CONVENIENCE SAMPLE SUMMARY REPORT

NATIONAL HIGH SCHOOL SPORTS-RELATED INJURY SURVEILLANCE STUDY

2011-2012 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 7.7 million in 2011-12. 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 2008-09 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 and cheerleading. This surveillance has been conducted using the time- and cost-efficient RIO^{TM} (Reporting Information Online) surveillance system. This study during the 2011-12 academic year was funded by the Centers for Disease Control and Prevention 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, 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 and cheerleading athletes.

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

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

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

E) To identify potential risk or protective factors.

1.4 Project Design

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

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

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

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

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

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

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

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

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

1.5 Sample Recruitment

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

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

2) All schools not selected in step 1 who offered any of the more rarely offered 9 sports included in the expansion of the National High School Sports-Related Injury Surveillance Study (girls' gymnastics, field hockey, and lacrosse and boys' ice hockey, volleyball 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 of the 9 sports of interest in the expansion of the National High School Sports-Related Injury Surveillance Study (boys' and girls' track & field, swimming & diving and cheerleading) were selected in an attempt to ensure at least 100 schools were reporting for each of the 20 sports of interest.

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

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

School Participation by Sport, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year.*

	# Schools in Random Sample	# Schools in Convenience Sample	# Schools Total
Original Sports			
Football	82	28	110
Boys' Soccer	80	41	121
Girls' Soccer	78	40	118
Girls' Volleyball	83	51	134
Boys' Basketball	91	55	146
Girls' Basketball	90	51	141
Wrestling	78	53	131
Baseball	83	47	130
Softball	85	51	136
New Sports			
Boys' Volleyball	6	9	15
Field Hockey	24	23	47
Gymnastics	8	14	22
Ice Hockey	12	11	23
Boys' Lacrosse	19	24	43
Girls' Lacrosse	18	25	43
Boys' Swimming and Diving	22	26	48
Girls' Swimming and Diving	20	29	49
Boys' Track and Field	44	57	101
Girls' Track and Field	39	62	101
Cheerleading	29	41	70
Total	**96**	**78**	**174**

*Numbers only include schools who actually reported data for the 2011-12 school year.

1.6 Data Collection

Each AT that enrolled their school in National High School Sports-Related Injury Surveillance System received an email every Monday throughout the study period reminding them to enter their school's data into the surveillance system. Each participating AT was asked to complete 45 weekly exposure reports: one for each week from August 1, 2011 through June 10, 2012. Exposure reports collected exposure information (number of athlete-competitions and athlete-practices) and the number of reportable injuries sustained by student athletes of each

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

1.7 Data Management

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

1.8 Data Analysis

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

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

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

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

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

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

II. Overall Injury Epidemiology

Table 2.1 Injury Rates by Sport and Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Overall total	**6,213**	**3,446,539**	**1.80**
Competition	**3,157**	**866,206**	**3.64**
Practice	**3,041**	**2,547,542**	**1.19**
Performance	**15**	**32,791**	**0.46**
Boys' football total	2,372	648,392	3.66
Competition	1,240	104,795	11.83
Practice	1,132	543,597	2.08
Boys' soccer total	408	237,983	1.71
Competition	255	69,427	3.67
Practice	153	168,556	0.91
Girls' soccer total	481	195,223	2.46
Competition	316	57,920	5.46
Practice	165	137,303	1.20
Boys' volleyball total	11	20,840	0.53
Competition	8	7,470	1.07
Practice	3	13,370	0.22
Girls' volleyball total	262	244,409	1.07
Competition	112	81,701	1.37
Practice	150	162,708	0.92
Boys' basketball total	410	298,304	1.37
Competition	225	87,673	2.57
Practice	185	210,631	0.88
Girls' basketball total	423	237,140	1.78
Competition	245	69,877	3.51
Practice	178	167,263	1.06
Boys' wrestling total	475	214,710	2.21
Competition	189	56,794	3.33
Practice	286	157,916	1.81
Boys' baseball total	182	210,329	0.87
Competition	95	75,256	1.26
Practice	87	135,073	0.64
Girls' softball total	239	153,672	1.56
Competition	123	53,533	2.30
Practice	116	100,139	1.16

Table 2.1 (Continued) Injury Rates by Sport and Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Girls' Field Hockey total	134	75,740	1.77
Competition	58	23,169	2.50
Practice	76	52,571	1.45
Girls' Gymnastics total	21	19,246	1.09
Competition	6	3,278	1.83
Practice	15	15,968	0.94
Boys' Ice Hockey total	67	32,991	2.03
Competition	48	11,474	4.18
Practice	19	21,517	0.88
Boys' Lacrosse total	178	76,925	2.31
Competition	105	24,276	4.33
Practice	73	52,649	1.39
Girls' Lacrosse total	68	55,175	1.23
Competition	27	17,453	1.55
Practice	41	37,722	1.09
Boys' Swimming total	12	63,883	0.17
Competition	1	12,231	0.08
Practice	11	51,652	0.21
Girls' Swimming total	28	73,788	0.38
Competition	2	13,841	0.14
Practice	26	59,947	0.43
Boys' Track total	165	221,672	0.74
Competition	52	44,889	1.16
Practice	113	176,783	0.64
Girls' Track total	179	193,123	0.93
Competition	42	39,193	1.07
Practice	137	153,930	0.89
Cheerleading total	98	172,994	0.57
Competition	8	11,956	0.67
Practice	75	128,247	0.58
Performance	15	32,791	0.46

*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, 2011-12 School Year*

	≥1 day time loss	<1 day time loss	Total
Overall	**99.0%**	**1.0%**	**100%**
Boys' football	99.0%	1.0%	**100%**
Boys' soccer	98.4%	1.6%	**100%**
Girls' soccer	99.2%	0.8%	**100%**
Boys' volleyball	100.0%	0.0%	**100%**
Girls' volleyball	99.6%	0.4%	**100%**
Boys' basketball	99.5%	0.5%	**100%**
Girls' basketball	98.6%	1.4%	**100%**
Boys' wrestling	98.8%	1.2%	**100%**
Boys' baseball	97.3%	2.7%	**100%**
Girls' softball	98.4%	1.6%	**100%**
Girls' field hockey	100.0%	0.0%	**100%**
Girls' gymnastics	100.0%	0.0%	**100%**
Boys' ice hockey	100.0%	0.0%	**100%**
Boys' lacrosse	100.0%	0.0%	**100%**
Girls' lacrosse	100.0%	0.0%	**100%**
Boys' swimming	92.3%	7.7%	**100%**
Girls' swimming	100.0%	0.0%	**100%**
Boys' track	99.4%	0.6%	**100%**
Girls' track	100.0%	0.0%	**100%**
Cheerleading	100.0%	0.0%	**100%**

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

Table 2.3 Demographic Characteristics of Injured Athletes by Sex, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

	Male	Female
Year in School	**n=4,126**	**n=1,857**
Freshman	22.9%	28.2%
Sophomore	24.6%	28.1%
Junior	25.0%	23.4%
Senior	27.5%	20.4%
Total†	**100%**	**100%**
Age (years)		
Minimum	13	12
Maximum	21	19
Mean (St. Dev.)	15.9 (1.26)	15.6 (1.22)
BMI		
Minimum	10.6	14.0
Maximum	58.3	40.3
Mean (St. Dev.)	24.9 (4.70)	22.3 (3.39)

*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, 2011-12 School Year

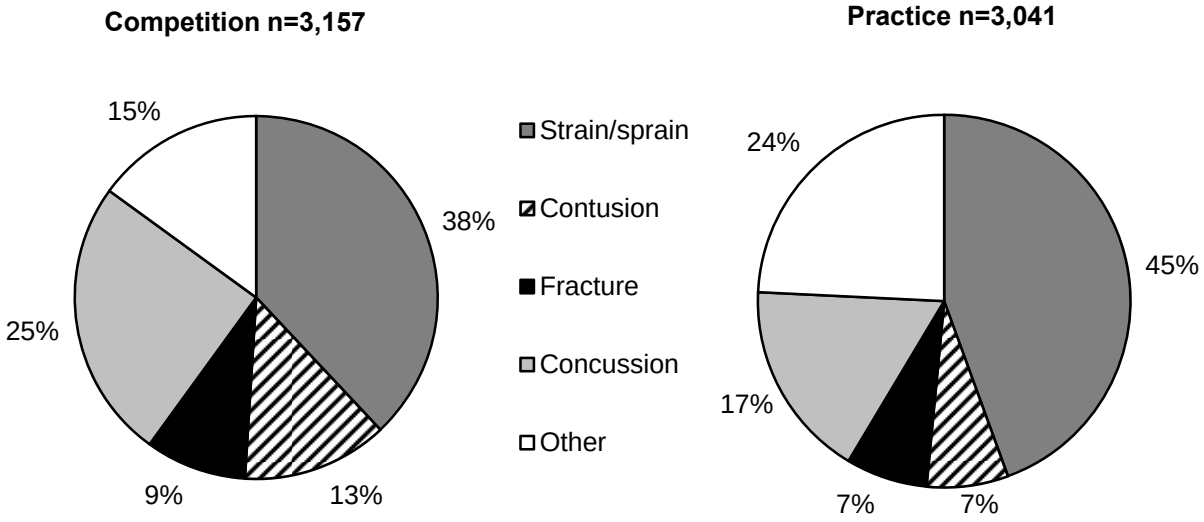


Table 2.4 Body Site of Injury by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall*	
	n	%	n	%	n	%
Body Site						
Head/face	898	28.4%	613	20.2%	1,514	24.4%
Ankle	481	15.2%	471	15.5%	953	15.3%
Knee	461	14.6%	347	11.4%	810	13.0%
Hip/thigh/upper leg	250	7.9%	391	12.9%	642	10.3%
Hand/wrist	265	8.4%	249	8.2%	516	8.3%
Shoulder	221	7.0%	217	7.1%	439	7.1%
Trunk	142	4.5%	197	6.5%	339	5.5%
Lower leg	113	3.6%	198	6.5%	311	5.0%
Arm/elbow	126	4.0%	98	3.2%	225	3.6%
Foot	86	2.7%	125	4.1%	213	3.4%
Neck	44	1.4%	56	1.8%	101	1.6%
Other	70	2.2%	76	2.5%	147	2.4%
Total	**3,157**	**100%**	**3,038**	**100%**	**6,210**	**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, 2011-12 School Year

	Male		Female		Total	
	n	% of ankle injuries	n	% of ankle injuries	n	% of ankle injuries
Ankle Ligament						
Anterior talofibular ligament	411	73.3%	291	79.9%	725	76.1%
Calcaneofibular ligament	139	24.8%	101	27.7%	247	25.9%
Anterior tibiofibular ligament	103	18.4%	51	14.0%	163	17.1%
Posterior talofibular ligament	63	11.2%	45	12.4%	111	11.6%
Deltoid ligament	54	9.6%	16	4.4%	71	7.5%
Posterior tibiofibular ligament	10	1.8%	14	3.8%	25	2.6%
Total Ankle Injuries	**561**		**364**		**953**	

*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, 2011-12 School Year

	Male		Female		Total	
	n	% of knee injuries	n	% of knee injuries	n	% of knee injuries
Knee Ligament						
Medial collateral ligament	162	32.3%	53	18.5%	220	27.2%
Patella/patellar tendon	96	19.2%	89	31.1%	192	23.7%
Anterior cruciate ligament	91	18.2%	67	23.4%	163	20.1%
Torn cartilage (meniscus)	79	15.8%	55	19.2%	138	17.0%
Lateral collateral ligament	30	6.0%	18	6.3%	49	6.0%
Posterior cruciate ligament	12	2.4%	5	1.7%	17	2.1%
Total Knee Injuries	**501**		**286**		**810**	

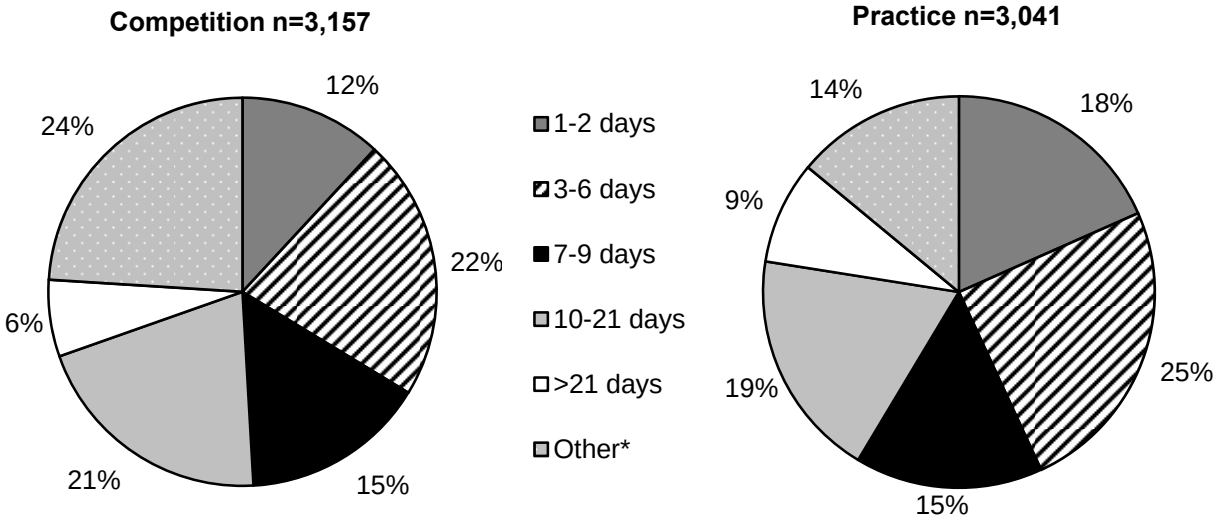
*Multiple responses allowed per injury report.
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.7 Ten Most Common Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=3,155		Practice n=3,033		Overall n=6,203	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	791	25.1%	521	17.2%	1,315	21.2%
Ankle strain/sprain	432	13.7%	436	14.4%	869	14.0%
Hip/thigh/upper leg strain/sprain	154	4.9%	325	10.7%	480	7.7%
Knee strain/sprain	264	8.4%	153	5.0%	418	6.7%
Knee other	126	4.0%	154	5.1%	281	4.5%
Hand/wrist fracture	120	3.8%	106	3.5%	228	3.7%
Shoulder other	98	3.1%	112	3.7%	211	3.4%
Shoulder strain/sprain	96	3.0%	93	3.1%	189	3.0%
Hand/wrist strain/sprain	86	2.7%	82	2.7%	168	2.7%
Trunk strain/sprain	48	1.5%	91	3.0%	139	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, 2011-12 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, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	233	7.5	160	5.3	393	6.4%
Did not require surgery	2,872	92.5	2,835	94.7	5,722	93.6%
Total	**3,105**	**100%**	**2,995**	**100%**	**6,115**	**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, 2011-12 School Year

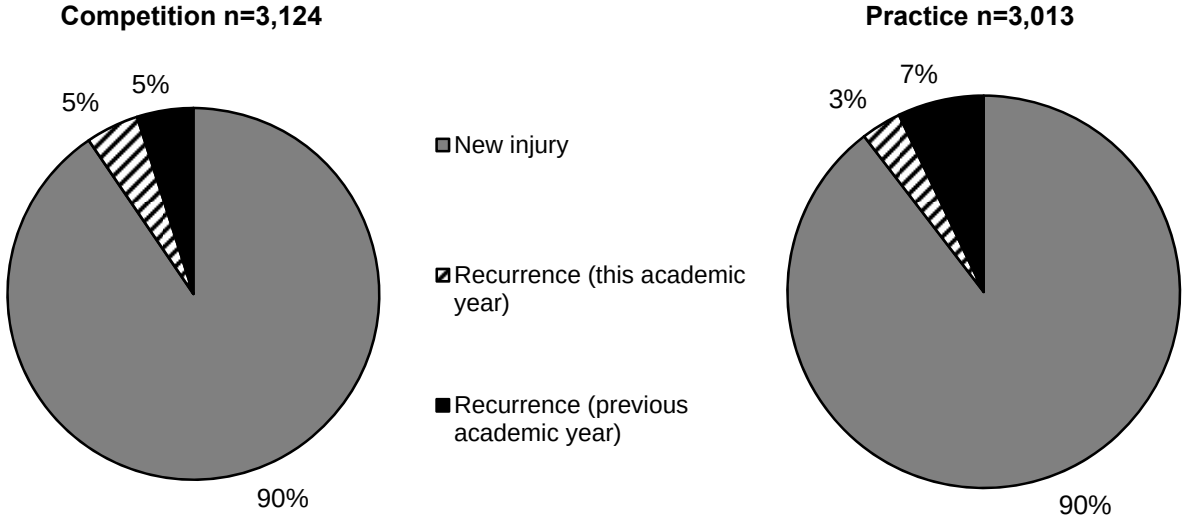


Table 2.9 Time during Season of Injury, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	1,420	22.9%
Regular season	4,510	72.9%
Post season	259	4.2%
Total	**6,189**	**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, 2011-12 School Year

	n	%
Time in Practice		
First ½ hour	324	11.6%
Second ½ hour	559	20.0%
1-2 hours into practice	1,603	57.4%
> 2 hours into practice	309	11.1%
Total	**2,795**	**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, 2011-12 School Year

	n	%
% of Injuries Evaluated by:*		
Certified athletic trainer	5,776	93.0%
General physician	2,153	34.7%
Orthopedic physician	1,976	31.8%
Chiropractor	67	1.1%
Physician's assistant	65	1.0%
Nurse practitioner	31	0.5%
Neurologist	146	2.3%
Dentist/oral surgeon	15	0.5%
Other	185	3.0%
Total	**6,213**	**100%**
% of Injuries Assessed by:*		
Evaluation	6,091	98.0%
X-ray	2,143	34.5%
MRI	633	10.2%
CT-scan	290	4.7%
Surgery	76	1.2%
Blood work/lab test	59	0.9%
Other	43	0.7%
Total	**6,213**	**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, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**2,372**	**648,392**	**3.66**
Competition	1,240	104,795	11.83
Practice	1,132	543,597	2.08

Table 3.2 Demographic Characteristics of Injured Football Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=2,345**
Freshman	23.8%
Sophomore	24.4%
Junior	23.7%
Senior	28.1%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.9 (1.25)
BMI	
Minimum	10.6
Maximum	58.3
Mean (SE)	26.2 (5.00)

*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, 2011-12 School Year

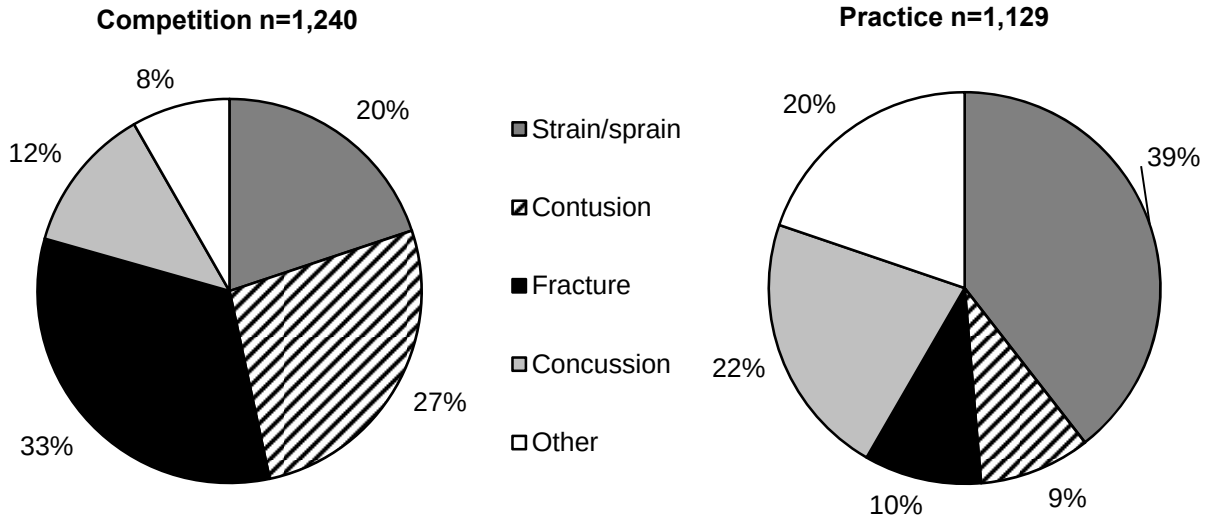


Table 3.3 Body Site of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	300	24.2%	257	22.7%	557	23.5%
Knee	188	15.2%	123	10.9%	311	13.1%
Ankle	168	13.5%	125	11.1%	293	12.4%
Hand/wrist	115	9.3%	125	11.1%	240	10.1%
Shoulder	136	11.0%	102	9.0%	238	10.0%
Hip/thigh/upper leg	79	6.4%	125	11.1%	204	8.6%
Trunk	55	4.4%	73	6.5%	128	5.4%
Arm/elbow	59	4.8%	41	3.6%	100	4.2%
Lower leg	47	3.8%	44	3.9%	91	3.8%
Foot	25	2.0%	45	4.0%	70	3.0%
Neck	29	2.3%	29	2.6%	58	2.4%
Other	39	3.1%	42	3.7%	81	3.4%
Total	**1,240**	**100%**	**1,131**	**100%**	**2,371**	**100%**

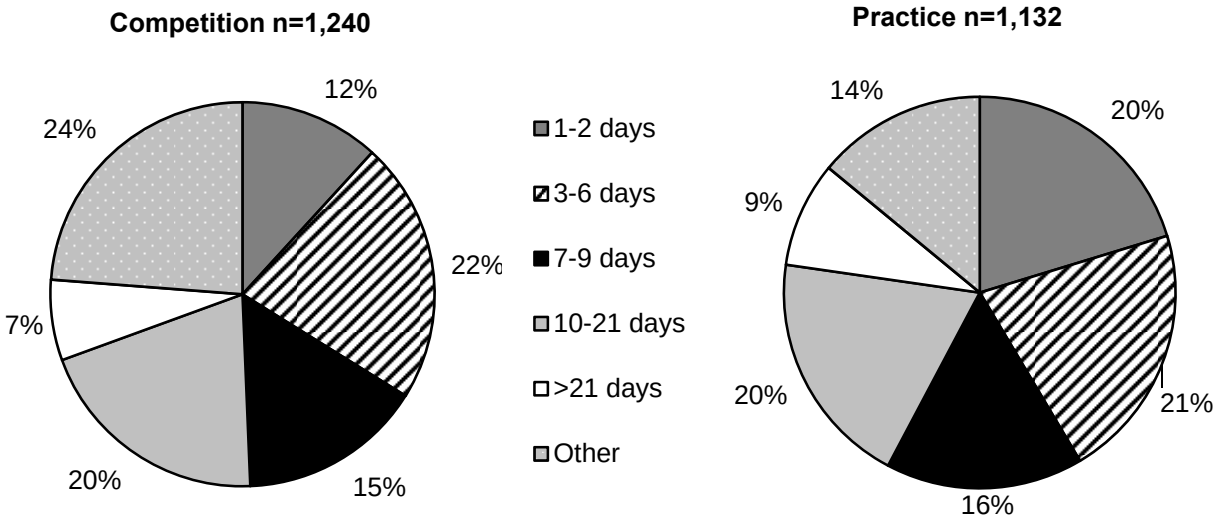
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 3.4 Ten Most Common Football Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=1,240		Practice n=1,128		Total n=2,368	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	287	23.1%	247	21.9%	534	22.6%
Ankle strain/sprain	146	11.8%	115	10.2%	261	11.0%
Knee strain/sprain	126	10.2%	66	5.9%	192	8.1%
Hip/thigh/upper leg strain/sprain	34	2.7%	100	8.9%	134	5.7%
Shoulder other	65	5.2%	47	4.2%	112	4.7%
Hand/wrist fracture	56	4.5%	53	4.7%	109	4.6%
Shoulder strain/sprain	54	4.4%	44	3.9%	98	4.1%
Knee other	42	3.4%	42	3.7%	84	3.5%
Hand/wrist strain/sprain	28	2.3%	34	3.0%	62	2.6%
Hip/thigh/upper leg contusion	39	3.1%	14	1.2%	53	2.2%
Trunk contusion	21	1.7%	21	1.9%	42	1.8%

†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, 2011-12 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, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	102	8.4%	67	6.0%	169	7.2%
Did not require surgery	1,117	91.6%	1,050	94.0%	2,167	92.8%
Total	**1,219**	**100%**	**1,117**	**100%**	**2,336**	**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, 2011-12 School Year

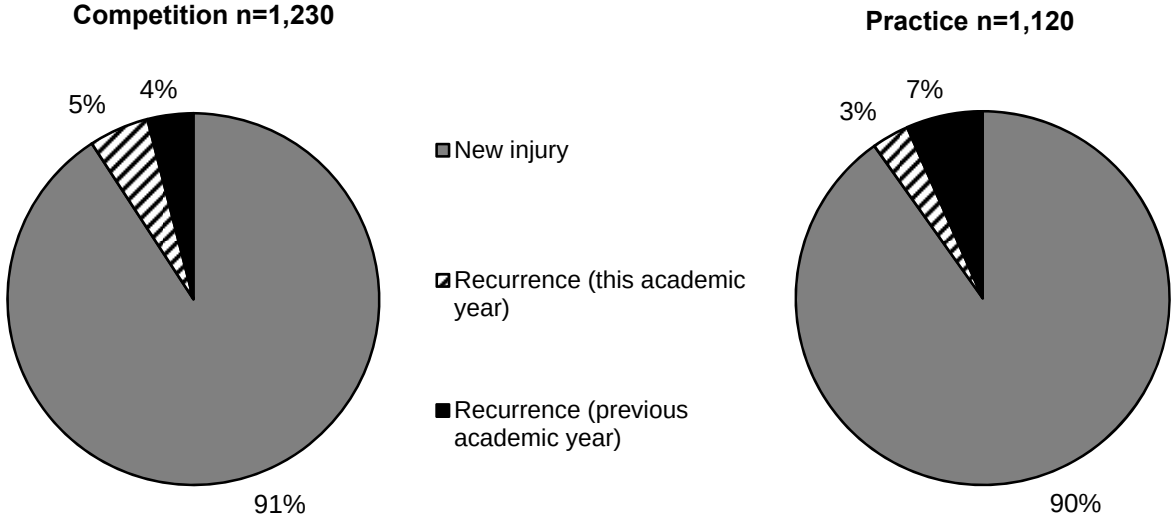


Table 3.6 Time during Season of Football Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	692	29.2%
Regular season	1,550	65.5%
Post season	125	5.3%
Total	**2,367**	**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, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	18	1.5%
First quarter	128	10.8%
Second quarter	355	30.0%
Third quarter	380	32.1%
Fourth quarter	301	25.4%
Overtime	3	0.3%
Total	**1,185**	**100%**
Field Location		
Between the 20 yard lines	970	82.3%
Red zone (20 yard line to goal line)	177	15.0%
End zone	16	1.4%
Off the field	16	1.4%
Total	**1,179**	**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, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	81	7.7%
Second 1/2 hour	187	17.8%
1-2 hours into practice	630	59.9%
>2 hours into practice	153	14.6%
Total	**1,051**	**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, 2011-12 School Year

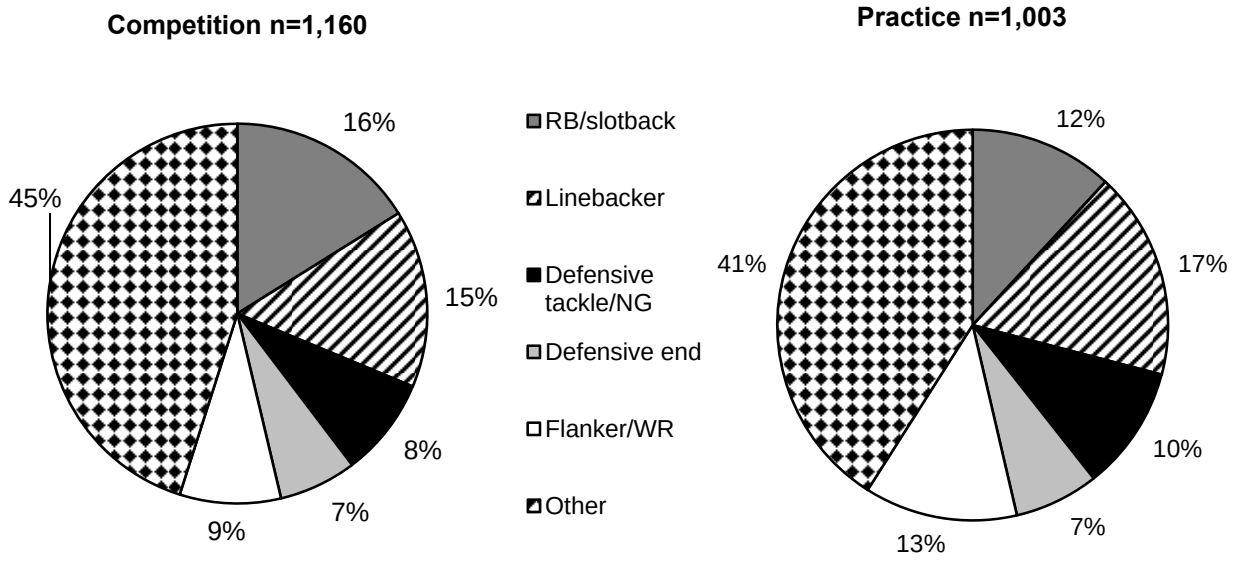
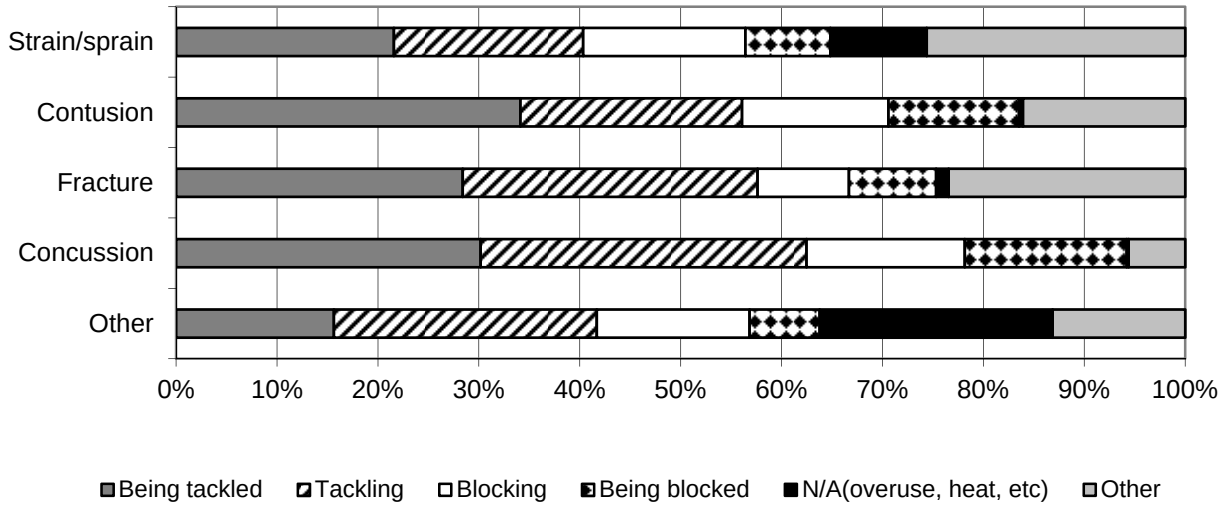


Table 3.9 Activities Leading to Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Tackling	312	25.9%	254	23.0%	566	24.5%
Being tackled	363	30.1%	204	18.5%	567	24.5%
Blocking	176	14.6%	169	15.3%	345	14.9%
Being blocked	147	12.2%	94	8.5%	241	10.2%
N/A (e.g., overuse, heat illness, etc.)	25	2.1%	158	14.3%	183	7.9%
Stepped on/fell on/kicked	61	5.1%	68	6.2%	129	5.6%
Rotation around a planted foot/inversion	55	4.6%	48	4.3%	103	4.5%
Uneven playing surface	8	0.7%	20	1.8%	28	1.2%
Contact with ball	9	0.7%	11	1.0%	20	0.9%
Contact with blocking sled/dummy	1	0.1%	16	1.4%	17	0.7%
Contact with goal posts/yard marker/etc.	2	0.2%	4	0.4%	6	0.3%
Other	47	3.9%	59	5.3%	106	4.6%
Total	**1,206**	**100%**	**1,105**	**100%**	**2,311**	**100%**

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

Figure 3.5 Activity Resulting in Football Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



IV. Boys' Soccer Injury Epidemiology

Table 4.1 Boys' Soccer Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**408**	**237,983**	**1.71**
Competition	255	69,427	3.67
Practice	153	168,556	0.91

Table 4.2 Demographic Characteristics of Injured Boys' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=404**
Freshman	16.8%
Sophomore	21.8%
Junior	29.7%
Senior	31.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	16.1 (1.24)
BMI	
Minimum	13.0
Maximum	36.4
Mean (St. Dev.)	22.6 (3.00)

*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, 2011-12 School Year

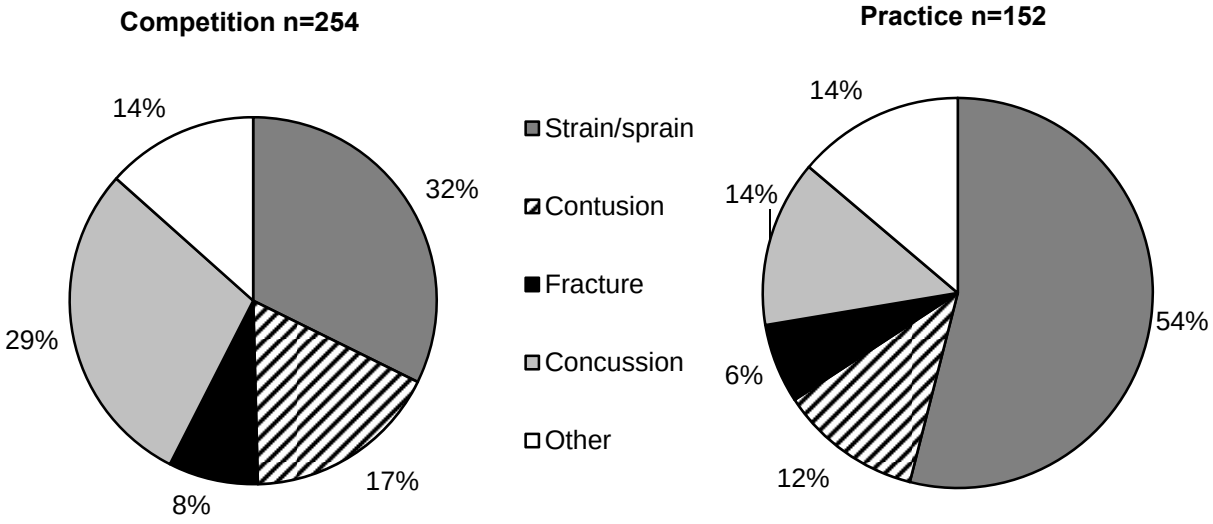


Table 4.3 Body Site of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	92	36.1%	27	17.6%	119	29.2%
Hip/thigh/upper leg	33	12.9%	41	26.8%	74	18.1%
Ankle	30	11.8%	23	15.0%	53	13.0%
Knee	31	12.2%	18	11.8%	49	12.0%
Foot	22	8.6%	11	7.2%	33	8.1%
Lower leg	14	5.5%	10	6.5%	24	5.9%
Hand/wrist	10	3.9%	8	5.2%	18	4.4%
Trunk	10	3.9%	7	4.6%	17	4.2%
Shoulder	7	2.7%	2	1.3%	9	2.2%
Arm/elbow	2	0.8%	2	1.3%	4	1.0%
Neck	2	0.8%	1	0.7%	3	0.7%
Other	2	0.8%	3	2.0%	5	1.2%
Total	**255**	**100%**	**153**	**100%**	**408**	**100%**

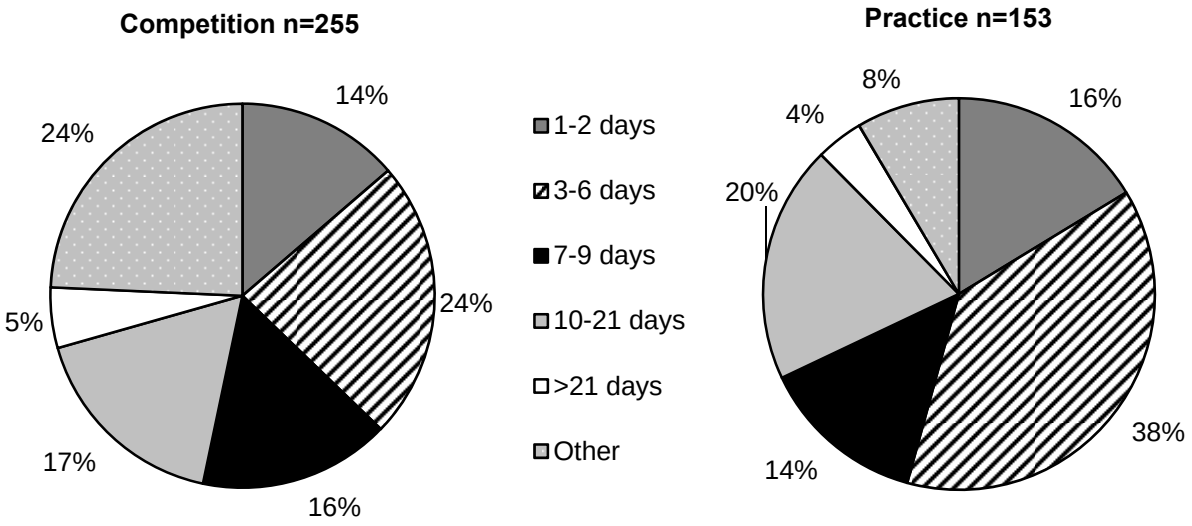
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 4.4 Ten Most Common Boys' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=254		Practice n=152		Total n=406	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	74	29.1%	21	13.8%	95	23.4%
Hip/thigh/upper leg strain/sprain	20	7.9%	35	23.0%	55	13.5%
Ankle strain/sprain	24	9.4%	23	15.1%	47	11.6%
Knee strain/sprain	18	7.1%	7	4.6%	25	6.2%
Foot contusion	12	4.7%	4	2.6%	16	3.9%
Knee other	8	3.1%	7	4.6%	15	3.7%
Head/face other	12	4.7%	3	2.0%	15	3.7%
Hand/wrist fracture	7	2.8%	5	3.3%	12	3.0%
Foot strain/sprain	7	2.8%	3	2.0%	10	2.5%
Trunk strain/sprain	2	0.8%	5	3.3%	7	1.7%

