thigh/upper leg other	0	0.0%	1	4.5%	1	3.6%

Figure 17.2 Time Loss of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	1	4.5%	1	3.6%
Did not require surgery	6	100%	21	95.5%	27	96.4%
Total	**6**	**100%**	**22**	**100%**	**28**	**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, 2014-15 School Year

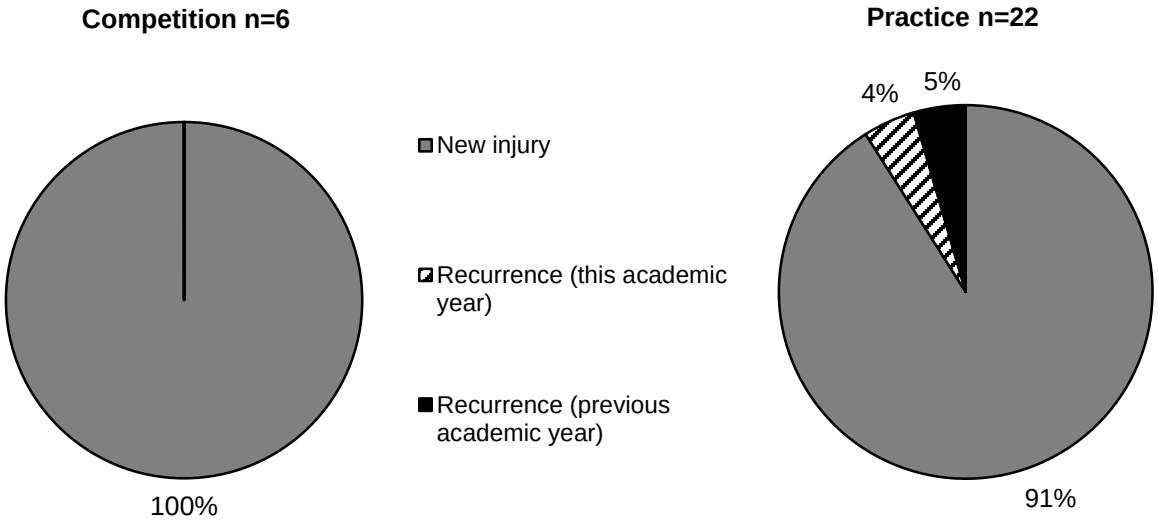


Table 17.6 Time during Season of Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	8	28.6%
Regular season	20	71.4%
Post season	0	0.0%
Total	**28**	**100%**

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

Table 17.7 Pool Location for Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Pool Location		
In pool	22	88.0%
Poolside	2	8.0%
Starting platform/board/blocks	1	4.0%
Other	0	0.0%
Total	**25**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	2	9.1%
Second 1/2 hour	6	27.3%
1-2 hours into practice	11	50.0%
>2 hours into practice	3	13.6%
Total	**22**	**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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Swimming	1	20.0%	13	68.4%	14	58.3%
Diving off board/platform/block	1	20.0%	2	10.5%	3	12.5%
Flip turn off wall	1	20.0%	1	5.3%	2	8.3%
Touch turn off wall	0	0.0%	1	5.3%	1	4.2%
Other	2	40.0%	2	10.5%	4	16.7%
Total	**5**	**100%**	**19**	**100%**	**24**	**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, 2014-15 School Year

	Diagnosis							
	Strain/Sprain		Contusion		Concussion		Other	
	n	%	n	%	n	%	n	%
Activity								
Swimming	4	66.7%	0	0.0%	1	25.0%	9	69.2%
Flip turn off wall	1	16.7%	0	0.0%	1	25.0%	0	0.0%
Diving off board/platform/block	0	0.0%	0	0.0%	1	25.0%	2	15.4%
Other	1	16.7%	1	100.0%	1	25.0%	2	15.4%
Total	**6**	**100%**	**1**	**100%**	**4**	**100%**	**13**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**196**	**290,886**	**0.67**
Competition	69	59,974	1.15
Practice	127	230,912	0.55

Table 18.2 Demographic Characteristics of Injured Boys' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=190**
Freshman	16.8%
Sophomore	20.0%
Junior	32.1%
Senior	31.1%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	19
Mean (St. Dev.)	16.5 (1.3)
BMI	
Minimum	11.2
Maximum	32.7
Mean (St. Dev.)	23.4 (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, 2014-15 School Year

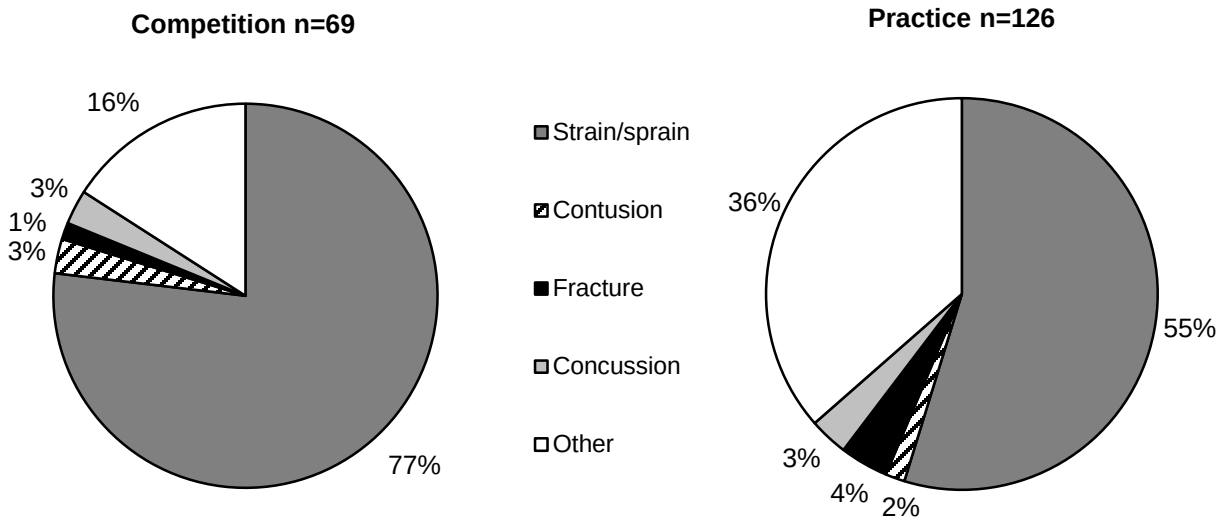


Table 18.3 Body Site of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

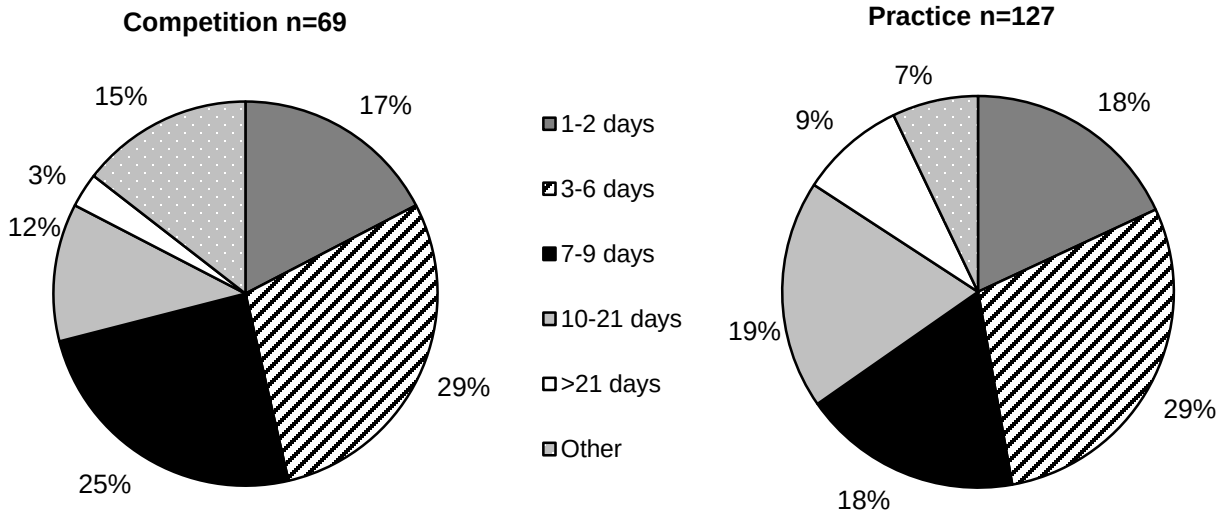
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Hip/thigh/upper leg	43	62.3%	42	33.1%	85	43.4%
Lower leg	5	7.2%	28	22.0%	33	16.8%
Ankle	4	5.8%	17	13.4%	21	10.7%
Knee	5	7.2%	15	11.8%	20	10.2%
Foot	5	7.2%	9	7.1%	14	7.1%
Head/face	2	2.9%	4	3.1%	6	3.1%
Trunk	1	1.4%	5	3.9%	6	3.1%
Shoulder	1	1.4%	3	2.4%	4	2.0%
Arm/elbow	0	0.0%	2	1.6%	2	1.0%
Hand/wrist	1	1.4%	1	0.8%	2	1.0%
Other	2	2.9%	1	0.8%	3	1.5%
Total	**69**	**100%**	**127**	**100%**	**196**	**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, 2014-15 School Year

	Competition n=69		Practice n=126		Total n=195	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	41	59.4%	39	31.0%	80	41.0%
Lower leg other	1	1.4%	21	16.7%	22	11.3%
Ankle strain/sprain	3	4.3%	12	9.5%	15	7.7%
Knee other	2	2.9%	12	9.5%	14	7.2%
Lower leg strain/sprain	4	5.8%	5	4.0%	9	4.6%
Foot other	3	4.3%	4	3.2%	7	3.6%
Trunk strain/sprain	1	1.4%	5	4.0%	6	3.1%
Ankle other	1	1.4%	5	4.0%	6	3.1%
Knee strain/sprain	2	2.9%	2	1.6%	4	2.1%
Foot strain/sprain	0	0.0%	3	2.4%	3	1.5%

Figure 18.2 Time Loss of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	0	0.0%	0	0.0%
Did not require surgery	67	100.0%	124	100.0%	191	100.0%
Total	**67**	**100%**	**124**	**100%**	**191**	**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, 2014-15 School Year

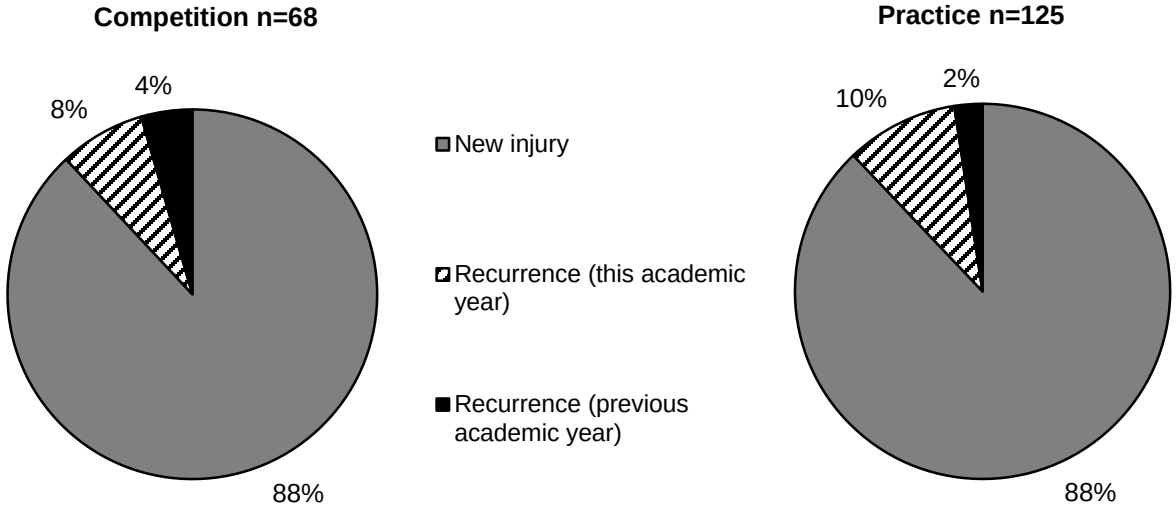


Table 18.6 Time during Season of Boys' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	46	23.7%
Regular season	138	71.1%
Post season	10	5.2%
Total	**194**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	19	16.2%
Second 1/2 hour	33	28.2%
1-2 hours into practice	59	50.4%
>2 hours into practice	6	5.1%
Total	**117**	**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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	49	72.1%	79	67.5%	128	69.2%
Jumping/landing	7	10.3%	15	12.8%	22	11.9%
Conditioning	1	1.5%	6	5.1%	7	3.8%
Running hurdles	5	7.4%	1	0.9%	6	3.2%
Throwing	0	0.0%	5	4.3%	5	2.7%
Warming up	2	2.9%	3	2.6%	5	2.7%
Leaving block	1	1.5%	2	1.7%	3	1.6%
Baton hand off	1	1.5%	1	0.9%	2	1.1%
Other	2	3.0%	5	4.3%	7	3.7%
Total	**68**	**100%**	**117**	**100%**	**185**	**100%**