†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, 2011-12 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, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	15	6.0%	2	1.4%	17	4.3%
Did not require surgery	235	94.0%	146	98.6%	381	95.7%
Total	**250**	**100%**	**148**	**100%**	**398**	**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, 2011-12 School Year

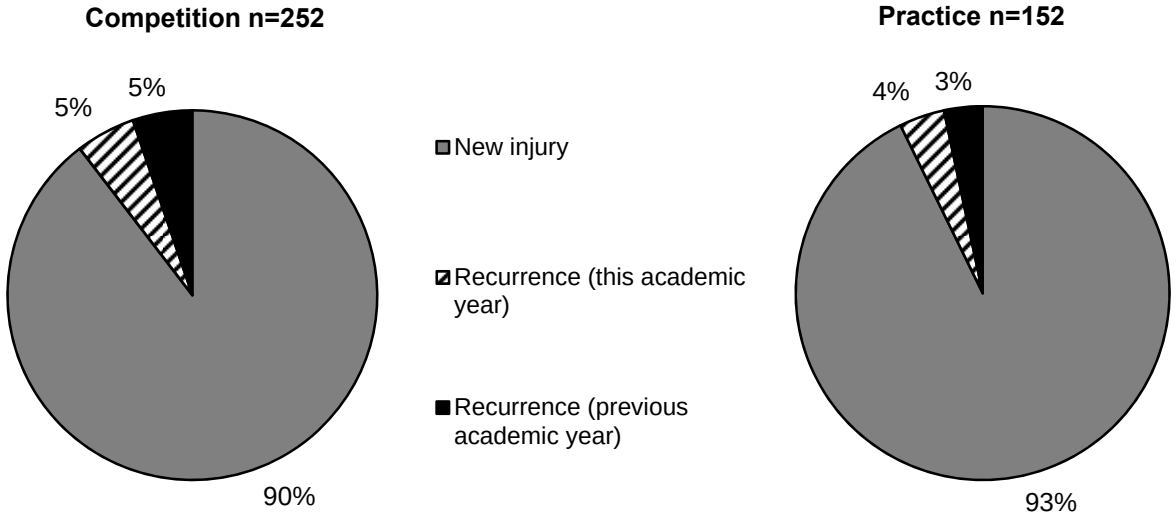


Table 4.6 Time during Season of Boys' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	74	18.2%
Regular season	308	75.7%
Post season	25	6.1%
Total	**407**	**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, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	11	4.6%
First half	81	34.0%
Second half	144	60.5%
Overtime	2	0.8%
Total	**238**	**100%**
Field Location		
Top of goal box extended to center line (offense)	86	36.8%
Top of goal box extended to center line (defense)	42	17.9%
Side of goal box (offense)	17	7.3%
Goal box (defense)	39	16.7%
Goal box (offense)	23	9.8%
Side of goal box (defense)	21	9.0%
Off the field	6	2.6%
Total	**234**	**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, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	16	11.9%
Second 1/2 hour	36	26.9%
1-2 hours into practice	67	50.0%
>2 hours into practice	15	11.2%
Total	**134**	**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, 2011-12 School Year

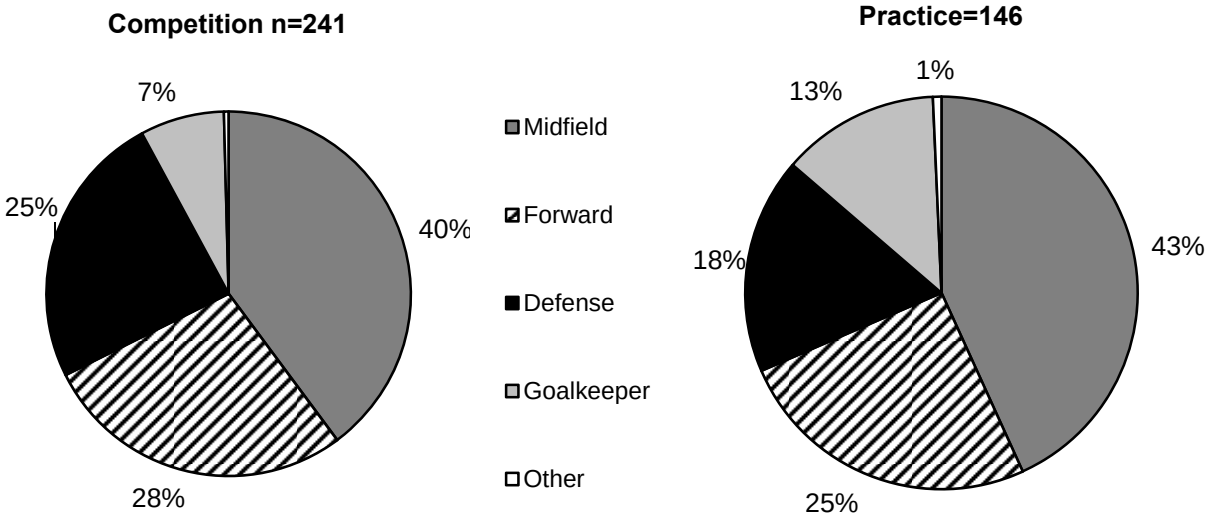
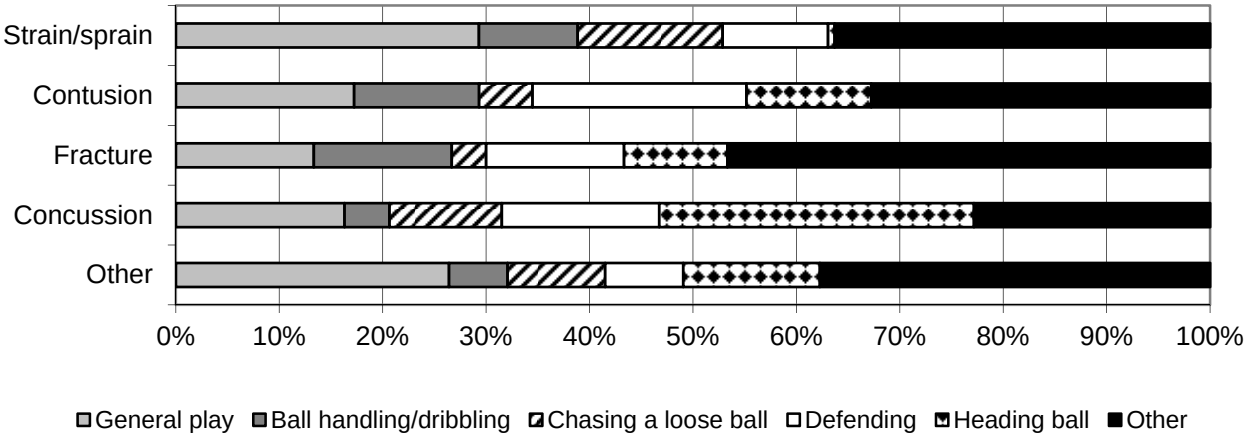


Table 4.9 Activities Leading to Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	42	17.3%	47	31.5%	89	22.7%
Defending	38	15.6%	12	8.1%	50	12.8%
Heading ball	35	14.4%	11	7.4%	46	11.7%
Chasing loose ball	28	11.5%	13	8.7%	41	10.5%
Ball handling/dribbling	27	11.1%	7	4.7%	34	8.7%
Goaltending	15	6.2%	11	7.4%	26	6.6%
Shooting (foot)	15	6.2%	10	6.7%	25	6.4%
Passing (foot)	13	5.3%	7	4.7%	20	5.1%
Conditioning	1	0.4%	18	12.1%	19	4.8%
Receiving pass	13	5.3%	4	2.7%	17	4.3%
Blocking shot	6	2.5%	7	4.7%	13	3.3%
Attempting a slide tackle	5	2.1%	1	0.7%	6	1.5%
Receiving a slide tackle	1	0.4%	1	0.7%	2	0.5%
Other	4	1.6%	---	0.0%	4	1.0%
Total	**243**	**100%**	**149**	**100%**	**392**	**100%**

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

Figure 4.5 Activity Resulting in Boys' Soccer Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



V. Girls' Soccer Injury Epidemiology

Table 5.1 Girls' Soccer Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**481**	**195,223**	**2.46**
Competition	316	57,920	5.46
Practice	165	137,303	1.20

Table 5.2 Demographic Characteristics of Injured Girls' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=474**
Freshman	25.5%
Sophomore	27.2%
Junior	26.8%
Senior	20.5%
Total†	**100%**
Age (years)	
Minimum	12
Maximum	18
Mean (St. Dev.)	15.7 (1.2)
BMI	
Minimum	14.1
Maximum	40.3
Mean (St. Dev.)	22.3 (3.5)

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

Figure 5.1 Diagnosis of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

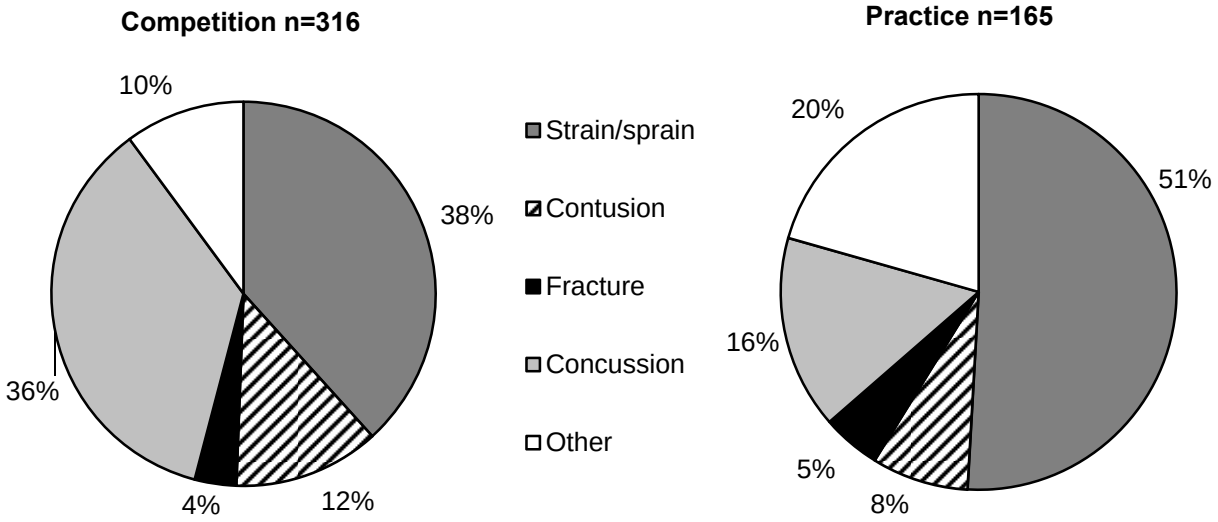


Table 5.3 Body Site of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	121	38.3%	27	16.4%	148	30.8%
Ankle	58	18.4%	45	27.3%	103	21.4%
Knee	63	19.9%	21	12.7%	84	17.5%
Hip/thigh/upper leg	20	6.3%	28	17.0%	48	10.0%
Lower leg	11	3.5%	18	10.9%	29	6.0%
Foot	12	3.8%	8	4.8%	20	4.2%
Hand/wrist	11	3.5%	5	3.0%	16	3.3%
Trunk	8	2.5%	7	4.2%	15	3.1%
Shoulder	4	1.3%	2	1.2%	6	1.2%
Arm/elbow	4	1.3%	1	0.6%	5	1.0%
Neck	2	0.6%	---	0.0%	2	0.4%
Other	2	0.6%	3	1.8%	5	1.0%
Total	**316**	**100%**	**165**	**100%**	**481**	**100%**

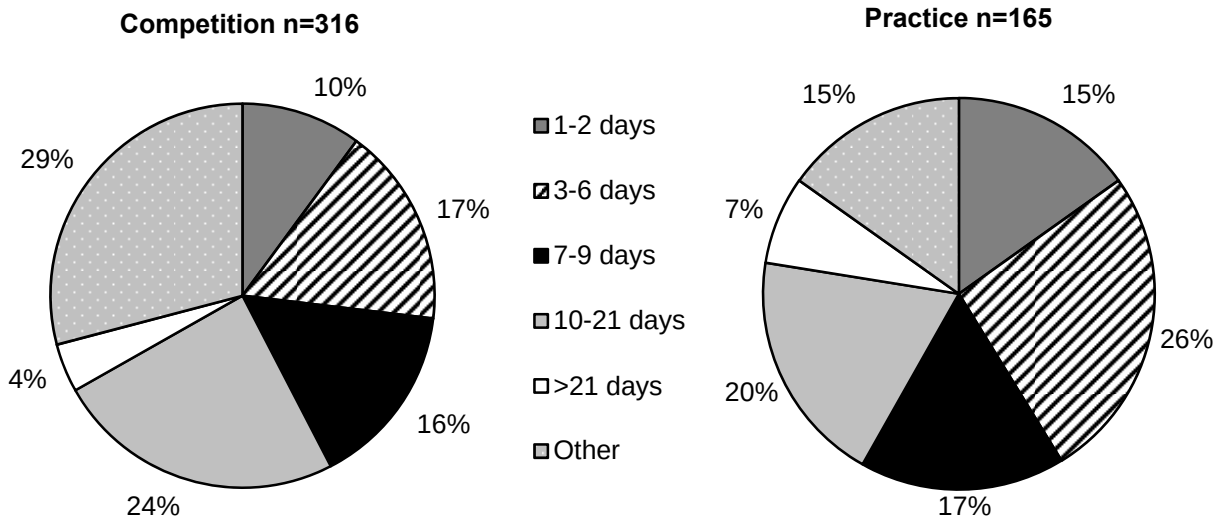
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 5.4 Ten Most Common Girls' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=316		Practice n=165		Total n=481	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	112	35.4%	26	15.8%	138	28.7%
Ankle strain/sprain	51	16.1%	40	24.2%	91	18.9%
Knee strain/sprain	43	13.6%	5	3.0%	48	10.0%
Hip/thigh/upper leg strain/sprain	16	5.1%	26	15.8%	42	8.7%
Knee other	11	3.5%	10	6.1%	21	4.4%
Lower leg other	3	0.9%	12	7.3%	15	3.1%
Knee contusion	9	2.8%	6	3.6%	15	3.1%
Foot contusion	6	1.9%	3	1.8%	9	1.9%
Hand/wrist fracture	3	0.9%	5	3.0%	8	1.7%
Lower leg contusions	5	1.6%	2	1.2%	7	1.5%

†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, 2011-12 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, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	25	8.0%	5	3.0%	30	6.3%
Did not require surgery	286	92.0%	159	97.0%	445	93.7%
Total	**311**	**100%**	**164**	**100%**	**475**	**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, 2011-12 School Year

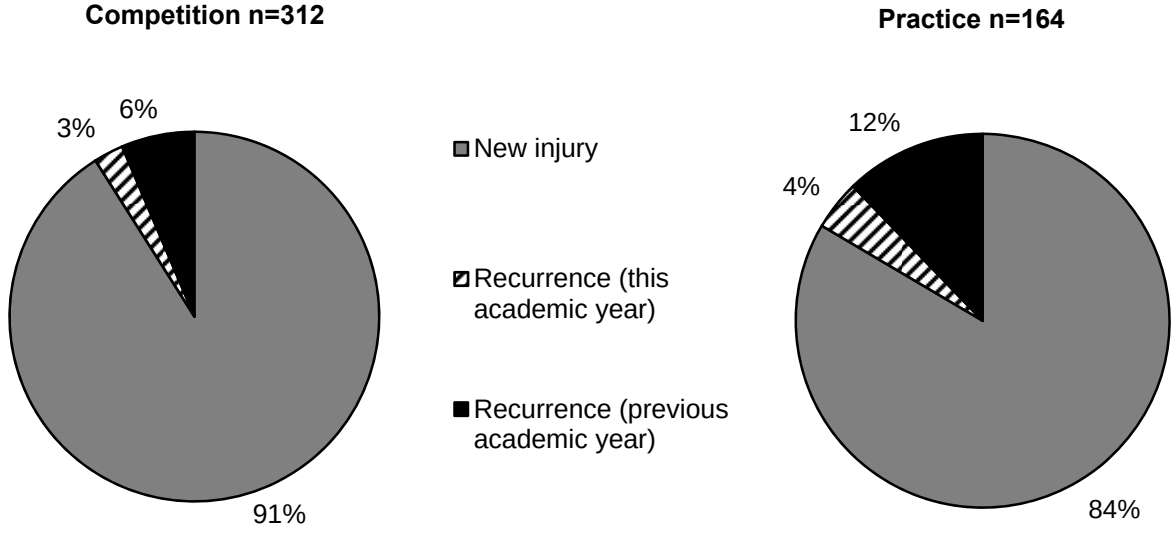


Table 5.6 Time during Season of Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	83	17.3%
Regular season	382	79.7%
Post season	14	2.9%
Total	**479**	**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, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	3	1.0%
First half	100	33.3%
Second half	195	65.0%
Overtime	2	0.7%
Total	**300**	**100%**
Field Location		
Top of goal box extended to center line (offense)	86	29.7%
Top of goal box extended to center line (defense)	68	23.4%
Goal box (defense)	49	16.9%
Side of goal box (defense)	31	10.7%
Side of goal box (offense)	25	8.6%
Goal box (offense)	29	10.0%
Off the field	2	0.7%
Total	**290**	**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, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	26	17.1%
Second 1/2 hour	30	19.7%
1-2 hours into practice	87	57.2%
>2 hours into practice	9	5.9%
Total	**152**	**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, 2011-12 School Year

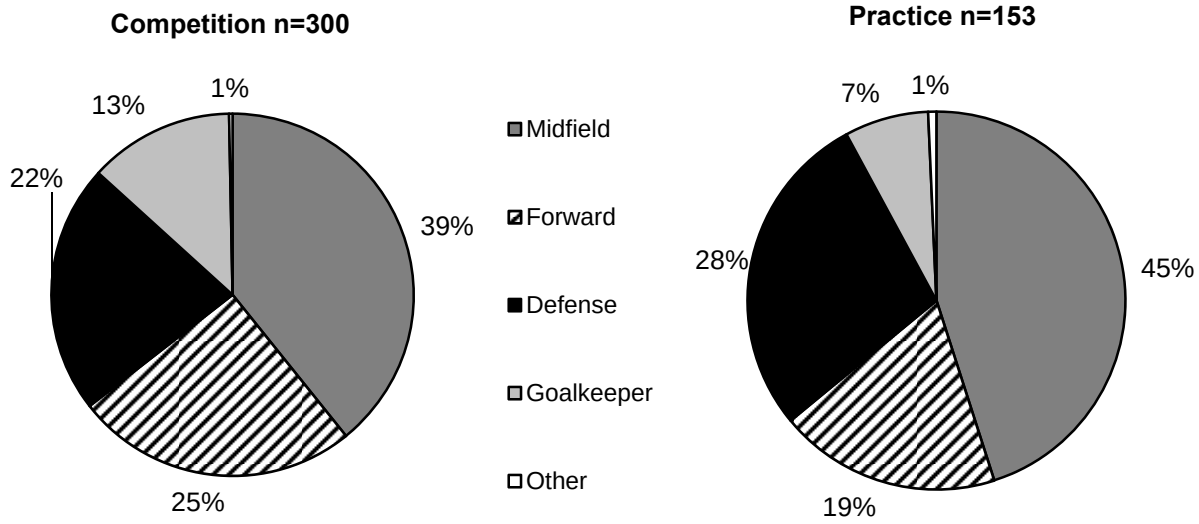
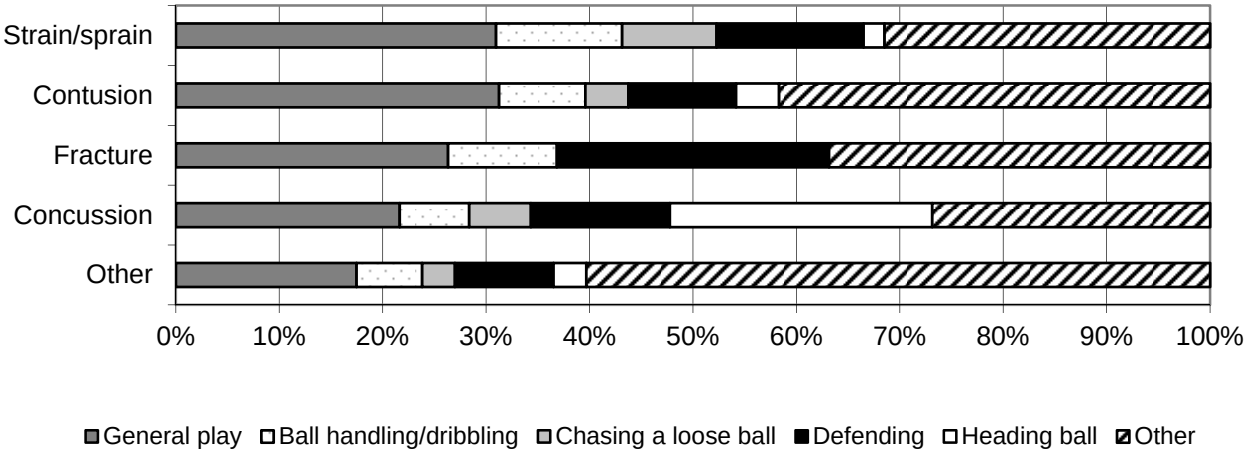


Table 5.9 Activities Leading to Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	68	22.4%	63	39.9%	131	28.4%
Defending	43	14.2%	19	12.0%	62	13.4%
Ball handling/dribbling	35	11.6%	8	5.1%	43	9.3%
Heading ball	38	12.5%	4	2.5%	42	9.1%
Goaltending	31	10.2%	7	4.4%	38	8.2%
Chasing loose ball	26	8.6%	9	5.7%	35	7.6%
Passing (foot)	15	5.0%	11	7.0%	26	5.6%
Conditioning	2	0.7%	24	15.2%	26	5.6%
Shooting (foot)	18	5.9%	6	3.8%	24	5.2%
Receiving pass	12	4.0%	---	0.0%	12	2.6%
Blocking shot	6	2.0%	4	2.5%	10	2.2%
Receiving a slide tackle	5	1.7%	---	0.0%	5	1.1%
Attempting a slide tackle	1	0.3%	---	0.0%	1	0.2%
Other	3	1.0%	3	1.9%	6	1.3%
Total	**303**	**100%**	**158**	**100%**	**461**	**100%**

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

Figure 5.5 Activity Resulting in Girls' Soccer Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



VI. Boys' Volleyball Injury Epidemiology

Table 6.1 Boys' Volleyball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**11**	**20,840**	**0.53**
Competition	8	7,470	1.07
Practice	3	13,370	0.22

Table 6.2 Demographic Characteristics of Injured Boys' Volleyball Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=11**
Freshman	0.0%
Sophomore	27.3%
Junior	63.6%
Senior	9.1%
Total†	**100%**
Age (years)	
Minimum	15
Maximum	18
Mean (St. Dev.)	16.4 (0.9)
BMI	
Minimum	20.8
Maximum	31.4
Mean (St. Dev.)	23.9 (3.3)

*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 Boys' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

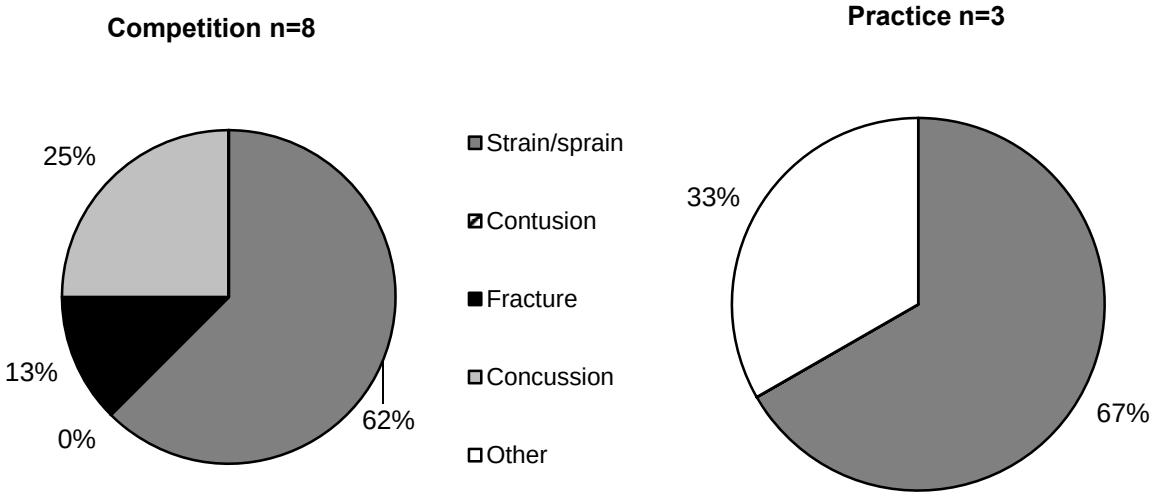


Table 6.3 Body Site of Boys' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Ankle	4	50.0%	2	66.7%	6	54.5%
Head/face	2	25.0%	1	33.3%	3	27.3%
Hand/wrist	1	12.5%	---	0.0%	1	9.1%
Knee	1	12.5%	---	0.0%	1	9.1%
Total	**8**	**100%**	**3**	**100%**	**11**	**100%**

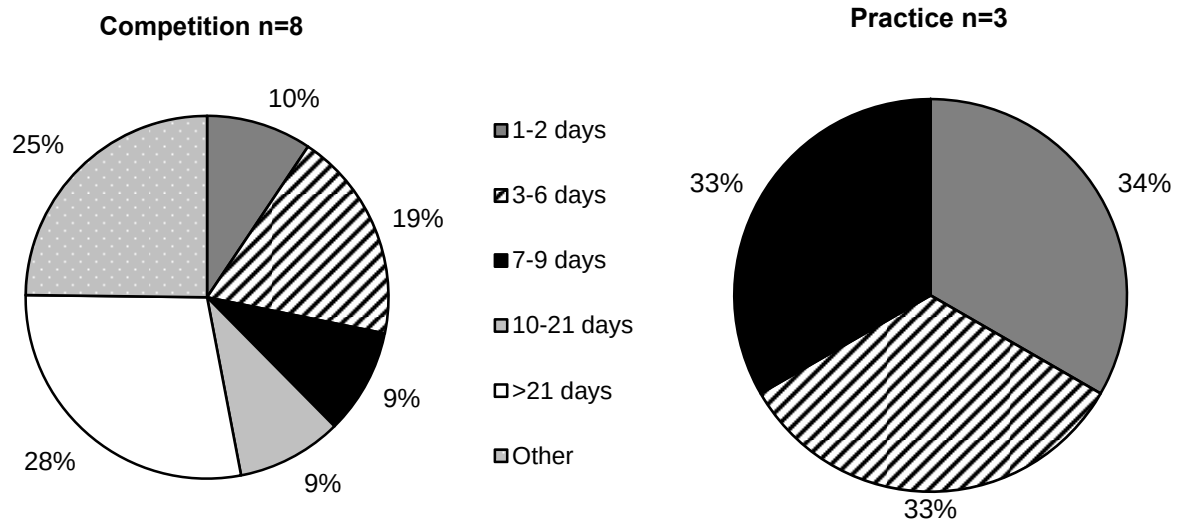
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 6.4 Most Common Boys' Volleyball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=8		Practice n=3		Total n=11	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	4	50.0%	2	66.7%	6	54.5%
Head/face concussion	2	25.0%	---	0.0%	2	18.2%
Hand/wrist strain/sprain	1	12.5%	---	0.0%	1	9.1%
Knee fracture	1	12.5%	---	0.0%	1	9.1%
Head/face other	---	0.0%	1	33.3%	1	9.1%

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

Figure 6.2 Time Loss of Boys' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Boys' Volleyball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	1	12.5%	1	33.3%	2	18.2%
Did not require surgery	7	87.5%	2	66.7%	9	81.8%
Total	**8**	**100%**	**3**	**100%**	**11**	**100%**

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

Figure 6.3 History of Boys' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

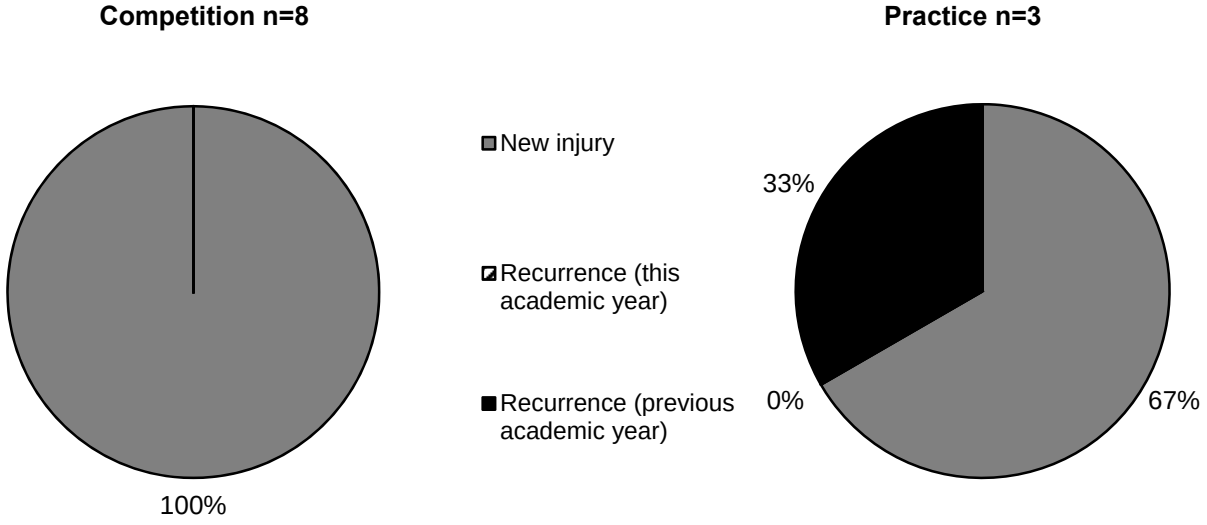


Table 6.6 Time during Season of Boys' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	1	9.1%
Regular season	10	90.9%
Post season	---	0.0%
Total	**11**	**100%**

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

Table 6.7 Competition-Related Variables for Boys' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	3	37.5%
First game	1	12.5%
Second game	2	25.0%
Third game	2	25.0%
Total	**8**	**100%**
Court Location		
Left front	1	12.5%
Right forward	1	12.5%
At the net	3	37.5%
Left back	2	25.0%
Outside court	1	12.5%
Total	**8**	**100%**

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

Table 6.8 Practice-Related Variables for Boys' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	---	0.0%
Second 1/2 hour	1	33.3%
1-2 hours into practice	2	66.7%
>2 hours into practice	---	0.0%
Total	**3**	**100%**

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

Figure 6.4 Player Position of Boys' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

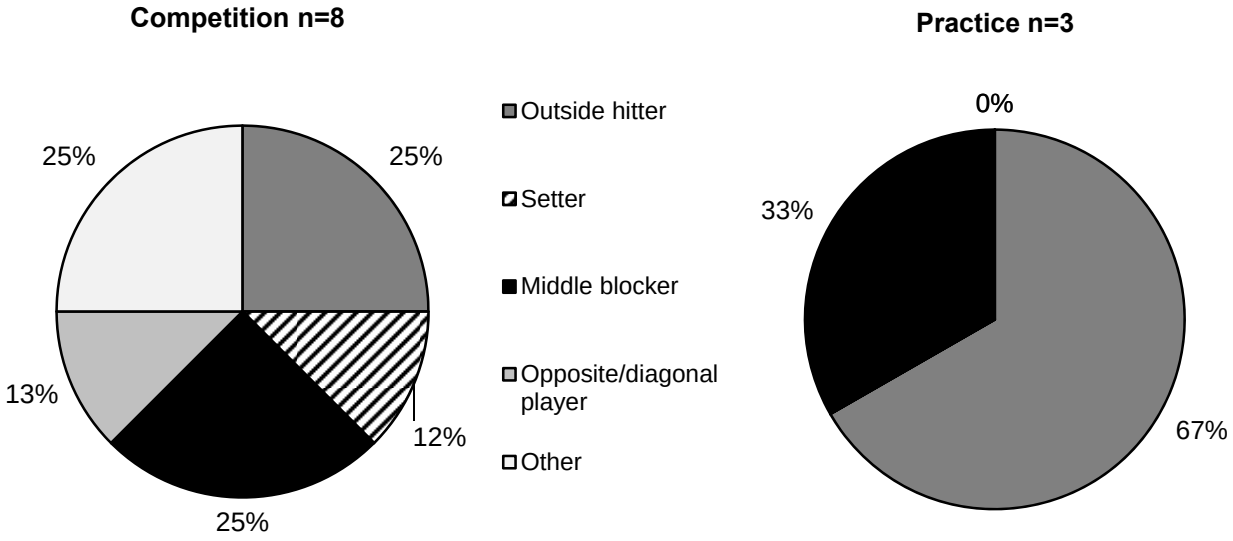
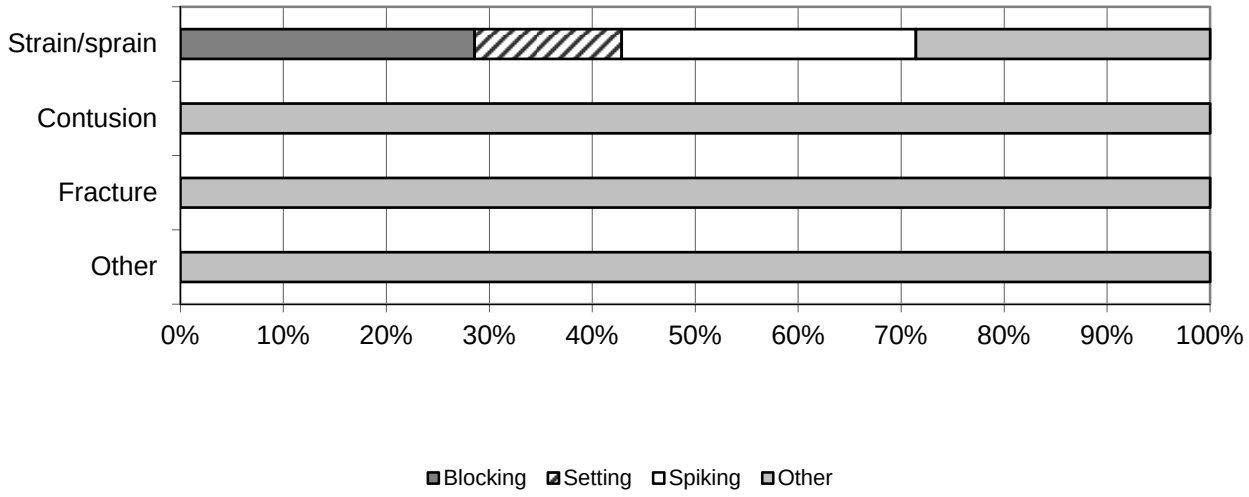


Table 6.9 Activities Leading to Boys' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Activity						
Blocking	1	12.5%	1	33.3%	2	18.2%
Spiking	1	12.5%	1	33.3%	2	18.2%
General play	2	25.0%	---	0.0%	2	18.2%
Digging	3	37.5%	1	33.3%	4	36.4%
Setting	1	12.5%	---	0.0%	1	9.1%
Total	**8**	**100%**	**3**	**100%**	**11**	**100%**

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

Figure 6.5 Activity Resulting in Boys' Volleyball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



VII. Girls' Volleyball Injury Epidemiology

Table 7.1 Girls' Volleyball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**262**	**244,409**	**1.07**
Competition	112	81,701	1.37
Practice	150	162,708	0.92

Table 7.2 Demographic Characteristics of Injured Girls' Volleyball Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=258**
Freshman	28.7%
Sophomore	27.1%
Junior	22.5%
Senior	21.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.5 (1.2)
BMI	
Minimum	14.0
Maximum	36.2
Mean (St. Dev.)	22.0 (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 7.1 Diagnosis of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