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

Table 18.9 Activity Resulting in Boys' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running	83	72.2%	1	25.0%	5	83.3%	0	0.0%	39	73.6%
Jumping/landing	15	13.0%	1	25.0%	0	0.0%	4	66.7%	2	3.8%
Throwing	3	2.6%	0	0.0%	0	0.0%	0	0.0%	2	3.8%
Running hurdles	2	1.7%	1	25.0%	0	0.0%	1	16.7%	1	1.9%
Conditioning	0	0.0%	0	0.0%	0	0.0%	1	16.7%	6	11.3%
Other	12	10.5%	1	25.0%	1	16.7%	0	0.0%	3	5.7%
Total	**115**	**100%**	**4**	**100%**	**6**	**100%**	**6**	**100%**	**53**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**219**	**243,824**	**0.90**
Competition	60	49,621	1.21
Practice	159	194,203	0.82

Table 19.2 Demographic Characteristics of Injured Girls' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=216**
Freshman	27.8%
Sophomore	24.1%
Junior	28.2%
Senior	19.9%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	19
Mean (St. Dev.)	15.9 (1.2)
BMI	
Minimum	16.8
Maximum	36.2
Mean (St. Dev.)	21.1 (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, 2014-15 School Year

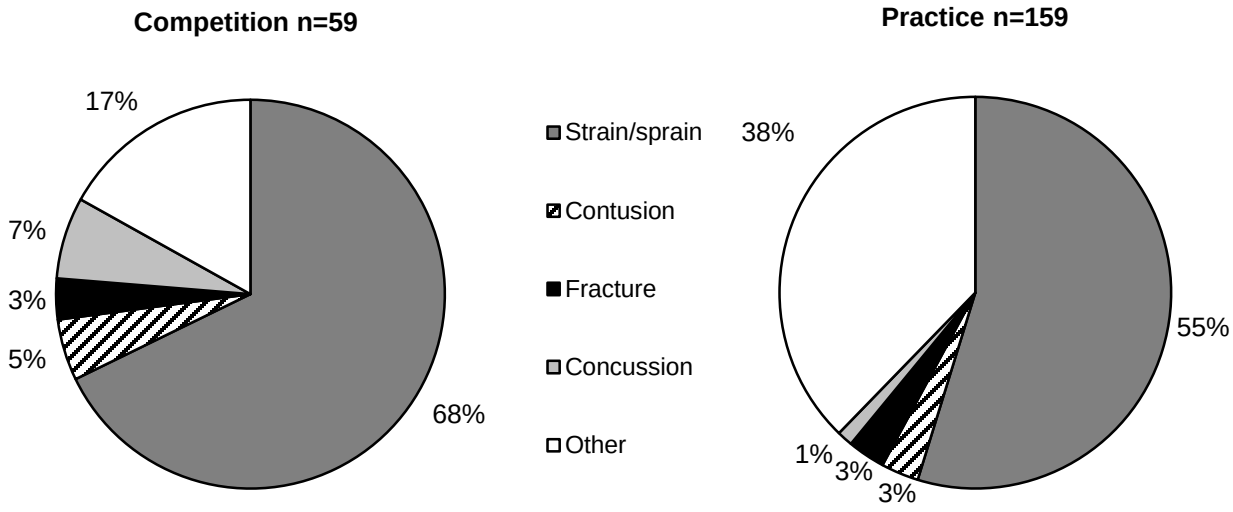


Table 19.3 Body Site of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

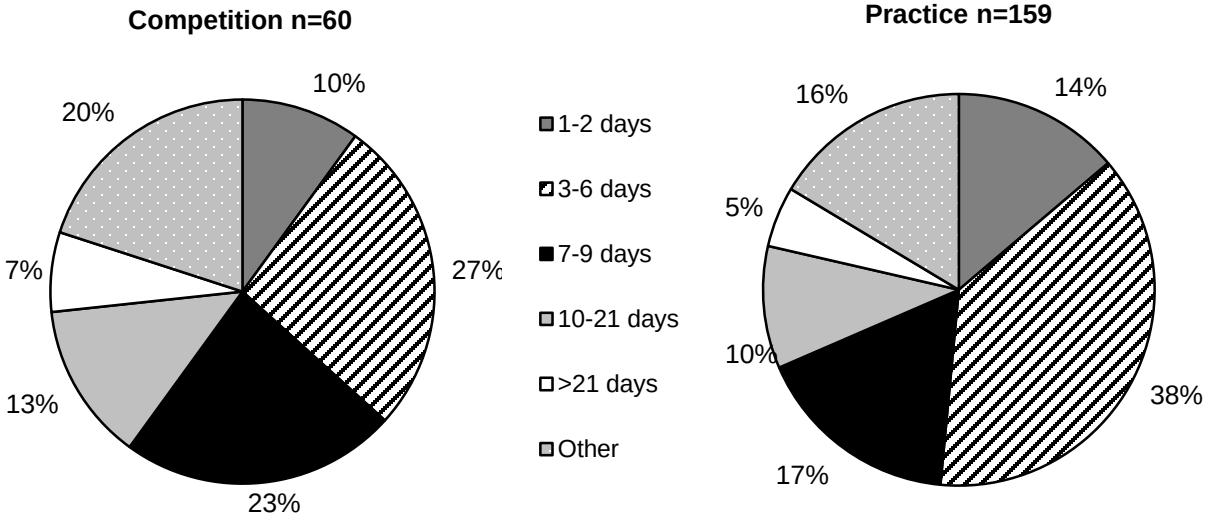
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Hip/thigh/upper leg	22	36.7%	55	34.6%	77	35.2%
Lower leg	3	5.0%	37	23.3%	40	18.3%
Ankle	11	18.3%	18	11.3%	29	13.2%
Knee	7	11.7%	21	13.2%	28	12.8%
Foot	6	10.0%	12	7.5%	18	8.2%
Trunk	2	3.3%	7	4.4%	9	4.1%
Head/face	4	6.7%	2	1.3%	6	2.7%
Shoulder	1	1.7%	4	2.5%	5	2.3%
Arm/elbow	1	1.7%	1	0.6%	2	0.9%
Hand/wrist	0	0.0%	1	0.6%	1	0.5%
Neck	1	1.7%	0	0.0%	1	0.5%
Other	2	3.3%	1	0.6%	3	1.4%
Total	**60**	**100%**	**159**	**100%**	**219**	**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, 2014-15 School Year

	Competition n=49		Practice n=192		Total n=241	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	22	44.9%	46	24.0%	68	28.2%
Lower leg other	3	6.1%	27	14.1%	30	12.4%
Ankle strain/sprain	10	20.4%	15	7.8%	25	10.4%
Knee other	3	6.1%	12	6.3%	15	6.2%
Knee strain/sprain	3	6.1%	7	3.6%	10	4.1%
Hip/thigh/upper leg other	0	0.0%	9	4.7%	9	3.7%
Foot other	2	4.1%	6	3.1%	8	3.3%
Foot strain/sprain	3	6.1%	4	2.1%	7	2.9%
Trunk strain/sprain	0	0.0%	6	3.1%	6	2.5%
Lower leg strain/sprain	0	0.0%	6	3.1%	6	2.5%

Figure 19.2 Time Loss of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	3	1.9%	3	1.4%
Did not require surgery	60	100%	156	98.1%	216	98.6%
Total	**60**	**100%**	**159**	**100%**	**219**	**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, 2014-15 School Year

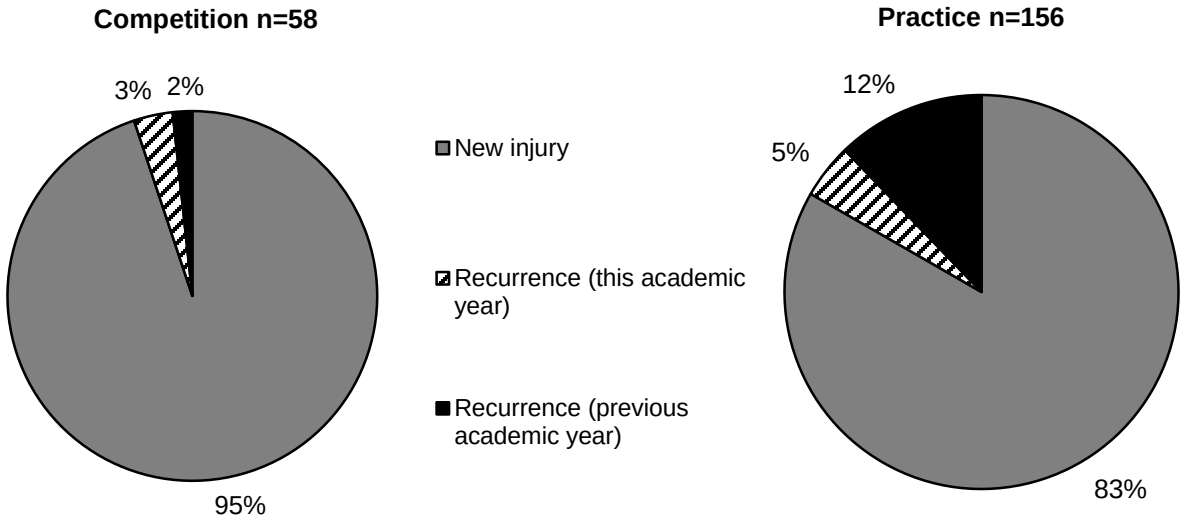


Table 19.6 Time during Season of Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	66	30.4%
Regular season	145	66.8%
Post season	6	2.8%
Total	**217**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	26	17.6%
Second 1/2 hour	40	27.0%
1-2 hours into practice	75	50.7%
>2 hours into practice	7	4.7%
Total	**148**	**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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	32	54.2%	89	60.1%	121	58.5%
Jumping/landing	10	16.9%	26	17.6%	36	17.4%
Conditioning	0	0.0%	12	8.1%	12	5.8%
Running hurdles	7	11.9%	4	2.7%	11	5.3%
Warming up	1	1.7%	6	4.1%	7	3.4%
Leaving block	3	5.1%	3	2.0%	6	2.9%
Throwing	2	3.4%	4	2.7%	6	2.9%
Hit by thrown object	0	0.0%	2	1.4%	2	1.0%
Baton hand off	0	0.0%	1	0.7%	1	0.5%
Other	4	6.8%	1	0.7%	5	2.4%
Total	**59**	**100%**	**148**	**100%**	**207**	**100%**

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

Table 19.9 Activity Resulting in Girls' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running	69	57.0%	0	0.0%	2	33.3%	1	20.0%	49	74.2%
Jumping/landing	26	21.5%	2	25.0%	2	33.3%	1	20.0%	5	7.6%
Running hurdles	6	5.0%	2	25.0%	0	0.0%	1	20.0%	1	1.5%
Conditioning	6	5.0%	0	0.0%	0	0.0%	1	20.0%	5	7.6%
Warming up	2	1.7%	2	25.0%	1	16.7%	0	0.0%	2	3.0%
Other	12	9.8%	2	25.0%	1	16.7%	1	20.0%	4	6.1%
Total	**121**	**100%**	**8**	**100%**	**6**	**100%**	**5**	**100%**	**66**	**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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**87**	**148,784**	**0.58**
Competition	14	24,000	0.58
Practice	73	124,784	0.59

Table 20.2 Demographic Characteristics of Injured Boys' Cross Country Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=77**
Freshman	27.3%
Sophomore	13.0%
Junior	31.2%
Senior	28.6%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.8 (1.4)
BMI	
Minimum	17.9
Maximum	30.4
Mean (St. Dev.)	21.6 (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 20.1 Diagnosis of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