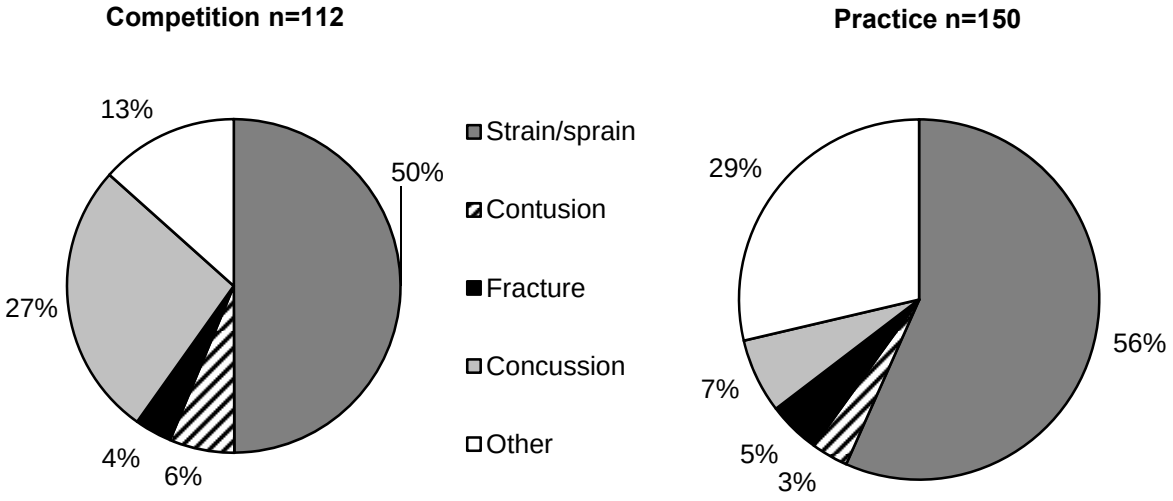


Table 7.3 Body Site of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

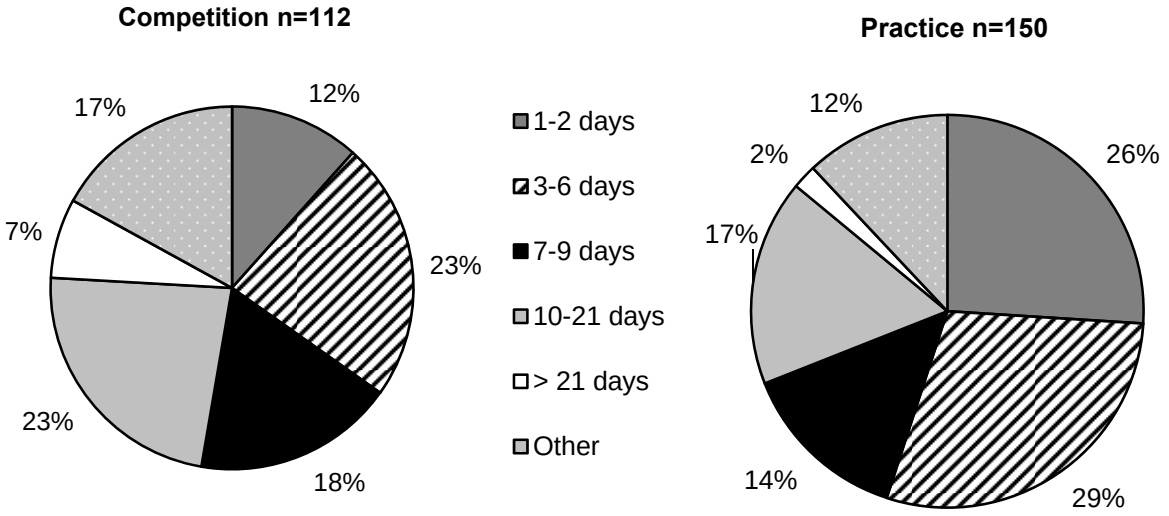
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Ankle	33	29.5%	49	32.7%	82	31.3%
Head/face	33	29.5%	10	6.7%	43	16.4%
Hand/wrist	16	14.3%	22	14.7%	38	14.5%
Knee	10	8.9%	16	10.7%	26	9.9%
Trunk	5	4.5%	15	10.0%	20	7.6%
Shoulder	4	3.6%	13	8.7%	17	6.5%
Foot	1	0.9%	8	5.3%	9	3.4%
Hip/thigh/upper leg	3	2.7%	5	3.3%	8	3.1%
Lower leg	2	1.8%	4	2.7%	6	2.3%
Arm/elbow	4	3.6%	2	1.3%	6	2.3%
Neck	---	0.0%	4	2.7%	4	1.5%
Other	1	0.9%	2	1.3%	3	1.1%
Total	**112**	**100%**	**150**	**100%**	**262**	**100%**

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

Table 7.4 Ten Most Common Girls' Volleyball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=112		Practice n=150		Total n=262	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	31	27.7%	48	32.0%	79	30.2%
Head/face concussion	30	26.8%	10	6.7%	40	15.3%
Hand/wrist strain/sprain	11	9.8%	12	8.0%	23	8.8%
Knee other	4	3.6%	11	7.3%	15	5.7%
Shoulder other	3	2.7%	11	7.3%	14	5.3%
Trunk strain/sprain	3	2.7%	8	5.3%	11	4.2%
Knee strain/sprain	3	2.7%	4	2.7%	7	2.7%
Hip/thigh/upper leg strain/sprain	2	1.8%	5	3.3%	7	2.7%
Knee contusion	3	2.7%	1	0.7%	4	1.5%
Lower leg strain/sprain	2	1.8%	1	0.7%	3	1.1%
Shoulder strain/sprain	1	0.9%	2	1.3%	3	1.1%

Figure 7.2 Time Loss of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Girls' Volleyball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	5	4.6%	6	4.1%	11	4.3%
Did not require surgery	103	95.4%	142	95.9%	245	95.7%
Total	**108**	**100%**	**148**	**100%**	**256**	**100%**

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

Figure 7.3 History of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

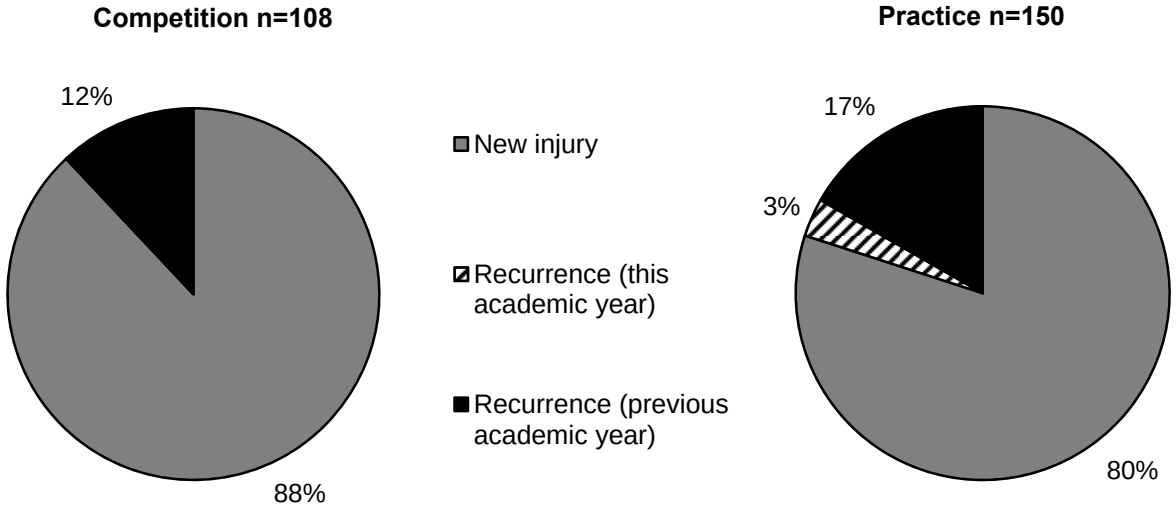


Table 7.6 Time during Season of Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	63	24.2%
Regular season	192	73.8%
Post season	5	1.9%
Total	**260**	**100%**

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

Table 7.7 Competition-Related Variables for Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	20	18.9%
First game	9	8.5%
Second game	45	42.5%
Third game	27	25.5%
Fourth game	4	3.8%
Fifth game	1	0.9%
Total	**106**	**100%**
Court Location		
Middle forward	18	17.0%
Left back	24	22.6%
Right forward	23	21.7%
Left forward	11	10.4%
Outside court (your side)	4	3.8%
Outside court (opponent's side)	1	0.9%
Outside the playable area	10	9.4%
At the net	9	8.5%
Right back (server)	6	5.7%
Total	**106**	**100%**

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

Table 7.8 Practice-Related Variables for Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	20	13.9%
Second 1/2 hour	22	15.3%
1-2 hours into practice	91	63.2%
>2 hours into practice	11	7.6%
Total	**144**	**100%**

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

Figure 7.4 Player Position of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

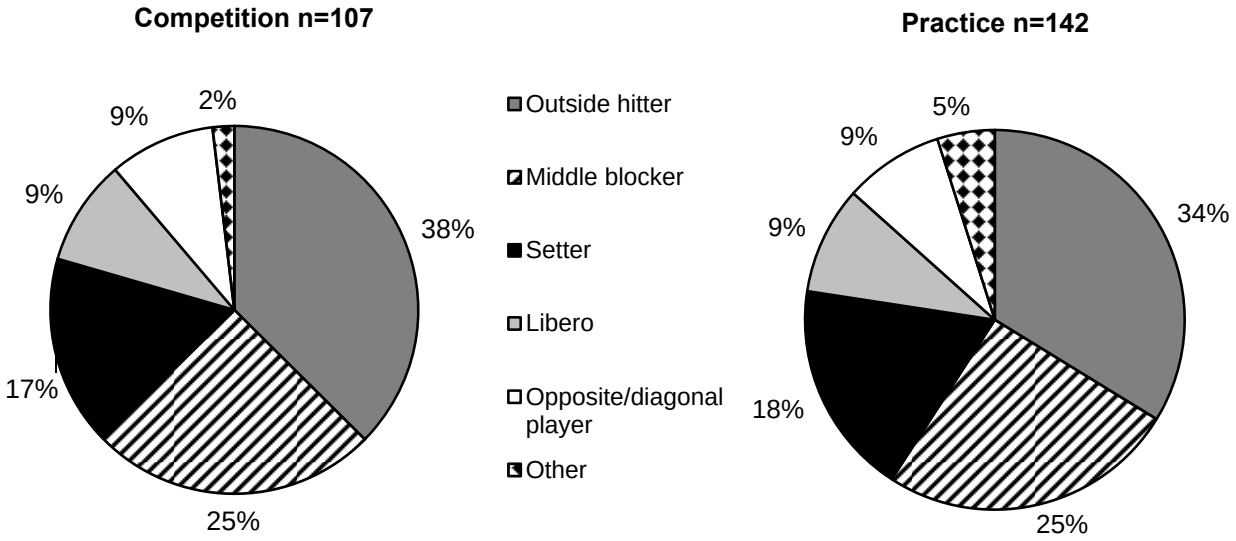
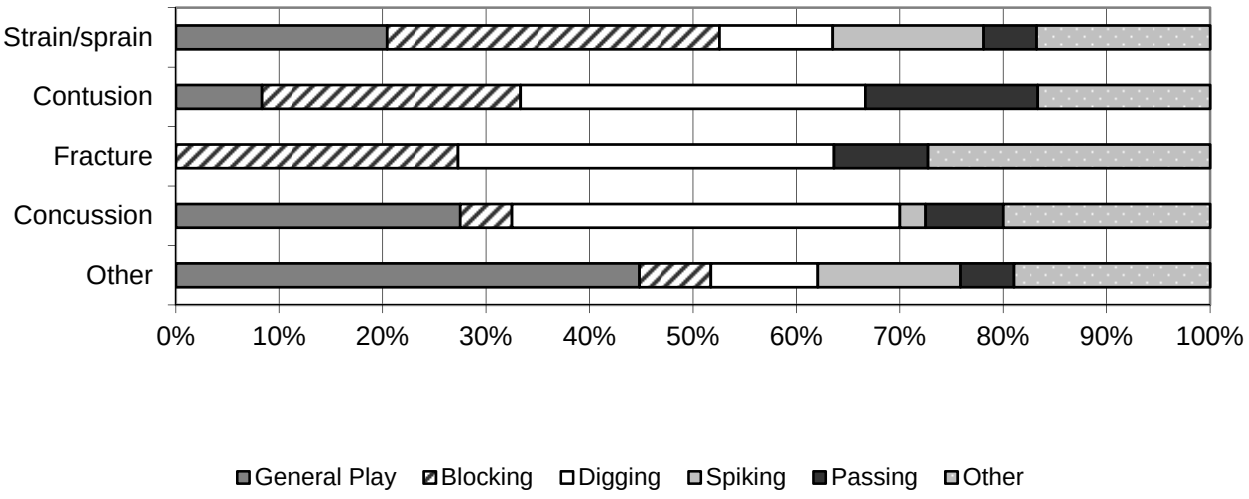


Table 7.9 Activities Leading to Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	21	19.1%	45	30.4%	66	25.6%
Blocking	24	21.8%	32	21.6%	56	21.7%
Digging	28	25.5%	16	10.8%	44	17.1%
Spiking	13	11.8%	16	10.8%	29	11.2%
Setting	9	8.2%	8	5.4%	17	6.6%
Passing	8	7.3%	8	5.4%	16	6.2%
Serving	2	1.8%	7	4.7%	9	3.5%
Conditioning	1	0.9%	8	5.4%	9	3.5%
Other	4	3.6%	8	5.4%	12	4.7%
Total	**110**	**100%**	**148**	**100%**	**258**	**100%**

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

Figure 7.5 Activity Resulting in Girls' Volleyball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



VIII. Boys' Basketball Injury Epidemiology

Table 8.1 Boys' Basketball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**410**	**298,304**	**1.37**
Competition	225	87,673	2.57
Practice	185	210,631	0.88

Table 8.2 Demographic Characteristics of Injured Boys' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=410**
Freshman	22.9%
Sophomore	27.1%
Junior	24.6%
Senior	25.4%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	16.0 (1.2)
BMI	
Minimum	16.0
Maximum	47.4
Mean (St. Dev.)	23.1 (3.4)

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

Figure 8.1 Diagnosis of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

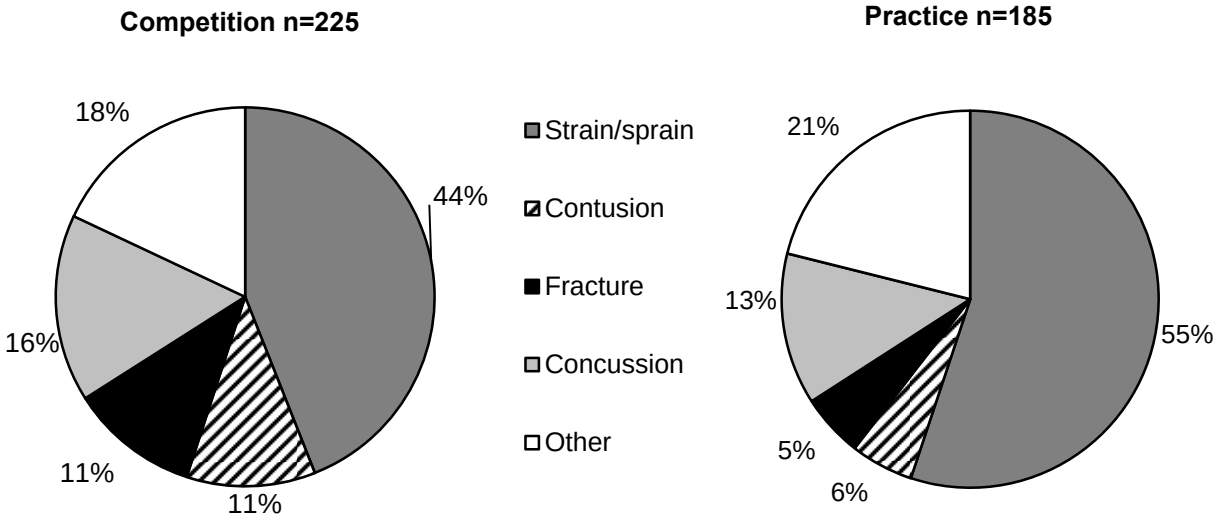


Table 8.3 Body Site of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Ankle	68	30.2%	71	38.6%	139	34.0%
Head/face	56	24.9%	34	18.5%	90	22.0%
Knee	29	12.9%	26	14.1%	55	13.4%
Hand/wrist	20	8.9%	13	7.1%	33	8.1%
Hip/thigh/upper leg	13	5.8%	11	6.0%	24	5.9%
Trunk	12	5.3%	12	6.5%	24	5.9%
Lower leg	5	2.2%	9	4.9%	14	3.4%
Foot	8	3.6%	4	2.2%	12	2.9%
Shoulder	8	3.6%	1	0.5%	9	2.2%
Arm/elbow	5	2.2%	3	1.6%	8	2.0%
Neck	1	0.4%	---	0.0%	1	0.2%
Total	**225**	**100%**	**184**	**100%**	**409**	**100%**

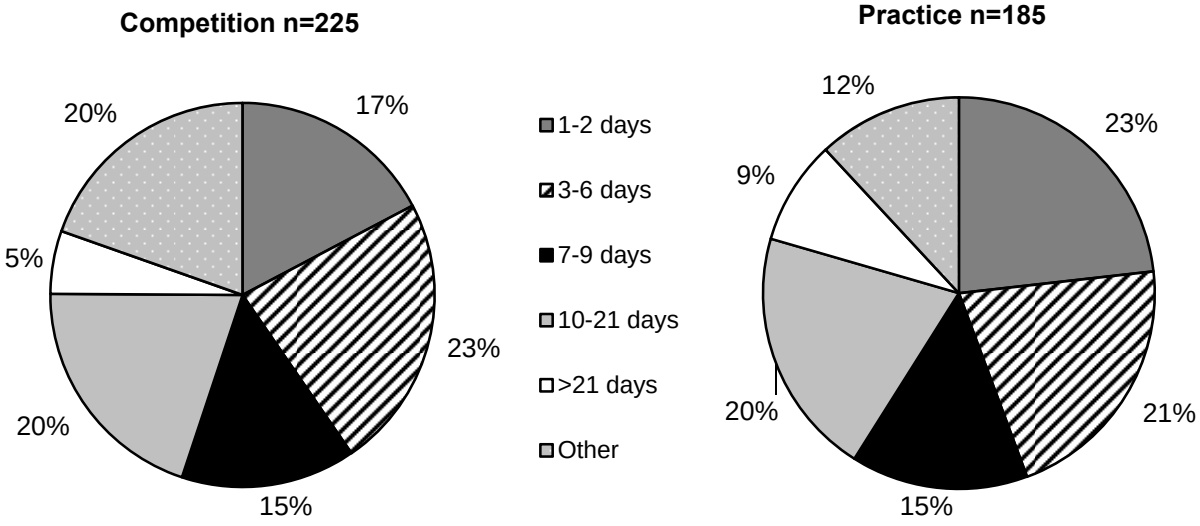
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 8.4 Ten Most Common Boys' Basketball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=225		Practice n=184		Total n=409	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	66	29.3%	68	37.0%	134	32.8%
Head/face concussion	37	16.4%	24	13.0%	61	14.9%
Knee other	15	6.7%	11	6.0%	26	6.4%
Knee strain/sprain	9	4.0%	13	7.1%	22	5.4%
Head/face other	12	5.3%	8	4.3%	20	4.9%
Hand/wrist strain/sprain	10	4.4%	6	3.3%	16	3.9%
Hip/thigh/upper leg contusion	11	4.9%	3	1.6%	14	3.4%
Hand/wrist fracture	7	3.1%	6	3.3%	13	3.2%
Trunk other	4	1.8%	7	3.8%	11	2.7%
Trunk strain/sprain	4	1.8%	4	2.2%	8	2.0%

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

Figure 8.2 Time Loss of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Boys' Basketball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	14	6.3%	5	2.7%	19	4.7%
Did not require surgery	209	93.7%	178	97.3%	387	95.3%
Total	**223**	**100%**	**183**	**100%**	**406**	**100%**

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

Figure 8.3 History of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

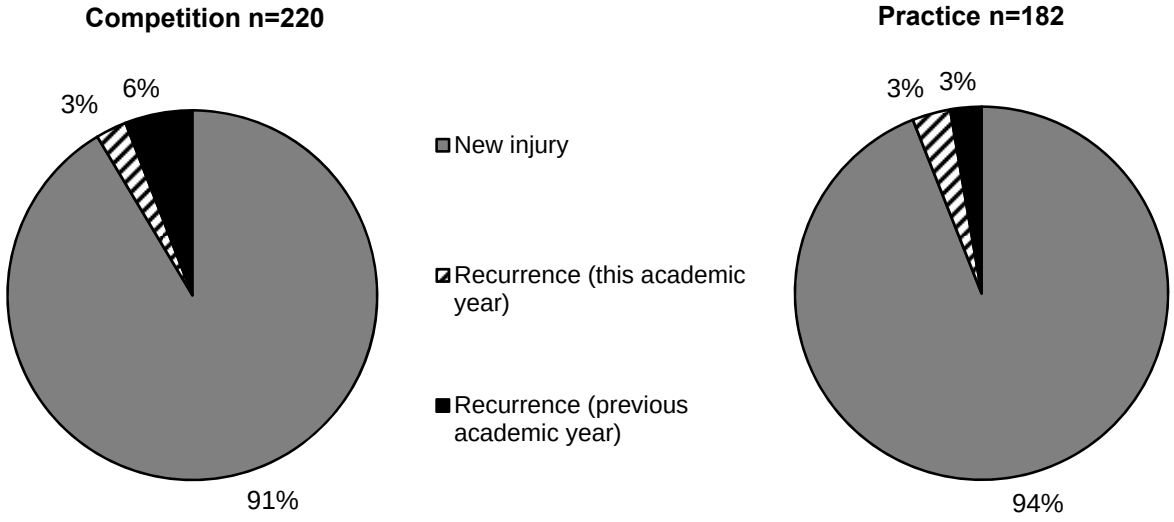


Table 8.6 Time during Season of Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	64	15.6%
Regular season	323	78.8%
Post season	23	5.6%
Total	**410**	**100%**

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

Table 8.7 Competition-Related Variables for Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition-warm-ups	5	2.4%
First quarter	18	8.6%
Second quarter	44	21.0%
Third quarter	85	40.5%
Fourth quarter	58	27.6%
Overtime	-	0.0%
Total	**210**	**100%**
Court Location		
Inside lane (offense)	57	27.7%
Inside lane (defense)	53	25.7%
Between 3 pt arc and lane (defense)	27	13.1%
Between 3 pt arc and lane (offense)	14	6.8%
Outside 3 point arc - offense	18	8.7%
Backcourt	12	5.8%
Outside 3 point arc - defense	16	7.8%
Out of bounds	5	2.4%
Off the court	4	1.9%
Total	**206**	**100%**

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

Table 8.8 Practice-Related Variables for Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	20	11.6%
Second 1/2 hour	37	21.5%
1-2 hours into practice	108	62.8%
>2 hours into practice	7	4.1%
Total	**172**	**100%**

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

Figure 8.4 Player Position of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

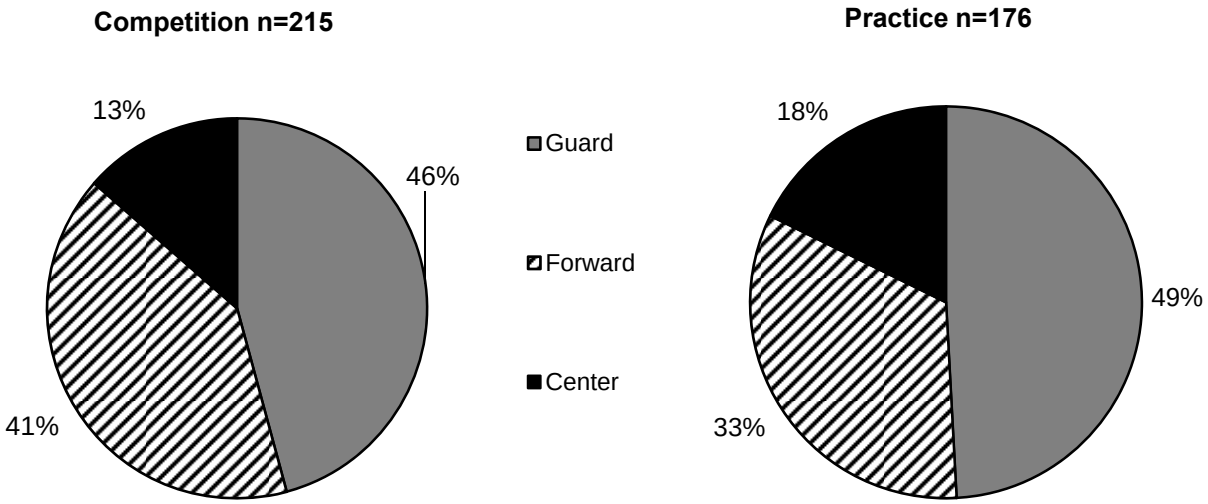
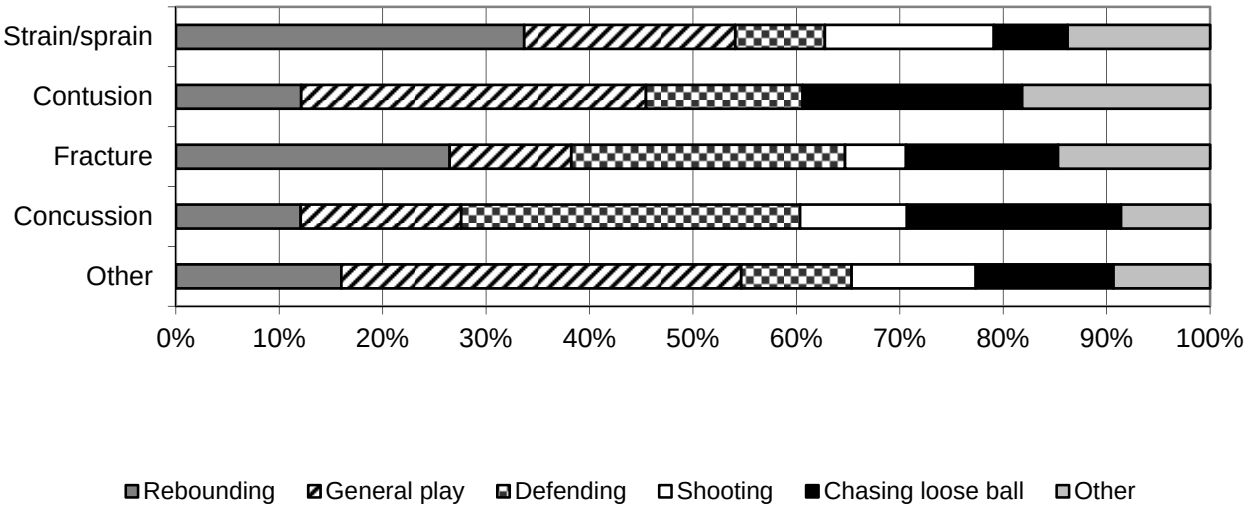


Table 8.9 Activities Leading to Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Rebounding	57	26.1%	41	23.0%	98	24.7%
General play	44	20.2%	49	27.5%	93	23.5%
Defending	37	17.0%	21	11.8%	58	14.6%
Shooting	24	11.0%	25	14.0%	49	12.4%
Chasing loose ball	32	14.7%	16	9.0%	48	12.1%
Ball handling/dribbling	9	4.1%	10	5.6%	19	4.8%
Receiving pass	7	3.2%	6	3.4%	13	3.3%
Conditioning	---	0.0%	4	2.2%	4	1.0%
Passing	2	0.9%	1	0.6%	3	0.8%
Screening	1	0.5%	1	0.6%	2	0.5%
Other	5	2.3%	4	2.2%	9	2.3%
Total	**218**	**100%**	**178**	**100%**	**396**	**100%**

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

Figure 8.5 Activity Resulting in Boys' Basketball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



IX. Girls' Basketball Injury Epidemiology

Table 9.1 Girls' Basketball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**423**	**237,140**	**1.78**
Competition	245	69,877	3.51
Practice	178	167,263	1.06

Table 9.2 Demographic Characteristics of Injured Girls' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=423**
Freshman	31.3%
Sophomore	28.4%
Junior	19.7%
Senior	20.6%
Total†	**100%**
Age (years)	
Minimum	12
Maximum	19
Mean (St. Dev.)	15.7 (1.2)
BMI	
Minimum	14.0
Maximum	36.9
Mean (St. Dev.)	22.8 (3.5)

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

Figure 9.1 Diagnosis of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

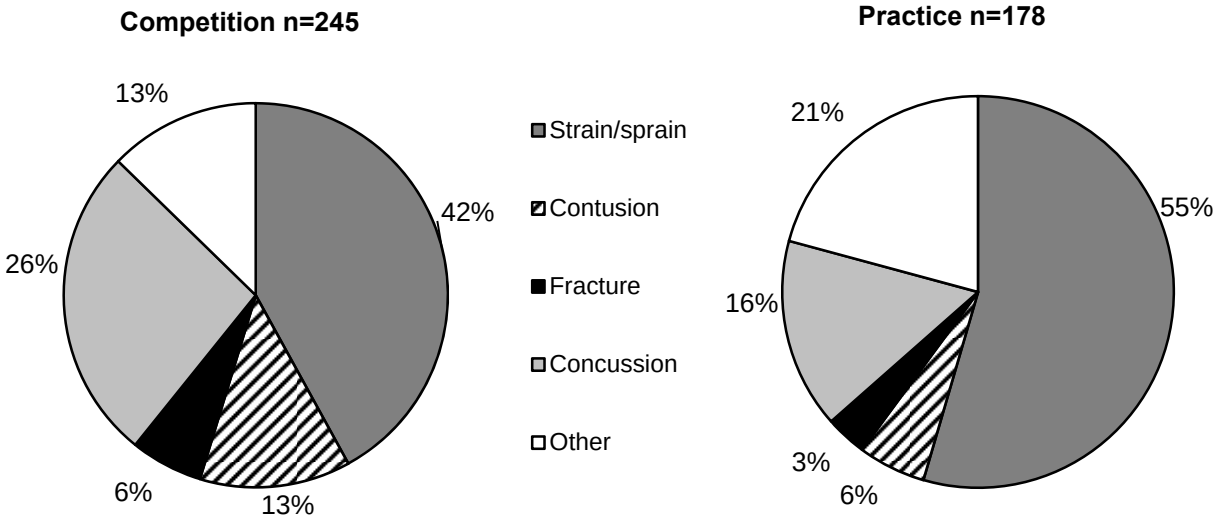


Table 9.3 Body Site of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

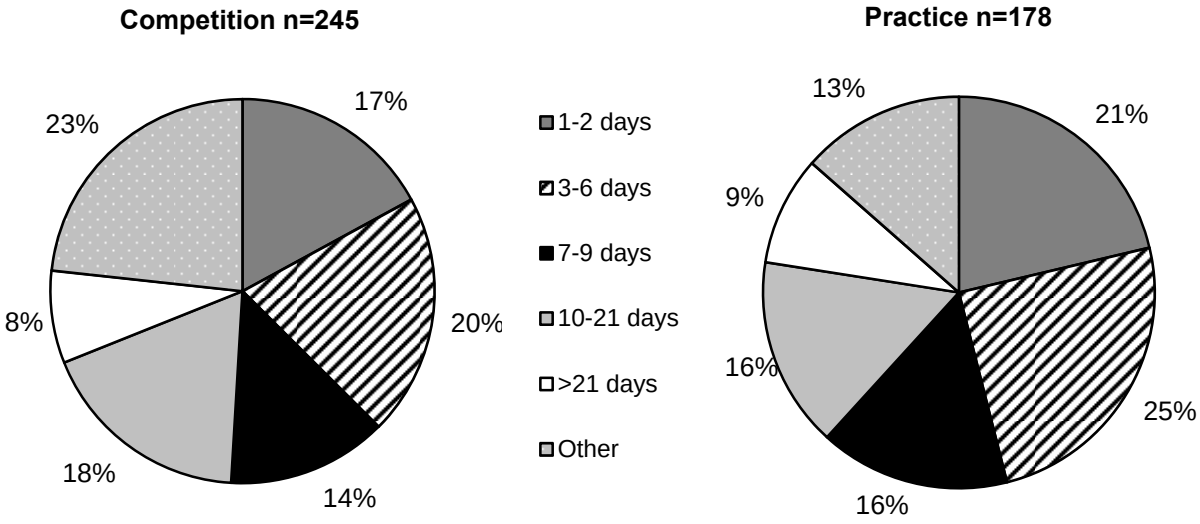
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	74	30.2%	32	18.1%	106	25.1%
Ankle	48	19.6%	45	25.4%	93	22.0%
Knee	57	23.3%	34	19.2%	91	21.6%
Hand/wrist	26	10.6%	13	7.3%	39	9.2%
Hip/thigh/upper leg	9	3.7%	14	7.9%	23	5.5%
Trunk	10	4.1%	8	4.5%	18	4.3%
Lower leg	6	2.4%	10	5.6%	16	3.8%
Shoulder	7	2.9%	7	4.0%	14	3.3%
Foot	4	1.6%	6	3.4%	10	2.4%
Arm/elbow	3	1.2%	3	1.7%	6	1.4%
Neck	1	0.4%	1	0.6%	2	0.5%
Other	---	0.0%	4	2.3%	4	0.9%
Total	**245**	**100**	**177**	**100%**	**422**	**100%**

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

Table 9.4 Ten Most Common Girls' Basketball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=245		Practice n=177		Total n=422	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	65	26.5%	28	15.8%	93	22.0%
Ankle strain/sprain	46	18.8%	44	24.9%	90	21.3%
Knee strain/sprain	27	11.0%	17	9.6%	44	10.4%
Knee other	17	6.9%	12	6.8%	29	6.9%
Hand/wrist strain/sprain	16	6.5%	8	4.5%	24	5.7%
Hip/thigh/upper leg strain/sprain	4	1.6%	13	7.3%	17	4.0%
Knee contusion	12	4.9%	5	2.8%	17	4.0%
Hand/wrist fracture	7	2.9%	3	1.7%	10	2.4%
Trunk strain/sprain	4	1.6%	5	2.8%	9	2.1%
Lower leg other	---	0.0%	7	4.0%	7	1.7%

Figure 9.2 Time Loss of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Girls' Basketball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	22	9.1%	12	6.9%	34	8.2%
Did not require surgery	219	90.9	162	93.1%	381	91.8%
Total	**241**	**100%**	**174**	**100%**	**415**	**100%**

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

Figure 9.3 History of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

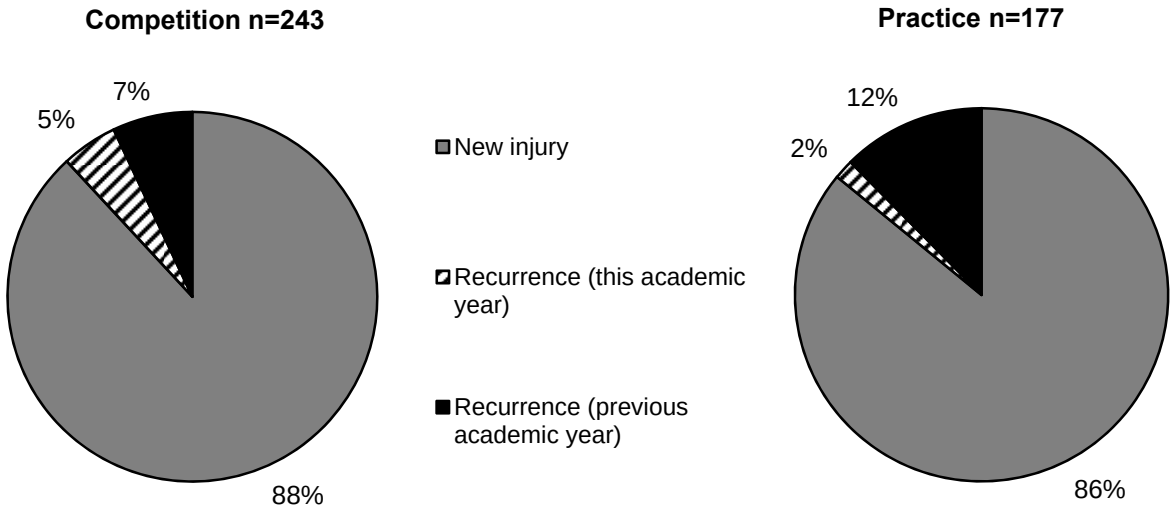


Table 9.6 Time during Season of Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	74	17.6%
Regular season	335	79.8%
Post season	11	2.6%
Total	**420**	**100%**

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

Table 9.7 Competition-Related Variables for Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/Warm-ups	8	3.4%
First quarter	19	8.2%
Second quarter	54	23.2%
Third quarter	78	33.5%
Fourth quarter	74	31.8%
Overtime	---	0.0%
Total	**233**	**100%**
Court Location		
Inside lane (offense)	45	19.7%
Inside lane (defense)	59	25.8%
Between 3 point arc and lane (defense)	31	13.5%
Between 3 point arc and lane (offense)	29	12.7%
Outside 3 point arc - offense	25	10.9%
Outside 3 point arc - defense	22	9.6%
Backcourt	11	4.8%
Out of bounds	4	1.7%
Off the court	3	1.3%
Total	**229**	**100%**

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

Table 9.8 Practice-Related Variables for Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	14	9.1%
Second 1/2 hour	32	20.8%
1-2 hours into practice	101	65.6%
>2 hours into practice	7	4.5%
Total	**154**	**100%**

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

Figure 9.4 Player Position of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

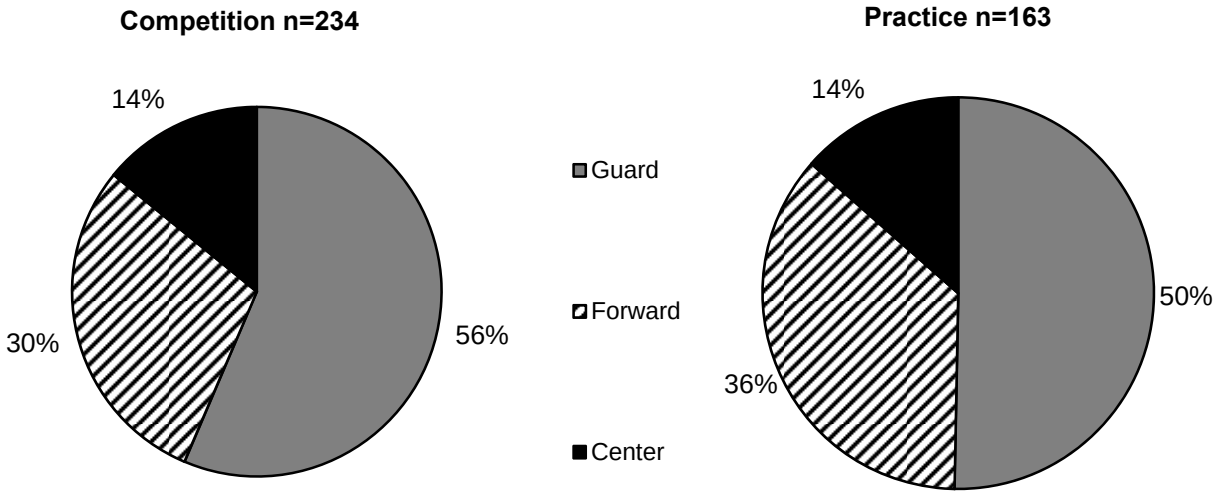
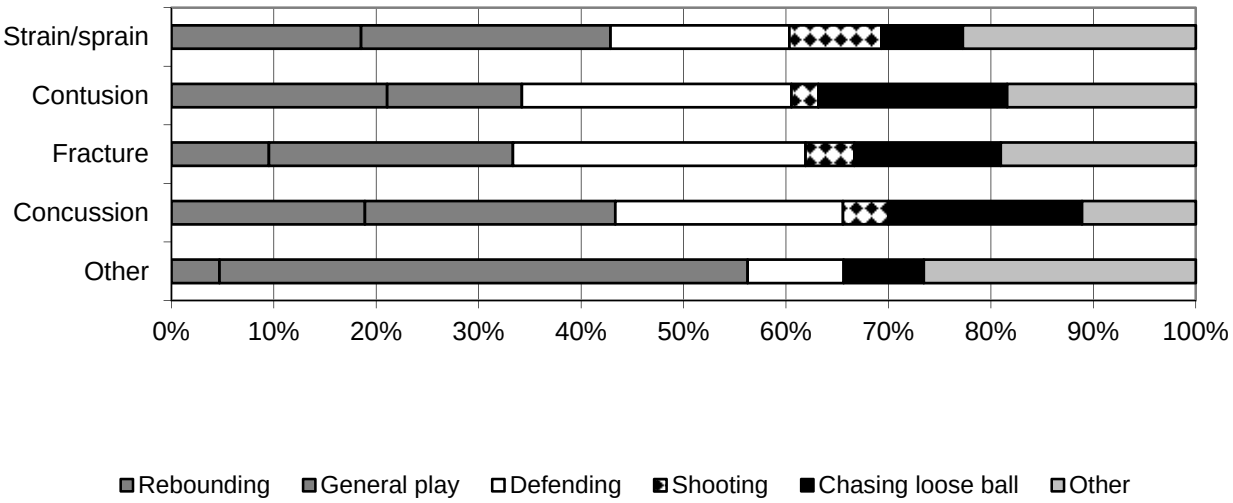


Table 9.9 Activities Leading to Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	51	21.3%	60	36.8%	111	27.6%
Defending	54	22.6%	21	12.9%	75	18.7%
Rebounding	43	18.0%	22	13.5%	65	16.2%
Chasing loose ball	33	13.8%	14	8.6%	47	11.7%
Ball handling/dribbling	27	11.3%	5	3.1%	32	8.0%
Shooting	17	7.1%	6	3.7%	23	5.7%
Conditioning	---	0.0%	21	12.9%	21	5.2%
Receiving pass	8	3.3%	9	5.5%	17	4.2%
Passing	5	2.1%	2	1.2%	7	1.7%
Screening	---	0.0%	---	0.0%	---	0.0%
Other	1	0.4%	3	1.8%	4	1.0%
Total	**239**	**100%**	**163**	**100%**	**402**	**100%**

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

Figure 9.5 Activity Resulting in Girls' Basketball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



X. Wrestling Injury Epidemiology

Table 10.1 Wrestling Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**475**	**214,710**	**2.21**
Competition	189	56,794	3.33
Practice	286	157,916	1.81

Table 10.2 Demographic Characteristics of Injured Wrestlers, High School Sports-Related Injury Surveillance Study, US, 201-12 School Year*

Year in School	**n=468**
Freshman	26.7%
Sophomore	26.3%
Junior	23.5%
Senior	23.5%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.8 (1.3)
BMI	
Minimum	15.5
Maximum	48.7
Mean (St. Dev.)	23.4 (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 10.1 Diagnosis of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

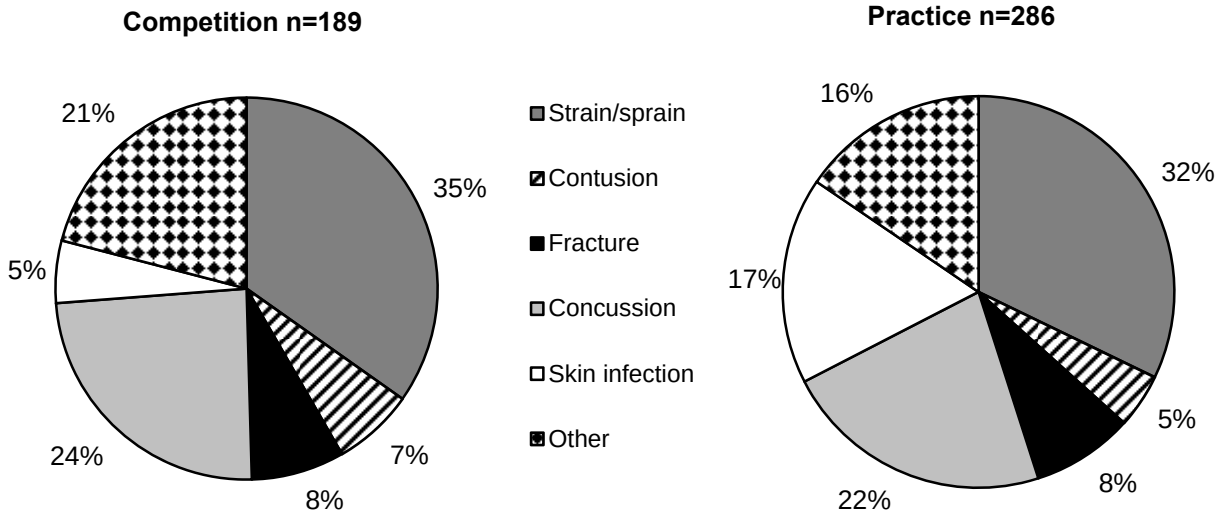


Table 10.3 Body Site of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	57	30.2%	84	29.4%	141	29.7%
Knee	29	15.3%	31	10.8%	60	12.6%
Shoulder	25	13.2%	33	11.5%	58	12.2%
Arm/elbow	18	9.5%	19	6.6%	37	7.8%
Trunk	8	4.2%	25	8.7%	33	6.9%
Hand/wrist	14	7.4%	19	6.6%	33	6.9%
Ankle	14	7.4%	16	5.6%	30	6.3%
Lower leg	4	2.1%	13	4.5%	17	3.6%
Hip/thigh/upper leg	4	2.1%	12	4.2%	16	3.4%
Neck	3	1.6%	13	4.5%	16	3.4%
Foot	---	0.0%	10	3.5%	10	2.1%
Other	13	6.9%	11	3.8%	24	5.1%
Total	**189**	**100%**	**286**	**100%**	**475**	**100%**

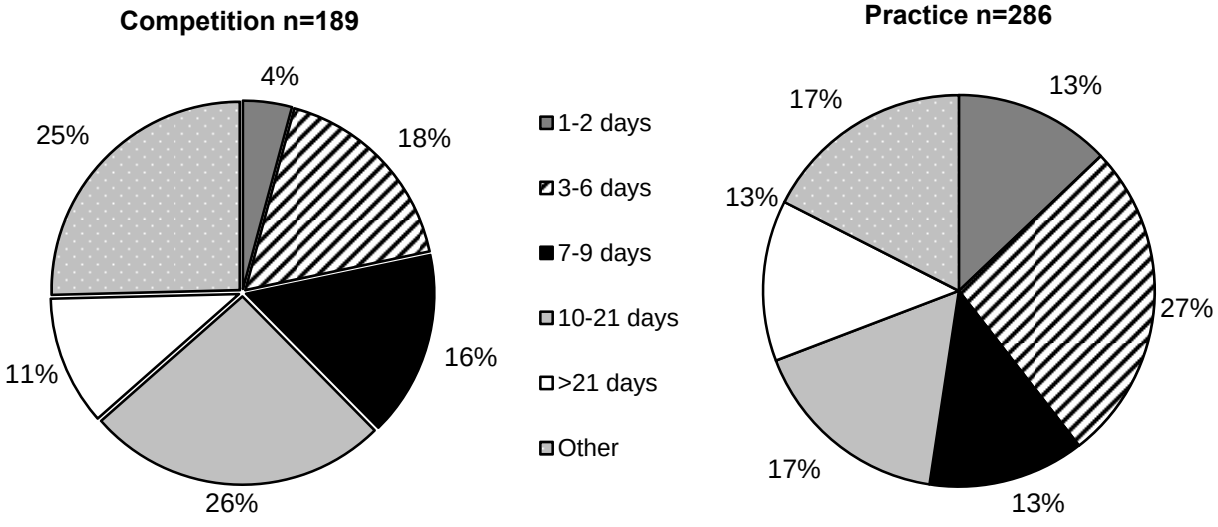
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 10.4 Ten Most Common Wrestling Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=189		Practice n=286		Total n=475	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	46	24.3%	63	22.0%	109	22.9%
Shoulder strain/sprain	18	9.5%	16	5.6%	34	7.2%
Knee strain/sprain	15	7.9%	16	5.6%	31	6.5%
Ankle strain/sprain	11	5.8%	15	5.2%	26	5.5%
Shoulder other	7	3.7%	15	5.2%	22	4.6%
Knee other	9	4.8%	10	3.5%	19	4.0%
Head/face skin infection	4	2.1%	12	4.2%	16	3.4%
Trunk strain/sprain	2	1.1%	12	4.2%	14	2.9%
Arm/elbow strain/sprain	7	3.7%	6	2.1%	13	2.7%
Hand/wrist strain/sprain	3	1.6%	6	2.1%	9	1.9%
Neck strain/sprain	1	0.5%	7	2.4%	8	1.7%

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

Figure 10.2 Time Loss of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Wrestling Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	15	8.0%	17	6.1%	32	6.8%
Did not require surgery	173	92.0%	262	93.9%	435	93.2%
Total	**188**	**100%**	**279**	**100%**	**467**	**100%**

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

Figure 10.3 History of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

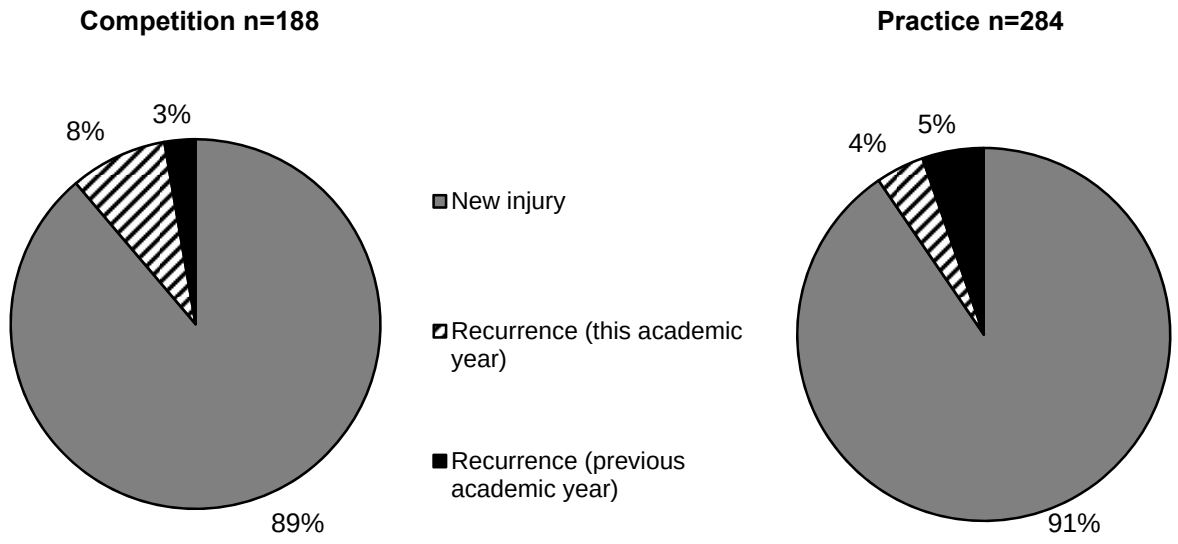


Table 10.6 Time during Season of Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	77	16.3%
Regular season	381	80.9%
Post season	13	2.8%
Total	**471**	**100%**

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

Table 10.7 Competition-Related Variables for Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	4	2.4%
First period	35	20.8%
Second period	77	45.8%
Third period	52	31.0%
Overtime	---	0.0%
Total	**168**	**100%**
Mat Location*		
Within 28 ft. circle	363	86.2%
Out of bounds	31	7.4%
Off the mat	27	6.4%
Total	**421**	**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 10.8 Practice-Related Variables for Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	33	12.9%
Second 1/2 hour	30	11.8%
1-2 hours into practice	154	60.4%
>2 hours into practice	38	14.9%
Total	**255**	**100%**

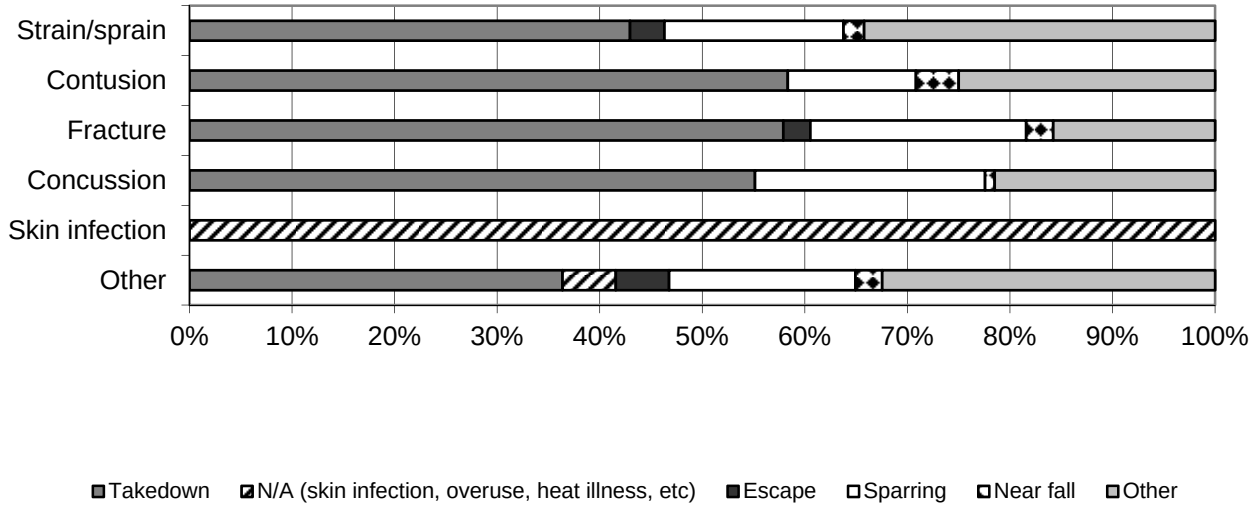
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 10.9 Activities Leading to Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Takedown	96	53.6%	91	33.5%	187	41.5%
Sparring	21	11.7%	54	19.9%	75	16.6%
N/A (skin infection, overuse, etc.)	11	6.1%	49	18.0%	60	13.3%
Fall	9	5.0%	19	7.0%	28	6.2%
Conditioning	---	0.0%	20	7.4%	20	4.4%
Near fall	4	2.2%	4	1.5%	8	1.8%
Escape	7	3.9%	3	1.1%	10	2.2%
Riding	17	9.5%	7	2.6%	24	5.3%
Reversal	5	2.8%	8	2.9%	13	2.9%
Other	9	5.0%	17	6.3%	26	5.8%
Total	**179**	**100%**	**272**	**100%**	**451**	**100%**

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

Figure 10.4 Activities Resulting in Wrestling Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XI. Baseball Injury Epidemiology

Table 11.1 Baseball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**182**	**210,329**	**0.87**
Competition	95	75,256	1.26
Practice	87	135,073	0.64

Table 11.2 Demographic Characteristics of Injured Baseball Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=78**
Freshman	23.6%
Sophomore	21.9%
Junior	28.1%
Senior	26.4%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.2 (1.3)
BMI	
Minimum	13.7
Maximum	43.0
Mean (St. Dev.)	24.4 (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 Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

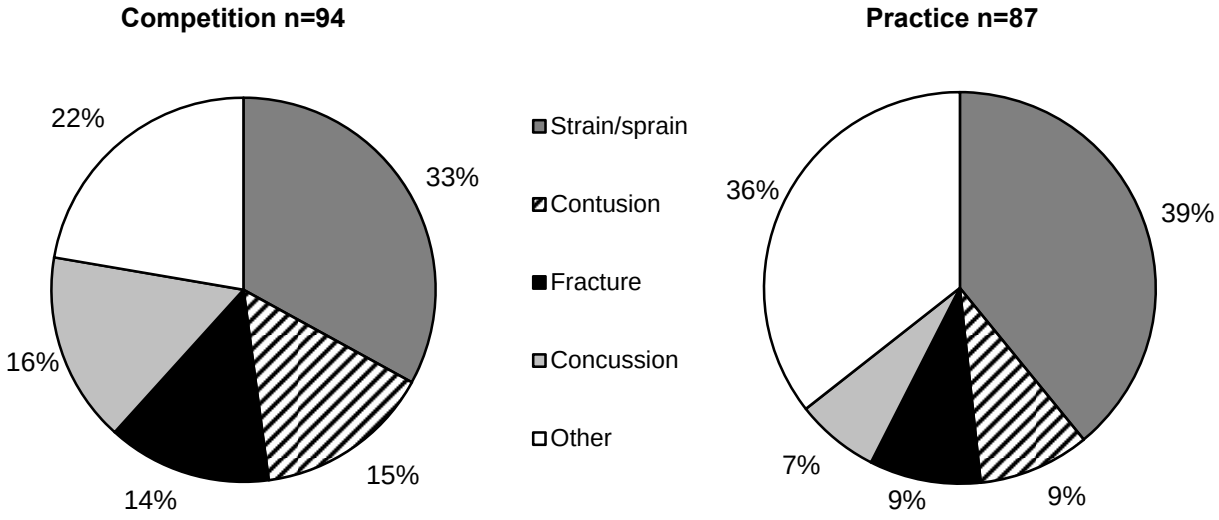


Table 11.3 Body Site of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

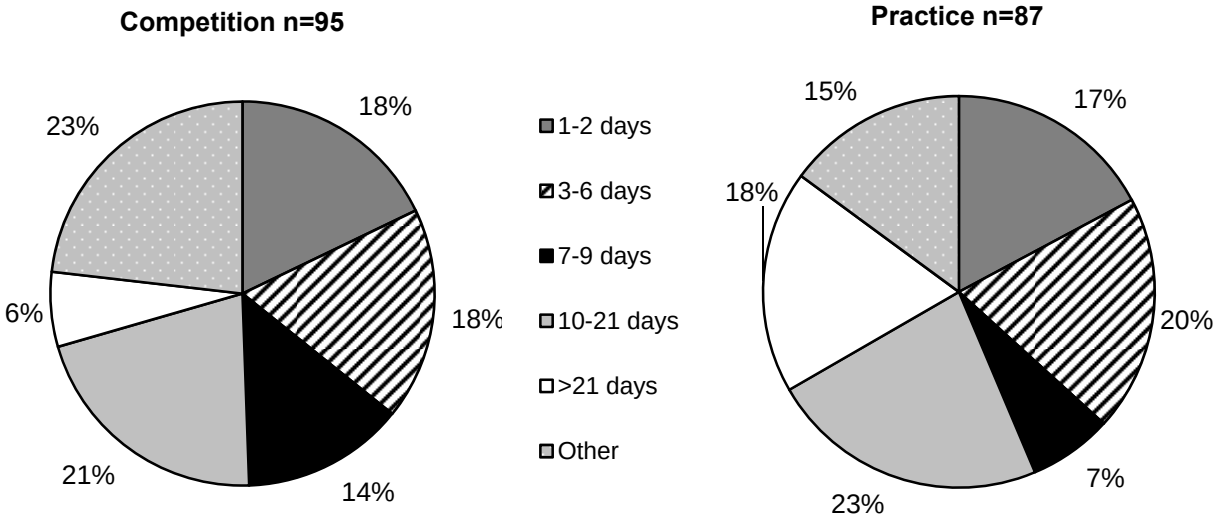
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	25	26.3%	15	17.2%	40	22.0%
Arm/elbow	16	16.8%	13	14.9%	29	15.9%
Hand/wrist	13	13.7%	10	11.5%	23	12.6%
Shoulder	5	5.3%	15	17.2%	20	11.0%
Hip/thigh/upper leg	12	12.6%	6	6.9%	18	9.9%
Ankle	7	7.4%	8	9.2%	15	8.2%
Trunk	4	4.2%	9	10.3%	13	7.1%
Knee	5	5.3%	6	6.9%	11	6.0%
Lower leg	5	5.3%	1	1.1%	6	3.3%
Foot	2	2.1%	2	2.3%	4	2.2%
Neck	---	0.0%	2	2.3%	2	1.1%
Other	1	1.1%	---	0.0%	1	0.5%
Total	**95**	**100%**	**87**	**100%**	**182**	**100%**

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

Table 11.4 Ten Most Common Baseball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=94		Practice n=87		Total n=181	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	15	16.0%	6	6.9%	21	11.6%
Hip/thigh/upper leg strain/sprain	11	11.7%	6	6.9%	17	9.4%
Ankle strain/sprain	7	7.4%	7	8.0%	14	7.7%
Shoulder other	4	4.3%	8	9.2%	12	6.6%
Hand/wrist fracture	8	8.5%	3	3.4%	11	6.1%
Arm/elbow strain/sprain	4	4.3%	4	4.6%	8	4.4%
Shoulder strain/sprain	1	1.1%	7	8.0%	8	4.4%
Head/face fracture	4	4.3%	3	3.4%	7	3.9%
Knee other	2	2.1%	4	4.6%	6	3.3%
Trunk strain/sprain	2	2.1%	4	4.6%	6	3.3%

Figure 11.2 Time Loss of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Baseball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	7	7.6%	9	10.6%	16	9.0%
Did not require surgery	86	92.4%	76	89.4%	162	91.0%
Total	**93**	**100%**	**85**	**100%**	**178**	**100%**

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

Figure 11.3 History of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

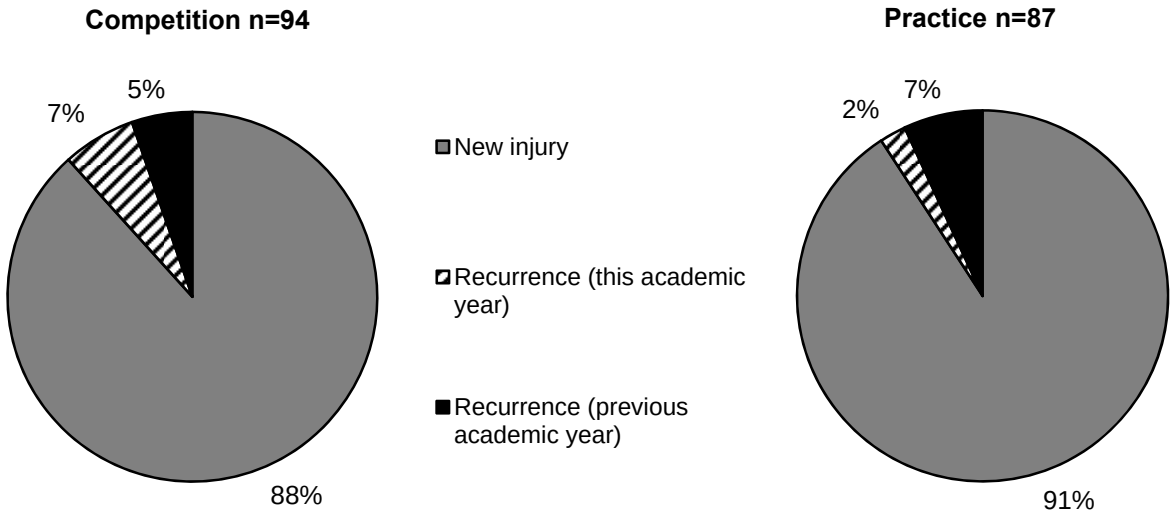


Table 11.6 Time during Season of Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	44	24.2%
Regular season	132	72.5%
Post season	6	3.3%
Total	**182**	**100%**

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

Table 11.7 Competition-Related Variables for Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	7	7.6%
First inning	6	6.5%
Second inning	9	9.8%
Third inning	15	16.3%
Fourth inning	23	25.0%
Fifth inning	17	18.5%
Sixth inning	6	6.5%
Seventh inning	8	8.7%
Extra innings	1	1.1%
Total	**92**	**100%**
Field Location		
Home plate	20	21.3%
First base	12	12.8%
Second base	9	9.6%
Third base	9	9.6%
Infield	8	8.5%
Pitcher's mound	17	18.1%
Outfield	12	12.8%
Foul territory	3	3.2%
Other	4	4.3%
Total	**94**	**100%**

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

Table 11.8 Practice-Related Variables for Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	9	11.4%
Second 1/2 hour	15	19.0%
1-2 hours into practice	44	55.7%
>2 hours into practice	11	13.9%
Total	**79**	**100%**

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

Figure 11.4 Player Position of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

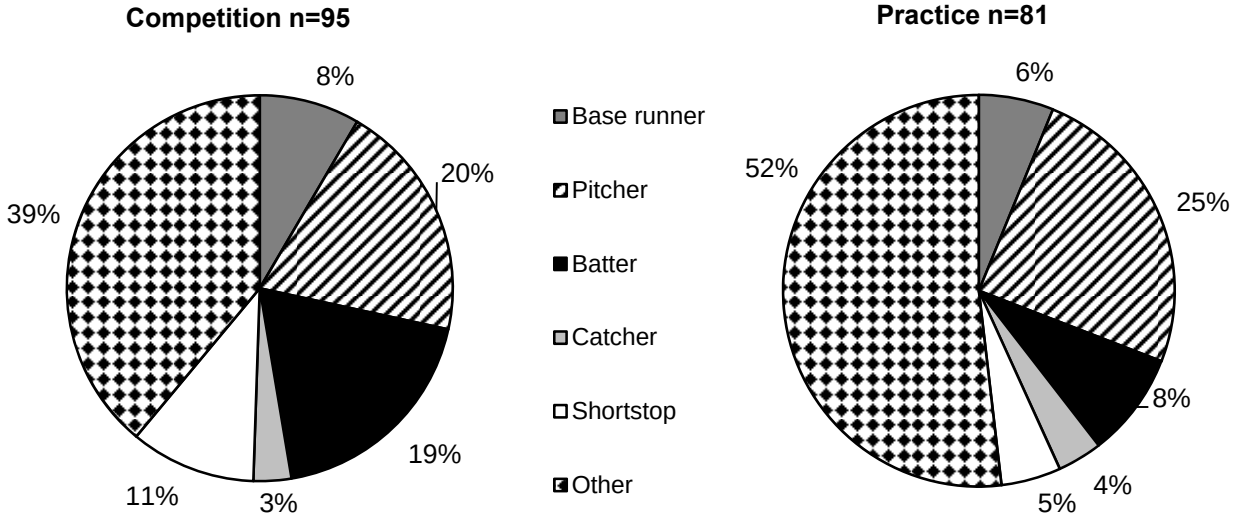
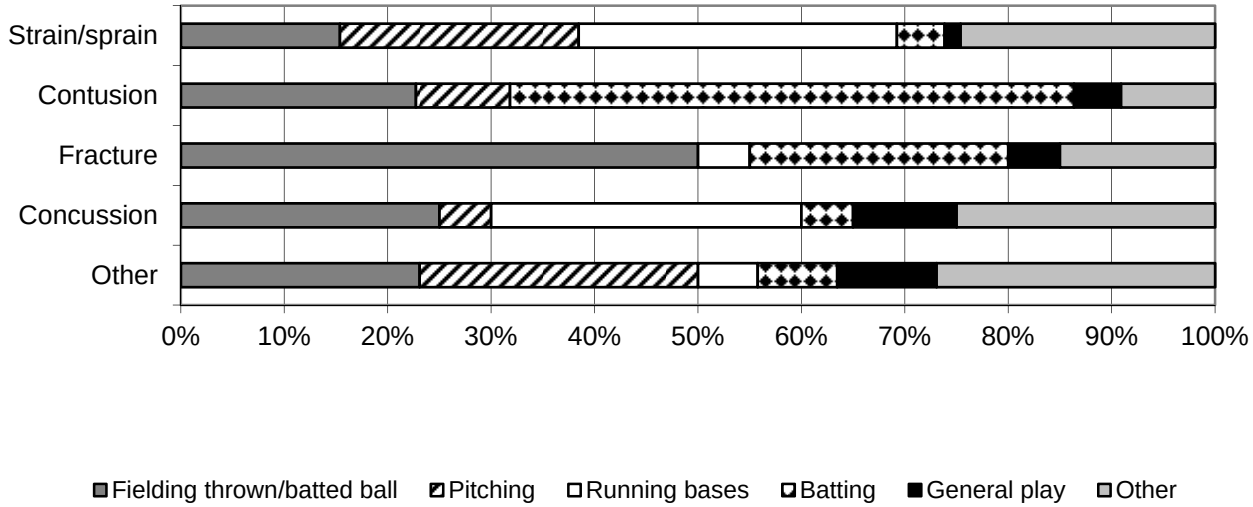


Table 11.9 Activities Leading to Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Pitching	17	17.9%	15	17.6%	32	17.8%
Fielding a batted ball	17	17.9%	14	16.5%	31	17.2%
Running bases	18	18.9%	12	14.1%	30	16.7%
Batting	16	16.8%	9	10.6%	25	13.9%
Throwing (not pitching)	4	4.2%	13	15.3%	17	9.4%
Fielding a thrown ball	6	6.3%	5	5.9%	11	6.1%
General play	4	4.2%	6	7.1%	10	5.6%
Sliding	5	5.3%	2	2.4%	7	3.9%
Catching	3	3.2%	3	3.5%	6	3.3%
Conditioning	1	1.1%	3	3.5%	4	2.2%
Other	4	4.2%	3	3.5%	7	3.9%
Total	**95**	**100%**	**85**	**100%**	**180**	**100%**

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

Figure 11.5 Activity Resulting in Baseball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XII. Softball Injury Epidemiology

Table 12.1 Softball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**239**	**153,672**	**1.56**
Competition	123	53,533	2.30
Practice	116	100,139	1.16

Table 12.2 Demographic Characteristics of Injured Softball Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=236**
Freshman	33.1%
Sophomore	28.4%
Junior	24.6%
Senior	14.0%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.6 (1.2)
BMI	
Minimum	17.6
Maximum	42.0
Mean (St. Dev.)	23.2 (3.7)

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

Figure 12.1 Diagnosis of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

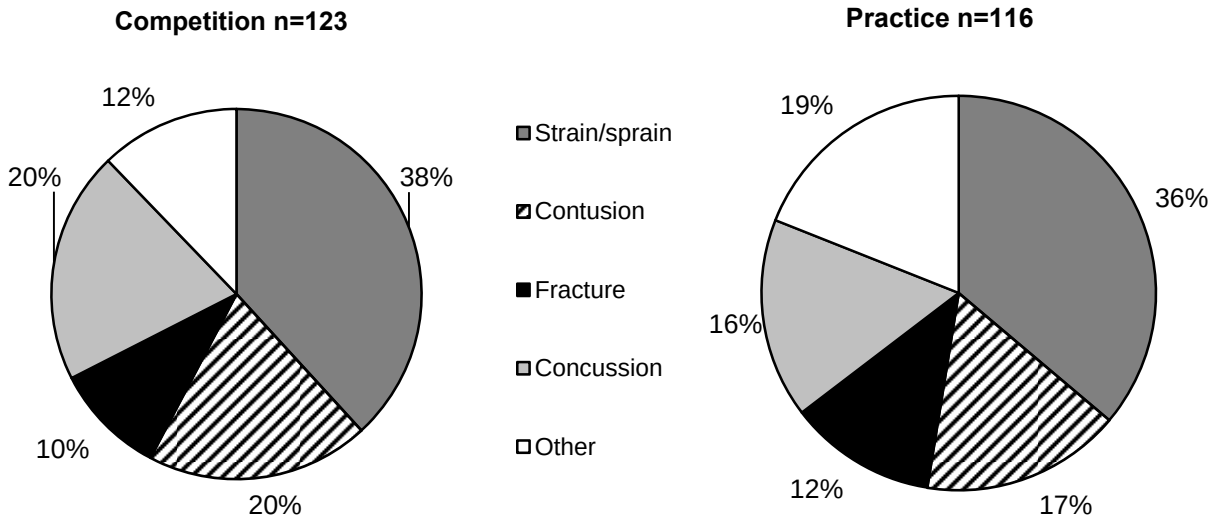


Table 12.3 Body Site of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

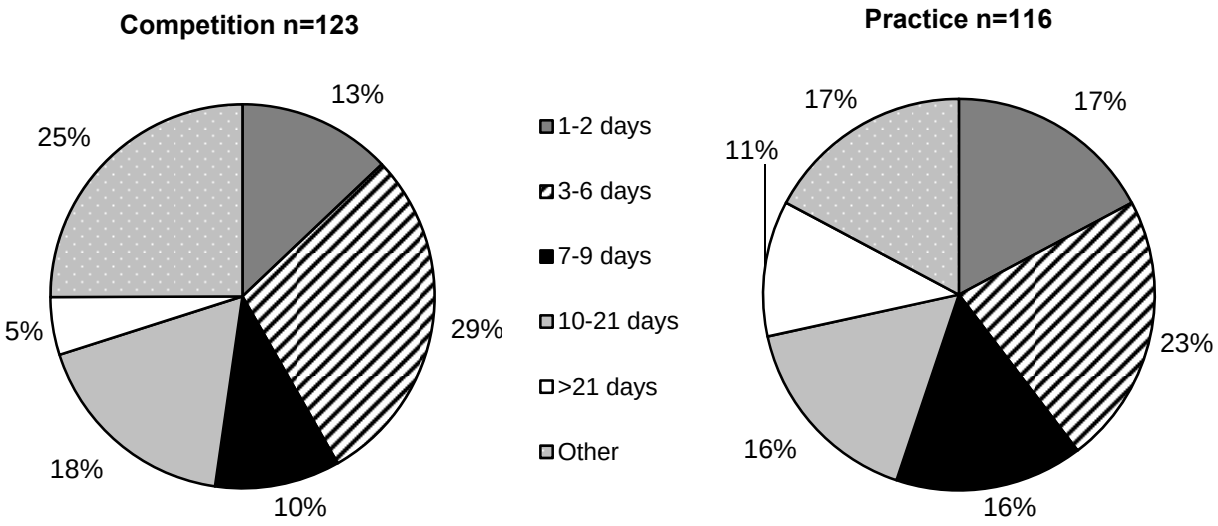
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	32	26.0%	32	27.6%	64	26.8%
Ankle	20	16.3%	15	12.9%	35	14.6%
Knee	16	13.0%	14	12.1%	30	12.6%
Hand/wrist	15	12.2%	14	12.1%	29	12.1%
Shoulder	10	8.1%	11	9.5%	21	8.8%
Hip/thigh/upper leg	9	7.3%	11	9.5%	20	8.4%
Lower leg	7	5.7%	5	4.3%	12	5.0%
Arm/elbow	7	5.7%	4	3.4%	11	4.6%
Trunk	2	1.6%	7	6.0%	9	3.8%
Foot	2	1.6%	1	0.9%	3	1.3%
Neck	2	1.6%	1	0.9%	3	1.3%
Other	1	0.8%	1	0.9%	2	0.8%
Total	**123**	**100%**	**116**	**100%**	**239**	**100%**