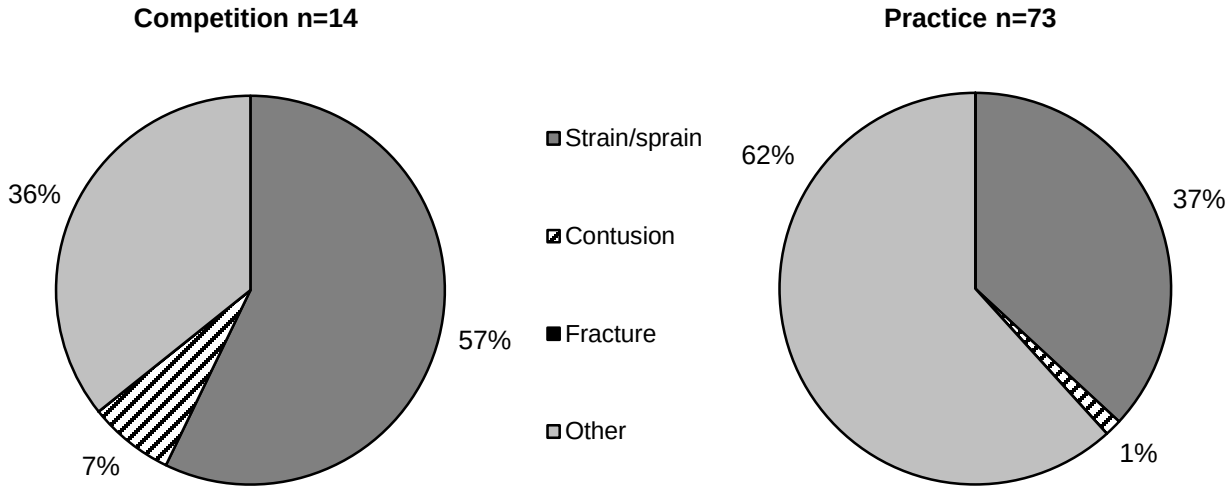


Table 20.3 Body Site of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

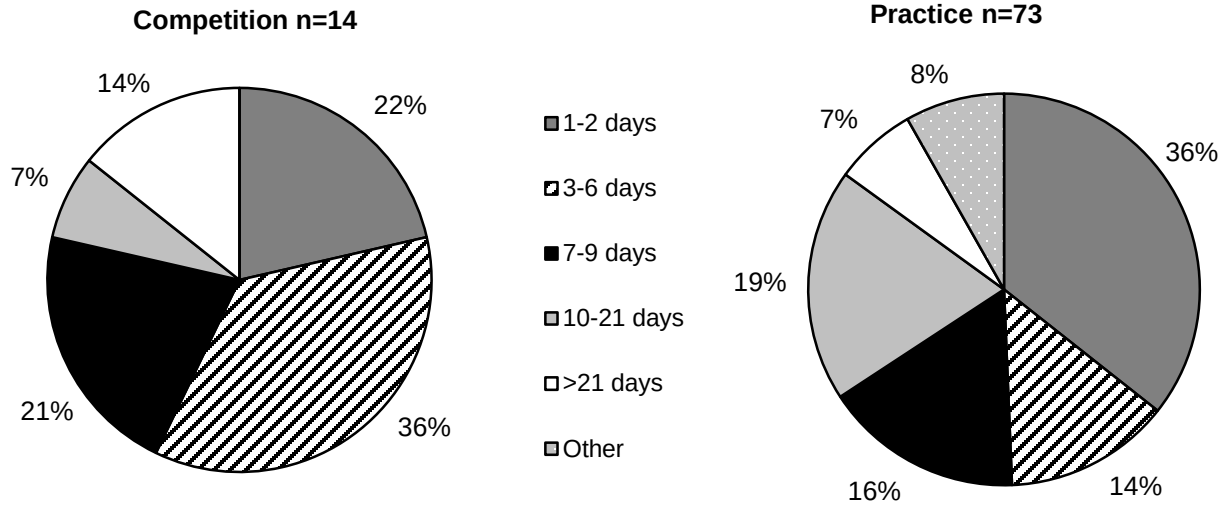
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Lower leg	3	21.4%	27	37.0%	30	34.5%
Hip/thigh/upper leg	2	14.3%	18	24.7%	20	23.0%
Knee	5	35.7%	12	16.4%	17	19.5%
Ankle	2	14.3%	8	11.0%	10	11.5%
Foot	2	14.3%	6	8.2%	8	9.2%
Trunk	0	0.0%	2	2.7%	2	2.3%
Other	0	0.0%	0	0.0%	0	0.0%
Total	**14**	**100%**	**73**	**100%**	**87**	**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, 2014-15 School Year

	Competition n=14		Practice n=73		Total n=87	
	n	%	n	%	n	%
Diagnosis						
Lower leg other	2	14.3%	23	31.5%	25	28.7%
Hip/thigh/upper leg strain/sprain	2	14.3%	12	16.4%	14	16.1%
Knee other	3	21.4%	10	13.7%	13	14.9%
Ankle strain/sprain	2	14.3%	7	9.6%	9	10.3%
Hip/thigh/upper leg other	0	0.0%	6	8.2%	6	6.9%
Knee strain/sprain	2	14.3%	2	2.7%	4	4.6%
Lower leg strain/sprain	1	7.1%	3	4.1%	4	4.6%
Foot strain/sprain	1	7.1%	3	4.1%	4	4.6%
Foot other	0	0.0%	3	4.1%	3	3.4%
Trunk other	0	0.0%	2	2.7%	2	2.3%

Figure 20.2 Time Loss of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	1	1.4%	1	1.1%
Did not require surgery	14	100.0%	72	98.6%	86	98.9%
Total	**14**	**100%**	**73**	**100%**	**87**	**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, 2014-15 School Year

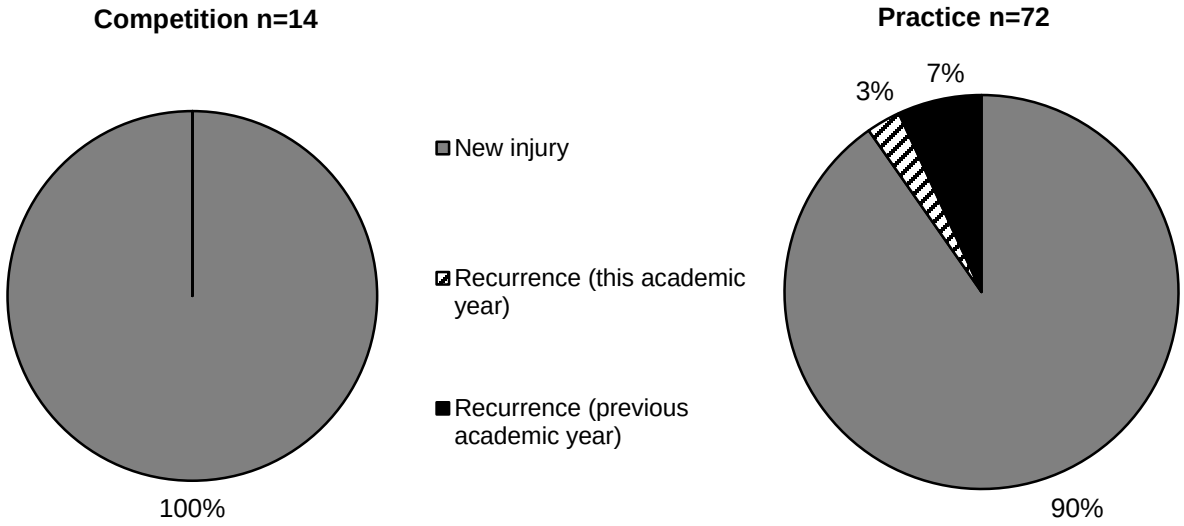


Table 20.6 Time during Season of Boys' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	24	27.6%
Regular season	62	71.3%
Post season	1	1.1%
Total	**87**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	13	18.8%
Second 1/2 hour	14	20.3%
1-2 hours into practice	35	50.7%
>2 hours into practice	7	10.1%
Total	**69**	**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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	12	100.0%	49	76.6%	61	80.3%
Conditioning	0	0.0%	11	17.2%	11	14.5%
Warming up	0	0.0%	2	3.1%	2	2.6%
Cooling down	0	0.0%	1	1.6%	1	1.3%
Other	0	0.0%	1	1.6%	1	1.3%
Total	**12**	**100%**	**64**	**100%**	**76**	**100%**

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

Table 20.9 Activity Resulting in Boys' Cross Country Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Diagnosis*					
	Strain/Sprain		Contusion		Other	
	n	%	n	%	n	%
Activity						
Running	26	83.9%	1	100.0%	34	77.3%
Conditioning	3	9.7%	0	0.0%	8	18.2%
Warming up	2	6.5%	0	0.0%	0	0.0%
Cooling down	0	0.0%	0	0.0%	1	2.3%
Other	0	0.0%	0	0.0%	1	2.3%
Total	**31**	**100%**	**1**	**100%**	**44**	**100%**

*no concussions or fractures reported

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, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**127**	**131,033**	**0.97**
Competition	26	21,276	1.22
Practice	101	109,757	0.92

Table 21.2 Demographic Characteristics of Injured Girls' Cross Country Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=104**
Freshman	23.7%
Sophomore	23.7%
Junior	19.5%
Senior	33.1%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.7 (1.2)
BMI	
Minimum	16.3
Maximum	36.3
Mean (St. Dev.)	21.8 (3.6)

*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, 2014-15 School Year

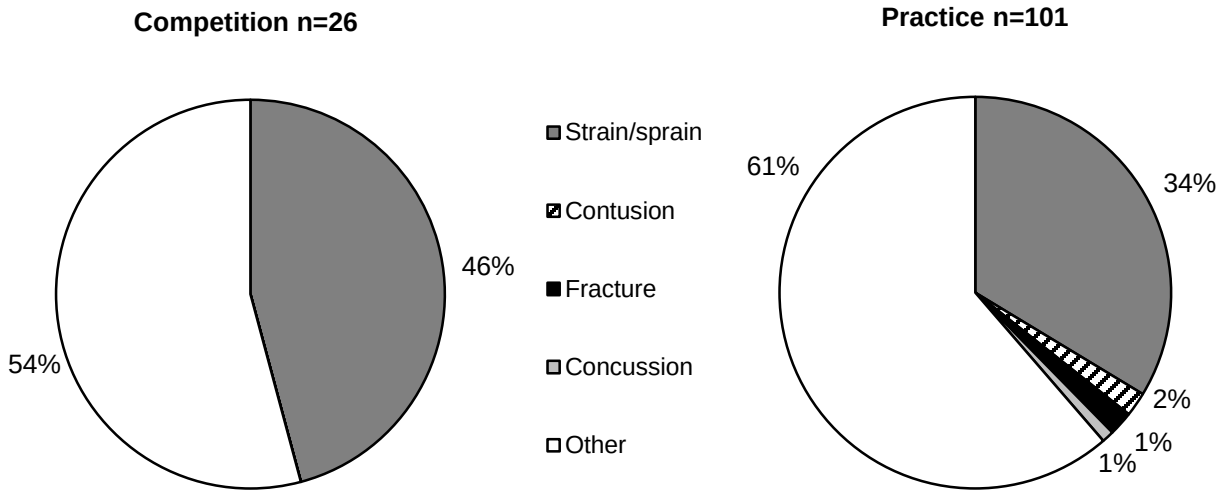


Table 21.3 Body Site of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

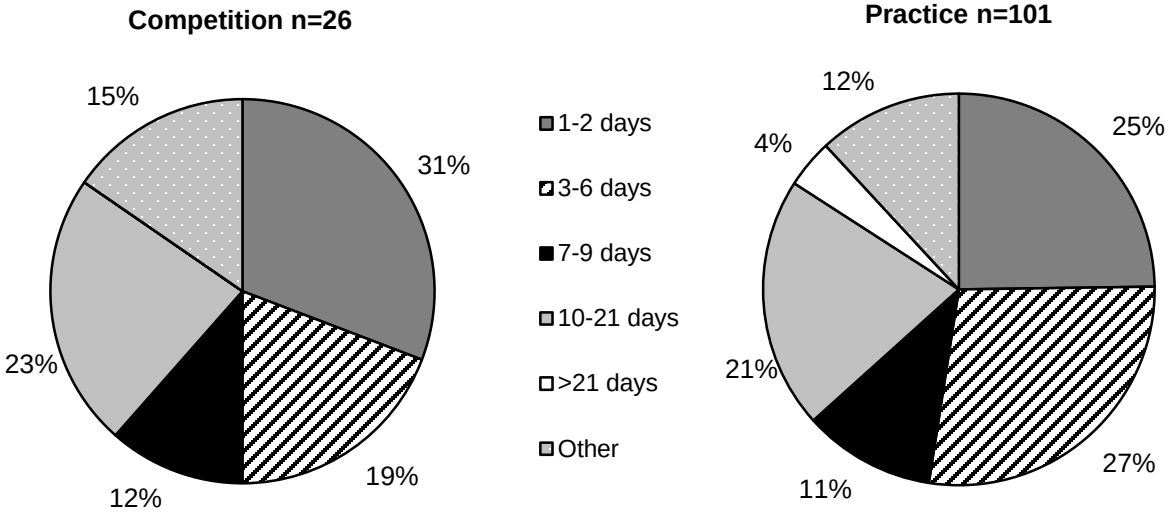
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Lower leg	2	7.7%	27	26.7%	29	22.8%
Knee	5	19.2%	21	20.8%	26	20.5%
Hip/thigh/upper leg	1	3.8%	23	22.8%	24	18.9%
Ankle	9	34.6%	11	10.9%	20	15.7%
Foot	2	7.7%	12	11.9%	14	11.0%
Trunk	0	0.0%	4	4.0%	4	3.1%
Head/face	1	3.8%	1	1.0%	2	1.6%
Neck	1	3.8%	0	0.0%	1	0.8%
Other	5	19.2%	2	2.0%	7	5.5%
Total	**26**	**100%**	**101**	**100%**	**127**	**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, 2014-15 School Year

	Competition n=26		Practice n=101		Total n=127	
	n	%	n	%	n	%
Diagnosis						
Lower leg other	1	3.8%	26	25.7%	27	21.3%
Knee other	4	15.4%	17	16.8%	21	16.5%
Ankle strain/sprain	9	34.6%	11	10.9%	20	15.7%
Hip/thigh/upper leg strain/sprain	1	3.8%	12	11.9%	13	10.2%
Hip/thigh/upper leg other	0	0.0%	11	10.9%	11	8.7%
Foot other	2	7.7%	5	5.0%	7	5.5%
Knee strain/sprain	1	3.8%	3	3.0%	4	3.1%
Foot strain/sprain	0	0.0%	4	4.0%	4	3.1%
Trunk strain/sprain	0	0.0%	3	3.0%	3	2.4%
Foot fracture	0	0.0%	2	2.0%	2	1.6%

Figure 21.2 Time Loss of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	3	3.0%	3	2.4%
Did not require surgery	26	100.0%	98	97.0%	124	97.6%
Total	**26**	**100%**	**101**	**100%**	**127**	**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, 2014-15 School Year