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

Table 12.4 Ten Most Common Softball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=123		Practice n=116		Total n=239	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	25	20.3%	19	16.4%	44	18.4%
Ankle strain/sprain	17	13.8%	11	9.5%	28	11.7%
Knee strain/sprain	10	8.1%	6	5.2%	16	6.7%
Hand/wrist fracture	7	5.7%	8	6.9%	15	6.3%
Hip/thigh/upper leg strain/sprain	5	4.1%	9	7.8%	14	5.9%
Shoulder other	3	2.4%	6	5.2%	9	3.8%
Hand/wrist contusion	5	4.1%	4	3.4%	9	3.8%
Shoulder strain/sprain	4	3.3%	5	4.3%	9	3.8%
Arm/elbow strain/sprain	4	3.3%	2	1.7%	6	2.5%
Trunk strain/sprain	---	0.0%	5	4.3%	5	2.1%

Figure 12.2 Time Loss of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Softball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	9	7.5%	7	6.0%	16	6.8%
Did not require surgery	111	92.5%	109	94.0%	220	93.2%
Total	**120**	**100%**	**116**	**100%**	**236**	**100%**

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

Figure 12.3 History of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

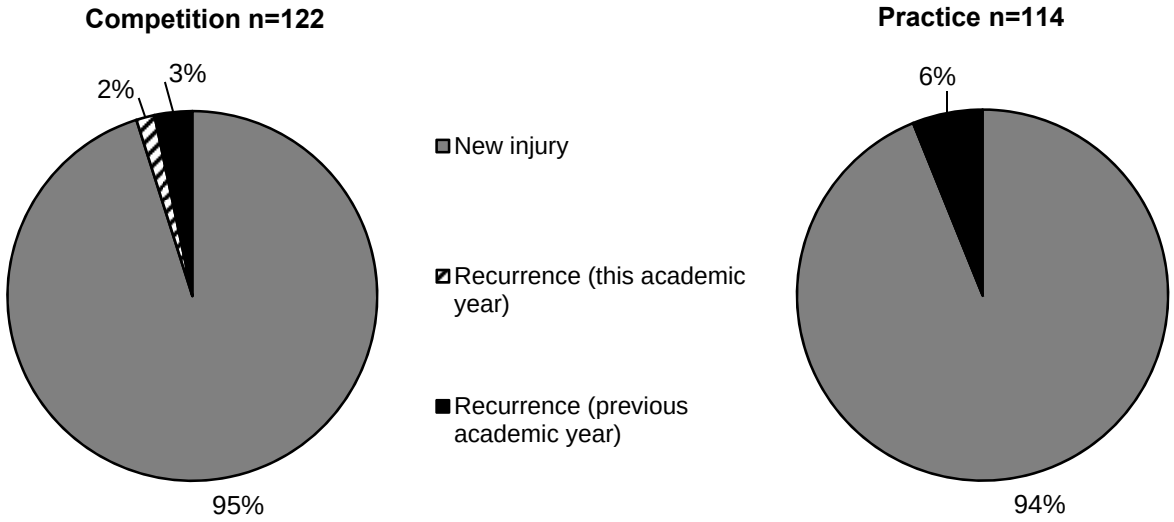


Table 12.6 Time during Season of Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	55	23.1%
Regular season	177	74.4%
Post season	6	2.5%
Total	**238**	**100%**

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

Table 12.7 Competition-Related Variables for Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	10	8.8%
First inning	3	2.7%
Second inning	6	5.3%
Third inning	24	21.2%
Fourth inning	34	30.1%
Fifth inning	22	19.5%
Sixth inning	8	7.1%
Seventh inning	5	4.4%
Extra innings	1	0.9%
Total	**113**	**100%**
Field Location		
Home plate	29	24.0%
Second base	20	16.5%
Third base	17	14.0%
First base	12	9.9%
Pitcher's mound	12	9.9%
Outfield	11	9.1%
Infield	10	8.3%
Foul territory	6	5.0%
Other	4	3.3%
Total	**121**	**100%**

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

Table 12.8 Practice-Related Variables for Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	22	20.6%
Second 1/2 hour	19	17.8%
1-2 hours into practice	60	56.1%
>2 hours into practice	6	5.6%
Total	**107**	**100%**

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

Figure 12.4 Player Position of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

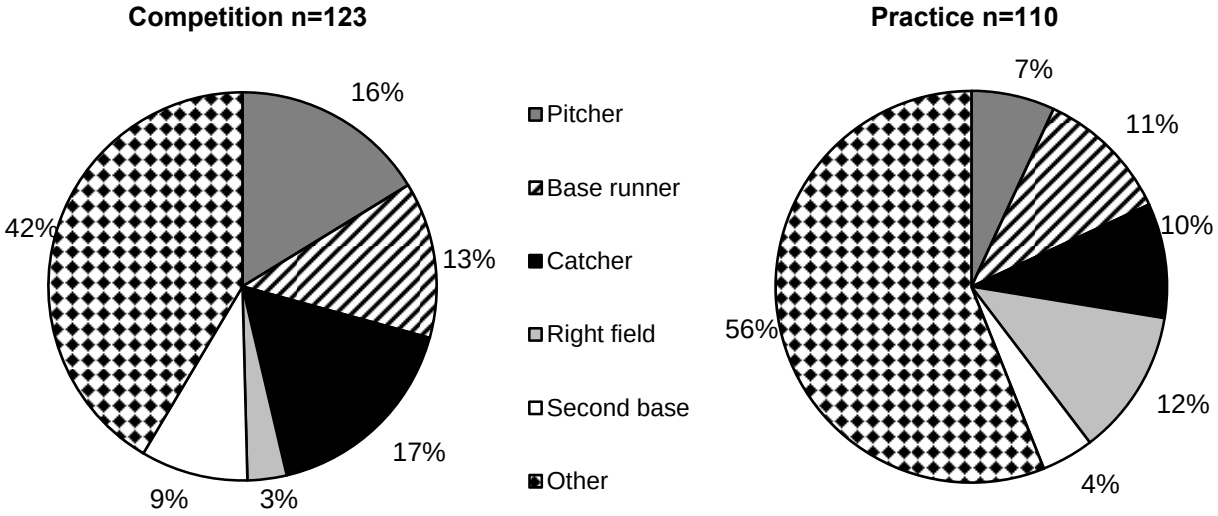
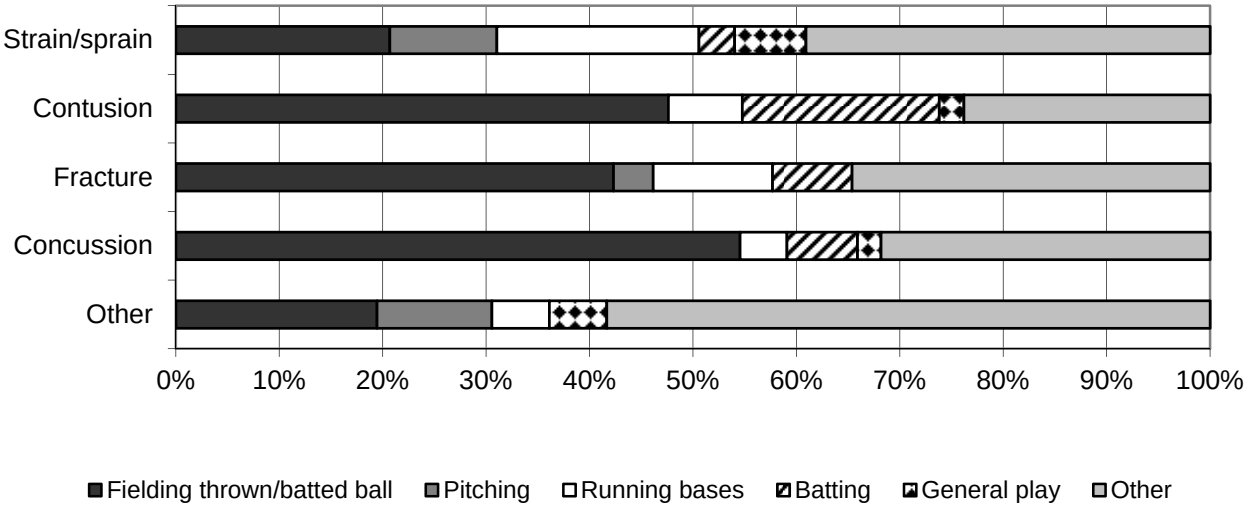


Table 12.9 Activities Leading to Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Fielding a batted ball	30	24.6%	35	31.0%	65	27.7%
Sliding	20	16.4%	10	8.8%	30	12.8%
Running bases	18	14.8%	9	8.0%	27	11.5%
Catching	10	8.2%	10	8.8%	20	8.5%
Throwing (not pitching)	3	2.5%	14	12.4%	17	7.2%
Batting	13	10.7%	3	2.7%	16	6.8%
Fielding a thrown ball	4	3.3%	11	9.7%	15	6.4%
Pitching	10	8.2%	4	3.5%	14	6.0%
General play	6	4.9%	4	3.5%	10	4.3%
Conditioning	---	0.0%	8	7.1%	8	3.4%
Other	8	6.6%	5	4.4%	13	5.5%
Total	**122**	**100%**	**113**	**100%**	**235**	**100%**

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

Figure 12.5 Activity Resulting in Softball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XIII. Girls' Field Hockey Injury Epidemiology

Table 13.1 Girls' Field Hockey Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**134**	**75,740**	**1.77**
Competition	58	23,169	2.50
Practice	76	52,571	1.45

Table 13.2 Demographic Characteristics of Injured Girls' Field Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=131**
Freshman	21.4%
Sophomore	26.0%
Junior	26.0%
Senior	26.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.6 (1.3)
BMI	
Minimum	17.2
Maximum	39.7
Mean (St. Dev.)	22.5 (3.1)

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

Figure 13.1 Diagnosis of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

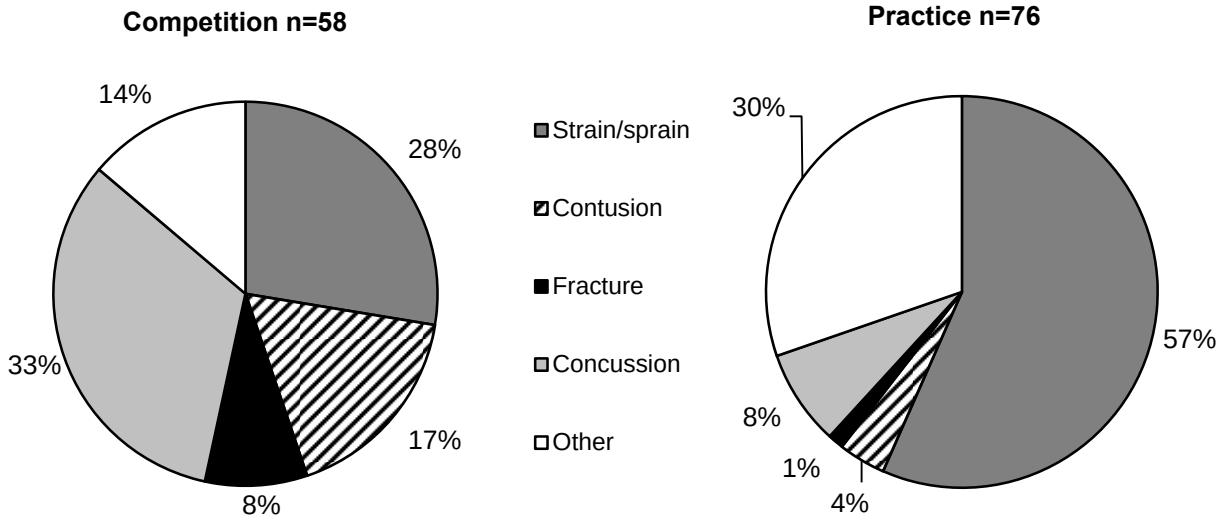


Table 13.3 Body Site of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

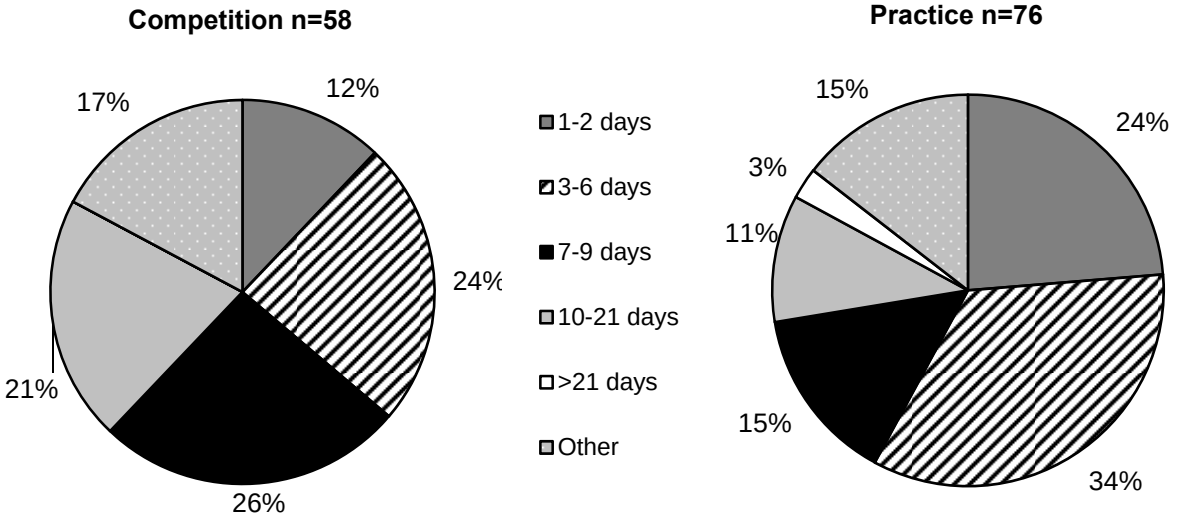
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	23	39.7%	11	14.5%	34	25.4%
Hip/thigh/upper leg	7	12.1%	21	27.6%	28	20.9%
Knee	6	10.3%	11	14.5%	17	12.7%
Ankle	3	5.2%	11	14.5%	14	10.4%
Hand/wrist	11	19.0%	2	2.6%	13	9.7%
Foot	4	6.9%	5	6.6%	9	6.7%
Lower leg	---	0.0%	7	9.2%	7	5.2%
Trunk	---	0.0%	3	3.9%	3	2.2%
Shoulder	2	3.4%	1	1.3%	3	2.2%
Neck	1	1.7%	1	1.3%	2	1.5%
Other	1	1.7%	3	3.9%	4	3.0%
Total	**58**	**100%**	**76**	**100%**	**134**	**100%**

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

Table 13.4 Ten Most Common Girls' Field Hockey Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 201-12 School Year

	Competition n=58		Practice n=76		Total n=134	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	7	12.1%	20	26.3%	27	20.1%
Head/face concussion	19	32.8%	6	7.9%	25	18.7%
Ankle strain/sprain	3	5.2%	10	13.2%	13	9.7%
Knee strain/sprain	3	5.2%	6	7.9%	9	6.7%
Head/face other	3	5.2%	4	5.3%	7	5.2%
Knee other	2	3.4%	4	5.3%	6	4.5%
Hand/wrist fracture	5	8.6%	1	1.3%	6	4.5%
Lower leg other	---	0.0%	5	6.6%	5	3.7%
Hand/wrist contusion	4	6.9%	---	0.0%	4	3.0%
Foot other	1	1.7%	3	3.9%	4	3.0%
Foot contusion	3	5.2%	---	0.0%	3	2.2%

Figure 13.2 Time Loss of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Girls' Field Hockey Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	2	3.5%	4	5.3%	6	4.5%
Did not require surgery	55	96.5%	71	94.7%	126	95.5%
Total	**57**	**100%**	**75**	**100%**	**132**	**100%**

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

Figure 13.3 History of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

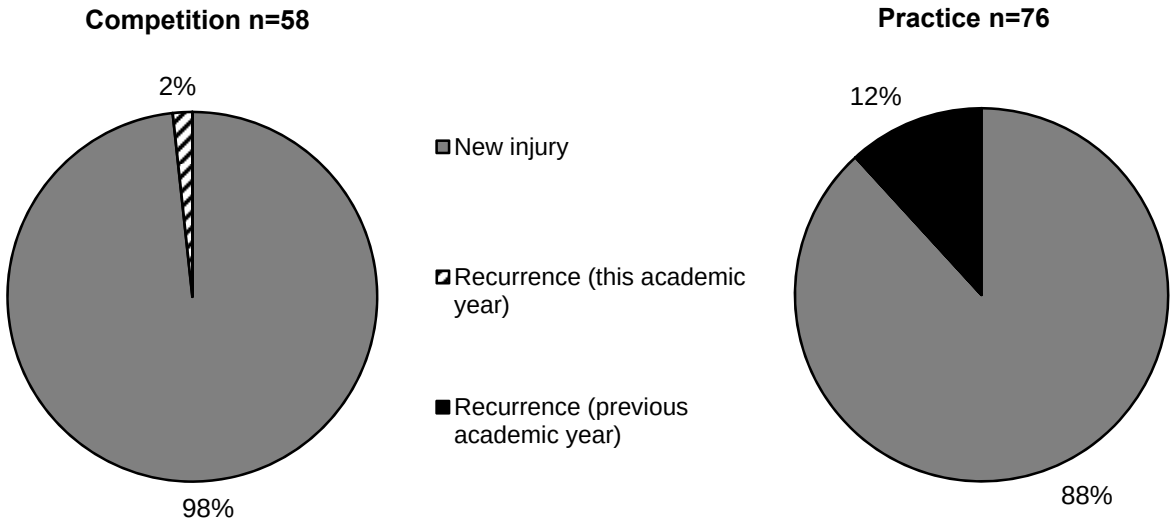


Table 13.6 Time during Season of Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	40	30.1%
Regular season	89	66.9%
Post season	4	3.0%
Total	**133**	**100%**

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

Table 13.7 Competition-Related Variables for Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	3	5.4%
First half	9	16.1%
Second half	44	78.6%
Overtime	---	0.0%
Total	**56**	**100%**
Field Location		
Between 25-yard line and center line	19	36.5%
Goal area/circle	14	26.9%
Within 25-yard line	8	15.4%
Within 16-yard arc	6	11.5%
Sideline	4	7.7%
Other	1	1.9%
Total	**52**	**100%**

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

Table 13.8 Practice-Related Variables for Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	11	15.5%
Second 1/2 hour	21	29.6%
1-2 hours into practice	31	43.7%
>2 hours into practice	8	11.3%
Total	**71**	**100%**

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

Figure 13.4 Player Position of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

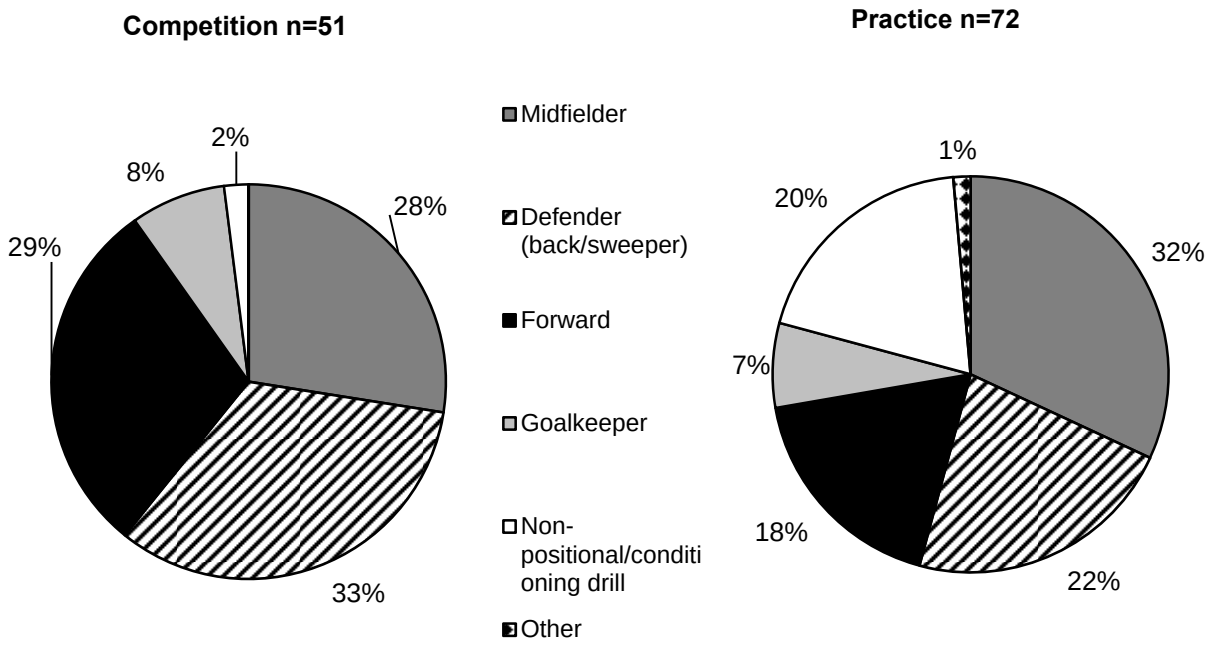
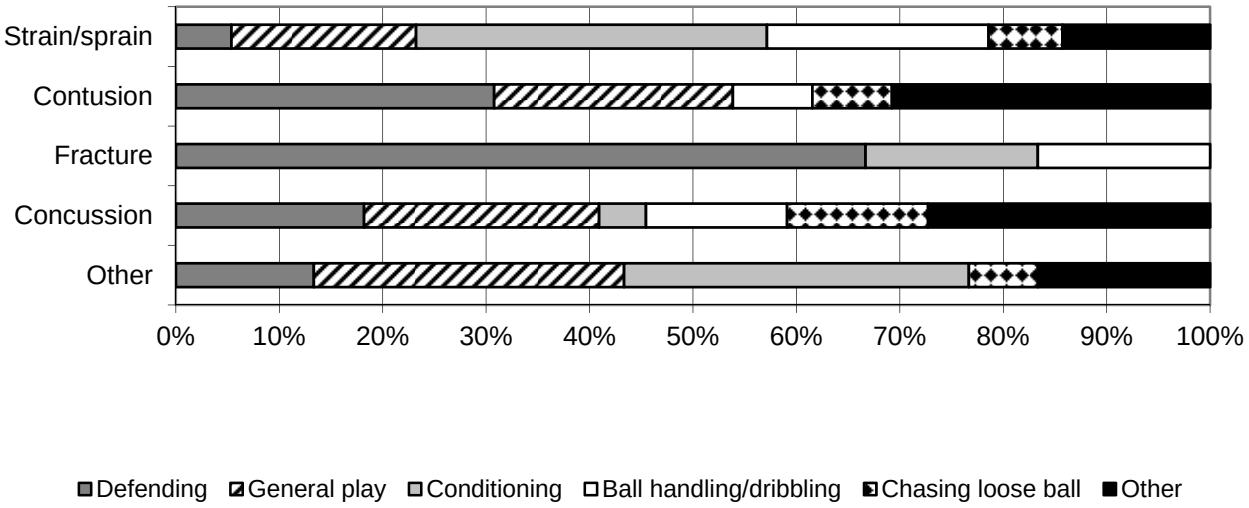


Table 13.9 Activities Leading to Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Conditioning	---	0.0%	31	42.5%	31	24.4%
General play	12	22.2%	15	20.5%	27	21.3%
Defending	16	29.6%	3	4.1%	19	15.0%
Ball handling/dribbling	9	16.7%	8	11.0%	17	13.4%
Chasing a loose ball	5	9.3%	5	6.8%	10	7.9%
Goaltending	4	7.4%	3	4.1%	7	5.5%
Shooting	3	5.6%	2	2.7%	5	3.9%
Receiving pass	2	3.7%	2	2.7%	4	3.1%
Passing	---	0.0%	2	2.7%	2	1.6%
Blocking shot	1	1.9%	1	1.4%	2	1.6%
Penalty corner	1	1.9%	---	0.0%	1	0.8%
Other	1	1.9%	1	1.4%	2	1.6%
Total	**54**	**100%**	**73**	**100%**	**127**	**100%**

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

Figure 13.5 Activity Resulting in Girls' Field Hockey Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XIV. Girls' Gymnastics Injury Epidemiology

Table 14.1 Girls' Gymnastics Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**21**	**19,246**	**1.09**
Competition	6	3,278	1.83
Practice	15	15,968	0.94

Table 14.2 Demographic Characteristics of Injured Girls' Gymnastics Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=19**
Freshman	31.6%
Sophomore	31.6%
Junior	21.1%
Senior	15.8%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.1 (1.4)
BMI	
Minimum	17.5
Maximum	25.2
Mean (St. Dev.)	21.0 (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 14.1 Diagnosis of Girls' Gymnastics Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

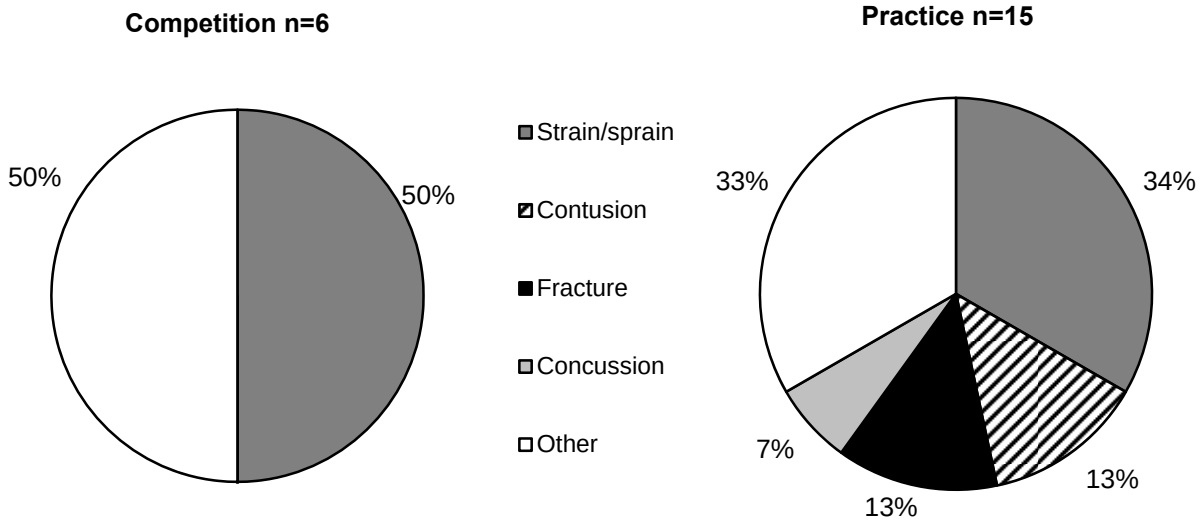


Table 14.3 Body Site of Girls' Gymnastics Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

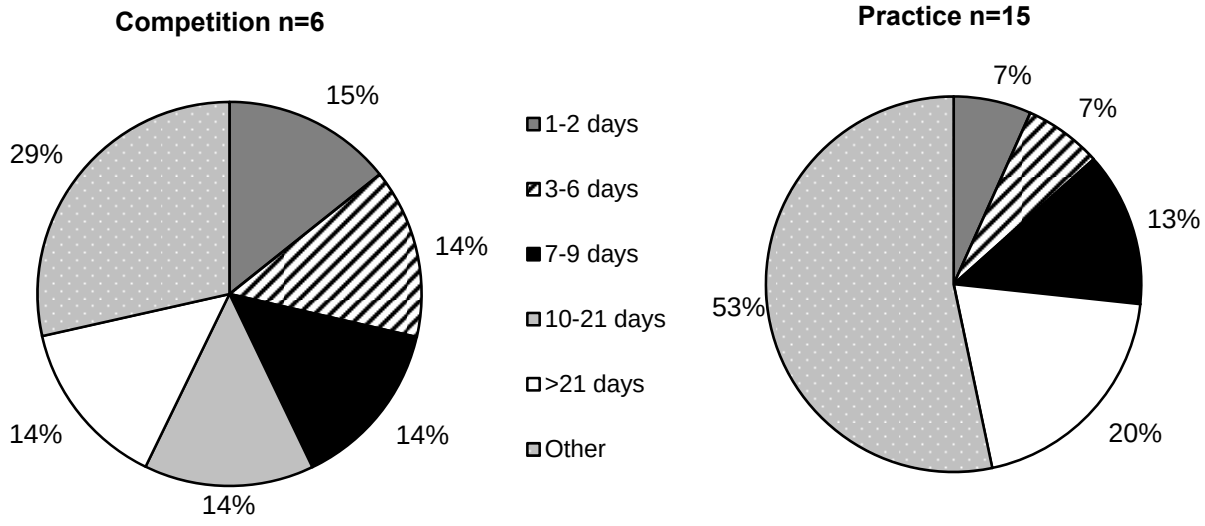
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Trunk	3	50.0%	4	26.7%	7	33.3%
Ankle	---	0.0%	4	26.7%	4	19.0%
Knee	2	33.3%	2	13.3%	4	19.0%
Arm/elbow	---	0.0%	3	20.0%	3	14.3%
Head/face	---	0.0%	1	6.7%	1	4.8%
Lower leg	1	16.7%	---	0.0%	1	4.8%
Foot	---	0.0%	1	6.7%	1	4.8%
Shoulder	---	0.0%	---	0.0%	---	0.0%
Total	**6**	**100%**	**15**	**100%**	**21**	**100%**

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

Table 14.4 Ten Most Common Girls' Gymnastics Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=6		Practice n=15		Total n=21	
	n	%	n	%	n	%
Diagnosis						
Trunk other	2	33.3%	2	13.3%	4	19.0%
Ankle strain/sprain	---	0.0%	3	20.0%	3	14.3%
Trunk strain/sprain	1	16.7%	2	13.3%	3	14.3%
Knee strain/sprain	2	22.3%	---	0.0%	2	9.5%
Knee other	---	0.0%	2	13.3%	2	9.5%
Head/face concussion	---	0.0%	1	6.7%	1	4.8%
Ankle fracture	---	0.0%	1	6.7%	1	4.8%
Lower leg other	1	16.7%	---	0.0%	1	4.8%
Foot contusion	---	0.0%	1	6.7%	1	4.8%
Arm/elbow fracture	---	0.0%	1	6.7%	1	4.8%

Figure 14.2 Time Loss of Girls' Gymnastics Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Girls' Gymnastics Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	1	16.7%	1	6.7%	2	9.5%
Did not require surgery	5	83.3%	14	93.3%	19	90.5%
Total	**6**	**100%**	**15**	**100%**	**21**	**100%**

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

Figure 14.3 History of Girls' Gymnastics Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

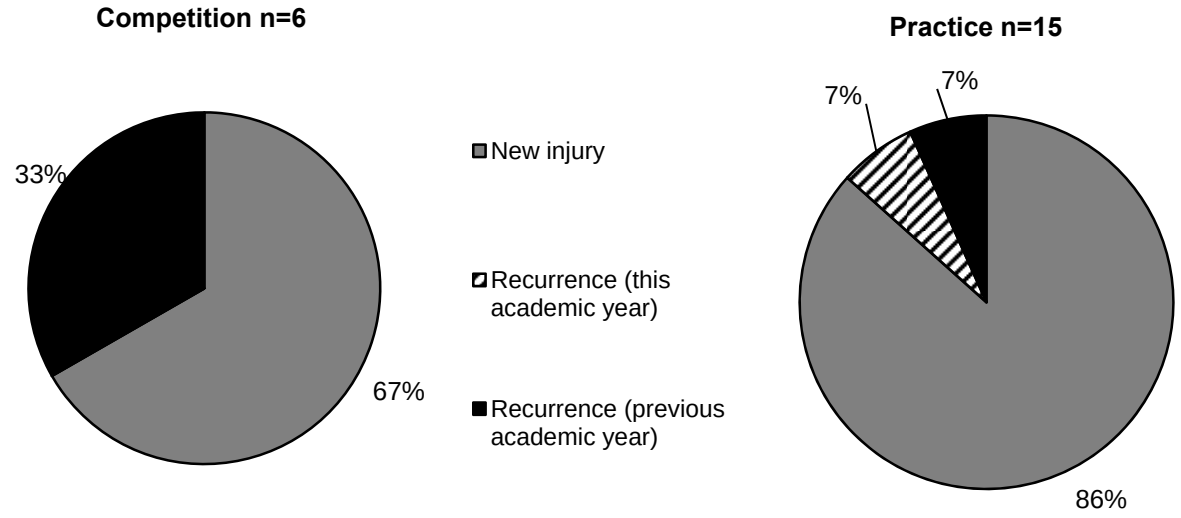


Table 14.6 Time during Season of Girls' Gymnastics Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	1	4.8%
Regular season	18	85.7%
Post season	2	9.5%
Total	**21**	**100%**

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

Table 14.7 Event or Apparatus for Girls' Gymnastics Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Gymnast event/apparatus		
Floor exercise	9	47.4
Warm-up/stretching/conditioning	3	15.8%
Uneven parallel bars	2	10.5%
Vault	2	10.5%
Balance beam	2	10.5%
Other	1	5.3%
Total	**19**	**100%**

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

Table 14.8 Practice-Related Variables for Girls' Gymnastics Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	---	0.0%
Second 1/2 hour	8	66.7%
1-2 hours into practice	3	25.0%
>2 hours into practice	1	8.3%
Total	**12**	**100%**

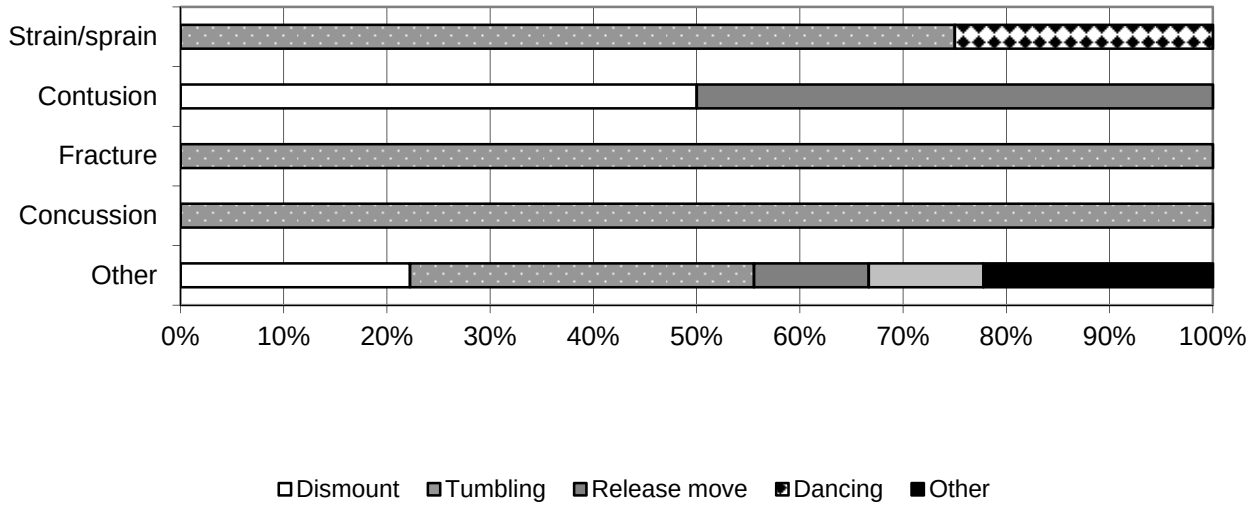
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 14.9 Activities Leading to Girls' Gymnastics Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Tumbling	3	50.0%	6	42.9%	9	45.0%
Dismount	2	33.3%	4	28.6%	6	30.0%
Dancing	---	0.0%	1	7.1%	1	5.0%
Mounting	---	0.0%	---	0.0%	---	0.0%
Release move	---	0.0%	2	14.3%	2	10.0%
Other	1	16.7%	1	7.1%	2	10.0%
Total	**6**	**100%**	**14**	**100%**	**20**	**100%**

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

Figure 14.4 Activity Resulting in Girls' Gymnastics Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XV. Boys' Ice Hockey Injury Epidemiology

Table 15.1Boys' Ice Hockey Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**67**	**32,991**	**2.03**
Competition	48	11,474	4.18
Practice	19	21,517	0.88

Table 15.2 Demographic Characteristics of Injured Boys' Ice Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=65**
Freshman	10.8%
Sophomore	26.2%
Junior	32.3%
Senior	30.8%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.3 (1.2)
BMI	
Minimum	19.9
Maximum	33.8
Mean (St. Dev.)	24.1 (3.0)