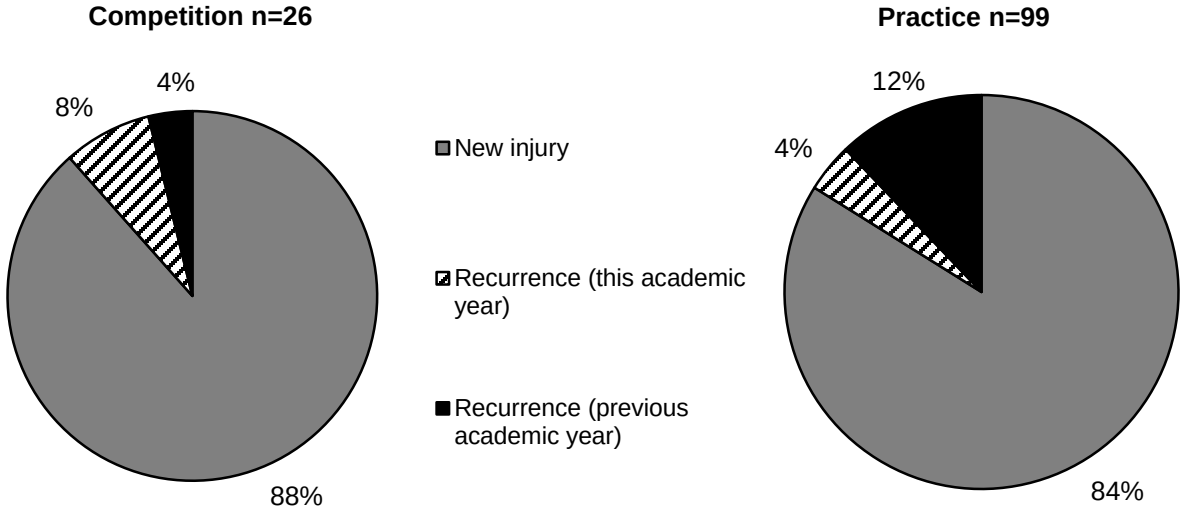


Table 21.6 Time during Season of Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	21	16.5%
Regular season	101	79.5%
Post season	5	3.9%
Total	**127**	**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, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	13	15.1%
Second 1/2 hour	32	37.2%
1-2 hours into practice	38	44.2%
>2 hours into practice	3	3.5%
Total	**86**	**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, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	24	96.0%	69	79.3%	93	83.0%
Conditioning	1	4.0%	10	11.5%	11	9.8%
Cooling down	0	0.0%	3	3.4%	3	2.7%
Warming up	0	0.0%	2	2.3%	2	1.8%
Other	0	0.0%	3	3.4%	3	2.7%
Total	**25**	**100%**	**87**	**100%**	**112**	**100%**

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

Table 21.9 Activity Resulting in Girls' Cross Country Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Running	35	87.5%	1	50.0%	1	100.0%	1	100.0%	55	80.9%
Warming up	1	2.5%	0	0.0%	0	0.0%	0	0.0%	1	1.5%
Conditioning	0	0.0%	1	50.0%	0	0.0%	0	0.0%	10	14.7%
Cooling down	1	2.5%	0	0.0%	0	0.0%	0	0.0%	2	2.9%
Other	3	7.5%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total	**40**	**100%**	**2**	**100%**	**1**	**100%**	**1**	**100%**	**68**	**100%**

XXII. Boys' Tennis Injury Epidemiology

Table 22.1 Boys' Tennis Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**12**	**58,997**	**0.20**
Competition	8	18,774	0.43
Practice	4	40,223	0.10

Table 22.2 Demographic Characteristics of Injured Boys' Tennis Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=10**
Freshman	10.0%
Sophomore	20.0%
Junior	30.0%
Senior	40.0%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.3 (1.4)
BMI	
Minimum	21.0
Maximum	28.3
Mean (St. Dev.)	23.8 (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 22.1 Diagnosis of Boys' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

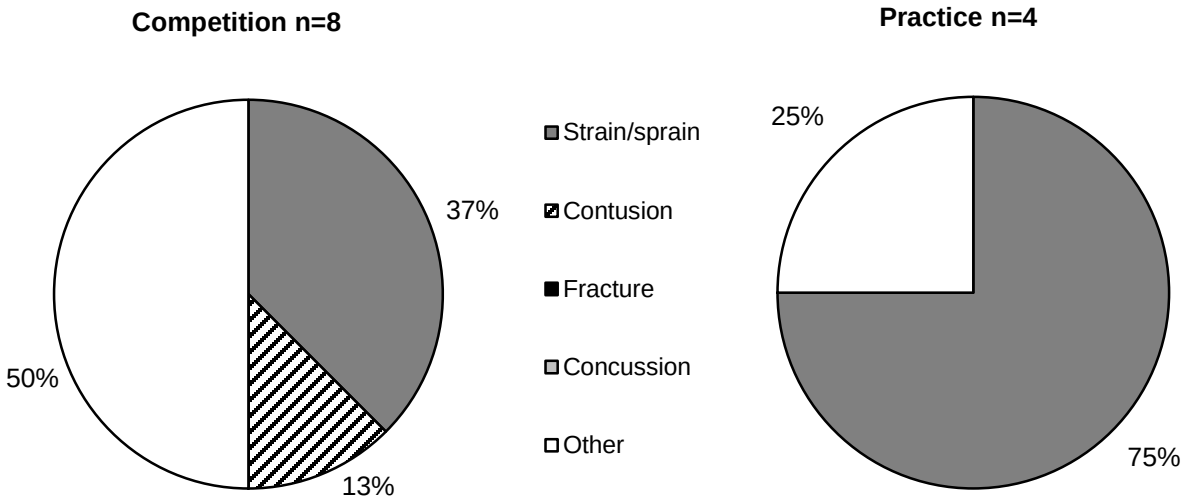


Table 22.3 Body Site of Boys' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

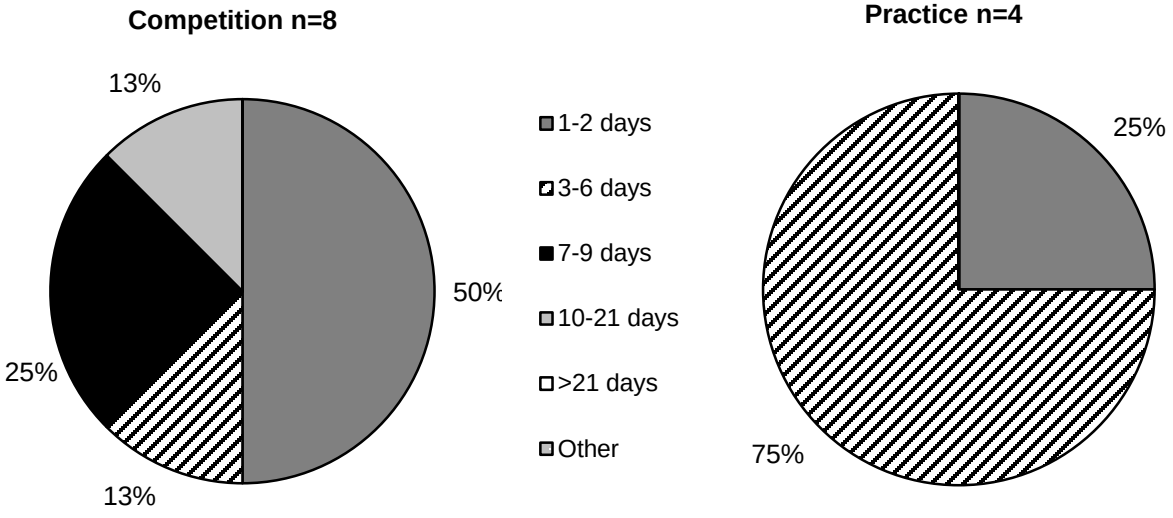
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Knee	4	50.0%	0	0.0%	4	33.3%
Foot	2	25.0%	0	0.0%	2	16.7%
Trunk	1	12.5%	1	25.0%	2	16.7%
Hip/thigh/upper leg	1	12.5%	0	0.0%	1	8.3%
Ankle	0	0.0%	1	25.0%	1	8.3%
Lower leg	0	0.0%	1	25.0%	1	8.3%
Shoulder	0	0.0%	1	25.0%	1	8.3%
Other	0	0.0%	0	0.0%	0	0.0%
Total	**8**	**100%**	**4**	**100%**	**12**	**100%**

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

Table 22.4 Ten Most Common Boys' Tennis Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=8		Practice n=4		Total n=12	
	n	%	n	%	n	%
Diagnosis						
Knee other	3	37.5%	0	0.0%	3	25.0%
Knee strain/sprain	1	12.5%	0	0.0%	1	8.3%
Ankle strain/sprain	0	0.0%	1	25.0%	1	8.3%
Trunk strain/sprain	0	0.0%	1	25.0%	1	8.3%
Hip/thigh/upper leg strain/sprain	1	12.5%	0	0.0%	1	8.3%
Shoulder strain/sprain	0	0.0%	1	25.0%	1	8.3%
Foot strain/sprain	1	12.5%	0	0.0%	1	8.3%
Foot contusion	1	12.5%	0	0.0%	1	8.3%
Trunk other	1	12.5%	0	0.0%	1	8.3%
Lower leg other	0	0.0%	1	25.0%	1	8.3%

Figure 22.2 Time Loss of Boys' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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 Boys' Tennis Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	0	0.0%	0	0.0%	0	0.0%
Did not require surgery	8	100.0%	4	100.0%	12	100.0%
Total	**8**	**100%**	**4**	**100%**	**12**	**100%**

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

Figure 22.3 History of Boys' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

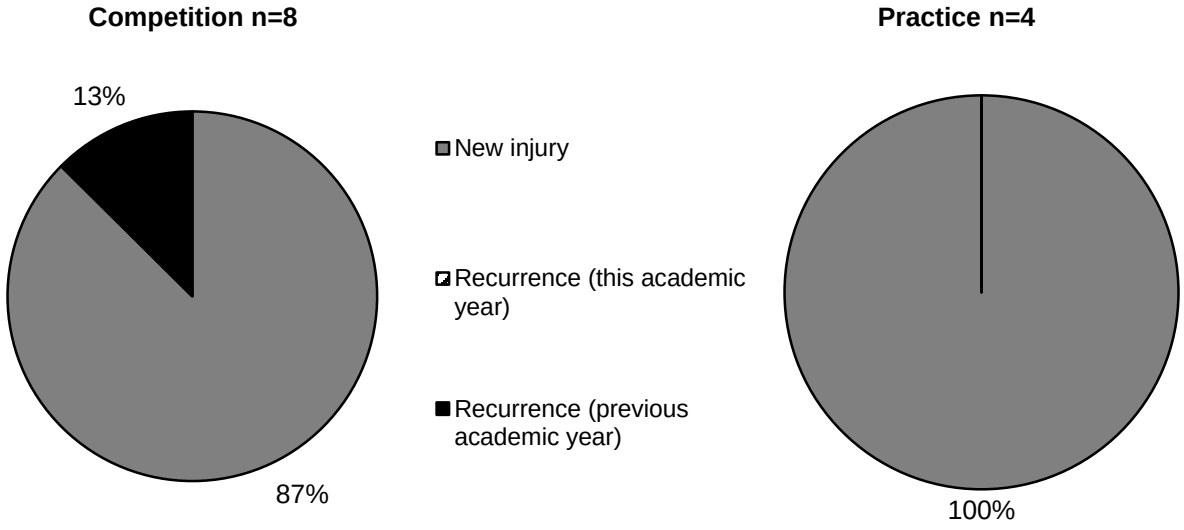


Table 22.6 Time during Season of Boys' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	2	18.2%
Regular season	9	81.8%
Post season	0	0.0%
Total	**11**	**100%**

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

Table 22.7 Practice-Related Variables for Boys' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	1	25.0%
Second 1/2 hour	0	0.0%
1-2 hours into practice	2	50.0%
>2 hours into practice	1	25.0%
Total	**4**	**100%**

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

Table 22.8 Activities Leading to Boys' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Serve	1	16.7%	1	33.3%	2	22.2%
General play	1	16.7%	1	33.3%	2	22.2%
Running to hit ball	2	33.3%	0	0.0%	2	22.2%
Conditioning	0	0.0%	1	33.3%	1	11.1%
Forehand ground stroke	1	16.7%	0	0.0%	1	11.1%
Overhead stroke	1	16.7%	0	0.0%	1	11.1%
Other	0	0.0%	0	0.0%	0	0.0%
Total	**6**	**100%**	**3**	**100%**	**9**	**100%**

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

Table 22.9 Activity Resulting in Boys' Tennis Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Diagnosis*			
	Strain/Sprain		Other	
	n	%	n	%
Activity				
Serve	1	25.0%	1	20.0%
Running to hit ball	1	25.0%	1	20.0%
Forehand ground stroke	0	0.0%	1	20.0%
Overhead	0	0.0%	1	20.0%
Other	2	50.0%	1	20.0%
Total	**4**	**100%**	**5**	**100%**

*no contusions, fractures or concussions reported

XXIII. Girls' Tennis Injury Epidemiology

Table 23.1 Girls' Tennis Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**27**	**67,366**	**0.40**
Competition	12	19,790	0.61
Practice	15	47,576	0.32

Table 23.2 Demographic Characteristics of Injured Girls' Tennis Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=24**
Freshman	20.8%
Sophomore	20.8%
Junior	25.0%
Senior	33.3%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.6 (2.0)
BMI	
Minimum	18.2
Maximum	31.4
Mean (St. Dev.)	23.4 (4.6)

*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 23.1 Diagnosis of Girls' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