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

Figure 15.1 Diagnosis of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

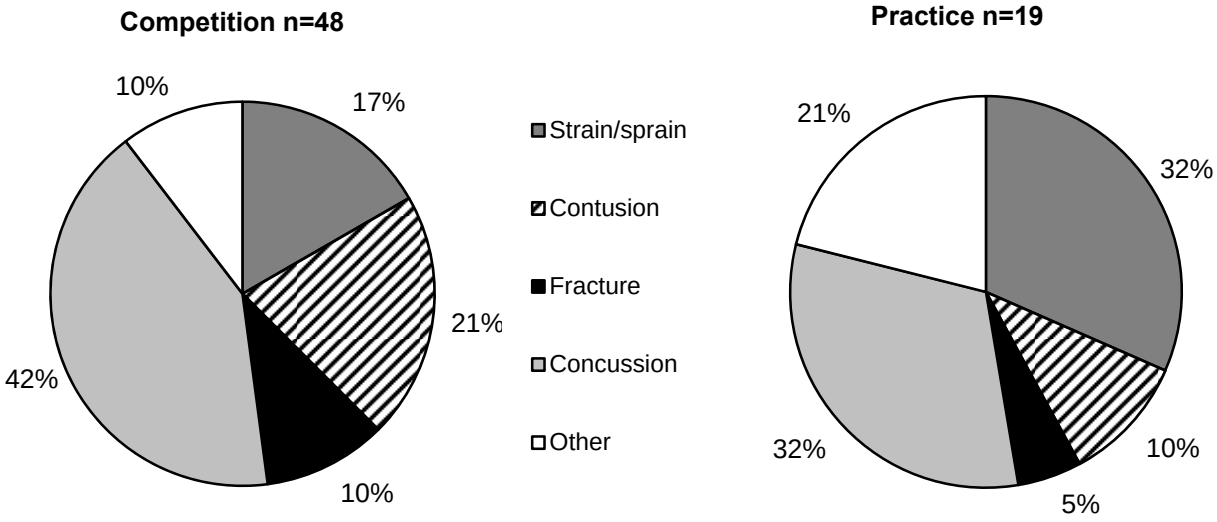


Table 15.3 Body Site of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	22	45.8%	7	36.8%	29	43.3%
Trunk	6	12.5%	3	15.8%	9	13.4%
Shoulder	6	12.5%	1	5.3%	7	10.4%
Knee	4	8.3%	1	5.3%	5	7.5%
Hip/thigh/upper leg	1	2.1%	3	15.8%	4	6.0%
Hand/wrist	---	0.0%	3	15.8%	3	4.5%
Arm/elbow	3	6.3%	---	0.0%	3	4.5%
Lower leg	1	2.1%	---	0.0%	1	1.5%
Ankle	---	0.0%	---	0.0%	---	0.0%
Foot	---	0.0%	---	0.0%	---	0.0%
Neck	---	0.0%	---	0.0%	---	0.0%
Other	5	10.4%	1	5.3%	6	9.0%
Total	**48**	**100%**	**19**	**100%**	**67**	**100%**

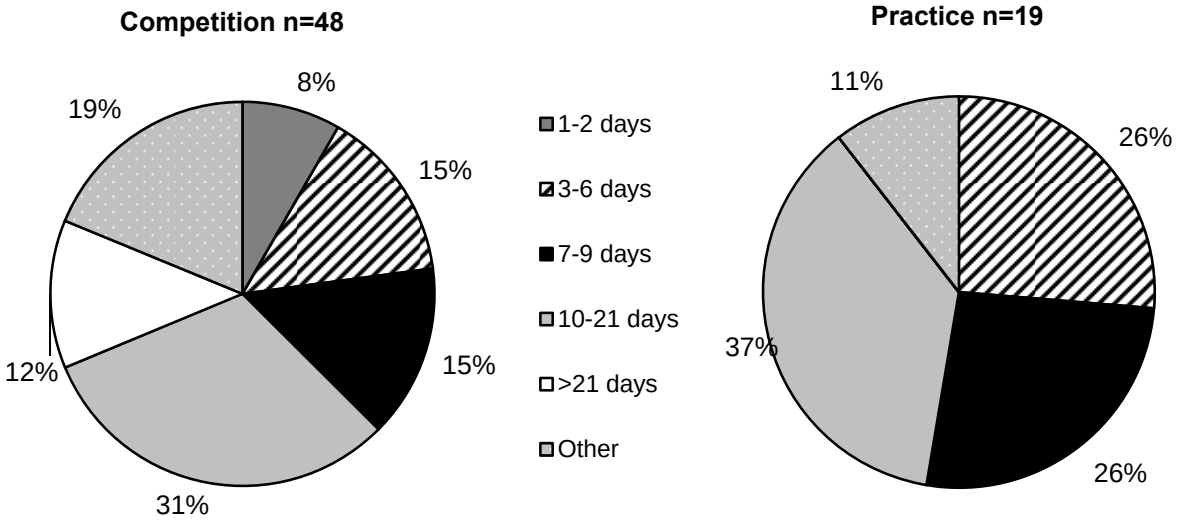
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 15.4 Ten Most Common Boys' Ice Hockey Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=48		Practice n=19		Total n=67	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	20	41.7%	6	31.6%	26	38.8%
Trunk strain/sprain	2	4.2%	3	15.8%	5	7.5%
Shoulder strain/sprain	4	8.3%	---	0.0%	4	6.0%
Trunk contusion	3	6.3%	---	0.0%	3	4.5%
Shoulder other	1	2.1%	1	5.3%	2	3.0%
Hip/thigh/upper leg contusion	1	2.1%	1	5.3%	2	3.0%
Hip/thigh/upper leg strain/sprain	---	0.0%	2	10.5%	2	3.0%
Knee strain/sprain	1	2.1%	1	5.3%	2	3.0%
Arm/elbow contusion	2	4.2%	---	0.0%	2	3.0%
Knee other	2	4.2%	---	0.0%	2	3.0%

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

Figure 15.2 Time Loss of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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 Boys' Ice Hockey Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	4	8.3%	2	11.1%	6	9.1%
Did not require surgery	44	91.7%	16	88.9%	60	90.9%
Total	**48**	**100%**	**18**	**100%**	**66**	**100%**

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

Figure 15.3 History of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

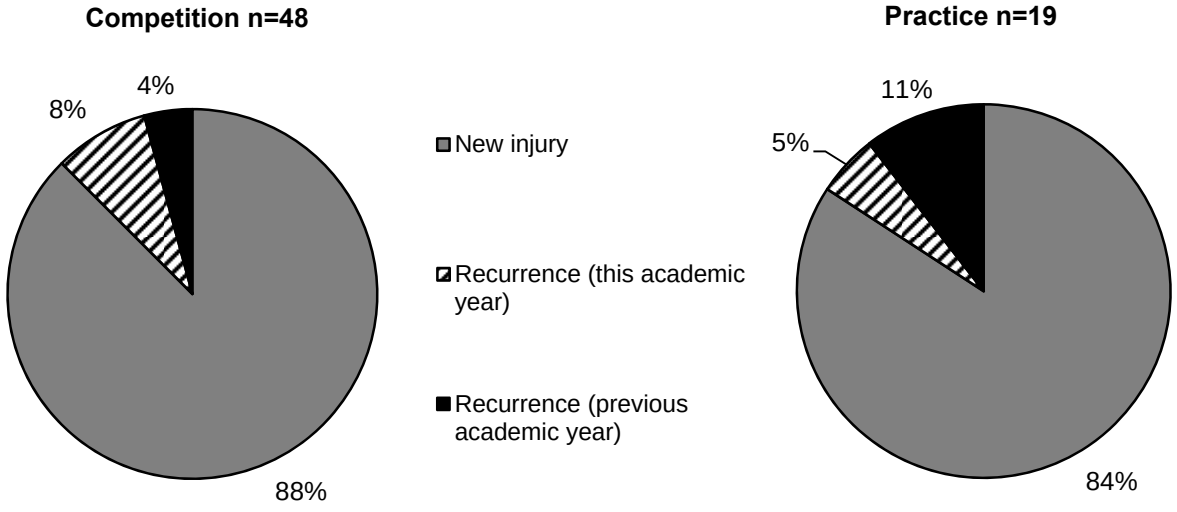


Table 15.6 Time during Season of Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	4	6.1%
Regular season	62	93.9%
Post season	---	0.0%
Total	**67**	**100%**

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

Table 15.7 Competition-Related Variables for Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Warm-ups	---	0.0%
First period	8	17.4%
Second period	22	47.8%
Third period	15	32.6%
Overtime	1	2.2%
Total	**46**	**100%**
Rink Location		
Between goal line and blue line	16	36.4%
Corner	12	27.3%
Neutral zone	6	13.6%
Behind goal	5	11.4%
Goal area	5	11.4%
Total	**44**	**100%**

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

Table 15.8 Practice-Related Variables for Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	---	0.0%
Second 1/2 hour	11	61.1%
1-2 hours into practice	6	33.3%
>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 15.4 Player Position of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

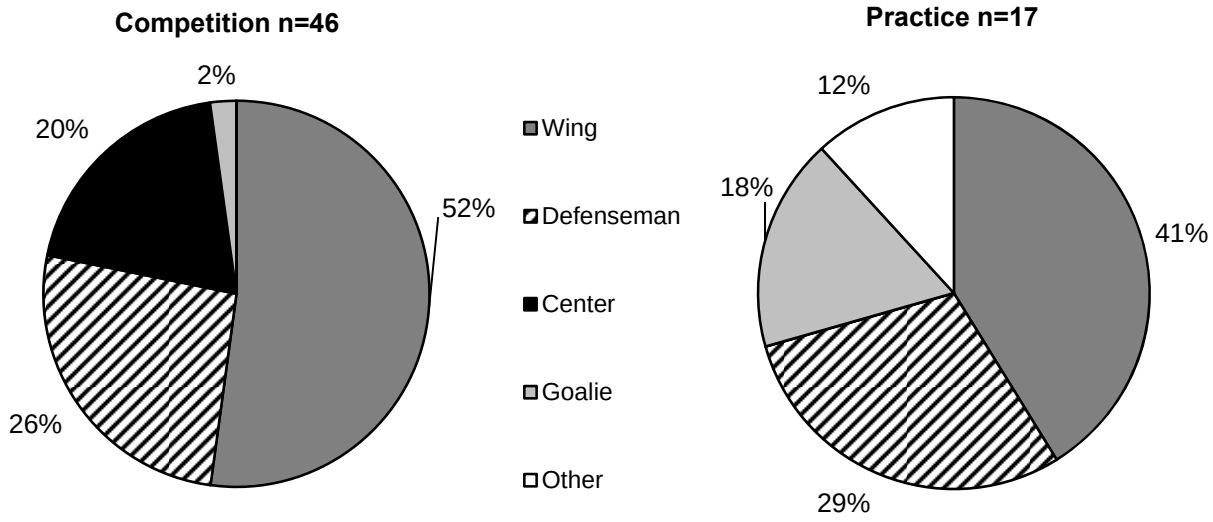
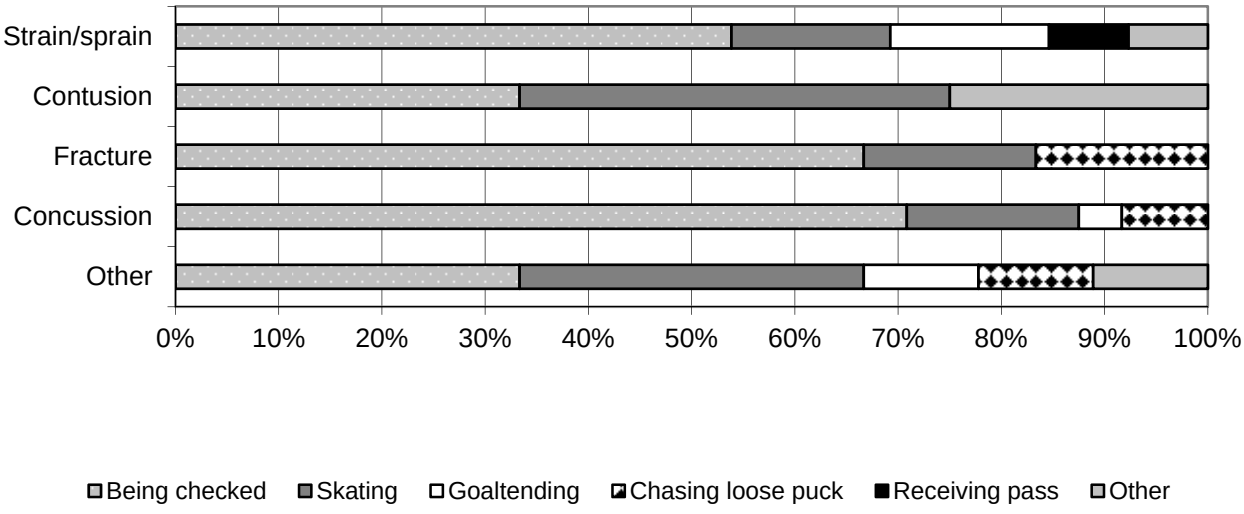


Table 15.9 Activities Leading to Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Being checked	30	63.8%	5	29.4%	35	54.7%
Skating	8	17.0%	7	41.2%	15	23.4%
Chasing loose puck	3	6.4%	1	5.9%	4	6.3%
Goaltending	1	2.1%	3	17.6%	4	6.3%
Passing	2	4.3%	---	0.0%	2	3.1%
Shooting	2	4.3%	---	0.0%	2	3.1%
Receiving pass	---	0.0%	1	5.9%	1	1.6%
Other	1	2.1%	---	0.0%	1	1.6%
Total	**47**	**100%**	**17**	**100%**	**64**	**100%**

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

Figure 15.5 Activity Resulting in Boys' Ice Hockey Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XVI. Boys' Lacrosse Injury Epidemiology

Table 16.1 Boys' Lacrosse Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**178**	**76,925**	**2.31**
Competition	105	24,276	4.33
Practice	73	52,649	1.39

Table 16.2 Demographic Characteristics of Injured Boys' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=177**
Freshman	23.2%
Sophomore	27.7%
Junior	23.7%
Senior	25.4%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	21
Mean (St. Dev.)	16.2 (1.4)
BMI	
Minimum	16.6
Maximum	36.9
Mean (St. Dev.)	24.1 (2.8)

*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 16.1 Diagnosis of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

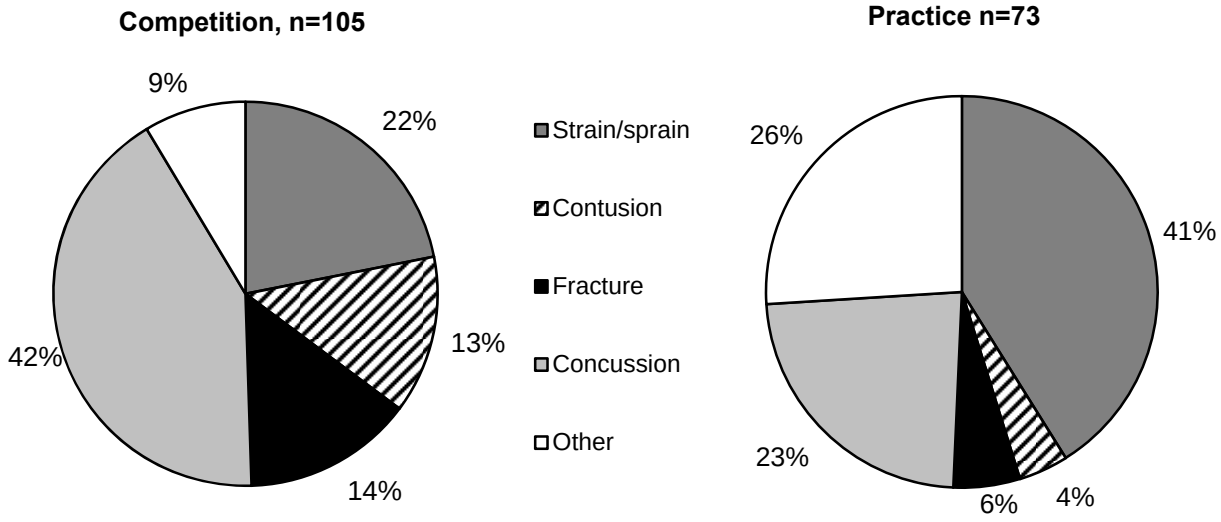


Table 16.3 Body Site of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

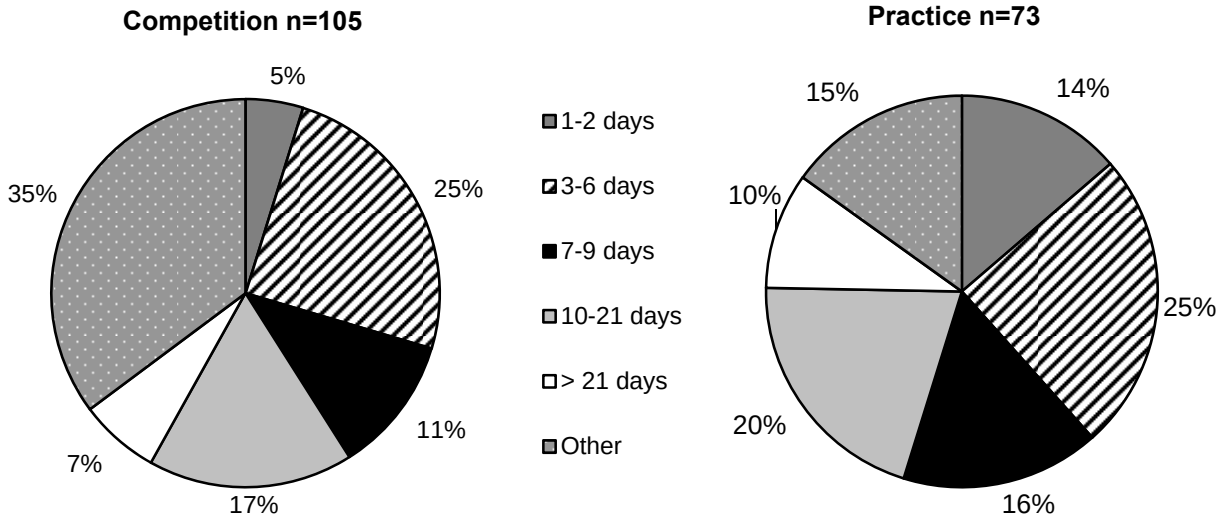
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	44	41.9%	20	27.4%	64	36.0%
Hip/thigh/upper leg	10	9.5%	11	15.1%	21	11.8%
Ankle	10	9.5%	7	9.6%	17	9.6%
Knee	8	7.6%	7	9.6%	15	8.4%
Hand/wrist	10	9.5%	5	6.8%	15	8.4%
Trunk	9	8.6%	4	5.5%	13	7.3%
Lower leg	2	1.9%	11	15.1%	13	7.3%
Shoulder	2	1.9%	3	4.1%	5	2.8%
Arm/elbow	4	3.8%	---	0.0%	4	2.2%
Foot	1	1.0%	3	4.1%	4	2.2%
Neck	1	1.0%	---	0.0%	1	0.6%
Other	4	3.8%	2	2.7%	6	3.4%
Total	**105**	**100%**	**73**	**100%**	**178**	**100%**

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

Table 16.4 Ten Most Common Boys' Lacrosse Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=105		Practice n=73		Total n=178	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	44	41.9%	17	23.3%	61	34.3%
Ankle strain/sprain	8	7.6%	7	9.6%	15	8.4%
Hip/thigh/upper leg strain/sprain	4	3.8%	10	13.7%	14	7.9%
Hand/wrist fracture	6	5.7%	3	4.1%	9	5.1%
Lower leg other	1	1.0%	7	9.6%	8	4.5%
Trunk strain/sprain	3	2.9%	3	4.1%	6	3.4%
Knee strain/sprain	2	1.9%	3	4.1%	5	2.8%
Trunk contusion	5	4.8%	---	0.0%	5	2.8%
Hand/wrist sprain/strain	2	1.9%	2	2.7%	4	2.2%
Shoulder other	1	1.0%	2	2.7%	3	1.7%

Figure 16.2 Time Loss of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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' Lacrosse Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	5	4.9%	6	8.3%	11	6.3%
Did not require surgery	98	95.1%	66	91.7%	164	93.7%
Total	**103**	**100%**	**72**	**100%**	**175**	**100%**

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

Figure 16.3 History of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

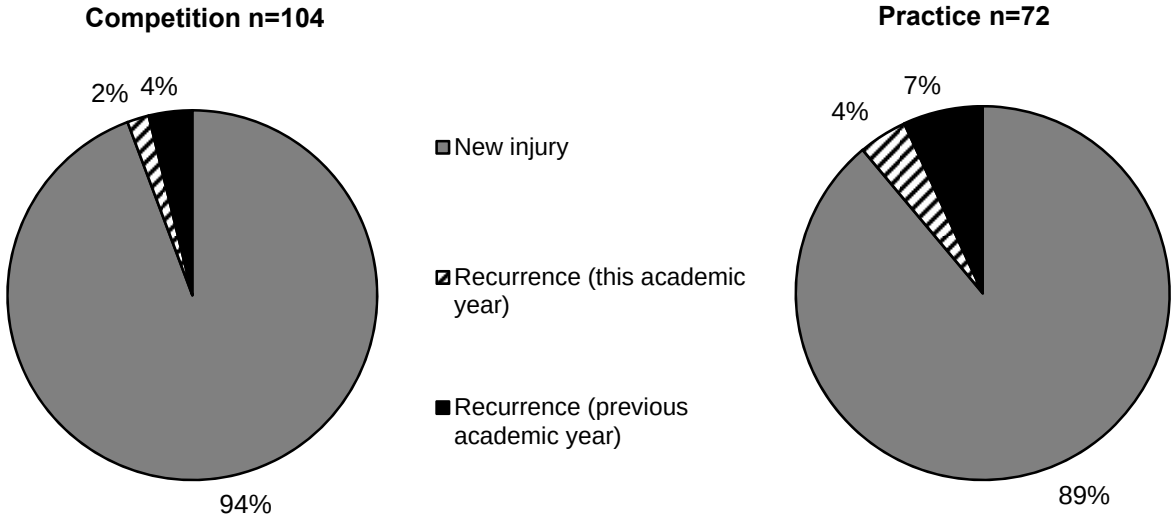


Table 16.6 Time during Season of Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	35	19.7%
Regular season	135	75.8%
Post season	8	4.5%
Total	**178**	**100%**

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

Table 16.7 Competition-Related Variables for Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	2	2.0%
First quarter	11	11.1%
Second quarter	35	35.4%
Third quarter	33	33.3%
Fourth quarter	18	18.2%
Overtime	---	9.0%
Total	**99**	**100%**
Field Location		
Midfield	35	36.1%
Defensive area	28	28.9%
Goal area	27	27.8%
Wing area	6	6.2%
Sideline	1	1.0%
Total	**97**	**100%**

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

Table 16.8 Practice-Related Variables for Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First ½ hour	7	10.8%
Second ½ hour	13	20.0%
1-2 hours into practice	33	50.8%
> 2 hours into practice	12	18.5%
Total	**65**	**100%**

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

Figure 16.4 Player Position of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

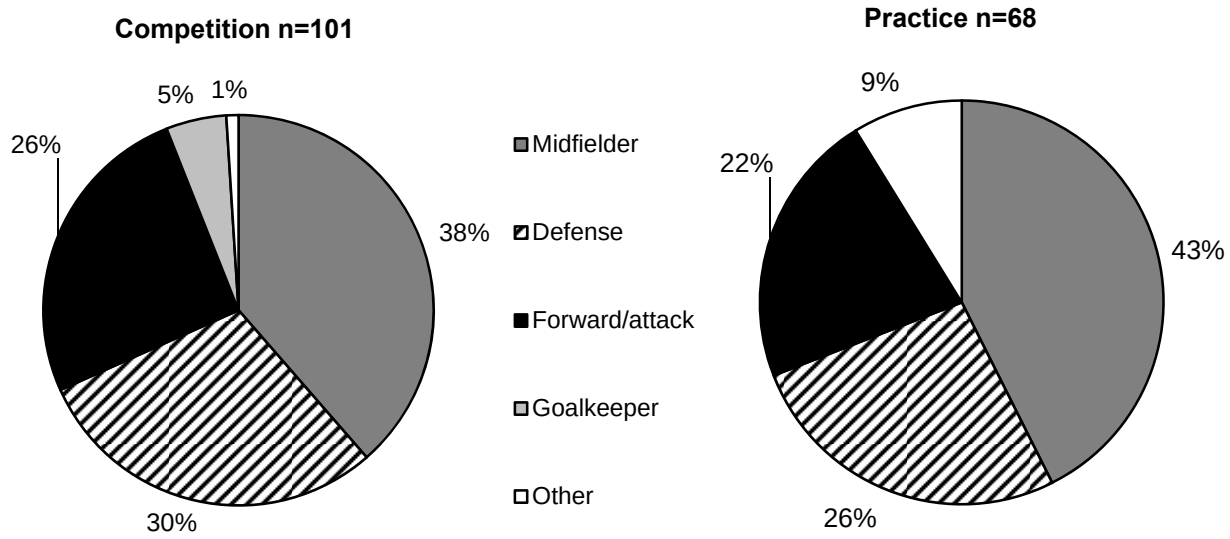
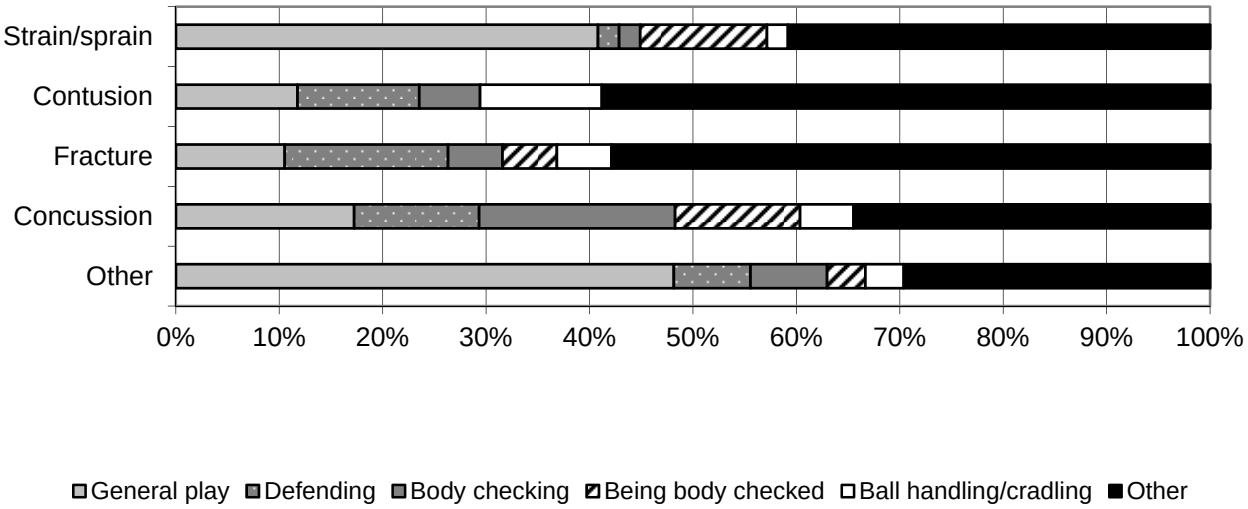


Table 16.9 Activities Leading to Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	17	16.8%	30	43.5%	47	27.6%
Chasing loose ball	10	9.9%	6	8.7%	16	9.4%
Body checking	12	11.9%	4	5.8%	16	9.4%
Being body checked	8	7.9%	7	10.1%	15	8.8%
Defending	12	11.9%	3	4.3%	15	8.8%
Being crosse/stick checked	11	10.9%	---	0.0%	11	6.5%
Conditioning	---	0.0%	9	13.0%	9	5.3%
Ball handling/cradling	7	6.9%	1	1.4%	8	4.7%
Shooting	5	5.0%	1	1.4%	6	3.5%
Receiving pass	3	3.0%	2	2.9%	5	2.9%
Passing	3	3.0%	1	1.4%	4	2.4%
Face-off	3	3.0%	1	1.4%	4	2.4%
Goaltending	3	3.0%	---	0.0%	3	1.8%
Crosse/stick checking	3	3.0%	---	0.0%	3	1.8%
Blocking shot	---	0.0%	3	4.3%	3	1.8%
Total	**101**	**100%**	**69**	**100%**	**170**	**100%**

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

Figure 16.5 Activity Resulting in Boys' Lacrosse Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XVII. Girls' Lacrosse Injury Epidemiology

Table 17.1 Girls' Lacrosse Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**68**	**55,175**	**1.23**
Competition	27	17,453	1.55
Practice	41	37,722	1.09

Table 17.2 Demographic Characteristics of Injured Girls' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=68**
Freshman	19.1%
Sophomore	29.4%
Junior	25.0%
Senior	26.5%
Total	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.9 (1.3)
BMI	
Minimum	16.6
Maximum	33.5
Mean (St. Dev.)	21.5 (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 17.1 Diagnosis of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

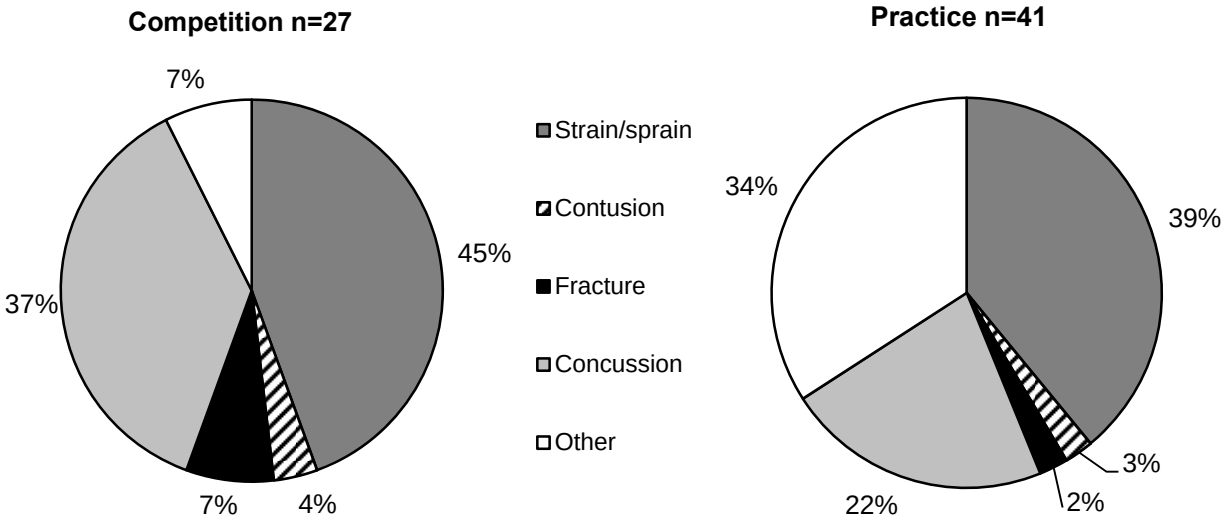


Table 17.3 Body Site of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

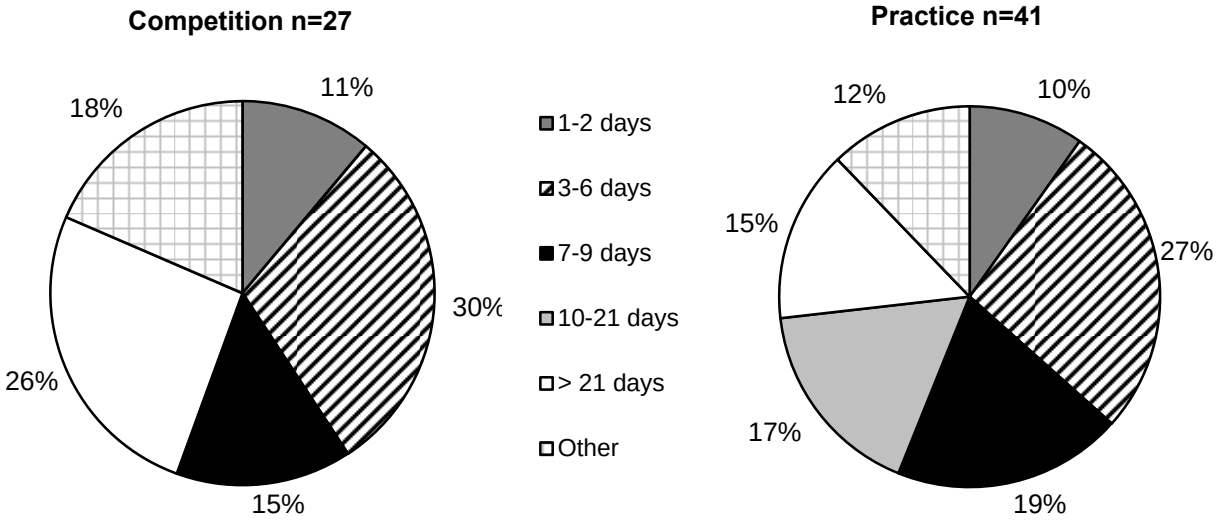
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	11	40.7%	10	24.4%	21	30.9%
Ankle	6	22.2%	9	22.0%	15	22.1%
Knee	4	14.8%	4	9.8%	8	11.8%
Hip/thigh/upper leg	1	3.7%	7	17.1%	8	11.8%
Trunk	1	3.7%	3	7.3%	4	5.9%
Lower leg	---	0.0%	3	7.3%	3	4.4%
Hand/wrist	2	7.4%	---	0.0%	2	2.9%
Foot	---	0.0%	2	4.9%	2	2.9%
Neck	2	7.4%	---	0.0%	2	2.9%
Arm/elbow	---	0.0%	1	2.4%	1	1.5%
Shoulder	---	0.0%	1	2.4%	1	1.5%
Other	---	0.0%	1	2.4%	1	1.5%
Total	**27**	**100%**	**41**	**100%**	**68**	**100%**

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

Table 17.4 Ten Most Common Girls' Lacrosse Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=27		Practice n=41		Total n=68	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	10	37.0%	9	22.0%	19	27.9%
Ankle strain/sprain	6	22.2%	9	22.0%	15	22.1%
Hip/thigh/upper leg strain/sprain	1	3.7%	6	14.6%	7	10.3%
Knee other	1	3.7%	3	7.3%	4	5.9%
Lower leg other	---	0.0%	3	7.3%	3	4.4%
Knee strain/sprain	2	7.4%	---	0.0%	2	2.9%
Hand/wrist fracture	2	7.4%	---	0.0%	2	2.9%
Neck strain/sprain	2	7.4%	---	0.0%	2	2.9%
Trunk strain/sprain	1	3.7%	---	0.0%	1	1.5%
Foot strain/sprain	---	0.0%	1	2.4%	1	1.5%

Figure 17.2 Time Loss of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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' Lacrosse Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	3	11.1%	---	0.0%	3	4.5%
Did not require surgery	24	88.9%	40	100%	64	95.5%
Total	**27**	**100%**	**40**	**100%**	**67**	**100%**

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

Figure 17.3 History of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

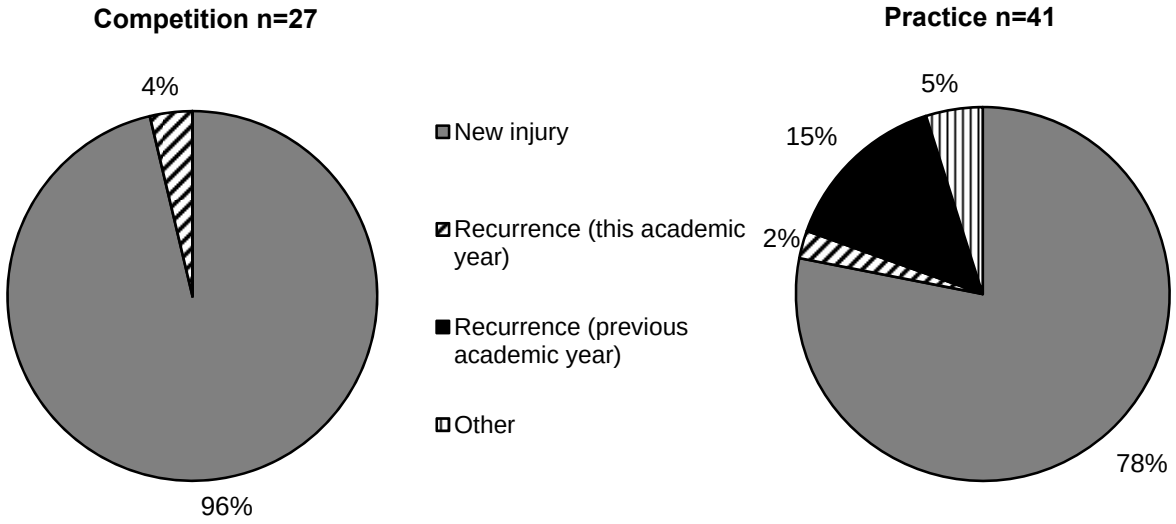


Table 17.6 Time during Season of Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	12	17.9%
Regular season	52	77.6%
Post season	3	4.5%
Total	**67**	**100%**

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

Table 17.7 Competition-Related Variables for Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Competition		
Pre-Competition-Warm-ups	---	0.0%
First half	11	42.3%
Second half	15	57.7%
Overtime	---	0.0%
Total	**26**	**100%**
Field Location		
Midfield (between restraining lines)	13	56.5%
Critical scoring area (including the fan and arc)	3	13.0%
Center circle	3	13.0%
Goal circle	2	8.7%
Sideline	1	4.3%
Endline	1	4.3%
Total	**23**	**100%**

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

Table 17.8 Practice-Related Variables for Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	6	15.8%
Second 1/2 hour	11	28.9%
1-2 hours into practice	15	39.5%
>2 hours into practice	6	15.8%
Total	**38**	**100%**

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

Figure 17.4 Player Position of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