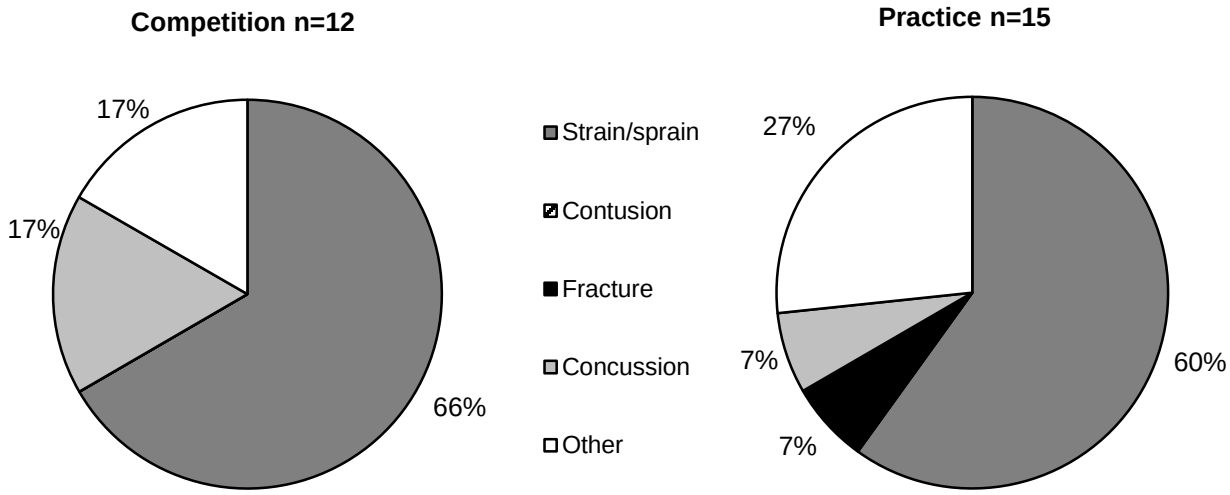


Table 23.3 Body Site of Girls' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

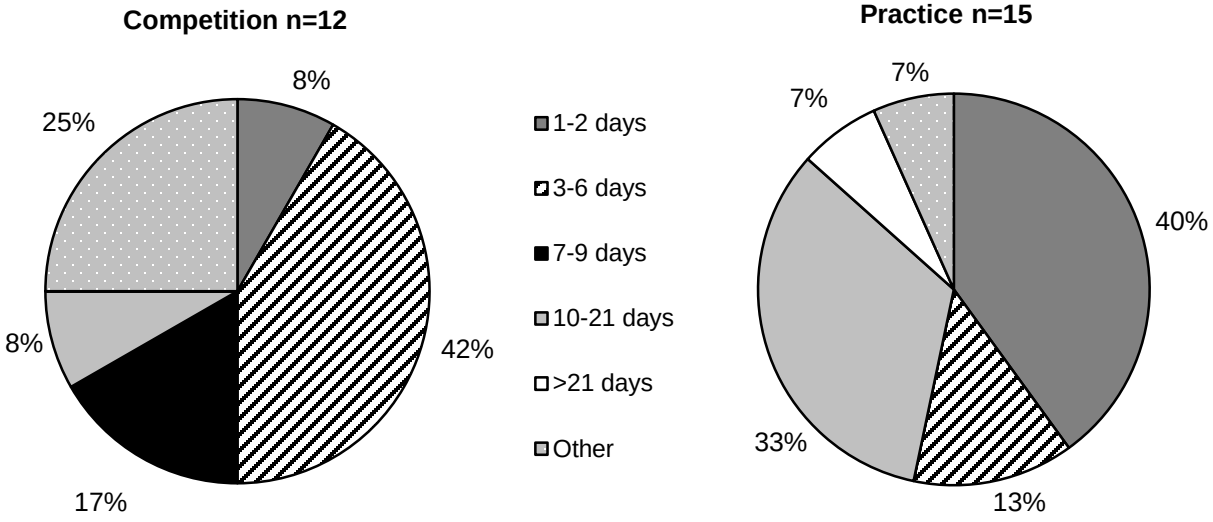
	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Ankle	4	33.3%	3	20.0%	7	25.9%
Knee	2	16.7%	3	20.0%	5	18.5%
Hip/thigh/upper leg	2	16.7%	3	20.0%	5	18.5%
Head/face	2	16.7%	1	6.7%	3	11.1%
Hand/wrist	0	0.0%	2	13.3%	2	7.4%
Foot	0	0.0%	2	13.3%	2	7.4%
Arm/elbow	0	0.0%	1	6.7%	1	3.7%
Shoulder	1	8.3%	0	0.0%	1	3.7%
Other	1	8.3%	0	0.0%	1	3.7%
Total	**12**	**100%**	**15**	**100%**	**27**	**100%**

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

Table 23.4 Ten Most Common Girls' Tennis Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=12		Practice n=15		Total n=27	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	4	33.3%	3	20.0%	7	25.9%
Hip/thigh/upper leg strain/sprain	2	16.7%	3	20.0%	5	18.5%
Head/face concussion	2	16.7%	1	6.7%	3	11.1%
Knee strain/sprain	2	16.7%	1	6.7%	3	11.1%
Knee other	0	0.0%	2	13.3%	2	7.4%
Hand/wrist strain/sprain	0	0.0%	1	6.7%	1	3.7%
Foot strain/sprain	0	0.0%	1	6.7%	1	3.7%
Arm/elbow fracture	0	0.0%	1	6.7%	1	3.7%
Shoulder other	1	8.3%	0	0.0%	1	3.7%
Hand/wrist other	0	0.0%	1	6.7%	1	3.7%

Figure 23.2 Time Loss of Girls' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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 23.5 Girls' Tennis Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	1	9.1%	0	0.0%	1	4.0%
Did not require surgery	10	90.9%	14	100.0%	24	96.0%
Total	**11**	**100%**	**14**	**100%**	**25**	**100%**

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

Figure 23.3 History of Girls' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

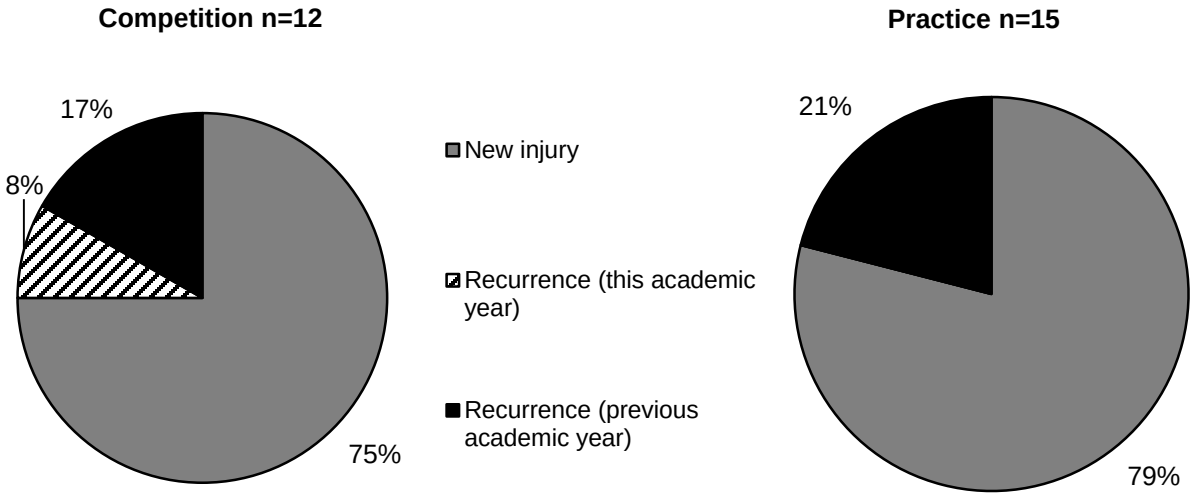


Table 23.6 Time during Season of Girls' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	10	37.0%
Regular season	17	63.0%
Post season	0	0.0%
Total	**27**	**100%**

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

Table 23.7 Practice-Related Variables for Girls' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	1	7.1%
Second 1/2 hour	3	21.4%
1-2 hours into practice	9	64.3%
>2 hours into practice	1	7.1%
Total	**14**	**100%**

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

Table 23.8 Activities Leading to Girls' Tennis Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running to hit ball	2	22.2%	7	50.0%	9	39.1%
General play	4	44.4%	3	21.4%	7	30.4%
Conditioning	0	0.0%	3	21.4%	3	13.0%
Forehand volley	1	11.1%	1	7.1%	2	8.7%
Forehand ground stroke	1	11.1%	0	0.0%	1	4.3%
One-handed backhand stroke	1	11.1%	0	0.0%	1	4.3%
Other	0	0.0%	0	0.0%	0	0.0%
Total	**9**	**100%**	**14**	**100%**	**23**	**100%**

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

Table 23.9 Activity Resulting in Girl' Tennis Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Diagnosis*							
	Strain/Sprain		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%
Activity								
Running to hit ball	7	5.0%	0	0.0%	1	50.0%	1	16.7%
General play	3	21.4%	1	100.0%	1	50.0%	2	33.3%
Conditioning	1	7.1%	0	0.0%	0	0.0%	2	33.3%
Forehand volley	2	14.3%	0	0.0%	0	0.0%	0	0.0%
Forehand ground stroke	0	0.0%	0	0.0%	0	0.0%	1	16.7%
One-handed backhand	1	7.1%	0	0.0%	0	0.0%	0	0.0%
Total	**14**	**100%**	**1**	**100%**	**2**	**50.0%**	**6**	**100%**

*no contusions reported

XXIV. Cheerleading Injury Epidemiology

Table 24.1 Cheerleading Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**223**	**297,160**	**0.75**
Competition	16	18,064	0.89
Practice	178	221,305	0.80
Performance	29	57,791	0.50

Table 24.2 Demographic Characteristics of Injured Cheerleading Athletes, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year*

Year in School	**n=214**
Freshman	24.3%
Sophomore	30.8%
Junior	26.6%
Senior	18.2%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.5 (1.2)
BMI	
Minimum	14.6
Maximum	36.1
Mean (St. Dev.)	21.6 (3.3)

*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 24.1 Diagnosis of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

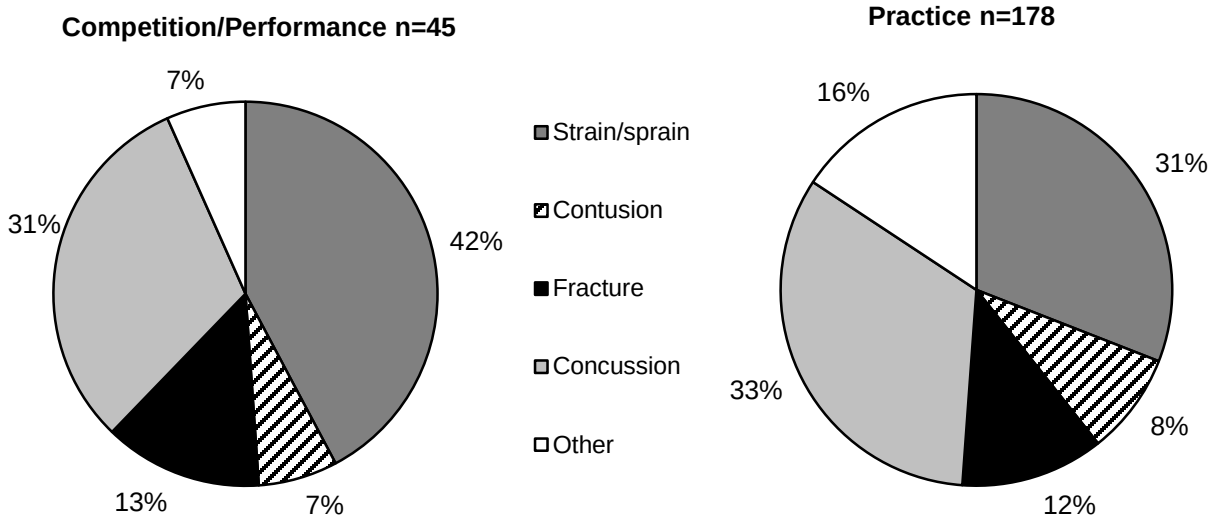


Table 24.3 Body Site of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

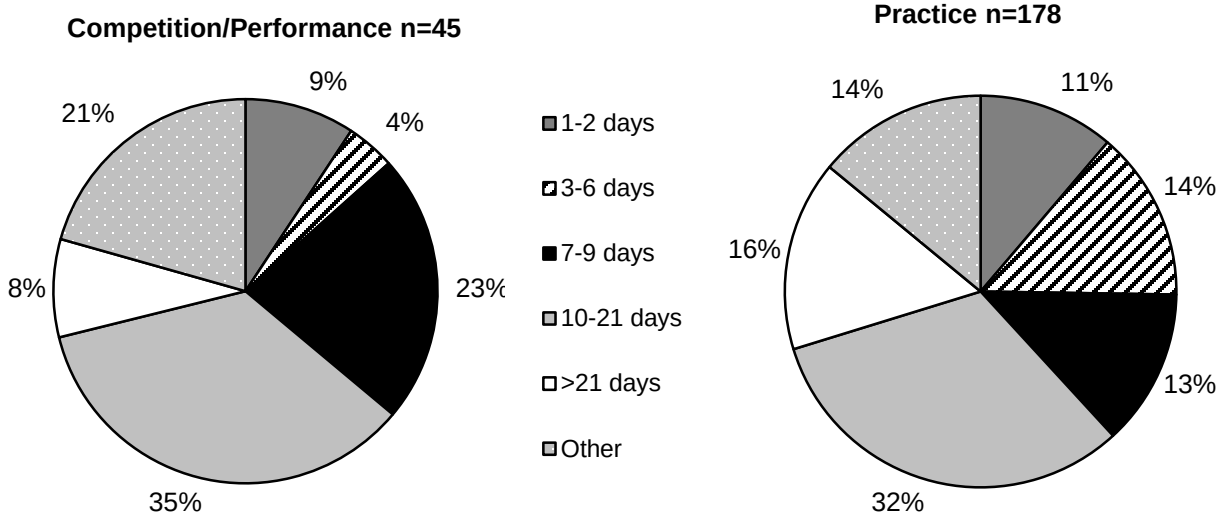
	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Body Site								
Head/face	6	37.5%	69	38.8%	13	44.8%	88	39.5%
Ankle	2	12.5%	19	10.7%	4	13.8%	25	11.2%
Trunk	1	6.3%	22	12.4%	1	3.4%	24	10.8%
Hand/wrist	1	6.3%	18	10.1%	2	6.9%	21	9.4%
Arm/elbow	1	6.3%	10	5.6%	3	10.3%	14	6.3%
Knee	1	6.3%	12	6.7%	0	0.0%	13	5.8%
Neck	0	0.0%	10	5.6%	1	3.4%	11	4.9%
Shoulder	3	18.8%	4	2.2%	2	6.9%	9	4.0%
Hip/thigh/upper leg	1	6.3%	4	2.2%	2	6.9%	7	3.1%
Lower leg	0	0.0%	3	1.7%	0	0.0%	3	1.3%
Foot	0	0.0%	3	1.7%	0	0.0%	3	1.3%
Other	0	0.0%	4	2.2%	1	3.4%	5	2.2%
Total	**16**	**100%**	**178**	**100%**	**29**	**100%**	**223**	**100%**