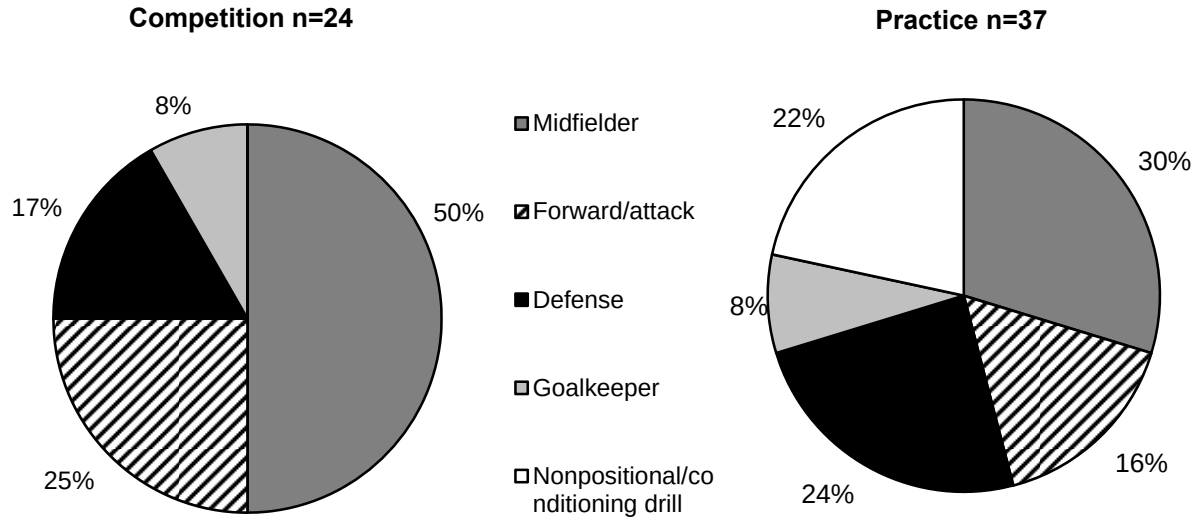
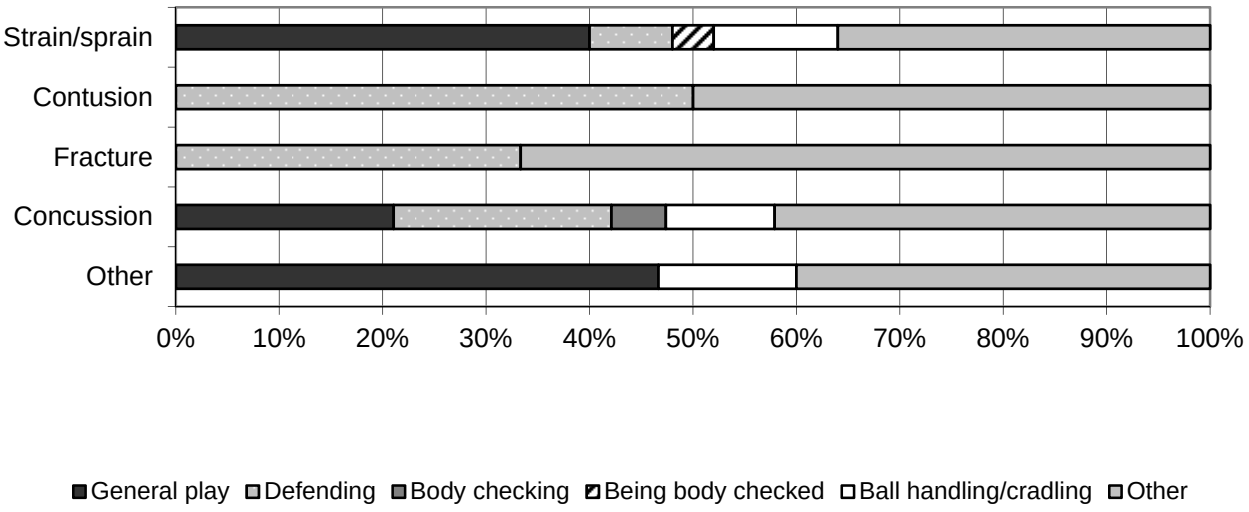


Table 17.9 Activities Leading to Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	7	28.0%	14	35.9%	21	32.8%
Conditioning	---	0.0%	8	20.5%	8	12.5%
Defending	4	16.0%	4	10.3%	8	12.5%
Ball handling/cradling	5	20.0%	2	5.1%	7	10.9%
Goaltending	2	8.0%	3	7.7%	5	7.8%
Chasing loose ball	2	8.0%	2	5.1%	4	6.3%
Receiving pass	1	4.0%	2	5.1%	3	4.7%
Passing	---	0.0%	2	5.1%	2	3.1%
Shooting	---	0.0%	1	2.6%	1	1.6%
Being crosse/stick checked	1	4.0%	---	0.0%	1	1.6%
Being body checked	1	4.0%	---	0.0%	1	1.6%
Body checking	1	3.7%	---	0.0%	1	1.6%
Face-off	1	3.7%	---	0.0%	1	1.6%
Other	---	0.0%	1	2.6%	1	1.6%
Total	**25**	**100%**	**39**	**100%**	**64**	**100%**

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

Figure 17.5 Activity Resulting in Girls' Lacrosse Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XVIII. Boys' Swimming and Diving Injury Epidemiology

Table 18.1 Boys' Swimming and Diving Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**12**	**63,883**	**0.19**
Competition	1	12,231	0.08
Practice	11	51,652	0.21

Table 18.2 Demographic Characteristics of Injured Boys' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=12**
Freshman	25.0%
Sophomore	33.3%
Junior	25.0%
Senior	16.7%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	17
Mean (St. Dev.)	15.8 (1.1)
BMI	
Minimum	17.9
Maximum	41.2
Mean (St. Dev.)	23.0 (6.3)

*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 18.1 Diagnosis of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

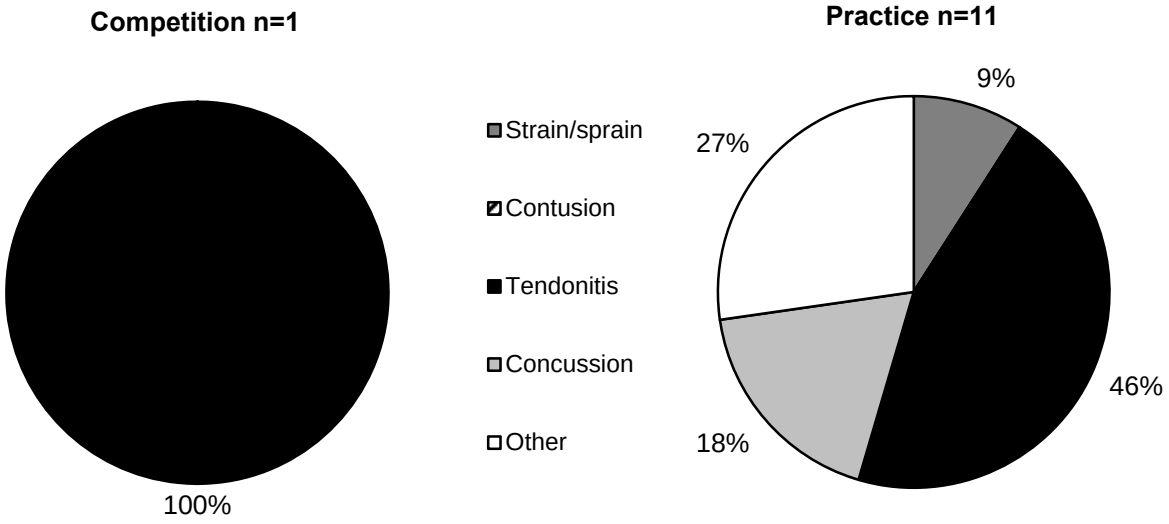


Table 18.3 Body Site of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

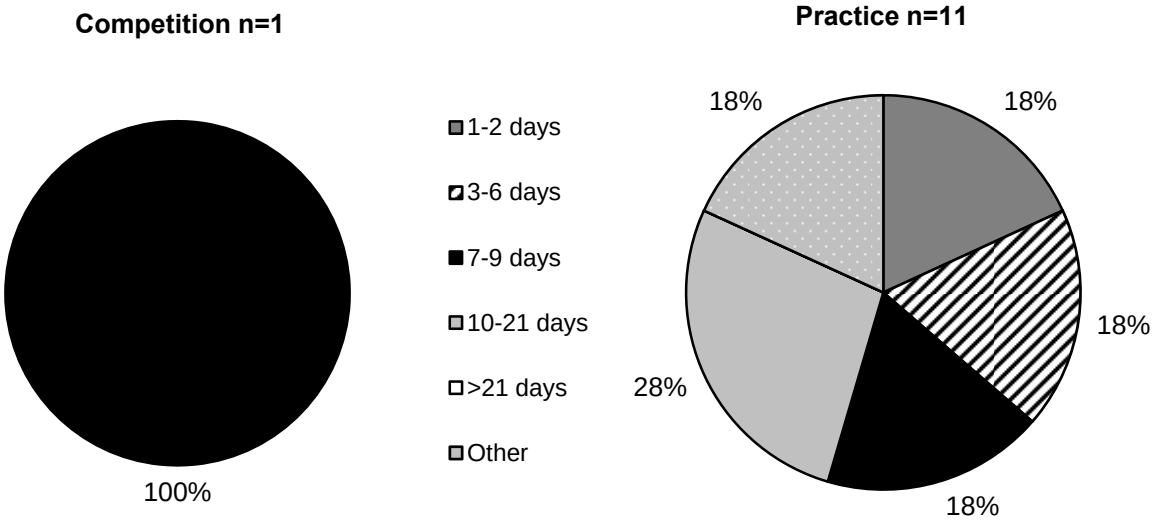
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Shoulder	1	100.0%	7	63.6%	8	66.7%
Head/face	---	0.0%	2	18.2%	2	16.7%
Lower leg	---	0.0%	2	18.2%	2	16.7%
Total	**1**	**100%**	**11**	**100%**	**12**	**100%**

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

Table 18.4 Most Common Boys' Swimming and Diving Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=1		Practice n=11		Total n=12	
	n	%	n	%	n	%
Diagnosis						
Shoulder other	1	100.0%	7	63.6%	8	66.7%
Head/face concussion	---	0.0%	2	18.2%	2	16.7%
Lower leg strain/sprain	---	0.0%	1	9.1%	1	8.3%
Lower leg other	---	0.0%	1	9.1%	1	8.3%

Figure 18.2 Time Loss of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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' Swimming and Diving Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	---	0.0%	1	9.1%	1	8.3%
Did not require surgery	1	100.0%	10	90.9%	11	91.7%
Total	**1**	**100%**	**11**	**100%**	**12**	**100%**

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

Figure 18.3 History of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

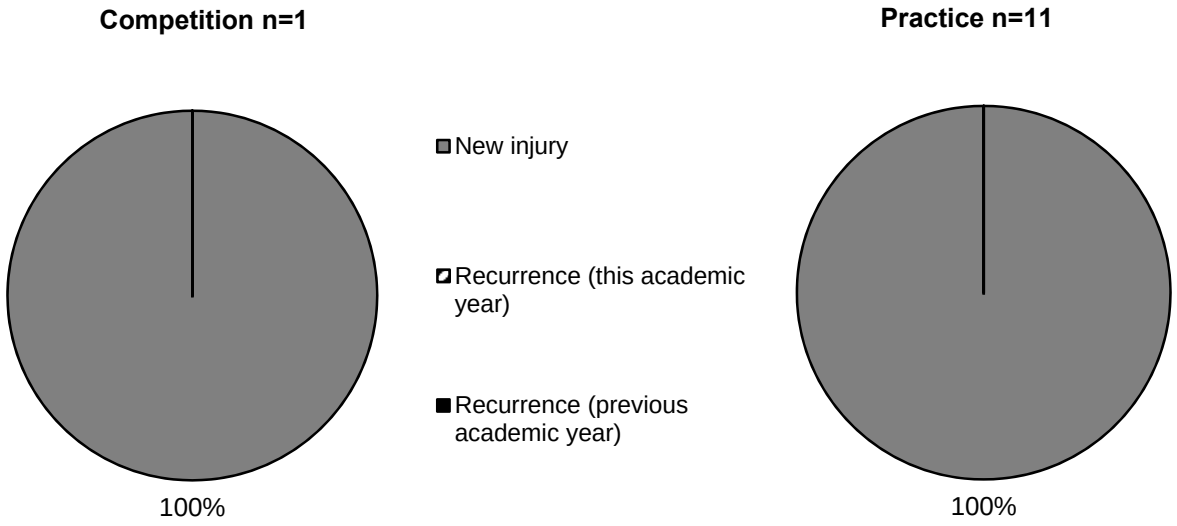


Table 18.6 Time during Season of Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	3	25.0%
Regular season	9	75.0%
Post season	---	0.0%
Total	**12**	**100%**

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

Table 18.7 Pool Location for Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Pool Location		
In pool	12	100.0%
Starting platform	-	0.0%
Poolside	-	0.0%
Other	-	0.0%
Total	**12**	**100%**

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

Table 18.8 Practice-Related Variables for Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	1	9.1%
Second 1/2 hour	4	36.4%
1-2 hours into practice	5	45.5%
>2 hours into practice	1	9.1%
Total	**11**	**100%**

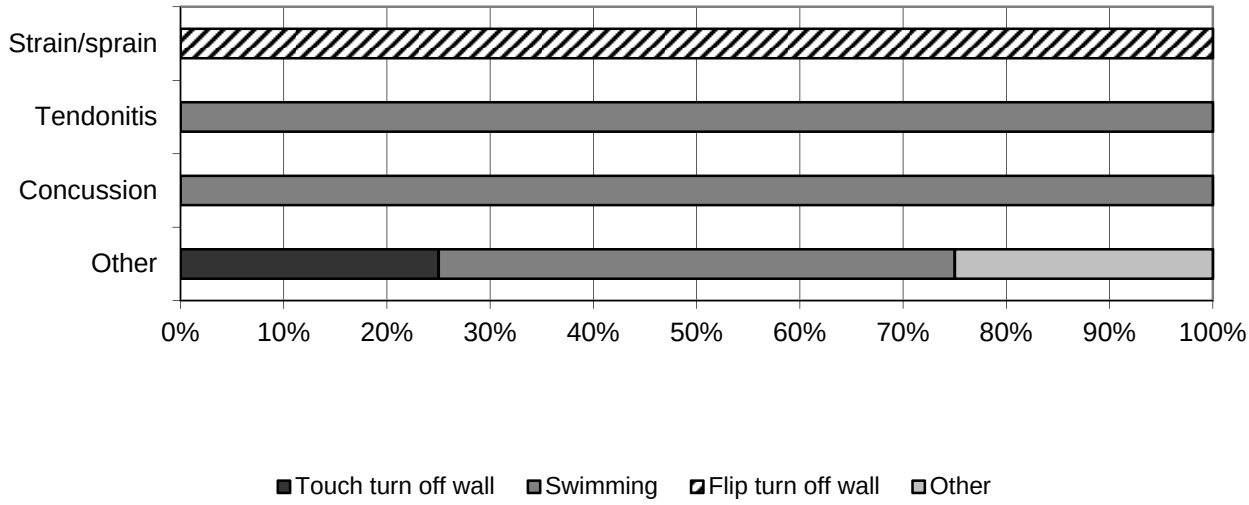
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 18.9 Activities Leading to Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Swimming	---	0.0%	9	81.8%	9	75.0%
Touch turn off wall	---	0.0%	1	9.1%	1	8.3%
Flip turn off wall	---	0.0%	1	9.1%	1	8.3%
Other	1	100.0%	---	0.0%	1	8.3%
Total	**1**	**100%**	**11**	**100%**	**12**	**100%**

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

Figure 18.4 Activity Resulting in Boys' Swimming and Diving Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XIX. Girls' Swimming and Diving Injury Epidemiology

Table 19.1 Girls' Swimming and Diving Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**28**	**73,788**	**0.38**
Competition	2	13,841	0.14
Practice	26	59,947	0.43

Table 19.2 Demographic Characteristics of Injured Girls' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=27**
Freshman	14.8%
Sophomore	37.0%
Junior	25.9%
Senior	22.2%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.7 (1.1)
BMI	
Minimum	18.0
Maximum	35.1
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 19.1 Diagnosis of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

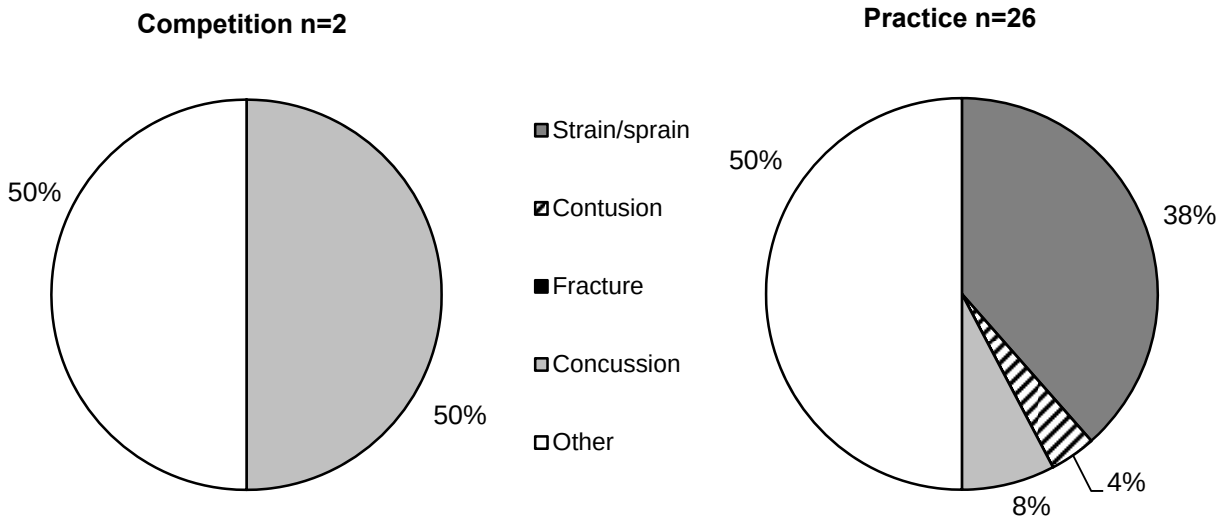


Table 19.3 Body Site of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

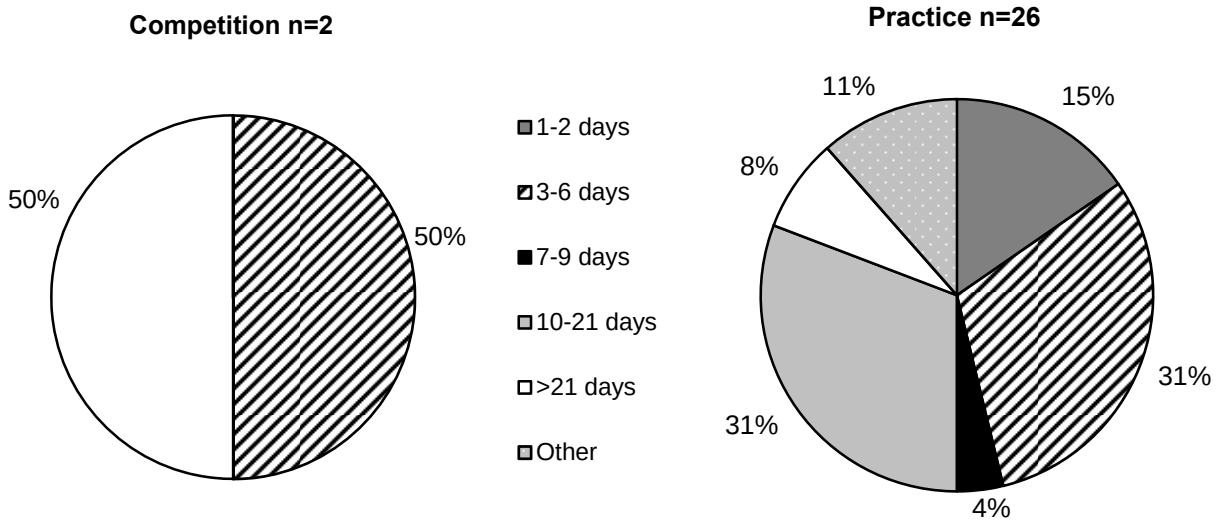
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Shoulder	---	0.0%	11	42.3%	11	39.3%
Trunk	---	0.0%	5	19.2%	5	17.9%
Knee	1	50.0%	4	15.4%	5	17.9%
Head/face	1	50.0%	2	7.7%	3	10.7%
Ankle	---	0.0%	3	11.5%	3	10.7%
Arm/elbow	---	0.0%	1	3.8%	1	3.6%
Total	**2**	**100%**	**26**	**100%**	**28**	**100%**

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

Table 19.4 Ten Most Common Girls' Swimming and Diving Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=2		Practice n=26		Total n=28	
	n	%	n	%	n	%
Diagnosis						
Shoulder other	---	0.0%	6	23.1%	6	21.4%
Shoulder strain/sprain	---	0.0%	5	19.2%	5	17.9%
Head/face concussion	1	50.0%	2	7.7%	3	10.7%
Knee other	1	50.0%	2	7.7%	3	10.7%
Trunk strain/sprain	---	0.0%	2	7.7%	2	7.1%
Trunk other	---	0.0%	2	7.7%	2	7.1%
Ankle strain/sprain	---	0.0%	2	7.7%	2	7.1%
Knee strain/sprain	---	0.0%	2	7.7%	2	7.1%
Trunk contusion	---	0.0%	1	3.8%	1	3.6%
Arm/elbow other	---	0.0%	1	3.8%	1	3.6%
Ankle other	---	0.0%	1	3.8%	1	3.6%

Figure 19.2 Time Loss of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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' Swimming and Diving Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	1	50.0%	5	19.2%	6	21.4%
Did not require surgery	1	50.0%	21	80.8%	22	78.6%
Total	**2**	**100%**	**26**	**100%**	**28**	**100%**

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

Figure 19.3 History of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

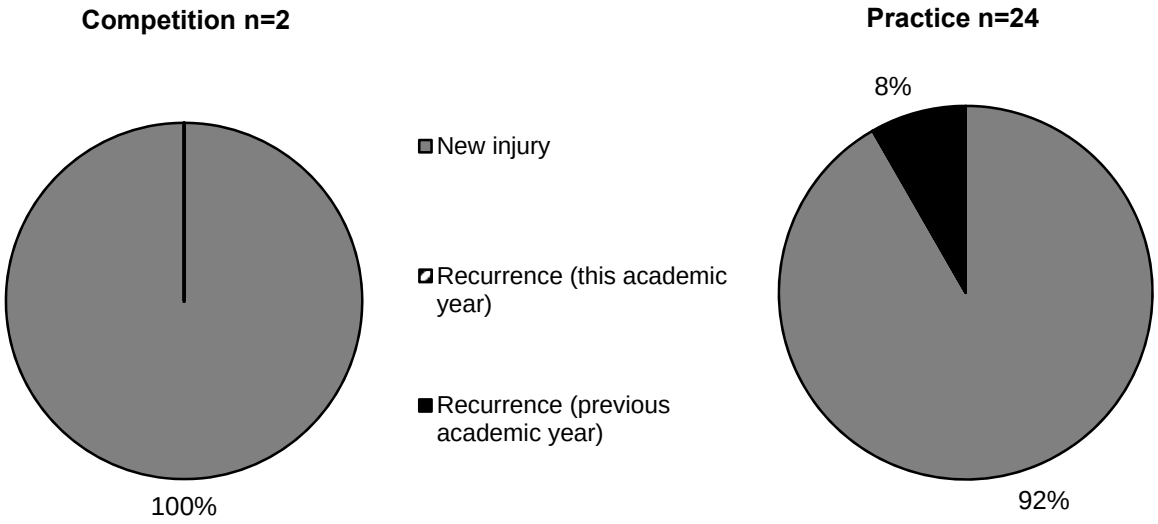


Table 19.6 Time during Season of Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	5	18.5%
Regular season	22	81.5%
Post season	---	0.0%
Total	**27**	**100%**

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

Table 19.7 Competition-Related Variables for Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Pool Location		
In pool	23	85.2%
Starting platform/board/blocks	2	7.4%
Poolside	1	3.7%
Other	1	3.7%
Total	**27**	**100%**

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

Table 19.8 Practice-Related Variables for Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	4	15.4%
Second 1/2 hour	2	7.7%
1-2 hours into practice	18	69.2%
>2 hours into practice	2	7.7%
Total	**26**	**100%**

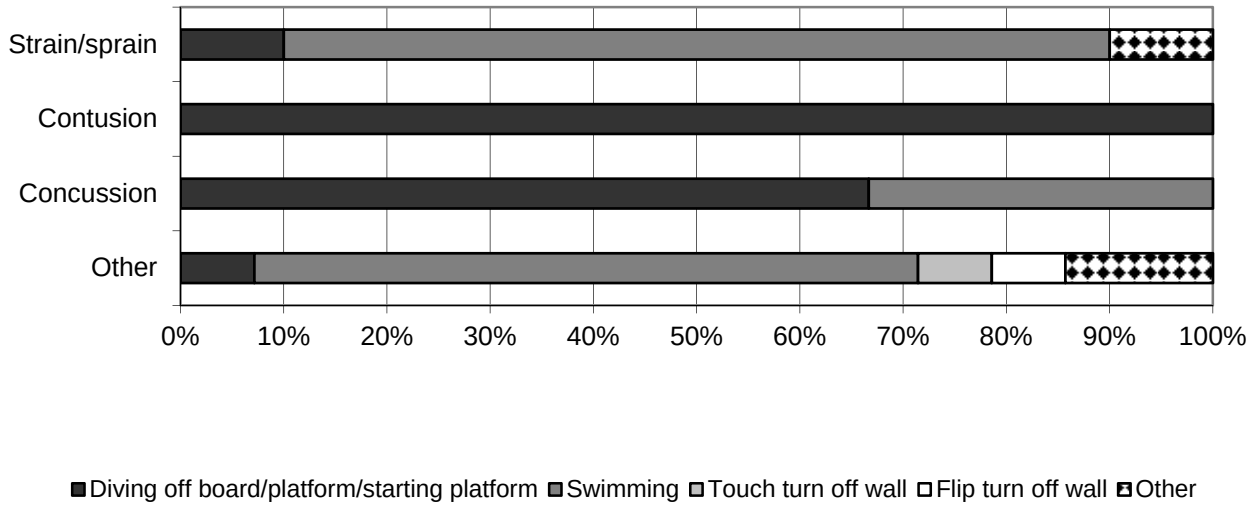
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 19.9 Activities Leading to Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Swimming	2	100.0%	16	61.5%	18	64.3%
Diving off board/platform/block	---	0.0%	5	19.2%	5	17.9%
Flip turn off wall	---	0.0%	1	3.8%	1	3.6%
Touch turn off wall	---	0.0%	1	3.8%	1	3.6%
Other	---	0.0%	3	11.5%	3	10.7%
Total	**2**	**100%**	**26**	**100%**	**28**	**100%**

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

Figure 19.4 Activity Resulting in Girls' Swimming and Diving Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XX. Boys' Track and Field Injury Epidemiology

Table 20.1 Boys' Track and Field Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**165**	**221,672**	**0.74**
Competition	52	44,889	1.16
Practice	113	176,783	0.64

Table 20.2 Demographic Characteristics of Injured Boys' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=162**
Freshman	15.4%
Sophomore	20.4%
Junior	33.3%
Senior	30.9%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	16.3 (1.3)
BMI	
Minimum	18.0
Maximum	42.6
Mean (St. Dev.)	23.3 (3.7)

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

Figure 20.1 Diagnosis of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

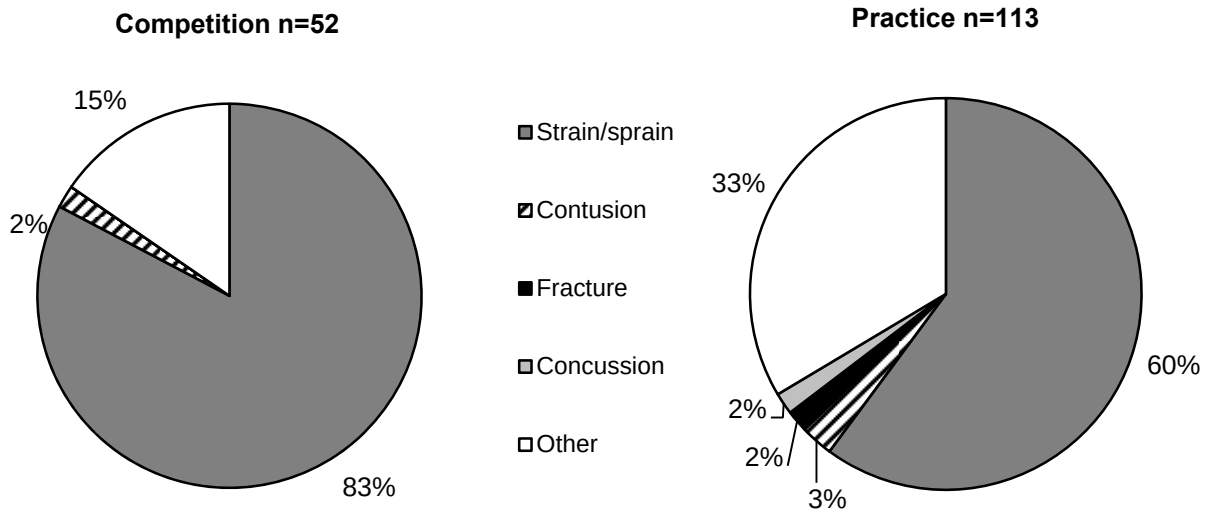


Table 20.3 Body Site of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

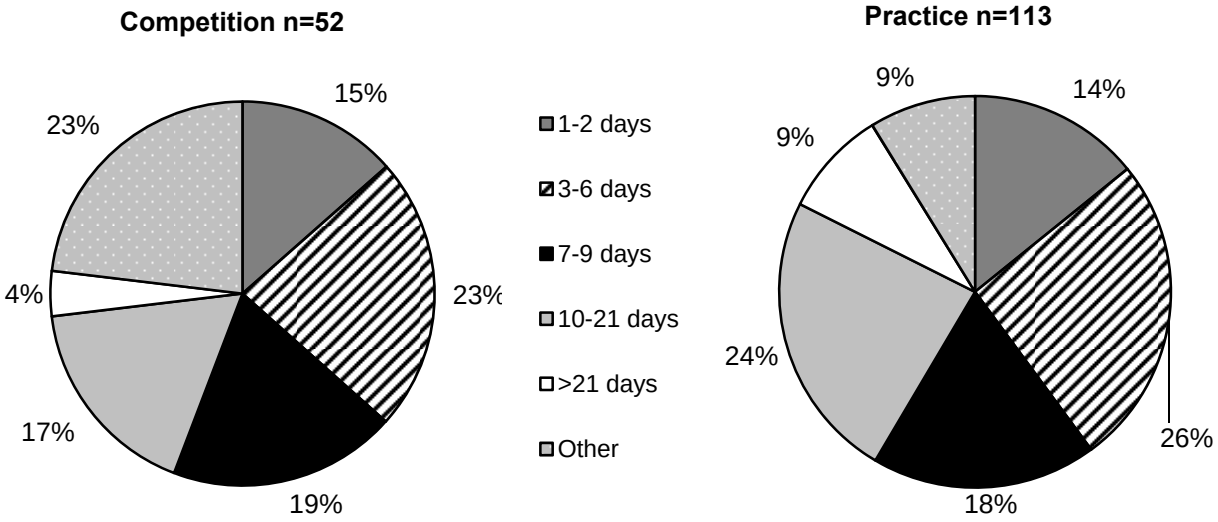
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Hip/thigh/upper leg	35	67.3%	46	40.7%	81	49.1%
Lower leg	2	3.8%	23	20.4%	25	15.2%
Ankle	4	7.7%	15	13.3%	19	11.5%
Knee	2	3.8%	9	8.0%	11	6.7%
Trunk	3	5.8%	6	5.3%	9	5.5%
Foot	3	5.8%	5	4.4%	8	4.8%
Shoulder	2	3.8%	2	1.8%	4	2.4%
Head/face	---	0.0%	3	2.7%	3	1.8%
Arm/elbow	---	0.0%	2	1.8%	2	1.2%
Hand/wrist	---	0.0%	---	0.0%	---	0.0%
Neck	---	0.0%	---	0.0%	---	0.0%
Other	1	1.9%	2	1.8%	3	1.8%
Total	**52**	**100%**	**113**	**100%**	**165**	**100%**

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

Table 20.4 Ten Most Common Boys' Track and Field Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=52		Practice n=113		Total n=165	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	32	61.5%	39	34.5%	71	43.0%
Lower leg other	1	1.9%	18	15.9%	19	11.5%
Ankle strain/sprain	4	7.7%	14	12.4%	18	10.9%
Hip/thigh/upper leg other	2	3.8%	7	6.2%	9	5.5%
Knee other	2	3.8%	6	5.3%	8	4.8%
Trunk strain/sprain	2	3.8%	4	3.5%	6	3.6%
Foot strain/sprain	3	5.8%	2	1.8%	5	3.0%
Lower leg strain/sprain	1	1.9%	3	2.7%	4	2.4%
Shoulder strain/sprain	1	1.9%	2	1.8%	3	1.8%
Foot other	---	0.0%	3	2.7%	3	1.8%

Figure 20.2 Time Loss of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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' Track and Field Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	---	0.0%	2	1.8%	2	1.2%
Did not require surgery	50	100%	110	98.2%	160	98.8%
Total	**50**	**100%**	**112**	**100%**	**162**	**100%**

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

Figure 20.3 History of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

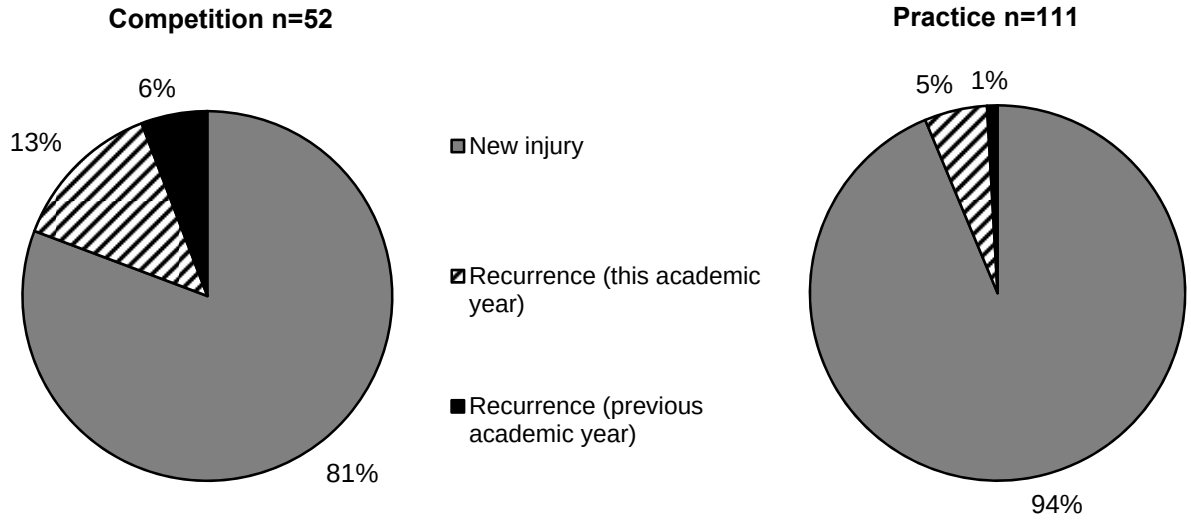


Table 20.6 Time during Season of Boys' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	37	22.6%
Regular season	120	73.2%
Post season	7	4.3%
Total	**164**	**100%**

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

Table 20.7 Practice-Related Variables for Boys' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	23	21.5%
Second 1/2 hour	29	27.1%
1-2 hours into practice	48	44.9%
>2 hours into practice	7	6.5%
Total	**107**	**100%**

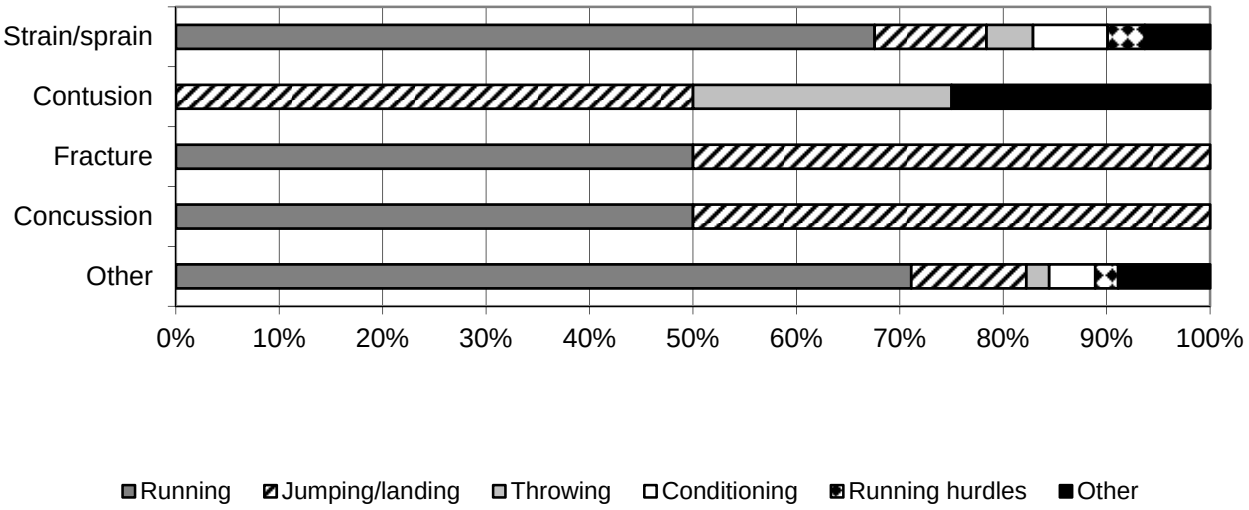
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 20.8 Activities Leading to Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	33	63.5%	76	67.9%	109	66.5%
Jumping/landing	8	15.4%	13	11.6%	21	12.8%
Conditioning	---	0.0%	10	8.9%	10	6.1%
Throwing	4	7.7%	3	2.7%	7	4.3%
Running hurdles	3	5.8%	2	1.8%	5	3.0%
Warming up	---	0.0%	3	2.7%	3	1.8%
Leaving block	1	1.9%	1	0.9%	2	1.2%
Baton hand off	2	3.8%	--	0.0%	2	1.2%
Hit by shot put/discus/javelin/hammer	---	0.0%	1	0.9%	1	0.6%
Other	1	1.9%	3	2.7%	4	2.4%
Total	**52**	**100%**	**112**	**100%**	**164**	**100%**