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

Table 24.4 Ten Most Common Cheerleading Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition n=16		Practice n=178		Performance n=29		Total n=223	
	n	%	n	%	n	%	n	%
Diagnosis								
Head/face concussion	5	31.3%	58	32.6%	9	31.0%	72	32.3%
Ankle strain/sprain	2	12.5%	15	8.4%	3	10.3%	20	9.0%
Hand/wrist strain/sprain	1	6.3%	10	5.6%	1	3.4%	12	5.4%
Trunk strain/sprain	0	0.0%	9	5.1%	1	3.4%	10	4.5%
Neck strain/sprain	0	0.0%	7	3.9%	1	3.4%	8	3.6%
Head/face fracture	1	6.3%	4	2.2%	2	6.9%	7	3.1%
Trunk other	0	0.0%	7	3.9%	0	0.0%	7	3.1%
Shoulder strain/sprain	2	12.5%	2	1.1%	2	6.9%	6	2.7%
Knee strain/sprain	1	6.3%	5	2.8%	0	0.0%	6	2.7%
Head/face contusion	0	0.0%	5	2.8%	1	3.4%	6	2.7%

Figure 24.2 Time Loss of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 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 24.5 Cheerleading Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Need for surgery								
Required surgery	2	12.6%	10	5.7%	2	6.9%	14	6.3%
Did not require surgery	14	87.5%	167	94.4%	27	93.1%	208	93.7%
Total	**16**	**100%**	**177**	**100%**	**29**	**100%**	**222**	**100%**

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

Figure 24.3 History of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

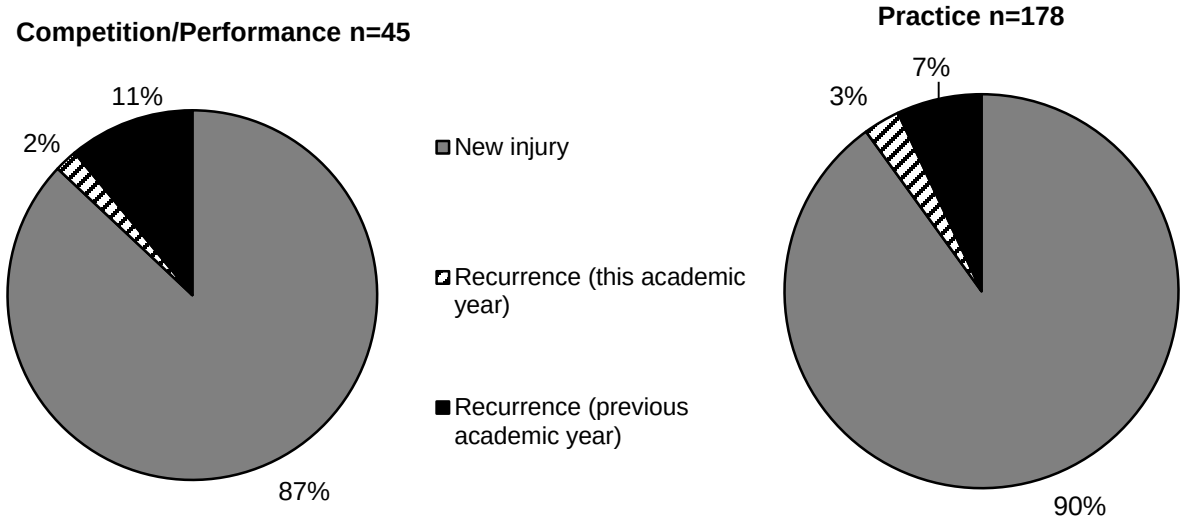


Table 24.6 Time during Season of Cheerleading Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Season		
Preseason	28	12.8%
Regular season	187	85.4%
Post season	4	1.8%
Total	**219**	**100%**

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

Table 24.7 Practice-Related Variables for Cheerleading Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	n	%
Time in Practice		
First 1/2 hour	16	9.4%
Second 1/2 hour	45	26.5%
1-2 hours into practice	99	58.2%
>2 hours into practice	10	5.9%
Total	**170**	**100%**

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

Table 24.8 Activities Leading to Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Activity								
Toss	3	21.4%	38	22.9%	8	27.6%	49	23.4%
Stunt	2	14.3%	39	23.5%	7	24.1%	48	23.0%
Moving tumbling	3	21.4%	35	21.1%	3	10.3%	41	19.6%
Pyramid	1	7.1%	27	16.3%	4	13.8%	32	15.3%
Standing tumbling	0	0.0%	10	6.0%	2	6.9%	12	5.7%
Jump	2	14.3%	3	1.8%	4	13.8%	9	4.3%
Warm-up	0	0.0%	4	2.4%	0	0.0%	4	1.9%
Other	3	21.4%	10	6.0%	1	3.4%	14	6.7%
Total	**14**	**100%**	**166**	**100%**	**29**	**100%**	**209**	**100%**

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

Table 24.9 Activity Resulting in Cheerleading Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Diagnosis									
	Strain/Sprain		Contusion		Fracture		Concussion		Other	
	n	%	n	%	n	%	n	%	n	%
Activity										
Stunt	16	22.5%	7	43.8%	4	16.0%	19	27.9%	2	6.9%
Toss	10	14.1%	7	43.8%	5	20.0%	24	35.3%	3	10.3%
Pyramid	9	12.7%	1	6.3%	4	16.0%	17	25.0%	1	3.4%
Moving tumbling	17	23.9%	0	0.0%	8	32.0%	4	5.9%	12	41.4%
Standing tumbling	5	7.0%	0	0.0%	3	12.0%	1	1.5%	3	10.3%
Other	14	19.8%	1	6.1%	1	4.0%	3	4.4%	8	27.7%
Total	**71**	**100%**	**16**	**100%**	**25**	**100%**	**68**	**100%**	**29**	**100%**

XXV. Gender Differences within Sports

25.1 Boys' and Girls' Soccer

Table 25.1 Comparison of Boys' and Girls' Soccer Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' soccer	Girls' soccer*	RR (95% CI)†
Total	1.74	**2.70**	**1.55 (1.39, 1.72)**
Competition	3.72	**5.92**	**1.59 (1.40, 1.81)**
Practice	0.87	**1.19**	**1.37 (1.14, 1.65)**

*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 25.10 Comparison of Body Sites of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Body Site			
Head/face	23.5%	**32.9%**	**1.40 (1.18, 1.67)**
Hip/thigh/upper leg	**18.3%**	11.2%	**1.63 (1.26, 2.12)**
Ankle	15.3%	**19.2%**	1.26 (0.99, 1.59)
Knee	14.6%	**16.0%**	1.09 (0.85, 1.41)
Foot	**6.3%**	5.0%	1.24 (0.81, 1.91)
Lower leg	**6.8%**	6.0%	1.13 (0.75, 1.69)
Hand/wrist	**3.7%**	2.0%	1.79 (0.95, 3.36)
Trunk	**5.0%**	2.4%	**2.10 (1.20, 3.67)**
Shoulder	**2.1%**	1.2%	1.74 (0.76, 3.99)
Arm/elbow	**1.7%**	1.7%	1.03 (0.46, 2.31)
Neck	0.7%	**1.1%**	1.56 (0.48, 5.03)
Other	**2.1%**	1.2%	1.74 (0.76, 3.99)
Total	**100%**	**100%**	--

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

Table 25.11 Comparison of Diagnoses of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Strain/sprain	**44.4%**	42.5%	1.05 (0.93, 1.18)
Concussion	19.2%	**30.0%**	**1.57 (1.29, 1.91)**
Contusion	**11.8%**	10.1%	1.17 (0.87, 1.58)
Fracture	**9.4%**	5.7%	**1.66 (1.14, 2.42)**
Other	**15.2%**	11.7%	1.30 (0.99, 1.70)
Total	**100%**	**100%**	---

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

Table 25.12 Most Common Boys' and Girls' Soccer Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Head/face concussion	19.1%	**29.8%**	**1.56 (1.28, 1.90)**
Hip/thigh/upper leg strain/sprain	**14.6%**	8.9%	**1.64 (1.22, 2.20)**
Ankle strain/sprain	13.4%	**17.5%**	**1.31 (1.02, 1.69)**
Knee strain/sprain	7.7%	**9.0%**	1.18 (0.83, 1.68)

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

Table 25.13 Comparison of Time Loss of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Time Loss			
1-2 days	12.7%	**13.0%**	1.02 (0.78, 1.35)
3-6 days	**30.6%**	22.2%	**1.38 (1.15, 1.64)**
7-9 days	15.5%	**16.2%**	1.05 (0.82, 1.34)
10-21 days	18.4%	**21.5%**	1.17 (0.94, 1.45)
22 days or more	**5.9%**	5.5%	1.07 (0.70, 1.65)
Other	16.9%	**21.5%**	**1.28 (1.02, 1.59)**
Total	**100%**	**100%**	---

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

Table 25.14 Comparison of Mechanisms of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Mechanism			
Contact with another player	32.5%	**32.9%**	1.01 (0.86, 1.18)
N/A (overuse, heat illness, conditioning, etc.)	**17.4%**	13.8%	1.26 (0.98, 1.63)
Stepped on/fell on/kicked	**14.0%**	9.6%	**1.46 (1.08, 1.97)**
Contact with ball	9.7%	**16.0%**	**1.64 (1.21, 2.23)**
Rotation around planted foot/inversion	7.9%	**14.8%**	**1.89 (1.35, 2.64)**
Slide tackle	**6.9%**	3.1%	**2.22 (1.34, 3.67)**
Uneven playing surface	**2.1%**	1.4%	1.44 (0.63, 3.30)
Contact with goal	**0.9%**	0.5%	1.80 (0.49, 6.67)
Other	**8.6%**	7.9%	1.09 (0.75, 1.57)
Total	**100%**	**100%**	--

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

Table 25.15 Comparison of Activities of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Activity			
General play	**25.9%**	20.6%	**1.26 (1.03, 1.54)**
Defending	12.5%	**18.0%**	**1.44 (1.10, 1.89)**
Heading ball	7.8%	**10.8%**	1.40 (0.98, 2.00)
Chasing loose ball	**11.2%**	9.6%	1.16 (0.84, 1.60)
Ball handling/dribbling	8.1%	**11.2%**	1.38 (0.97, 1.96)
Goaltending	**7.6%**	5.5%	1.36 (0.90, 2.07)
Shooting (foot)	**8.3%**	4.8%	**1.75 (1.14, 2.68**)
Passing (foot)	4.9%	**5.4%**	1.10 (0.68, 1.78)
Conditioning	3.6%	**3.7%**	1.03 (0.58, 1.82)
Receiving pass	4.0%	**4.2%**	1.07 (0.62, 1.83)
Blocking shot	1.5%	**2.1%**	1.40 (0.60, 3.24)
Attempting slide tackle	0.6%	**0.8%**	1.40 (0.35, 5.56)
Receiving slide tackle	**2.6%**	0.9%	**2.87 (1.16, 7.04)**
Other	1.5%	**2.2%**	1.49 (0.65, 3.42)
Total	**100%**	**100%**	---

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

25.2 Boys' and Girls' Basketball

Table 25.2 Comparison of Boys' and Girls' Basketball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' basketball	Girls' basketball	RR (95% CI)
Total	1.34	**1.84**	**1.38 (1.23, 1.55)**
Competition	2.32	**3.56**	**1.53 (1.31, 1.79)**
Practice	0.89	**1.06**	1.19 (0.99, 1.42)

Table 25.20 Comparison of Body Sites of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Body Site			
Ankle	**32.1%**	25.9%	**1.24 (1.03, 1.49)**
Head/face	20.3%	**25.0%**	1.23 (0.99, 1.53)
Knee	11.6%	**21.4%**	**1.84 (1.39, 2.43)**
Hand/wrist	**11.8%**	6.8%	**1.74 (1.19, 2.55)**
Hip/thigh/upper leg	5.6%	**5.9%**	1.05 (0.65, 1.68)
Trunk	**4.9%**	3.1%	1.57 (0.87, 2.81)
Lower leg	2.5%	**3.5%**	1.37 (0.70, 2.68)
Foot	**4.0%**	3.3%	1.21 (0.66, 2.21)
Shoulder	**4.4%**	2.8%	1.57 (0.84, 2.92)
Arm/elbow	**1.8%**	1.6%	1.16 (0.48, 2.84)
Neck	0.0%	**0.5%**	---
Other	**0.9%**	0.3%	2.61 (0.51, 13.41)
Total	**100%**	**100%**	---

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

Table 25.21 Comparison of Diagnoses of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Strain/sprain	**51.5%**	47.0%	1.10 (0.97, 1.23)
Concussion	13.7%	**23.3%**	**1.71 (1.32, 2.21)**
Fracture	**10.7%**	5.1%	**2.13 (1.39, 3.27)**
Contusion	**7.7%**	7.1%	1.07 (0.71, 1.62)
Other	16.4%	**17.4%**	1.06 (0.82, 1.38)
Total	**100%**	**100%**	---

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

Table 25.22 Most Common Boys' and Girls' Basketball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Ankle strain/sprain	**30.7%**	24.8%	**1.24 (1.02, 1.49)**
Head/face concussion	13.6%	**23.3%**	**1.71 (1.32, 2.21)**
Knee strain/sprain	4.4%	**10.1%**	**2.31 (1.46, 3.67)**
Knee other	5.8%	**8.0%**	1.38 (0.89, 2.13)

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

Table 25.23 Comparison of Time Loss of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Time Loss			
1-2 days	**20.7%**	15.6%	**1.32 (1.03, 1.70)**
3-6 days	**24.0%**	22.2%	1.08 (0.87, 1.33)
7-9 days	**15.8%**	13.2%	1.20 (0.90, 1.59)
10-21 days	18.7%	**22.7%**	1.22 (0.97, 1.53)
22 days or more	**7.6%**	7.3%	1.05 (0.69, 1.58)
Other	13.2%	**18.9%**	**1.43 (1.09, 1.88)**
Total	**100%**	**100%**	---

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

Table 25.24 Comparison of Mechanisms of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Mechanism			
Collision with another player	26.2%	**29.9%**	1.14 (0.94, 1.39)
Jumping/landing	**26.2%**	18.3%	**1.43 (1.14, 1.80)**
Stepped on/fell on/kicked	**12.0%**	8.4%	1.43 (0.99, 2.06)
Rotation around a planted foot/inversion	10.8%	**13.5%**	1.24 (0.89, 1.72)
N/A (e.g., overuse, heat illness, etc.)	7.5%	**13.3%**	**1.77 (1.22, 2.58)**
Contact with ball	4.7%	**7.3%**	1.54 (0.94, 2.52)
Other	**12.4%**	9.3%	1.33 (0.94, 1.89)
Total	**100%**	**100%**	---

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

Table 25.25 Comparison of Activities of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Activity			
Rebounding	**24.5%**	16.5%	**1.49 (1.16, 1.90)**
General play	25.3%	**28.5%**	1.13 (0.92, 1.38)
Defending	15.4%	**18.4%**	1.20 (0.91, 1.57)
Shooting	**10.5%**	6.9%	1.53 (1.02, 2.29)
Chasing loose ball	8.3%	**11.1%**	1.34 (0.92, 1.96**)**
Ball handling/dribbling	5.1%	**6.7%**	1.33 (0.81, 2.18)
Receiving pass	3.6%	**4.2%**	1.16 (0.63, 2.13)
Conditioning	3.6%	**4.0%**	1.10 (0.60, 2.05)
Other	**3.6%**	3.6%	1.00 (0.53, 1.89)
Total	**100%**	**100%**	---

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

25.3 Boys' Baseball and Girls' Softball

Table 25.3 Comparison of Baseball and Softball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Baseball	Softball	RR (95% CI)
Total	1.06	**1.15**	1.10 (0.91, 1.28)
Competition	**1.85**	1.83	1.01 (0.81, 1.26)
Practice	0.63	**0.78**	1.24 (0.96, 1.62)

Table 25.30 Comparison of Body Sites of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Baseball	Softball	IPR (95% CI)
Body Site			
Head/face	21.4%	**27.1%**	1.27 (0.94, 1.71)
Arm/elbow	**14.5%**	7.1%	**2.04 (1.20, 3.48)**
Hand/wrist	11.2%	**16.3%**	1.45 (0.95, 2.23)
Shoulder	**15.5%**	8.8%	**1.77 (1.09, 2.87)**
Hip/thigh/upper leg	**10.2%**	8.3%	1.22 (0.72, 2.09)
Ankle	9.5%	**11.7%**	1.22 (0.75, 2.00)
Trunk	**6.6%**	3.8%	1.75 (0.81, 3.78)
Knee	7.2%	**11.7%**	1.61 (0.95, 2.75)
Lower leg	2.0%	**2.9%**	1.48 (0.50, 4.34)
Foot	**1.3%**	1.3%	1.05 (0.24, 4.66)
Neck	0.3%	**0.4%**	1.27 (0.08, 20.15)
Other	0.3%	**0.8%**	2.53 (0.23, 27.78)
Total	**100%**	**100%**	---

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

Table 25.31 Comparison of Diagnoses of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Strain/sprain	**42.1%**	35.6%	1.18 (0.95, 1.47)
Contusion	12.8%	**15.9%**	1.24 (0.82, 1.87)
Concussion	11.2%	**17.6%**	**1.57 (1.03, 2.39)**
Fracture	**11.8%**	11.3%	1.05 (0.66, 1.68)
Other	**22.0%**	19.7%	1.12 (0.80, 1.56)
Total	**100%**	**100%**	---

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

Table 25.32 Most Common Baseball and Softball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Head/face concussion	11.2%	**17.5%**	**1.57 (1.03, 2.38)**
Hip/thigh/upper leg strain/sprain	**8.6%**	5.8%	1.47 (0.78, 2.75)
Ankle strain/sprain	8.9%	**10.4%**	1.17 (0.70, 1.97)
Shoulder other	**6.9%**	5.0%	1.38 (0.69, 2.75)
Hand/wrist fracture	**6.3%**	5.0%	1.25 (0.62, 2.52)

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

Table 25.33 Comparison of Time Loss of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Baseball	Softball	IPR (95% CI)
Time Loss			
1-2 days	**17.8%**	13.8%	1.29 (0.87, 1.93)
3-6 days	19.7%	**21.3%**	1.08 (0.77, 1.50)
7-9 days	17.1%	**17.5%**	1.02 (0.71, 1.48)
10-21 days	**21.7%**	20.0%	1.09 (0.78, 1.51)
22 days or more	5.6%	**10.0%**	1.79 (0.98, 3.25)
Other	**18.1%**	17.5%	1.03 (0.72, 1.49)
Total	**100%**	**100%**	---

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

Table 25.34 Comparison of Mechanisms of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Mechanism			
Contact with another player	**12.1%**	8.8%	1.38 (0.82, 2.33)
Throwing - pitching	**12.5%**	2.6%	**4.73 (2.03, 11.04)**
N/A (overuse, heat illness, conditioning, etc.)	8.7%	**15.8%**	**1.83 (1.13, 2.95)**
Hit by batted ball	10.4%	**13.2%**	1.27 (0.79, 2.04)
Hit by pitch	**8.0%**	2.6%	**3.02 (1.25, 7.30)**
Contact with bases	**11.4%**	8.8%	1.30 (0.77, 2.21)
Contact with thrown ball (non-pitch)	4.2%	**18.0%**	**4.33 (2.33, 8.05)**
Throwing - not pitching	7.6%	**13.0%**	**1.71 (1.02, 2.89)**
Rotation around a planted foot/inversion	**7.3%**	4.8%	1.51 (0.74, 3.06)
Other	**17.8%**	12.4%	1.44 (0.80, 2.02)
Total	**100%**	**100%**	---

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

Table 25.35 Comparison of Activities of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Activity			
Pitching	**17.0%**	8.3%	**2.05 (1.24, 3.39)**
Fielding a batted ball	17.6%	**17.8%**	1.01 (0.70, 1.47)
Running bases	15.6%	**15.7%**	1.01 (0.67, 1.50)
Batting	**11.8%**	6.1%	**1.93 (1.06, 3.51)**
Throwing (not pitching)	7.6%	**13.0%**	**1.71 (1.02, 2.89)**
Fielding a thrown ball	6.2%	**8.7%**	1.40 (0.76, 2.78)
General play	3.8%	**4.8%**	1.26 (0.56, 2.85)
Sliding	7.3%	**9.6%**	1.32 (0.74, 2.33)
Catching	**8.3%**	8.3%	1.01 (0.57, 1.79)
Conditioning	1.7%	**2.6%**	1.51 (0.47, 4.88)
Other	3.1%	**5.2%**	1.68 (0.72, 3.91)
Total	**100%**	**100%**	---

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

25.4 Boys' and Girls' Swimming

Table 25.4 Comparison of Boys' and Girls' Swimming Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' swimming	Girls' swimming	RR (95% CI)
Total	0.18	**0.24**	1.32 (0.74, 2.37)
Competition	0.11	**0.30**	2.84 (0.57, 14.06)
Practice	0.20	**0.23**	1.15 (0.61, 2.16)

Table 25.40 Comparison of Body Sites of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Body Site			
Shoulder	**42.1%**	21.4%	1.97 (0.81, 4.76)
Head/face	15.8%	**25.0%**	1.58 (0.47, 5.37)
Knee	10.5%	**17.9%**	1.70 (0.37, 7.86)
Hip/Thigh/upper leg	---	**7.1%**	**---**
Trunk	**21.1%**	14.3%	1.47 (0.42, 5.18)
Lower leg	---	**---**	---
Foot	**5.3%**	---	---
Ankle	---	**---**	---
Arm/elbow	---	**---**	---
Hand/wrist	**---**	**3.6%**	---
Neck	---	**7.1%**	**---**
Other	**5.3%**	3.6%	1.47 (0.10, 22.15)
Total	**100%**	**100%**	**---**

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

Table 25.41 Comparison of Diagnoses of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Strain/sprain	**26.3%**	21.4%	1.23 (0.44, 3.45)
Concussion	10.5%	**25.0%**	2.38 (0.55, 10.22)
Fracture	**---**	**---**	---
Contusion	---	**3.6%**	---
Other	**63.2%**	50.0%	1.26 (0.76, 2.09)
Total	**100%**	**100%**	---

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

Table 25.42 Most Common Boys' and Girls' Swimming Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Shoulder other	**31.6%**	10.7%	2.95 (0.84, 10.37)
Head/face concussion	10.5%	**21.4%**	2.04 (0.46, 9.04)
Trunk other	10.5%	**10.7%**	1.02 (0.19, 5.53)
Trunk strain/sprain	**10.5%**	3.6%	2.95 (0.29, 30.25)
Shoulder strain/sprain	10.5%	**10.7%**	1.02 (0.19, 5.53)

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

Table 25.43 Comparison of Time Loss of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Time Loss			
1-2 days	**42.1%**	21.4%	1.97 (0.81, 4.76)
3-6 days	10.5%	**10.7%**	1.02 (0.19, 5.53)
7-9 days	10.5%	**14.3%**	1.36 (0.28, 6.68)
10-21 days	21.1%	**25.0%**	1.19 (0.40, 3.50)
22 days or more	5.3%	**7.1%**	1.36 (0.13, 13.93)
Other	10.5%	**21.4%**	2.04 (0.46, 9.04)
Total	**100%**	**100%**	---

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

Table 25.44 Comparison of Mechanisms of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Mechanism			
N/A (overuse, heat illness, conditioning, etc.)	**70.6%**	51.9%	1.36 (0.85, 2.19)
Contact with wall	11.8%	**14.8%**	1.26 (0.26, 6.15)
Contact with another person	5.9%	**11.1%**	1.89 (0.21, 16.72)
Other	11.8%	**22.2%**	1.89 (0.42, 8.36)
Total	**100%**	**100%**	**---**

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

Table 25.45 Comparison of Activities of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Activity			
Swimming	42.9%	**58.3%**	1.36 (0.68, 2.72)
Flip turn off wall	7.1%	**8.3%**	1.17 (0.12, 11.73)
Diving off board/platform/starting platform	7.1%	**12.5%**	1.75 (0.20, 15.25)
Other	**42.9%**	20.8%	2.06 (0.77, 5.52)
Total	**100%**	**100%**	---

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

25.5 Boys' and Girls' Track and Field

Table 25.5 Comparison of Boys' and Girls' Track and Field Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' track	Girls' track	RR (95% CI)
Total	0.67	**0.90**	**1.33 (1.10, 1.62)**
Competition	1.15	**1.21**	1.05 (0.74, 1.49)
Practice	0.55	**0.82**	**1.49 (1.18, 1.88)**

Table 25.50 Comparison of Body Sites of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' track	Girls' track	IPR (95% CI)
Body Site			
Hip/thigh/upper leg	**43.4%**	35.2%	1.23 (0.97, 1.57)
Lower leg	16.8%	**18.3%**	1.09 (0.71, 1.65)
Ankle	10.7%	**13.2%**	1.24 (0.73, 2.09)
Knee	10.2%	**12.8%**	1.25 (0.73, 2.15)
Trunk	3.1%	**4.1%**	1.34 (0.49, 3.70)
Foot	7.1%	**8.2%**	1.15 (0.59, 2.25)
Shoulder	2.0%	**2.3%**	1.12 (0.31, 4.11)
Head/face	**3.1%**	2.7%	1.12 (0.37, 3.41)
Arm/elbow	**1.0%**	0.9%	1.12 (0.16, 7.86)
Hand/wrist	**1.0%**	0.5%	2.24 (0.20, 24.45)
Neck	**---**	**0.5%**	**---**
Other	**1.5%**	1.4%	1.12 (0.23, 5.47)
Total	**100%**	**100%**	---

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

Table 25.51 Comparison of Diagnoses of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Strain/sprain	**62.6%**	58.3%	1.07 (0.92, 1.26)
Contusion	2.1%	**3.7%**	1.79 (0.55, 5.85)
Fracture	3.1%	**3.2%**	1.04 (0.36, 3.05)
Concussion	**3.1%**	2.8%	1.12 (0.37, 3.41)
Other	29.2%	**32.1%**	1.10 (0.82, 1.47)
Total	**100%**	**100%**	---

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

Table 25.52 Most Common Boys' and Girls' Track and Field Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Hip/thigh/upper leg strain/sprain	**40.8%**	31.1%	**1.32 (1.01, 1.70)**
Lower leg other	11.2%	**13.7%**	1.22 (0.73, 2.04)
Ankle strain/sprain	7.7%	**11.4%**	1.49 (0.81, 2.75)
Lower leg strain/sprain	**4.6%**	2.7%	1.68 (0.61, 4.62)
Knee other	**7.1%**	6.8%	1.04 (0.52, 2.11)

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

Table 25.53 Comparison of Time Loss of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' track	Girls' track	IPR (95% CI)
Time Loss			
1-2 days	**17.9%**	12.8%	1.40 (0.88, 2.21)
3-6 days	29.1%	**34.7%**	1.19 (0.90, 1.59)
7-9 days	**20.4%**	18.7%	1.09 (0.74, 1.61)
10-21 days	**16.3%**	11.0%	1.49 (0.91, 2.44)
22 days or more	**6.6%**	5.5%	1.21 (0.57, 2.59)
Other	9.7%	**17.4%**	1.79 (1.07, 3.00)
Total	**100%**	**100%**	---

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

Table 25.54 Comparison of Mechanisms of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Mechanism			
N/A (e.g., overuse, heat illness, conditioning, etc.)	**61.7%**	58.5%	1.06 (0.90, 1.24)
Contact with ground/track/surface	**17.8%**	11.6%	1.53 (0.94, 2.50)
Fall/trip	2.2%	**6.8%**	**3.04 (1.02, 9.08)**
Rotation around planted foot/inversion	4.4%	**5.8%**	1.30 (0.55, 3.12)
Contact with field equipment	3.9%	**7.2%**	1.86 (0.78, 4.47)
Uneven playing surface	0.6%	**1.4%**	2.61 (0.27, 24.86)
Stepped on/kicked	---	**1.0%**	---
Contact with another person	0.6%	**1.0%**	1.74 (0.16, 19.02)
Other	**8.9%**	6.8%	1.31 (0.66, 2.62)
Total	**100%**	**100%**	---

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

Table 25.55 Comparison of Activities of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Activity			
Running	**69.2%**	58.5%	**1.18 (1.02, 1.38)**
Jumping/landing	11.9%	**17.4%**	1.46 (0.89, 2.39)
Conditioning	3.8%	**5.8%**	1.53 (0.62, 3.81)
Throwing	2.7%	**2.9%**	1.07 (0.33, 3.46)
Running hurdles	3.2%	**5.3%**	1.64 (0.62, 4.34)
Warming up	2.7%	**3.4%**	1.25 (0.41, 3.88)
Leaving block	1.6%	**2.9%**	1.79 (0.45, 7.05)
Hit by shot put/discus/javelin/hammer	0.5%	**1.0%**	1.79 (0.16, 19.55)
Other	**4.3%**	2.9%	1.49 (0.53, 4.22)
Total	**100%**	**100%**	---

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

25.6 Boys' and Girls' Cross Country

Table 25.6 Comparison of Boys' and Girls' Cross Country Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' cross country	Girls' cross country	RR (95% CI)
Total	0.58	**0.97**	**1.66 (1.26, 2.18)**
Competition	0.58	**1.22**	**2.10 (1.09, 4.01)**
Practice	0.59	**0.92**	**1.57 (1.16, 2.13)**

Table 25.60 Comparison of Body Sites of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Body Site			
Lower leg	**34.5%**	22.8%	1.51 (0.98, 2.33)
Hip/thigh/upper leg	**23.0%**	18.9%	1.22 (0.72, 2.06)
Knee	19.5%	**20.5%**	1.05 (0.61, 1.81)
Ankle	11.5%	**15.7%**	1.37 (0.68, 2.78)
Foot	9.2%	**11.0%**	1.20 (0.53, 2.74)
Trunk	2.3%	**3.1%**	1.37 (0.26, 7.32)
Head/face	**---**	**1.6%**	---
Arm/elbow	**---**	**---**	---
Hand/wrist	---	**---**	---
Shoulder	---	**---**	---
Neck	---	**0.8%**	---
Other	**---**	**5.5%**	---
Total	**100%**	**100%**	---

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

Table 25.61 Comparison of Diagnoses of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Diagnosis			
Strain/sprain	**40.2%**	36.2%	1.11 (0.79, 1.57)
Contusion	**2.3%**	1.6%	1.46 (0.21, 10.17)
Fracture	---	**1.6%**	---
Concussion	**---**	**0.8%**	---
Other	57.5%	**59.8%**	1.04 (0.83, 1.31)
Total	**100%**	**100%**	---

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

Table 25.62 Most Common Boys' and Girls' Cross Country Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Diagnosis			
Lower leg other	**28.7%**	21.3%	(1.35 (0.84, 2.16)
Hip/thigh/upper leg strain sprain	**16.1%**	10.2%	1.57 (0.78, 3.18)
Hip/thigh/upper leg other	6.9%	**8.7%**	1.26 (0.48, 3.27)
Ankle strain/sprain	10.3%	**15.7%**	1.52 (0.73, 3.18)
Knee other	14.9%	**16.5%**	1.11 (0.59, 2.09)

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

Table 25.63 Comparison of Time Loss of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Time Loss			
1-2 days	**33.3%**	26.0%	1.25 (0.85, 1.95)
3-6 days	17.2%	**26.0%**	1.51 (0.87, 2.60)
7-9 days	**17.2%**	11.0%	1.56 (0.80, 3.07)
10-21 days	17.2%	**21.3%**	1.23 (0.70, 2.18)
22 days or more	**8.0%**	3.1%	2.56 (0.77, 8.46)
Other	6.9%	**12.6%**	1.83 (0.74, 4.48)
Total	**100%**	**100%**	---

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

Table 25.64 Comparison of Mechanisms of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Track Mechanism			
Overuse	**66.7%**	64.5%	1.03 (0.84, 1.27)
Contact with ground/track/surface	**9.0%**	3.3%	2.72 (0.82, 8.97)
Fall/trip	**3.8%**	3.3%	1.16 (0.27, 5.06)
Rotation around planted foot/inversion	**3.8%**	2.5%	1.55 (0.32, 7.49)
Contact with obstacle	**1.3%**	0.8%	1.55 (0.10, 24.44)
Uneven surface	10.3%	**13.2%**	1.29 (0.58, 2.87)
N/A (e.g., heat illness, conditioning, etc.)	0.0%	**8.3%**	**---**
Contact with another person	**1.3%**	0.8%	1.55 (0.10, 24.44)
Stepped on	**1.3%**	0.0%	---
Other	2.6%	**3.3%**	1.29 (0.24, 6.87)
Total	**100%**	**100%**	---

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

Table 25.65 Comparison of Activities of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Track Activity			
Running	80.3%	**83.0%**	1.04 (0.90, 1.19)
Conditioning	**14.5%**	9.8%	1.47 (0.67, 3.23)
Warming up	**2.6%**	1.8%	1.47 (0.21, 10.24)
Cooldown	1.3%	**2.7%**	2.04 (0.22, 10.21)
Other	1.3%	**2.7%**	2.04 (0.22, 10.21)
Total	**100%**	**100%**	---

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

25.7 Boys' and Girls' Tennis

Table 25.7 Comparison of Boys' and Girls' Tennis Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' tennis	Girls' tennis	RR (95% CI)
Total	0.20	**0.40**	**1.97 (1.01, 4.03)**
Competition	0.43	**0.61**	1.42 (0.58, 3.66)
Practice	0.10	**0.32**	**3.17 (1.11, 11.11)**

Table 25.70 Comparison of Body Sites of Boys' and Girls' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' tennis	Girls' tennis	IPR (95% CI)
Body Site			
Lower leg	**8.3%**	---	---
Hip/thigh/upper leg	8.3%	**18.5%**	2.22 (0.29, 17.03)
Knee	**33.3%**	18.5%	1.80 (0.58, 5.55)
Ankle	8.3%	**25.9%**	3.11 (0.43, 22.58)
Foot	**16.7%**	7.4%	2.25 (0.36, 14.14)
Trunk	**16.7%**	---	---
Head/face	---	**11.1%**	---
Arm/elbow	---	**3.7%**	---
Hand/wrist	---	**7.4%**	---
Shoulder	**8.3%**	3.7%	2.25 (0.15, 33.05)
Neck	---	---	---
Other	**8.3%**	3.7%	2.25 (0.15, 33.05)
Total	**100%**	**100%**	---

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

Table 25.71 Comparison of Diagnoses of Boys' and Girls' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' tennis	Girls' tennis	IPR (95% CI)
Diagnosis			
Strain/sprain	50.0%	**63.0%**	1.26 (0.67, 2.38)
Contusion	**8.3%**	---	---
Fracture	---	**3.7%**	---
Concussion	**---**	**11.1%**	---
Other	**41.7%**	22.2%	1.88 (0.71, 4.96)
Total	**100%**	**100%**	---

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

Table 25.72 Most Common Boys' and Girls' Tennis Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' tennis	Girls' tennis	IPR (95% CI)
Diagnosis			
Knee strain/sprain	8.3%	**11.1%**	1.33 (0.15, 11.55)
Ankle strain/sprain	8.3%	**25.9%**	3.11 (0.43, 22.58)
Head/face concussion	---	**11.1%**	---

*Only includes diagnoses accounting for >5% of tennis injuries.

Table 25.73 Comparison of Time Loss of Boys' and Girls' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' tennis	Girls' tennis	IPR (95% CI)
Time Loss			
1-2 days	**41.7%**	25.9%	1.61 (0.64, 4.05)
3-6 days	**33.3%**	25.9%	1.29 (0.46, 3.58)
7-9 days	**16.7%**	7.4%	2.25 (0.36, 14.14)
10-21 days	8.3%	**22.2%**	2.67 (0.36, 19.80)
22 days or more	**---**	**3.7%**	---
Other	---	**14.8%**	---
Total	**100%**	**100%**	---

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

Table 25.74 Comparison of Mechanisms of Boys' and Girls' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' tennis	Girls' tennis	IPR (95% CI)
Tennis Mechanism			
Contact with surface	**30.0%**	21.7%	1.38 (0.41, 4.69)
Rotation around a planted foot	20.0%	**26.1%**	1.30 (0.32, 5.38)
Non-contact	**40.0%**	34.8%	1.15 (0.45, 2.95)
Struck by ball	---	**8.7%**	---
Contact with racquet	---	**4.3%**	---
Other	**10.0%**	4.3%	2.30 (0.16, 33.23)
Total	**100%**	**100%**	---

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

Table 25.75 Comparison of Activities of Boys' and Girls' Tennis Injuries, High School Sports-Related Injury Surveillance Study, US, 2014-15 School Year

	Boys' tennis	Girls' tennis	IPR (95% CI)
Tennis Activity			
General Play	22.2%	**30.4%**	1.37 (0.35, 5.39)
Chasing/running to hit ball	22.2%	**39.1%**	1.76 (0.47, 6.62)
Conditioning	11.1%	**13.0%**	1.17 (0.14, 9.86)
Forehand ground stroke	**11.1%**	4.3%	2.56 (0.18, 36.63)
Serve	**22.2%**	---	---
One-handed backhand	**---**	**4.3%**	---
Forehand volley	**---**	**8.7%**	---
Overhead	**11.1%**	**---**	---
Total	**100%**	**100%**	---

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

XXIV. Reporter Demographics & Compliance

During the 2014-15 school year, 275 ATs initially enrolled 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, 240 enrolled ATs reported an average of 36 study weeks. The majority of ATs (84.2%) reported all the weeks during which they were enrolled, with only 12.9% 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 2014-15 academic year yielded 90.9% sensitivity, 98.4% specificity, a positive predictive value of 95.2%, and a negative predictive value of 96.9%.

Prior to the start of the 2014-15 High School RIO™ study, participating ATs were asked to complete a short demographics survey. Over 80% (81.5%) of participating high schools were public schools, with the remainder being private. All ATs except for four provided services to athletes of their high school on 5 or more days each week. Over half (58.5%) of ATs participating during the 2014-15 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 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 143 ATs (59.0%). Average reporting time burdens were 22 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 (57.1%) or somewhat easy (37.9%) to use (5

and 4 on the Likert scale, respectively), with ATs being either very satisfied (66.0%) or somewhat satisfied (31.2%) 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 2015-16 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.