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

Figure 20.4 Activity Resulting in Boys' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XXI. Girls' Track and Field Injury Epidemiology

Table 21.1 Girls' Track and Field Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**179**	**193,123**	**0.93**
Competition	42	39,193	1.07
Practice	137	153,930	0.89

Table 21.2 Demographic Characteristics of Injured Girls' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=178**
Freshman	38.8%
Sophomore	22.5%
Junior	18.0%
Senior	20.8%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.7 (1.4)
BMI	
Minimum	16.0
Maximum	38.4
Mean (St. Dev.)	21.2 (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 21.1 Diagnosis of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

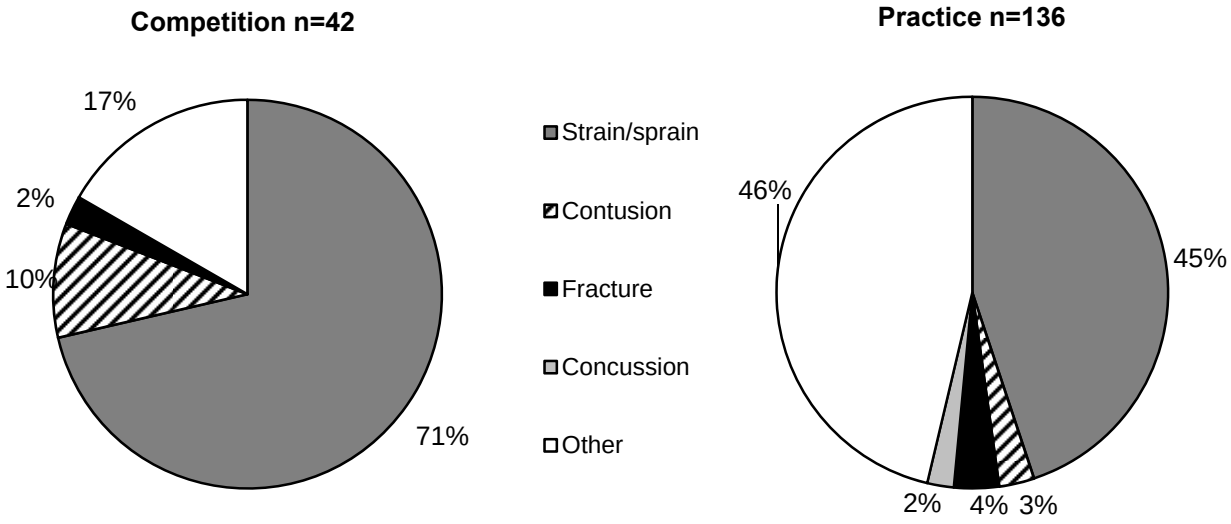


Table 21.3 Body Site of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

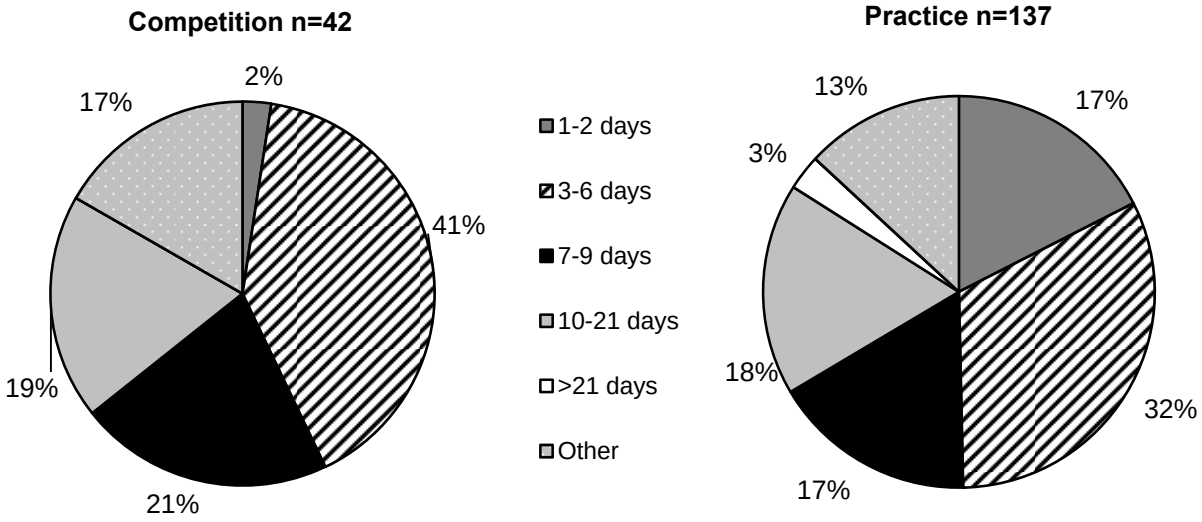
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Hip/thigh/upper leg	14	33.3%	48	35.0%	62	34.6%
Lower leg	6	14.3%	36	26.3%	42	23.5%
Knee	5	11.9%	17	12.4%	22	12.3%
Ankle	7	16.7%	13	9.5%	20	11.2%
Foot	2	4.8%	13	9.5%	15	8.4%
Trunk	5	11.9%	2	1.5%	7	3.9%
Head/face	---	0.0%	3	2.2%	3	1.7%
Shoulder	1	2.4%	2	1.5%	3	1.7%
Hand/wrist	1	2.4%	2	1.5%	3	1.7%
Arm/elbow	1	2.4%	---	0.0%	1	0.6%
Neck	---	0.0%	1	0.7%	1	0.6%
Total	**42**	**100%**	**137**	**100%**	**179**	**100%**

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

Table 21.4 Ten Most Common Girls' Track and Field Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=42		Practice n=136		Total n=178	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	13	31.0%	40	29.4%	53	29.8%
Lower leg other	2	4.8%	32	23.5%	34	19.1%
Knee other	3	7.1%	14	10.3%	17	9.6%
Ankle strain/sprain	7	16.7%	9	6.6%	16	9.0%
Hip/thigh/upper leg other	---	0.0%	8	5.9%	8	4.5%
Lower leg strain/sprain	4	9.5%	3	2.2%	7	3.9%
Foot other	1	2.4%	4	2.9%	5	2.8%
Knee strain/sprain	1	2.4%	2	1.5%	3	1.7%
Foot strain/sprain	---	0.0%	3	2.2%	3	1.7%
Head/face concussion	---	0.0%	3	2.2%	3	1.7%

Figure 21.2 Time Loss of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 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' Track and Field Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	2	4.8%	7	5.2%	9	5.1%
Did not require surgery	40	95.2%	127	94.8%	167	94.9%
Total	**42**	**100%**	**134**	**100%**	**176**	**100%**

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

Figure 21.3 History of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

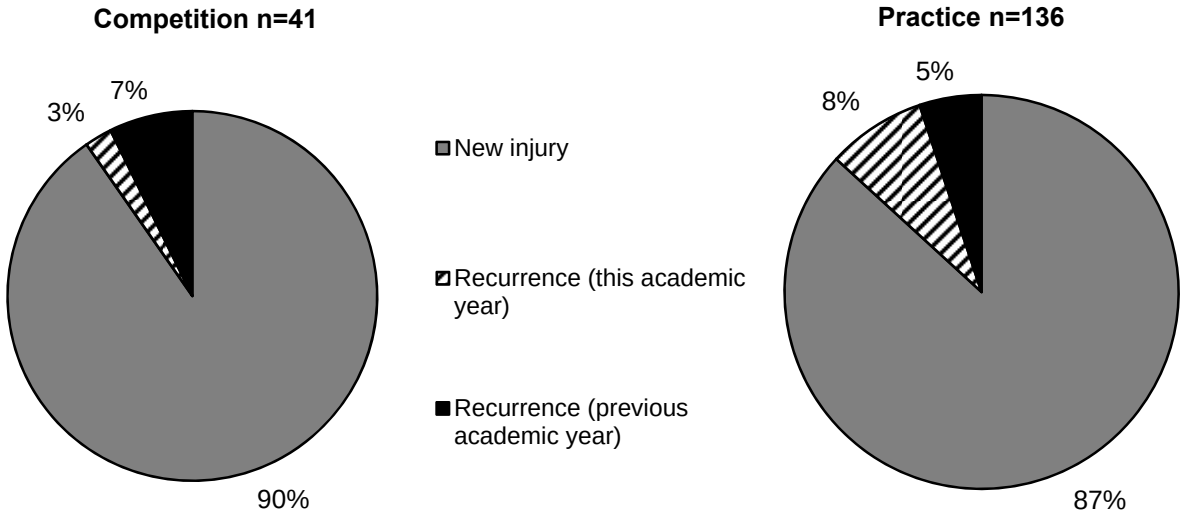


Table 21.6 Time during Season of Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	44	24.7%
Regular season	132	74.2%
Post season	2	1.1%
Total	**178**	**100%**

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

Table 21.7 Practice-Related Variables for Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	21	16.7%
Second 1/2 hour	32	25.4%
1-2 hours into practice	62	49.2%
>2 hours into practice	11	8.7%
Total	**126**	**100%**

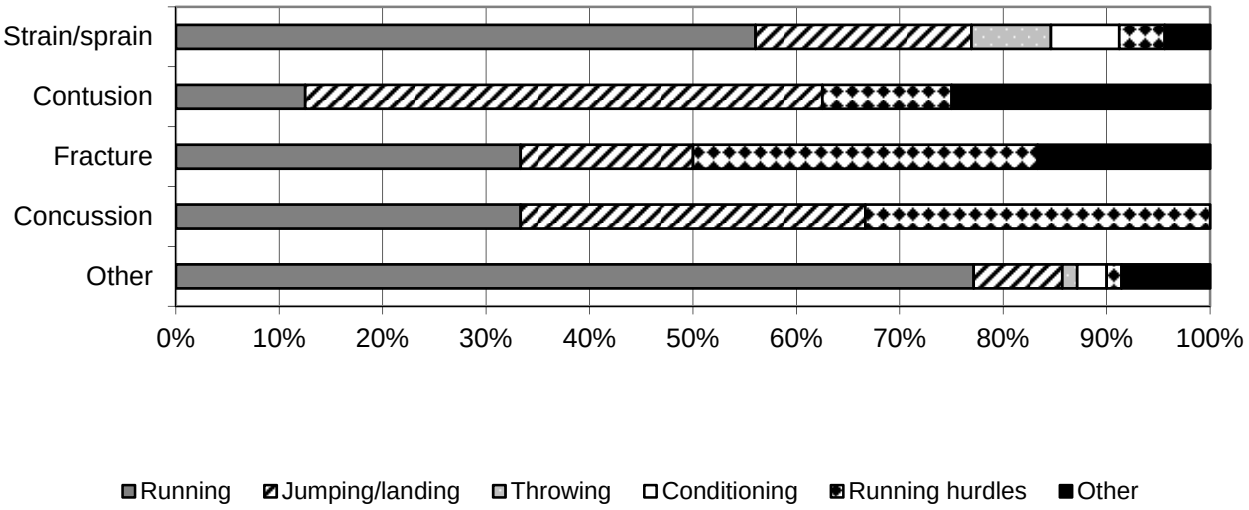
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 21.8 Activities Leading to Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	20	47.6%	90	65.7%	110	61.5%
Jumping/landing	11	26.2%	20	14.6%	31	17.3%
Running hurdles	3	7.1%	6	4.4%	9	5.0%
Conditioning	---	0.0%	8	5.8%	8	4.5%
Throwing	4	9.5%	4	2.9%	8	4.5%
Warming up	1	2.4%	6	4.4%	7	3.9%
Other	3	7.2%	3	2.2%	6	3.4%
Total	**42**	**100%**	**137**	**100%**	**179**	**100%**

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

Figure 21.4 Activity Resulting in Girls' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XXII. Cheerleading Injury Epidemiology

Table 22.1 Cheerleading Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**98**	**172,994**	**0.57**
Competition	8	11,956	0.67
Practice	75	128,247	0.58
Performance	15	32,791	0.46

Table 22.2 Demographic Characteristics of Injured Cheerleading Athletes, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year*

Year in School	**n=97**
Freshman	14.4%
Sophomore	38.1%
Junior	25.8%
Senior	21.6%
Total†	**100%**
Age (years)	
Minimum	12
Maximum	18
Mean (St. Dev.)	15.7 (1.1)
BMI	
Minimum	17.0
Maximum	30.3
Mean (St. Dev.)	21.3 (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 22.1 Diagnosis of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

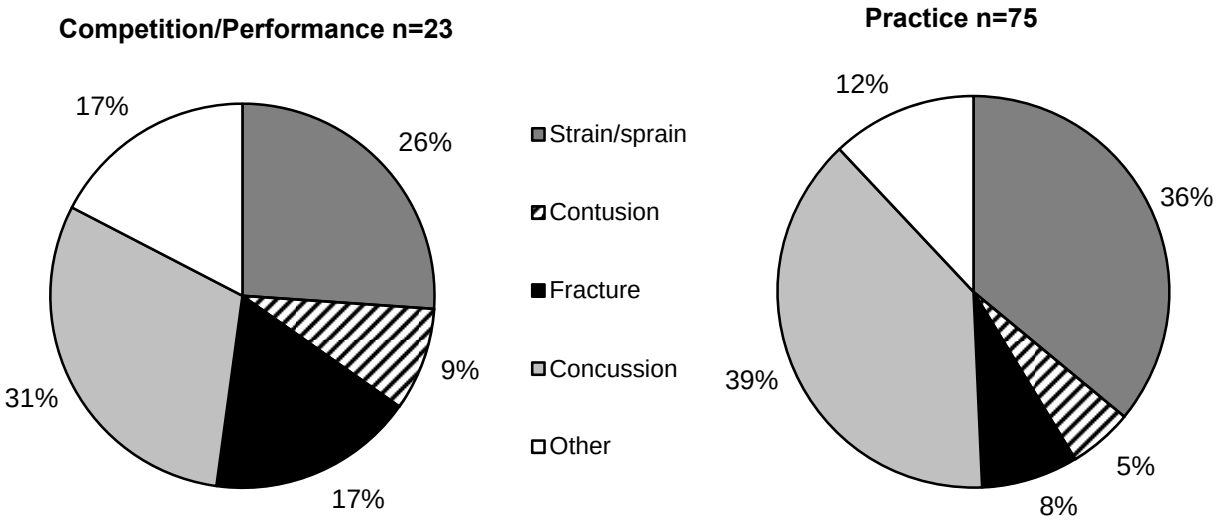


Table 22.3 Body Site of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

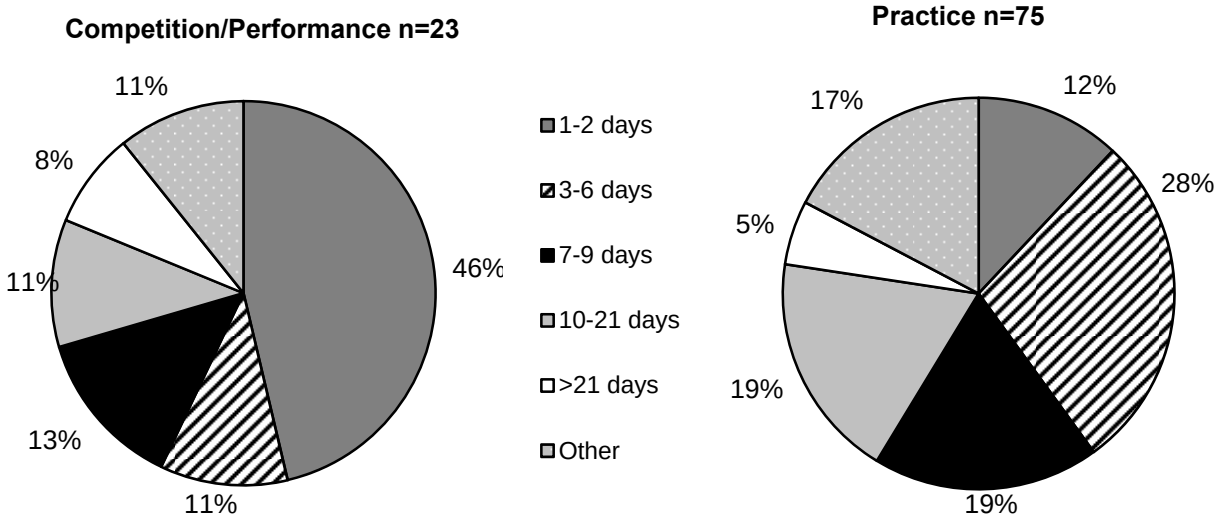
	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Body Site								
Head/face	5	62.5%	35	46.7%	3	20.0%	43	43.9%
Hand/wrist	---	0.0%	8	10.7%	2	13.3%	10	10.2%
Knee	---	0.0%	3	4.0%	2	13.3%	5	5.1%
Shoulder	1	12.5%	3	4.0%	1	6.7%	5	5.1%
Ankle	1	12.5%	10	13.3%	1	6.7%	12	12.2%
Arm/elbow	---	0.0%	3	4.0%	1	6.7%	4	4.1%
Neck	---	0.0%	3	4.0%	1	6.7%	4	4.1%
Hip/thigh/upper leg	---	0.0%	2	2.7%	1	6.7%	3	3.1%
Trunk	1	12.5%	4	5.3%	---	0.0%	5	5.1%
Foot	---	0.0%	1	1.3%	2	13.3%	3	3.1%
Lower leg	---	0.0%	2	2.7%	---	0.0%	2	2.0%
Other	---	0.0%	1	1.3%	1	6.7%	2	2.0%
Total	**8**	**100%**	**75**	**100%**	**15**	**100%**	**98**	**100%**

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

Table 22.4 Ten Most Common Cheerleading Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition n=8		Practice n=75		Performance n=15		Total n=98	
	n	%	n	%	n	%	n	%
Diagnosis								
Head/face concussion	4	50.0%	29	38.7%	3	20.0%	36	36.7%
Ankle strain/sprain	1	12.5%	10	13.3%	1	6.7%	12	12.2%
Hand/wrist strain/sprain	---	0.0%	6	8.0%	---	0.0%	6	6.1%
Hand/wrist fracture	---	0.0%	2	2.7%	2	13.3%	4	4.1%
Neck strain/sprain	---	0.0%	3	4.0%	1	6.7%	4	4.1%
Trunk strain/sprain	1	12.5%	3	4.0%	---	0.0%	4	4.1%
Shoulder other	---	0.0%	3	4.0%	1	6.7%	4	4.1%
Head/face contusion	---	0.0%	3	4.0%	---	0.0%	3	3.1%
Hip/thigh/upper leg strain/sprain	---	0.0%	2	2.7%	1	6.7%	3	3.1%
Knee other	---	0.0%	2	2.7%	1	6.7%	3	3.1%

Figure 22.2 Time Loss of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



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

Table 22.5 Cheerleading Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Need for surgery								
Required surgery	---	0.0%	1	1.3%	---	0.0%	1	1.0%
Did not require surgery	8	100%	74	98.7%	15	100%	97	99.0%
Total	**8**	**100%**	**75**	**100%**	**15**	**100%**	**98**	**100%**

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

Figure 22.3 History of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

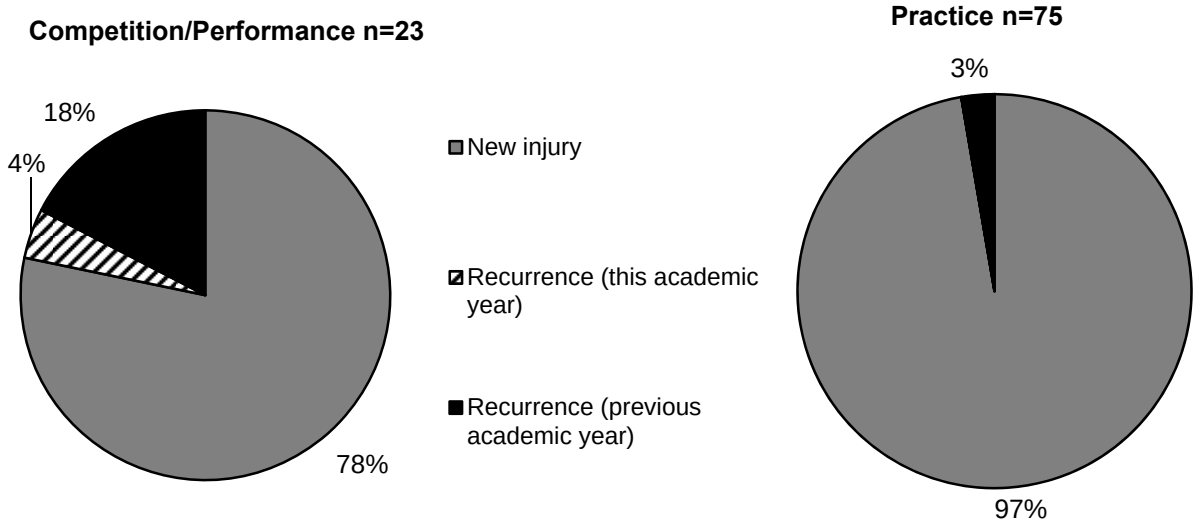


Table 22.6 Time during Season of Cheerleading Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Season		
Preseason	12	12.2%
Regular season	81	82.7%
Post season	5	5.1%
Total	**98**	**100%**

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

Table 22.7 Practice-Related Variables for Cheerleading Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	n	%
Time in Practice		
First 1/2 hour	10	14.3%
Second 1/2 hour	19	27.1%
1-2 hours into practice	38	54.3%
>2 hours into practice	3	4.3%
Total	**70**	**100%**

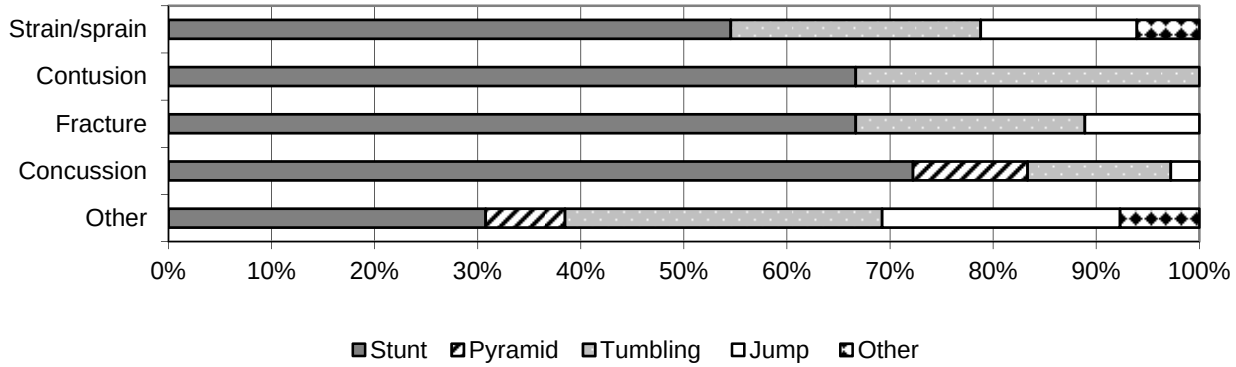
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 22.8 Activities Leading to Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Activity								
Stunt	3	37.5%	51	68.0%	4	28.6%	58	59.8%
Tumbling	5	62.5%	11	14.7%	5	35.6%	21	21.6%
Jump	---	0.0%	8	10.7%	2	14.3%	10	10.3%
Pyramid	---	0.0%	3	4.0%	2	14.3%	5	5.2%
Other	---	0.0%	2	2.7%	1	7.1%	3	3.1%
Total	**8**	**100%**	**75**	**100%**	**14**	**100%**	**97**	**100%**

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

Figure 22.4 Activity Resulting in Cheerleading Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year



XXIII. Gender Differences within Sports

23.1 Boys' and Girls' Soccer

Table 23.1 Comparison of Boys' and Girls' Soccer Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' soccer	Girls' soccer*	RR (95% CI)†
Total	1.71	**2.46**	**1.44 (1.26, 1.64)**
Competition	3.67	**5.46**	**1.49 (1.26, 1.75)**
Practice	0.91	**1.20**	**1.32 (1.06, 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 23.10 Comparison of Body Sites of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Body Site			
Head/face	29.2%	**30.8%**	1.06 (0.86, 1.29)
Hip/thigh/upper leg	**18.1%**	10.0%	**1.82 (1.30, 2.55)**
Ankle	13.0%	**21.4%**	**1.65 (1.22, 2.23)**
Knee	12.0%	**17.5%**	**1.45 (1.05, 2.02)**
Foot	**8.1%**	4.2%	**1.95 (1.13, 3.34)**
Lower leg	**5.9%**	6.0%	1.03 (0.61, 1.73)
Hand/wrist	**4.4%**	3.3%	1.33 (0.69, 2.57)
Trunk	**4.2%**	3.1%	1.34 (0.68, 2.64)
Shoulder	**2.2%**	1.2%	1.77 (0.64, 4.93)
Arm/elbow	1.0%	**1.0%**	1.06 (0.29, 3.92)
Neck	0.7%	**0.4%**	1.77 (0.30, 10.53)
Other	**1.2%**	1.0%	1.18 (0.34, 4.04)
Total	**100%**	**100%**	---

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

Table 23.11 Comparison of Diagnoses of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Strain/sprain	40.4%	**42.6%**	1.06 (0.90, 1.24)
Concussion	23.4%	**28.9%**	1.24 (0.99, 1.55)
Contusion	**15.3%**	10.8%	1.41 (1.00, 1.99)
Fracture	**7.4%**	4.0%	**1.87 (1.07, 3.27)**
Other	13.5%	**13.7%**	1.01 (0.73, 1.41)
Total	**100%**	**100%**	---

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

Table 23.12 Most Common Boys' and Girls' Soccer Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Head/face concussion	23.3%	**28.7%**	1.23 (0.98, 1.54)
Hip/thigh/upper leg strain/sprain	**13.5%**	8.7%	**1.54 (1.06, 2.26)**
Ankle strain/sprain	11.5%	**18.9%**	**1.64 (1.19, 2.28)**
Knee strain/sprain	6.1%	**10.0%**	**1.63 (1.02, 2.59)**

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

Table 23.13 Comparison of Time Loss of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Time Loss			
1-2 days	**14.7%**	11.9%	1.24 (0.89, 1.74)
3-6 days	**28.9%**	20.0%	**1.45 (1.15, 1.83)**
7-9 days	15.2%	**16.0%**	1.05 (0.78, 1.43)
10-21 days	18.1%	**22.7%**	1.25 (0.96, 1.63)
22 days or more	4.7%	**5.2%**	1.12 (0.62, 2.00)
Other	18.4%	**24.3%**	1.32 (1.02, 1.71)
Total	**100%**	**100%**	---

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

Table 23.14 Comparison of Mechanisms of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Mechanism			
Contact with another player	**30.5%**	28.8%	1.06 (0.86, 1.30)
N/A (overuse, heat illness, conditioning, etc.)	**15.5%**	14.2%	1.09 (0.79, 1.50)
Stepped on/fell on/kicked	**14.0%**	12.1%	1.16 (0.82, 1.64)
Contact with ball	12.5%	**16.9%**	1.36 (0.98, 1.88)
Rotation around planted foot/inversion	7.2%	**12.1%**	**1.67 (1.09, 2.55)**
Slide tackle	4.0%	**4.7%**	1.17 (0.62, 2.19)
Uneven playing surface	1.3%	**2.3%**	1.86 (0.65, 5.32)
Contact with goal	**1.3%**	0.4%	2.95 (0.58, 15.12)
Other	**13.8%**	8.5%	**1.62 (1.10, 2.38)**
Total	**100%**	**100%**	---

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

Table 23.15 Comparison of Activities of Boys' and Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Activity			
General play	22.7%	**28.4%**	1.25 (0.99, 1.58)
Defending	12.8%	**13.4%**	1.05 (0.75, 1.49)
Heading ball	**11.7%**	9.1%	1.29 (0.87, 1.91)
Chasing loose ball	**10.5%**	7.6%	1.38 (0.90, 2.12)
Ball handling/dribbling	8.7%	**9.3%**	1.08 (0.70, 1.65)
Goaltending	6.6%	**8.2%**	1.24 (0.77, 2.01)
Shooting (foot)	**6.4%**	5.2%	1.23 (0.71, 2.11)
Passing (foot)	5.1%	**5.6%**	1.11 (0.63, 1.95)
Conditioning	4.8%	**5.6%**	1.16 (0.65, 2.07)
Receiving pass	**4.3%**	2.6%	1.67 (0.81, 3.45)
Blocking shot	**3.3%**	2.2%	1.53 (0.68, 3.45)
Attempting slide tackle	**1.5%**	0.2%	7.06 (0.85, 58.36)
Receiving slide tackle	0.5%	**1.1%**	2.13 (0.42, 10.90)
Other	1.0%	**1.3%**	1.28 (0.36, 4.49)
Total	**100%**	**100%**	---

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

23.2 Boys' and Girls' Volleyball

Table 23.2 Comparison of Boys' and Girls' Volleyball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' volleyball	Girls' volleyball	RR (95% CI)
Total	0.53	**1.07**	**2.03 (1.11, 3.71)**
Competition	1.07	**1.37**	1.28 (0.62, 2.62)
Practice	0.22	**0.92**	**4.12 (1.31, 12.88)**

Table 23.20 Comparison of Body Sites of Boys' and Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' volleyball	Girls' volleyball	IPR (95% CI)
Body Site			
Ankle	**54.5%**	31.3%	1.74 (0.99, 3.08)
Head/face	**27.3%**	16.4%	1.66 (0.61, 4.53)
Hand/wrist	9.1%	**14.5%**	1.60 (0.24, 10.58)
Knee	9.1%	**9.9%**	1.09 (0.16, 7.33)
Trunk	0.0%	**7.6%**	---
Shoulder	0.0%	**6.5%**	---
Foot	0.0%	**3.4%**	---
Hip/thigh/upper leg	0.0%	**3.1%**	---
Lower leg	0.0%	**2.3%**	---
Arm/elbow	0.0%	**2.3%**	---
Neck	0.0%	**1.5%**	---
Other	0.0%	**1.1%**	---
Total	**100%**	**100%**	---

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

Table 23.21 Comparison of Diagnoses of Boys' and Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' volleyball	Girls' volleyball	IPR (95% CI)
Diagnosis			
Strain/sprain	**63.6%**	53.8%	1.18 (0.75, 1.87)
Concussion	18.2%	**15.3%**	1.19 (0.33, 4.31)
Fracture	**9.1%**	4.2%	2.17 (0.31, 15.31)
Contusion	0.0%	4.6%	---
Other	9.1%	**22.1%**	2.44 (0.37, 16.0)
Total	**100%**	**100%**	---

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

Table 23.22 Most Common Boys' and Girls' Volleyball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' volleyball	Girls' volleyball	IPR (95% CI)
Diagnosis			
Ankle strain/sprain	**54.5%**	30.2%	**1.81 (1.02, 3.20)**
Hand/wrist strain/sprain	**9.1%**	8.8%	1.04 (0.15, 6.99)
Knee fracture	**9.1%**	0.0%	---
Knee other	0.0%	**5.7%**	---
Shoulder other	0.0%	**5.3%**	---

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

Table 23.23 Comparison of Time Loss of Boys' and Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' volleyball	Girls' volleyball	IPR (95% CI)
Time Loss			
1-2 days	18.2%	**19.8%**	1.09 (0.30, 3.91)
3-6 days	9.1%	**26.7%**	2.94 (0.45, 19.25)
7-9 days	**27.3%**	15.6%	1.74 (0.64, 4.76)
10-21 days	9.1%	**19.5%**	2.14 (0.33, 14.10)
22 days or more	**9.1%**	4.2%	2.17 (0.31, 15.31)
Other	**27.3%**	14.1%	1.93 (0.70, 5.30)
Total	**100%**	**100%**	---

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

Table 23.24 Comparison of Mechanisms of Boys' and Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' volleyball	Girls' volleyball	IPR (95% CI)
Volleyball Mechanism			
Contact with teammate	**27.3%**	16.2%	1.68 (0.62, 4.59)
Jumping/landing	18.2%	**20.8%**	1.15 (0.32, 4.11)
Rotation around planted foot/inversion	**18.2%**	5.4%	3.36 (0.87, 13.02)
Contact with ball	9.1%	**22.0%**	2.42 (0.37, 15.91)
Diving for ball	**9.1%**	8.1%	1.12 (0.17, 7.60)
Contact with opponent	**9.1%**	2.3%	3.92 (0.52, 29.86)
N/A (overuse, heat illness, conditioning, etc.)	0.0%	**19.3%**	---
Contact with standard/pole	0.0%	**0.4%**	---
Contact with seats/bleachers/table	0.0%	**0.4%**	---
Other	**9.1%**	5.0%	1.81 (0.26, 12.63)
Total	**100%**	**100%**	---

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

Table 23.25 Comparison of Activities of Boys' and Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' volleyball	Girls' volleyball	IPR (95% CI)
Volleyball Activity			
Digging	**36.4%**	17.1%	2.13 (0.93, 4.87)
General play	18.2%	**25.6%**	1.41 (0.40, 5.01)
Blocking	18.2%	**21.7%**	1.19 (0.33, 4.27)
Spiking	**18.2%**	11.2%	1.62 (0.44, 5.93)
Setting	**9.1%**	6.6%	1.38 (0.20, 9.45)
Passing	0.0%	**6.2%**	---
Conditioning	0.0%	**3.5%**	---
Serving	0.0%	**3.5%**	---
Other	0.0%	**4.7%**	---
Total	**100%**	**100%**	---

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

23.3 Boys' and Girls' Basketball

Table 23.3 Comparison of Boys' and Girls' Basketball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' basketball	Girls' basketball	RR (95% CI)
Total	1.37	**1.78**	**1.30 (1.13, 1.49)**
Competition	2.57	**3.51**	**1.37 (1.14, 1.64)**
Practice	0.88	**1.06**	1.21 (0.99, 1.49)

Table 23.30 Comparison of Body Sites of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Body Site			
Ankle	**34.0%**	22.0%	**1.54 (1.23, 1.93)**
Head/face	22.0%	**25.1%**	1.14 (0.89, 1.46)
Knee	13.4%	**21.6%**	**1.60 (1.18, 2.18)**
Hand/wrist	8.1%	**9.2%**	1.15 (0.74, 1.78)
Hip/thigh/upper leg	**5.9%**	5.5%	1.08 (0.62, 1.88)
Trunk	**5.9%**	4.3%	1.38 (0.76, 2.50)
Lower leg	3.4%	**3.8%**	1.11 (0.55, 2.24)
Foot	**2.9%**	2.4%	1.24 (0.54, 2.83)
Shoulder	2.2%	**3.3%**	1.51 (0.66, 3.45)
Arm/elbow	**2.0%**	1.4%	1.38 (0.48, 3.93)
Neck	0.2%	**0.5%**	1.94 (0.18, 21.30)
Other	0.0%	**0.9%**	---
Total	**100%**	**100%**	---

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

Table 23.31 Comparison of Diagnoses of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Strain/sprain	**49.0%**	47.3%	1.04 (0.90, 1.19)
Concussion	14.9%	**22.0%**	**1.48 (1.10, 1.98)**
Fracture	**8.5%**	5.0%	1.72 (1.02, 2.90)
Contusion	8.3%	**9.7%**	1.17 (0.76, 1.80)
Other	**19.3%**	16.1%	1.20 (0.89, 1.61)
Total	**100%**	**100%**	---

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

Table 23.32 Most Common Boys' and Girls' Basketball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Ankle strain/sprain	**32.7%**	21.3%	**1.54 (1.22, 1.93)**
Head/face concussion	14.9%	**22.0%**	**1.48 (1.10, 1.98)**
Knee other	6.3%	**6.9%**	1.08 (0.65, 1.80)
Knee strain/sprain	5.4%	**10.4%**	**1.94 (1.18, 3.18)**
Hand/wrist strain/sprain	3.9%	**5.7%**	1.45 (0.78, 2.70)

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

Table 23.33 Comparison of Time Loss of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Time Loss			
1-2 days	**20.0%**	18.9%	1.06 (0.80, 1.39)
3-6 days	22.2%	22.2%	1.00 (0.78, 1.29)
7-9 days	**14.6%**	14.4%	1.02 (0.73, 1.41)
10-21 days	**20.2%**	17.0%	1.19 (0.89, 1.58)
22 days or more	6.8%	**8.3%**	1.21 (0.75, 1.95)
Other	16.1%	**19.1%**	1.19 (0.89, 1.60)
Total	**100%**	**100%**	---

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

Table 23.34 Comparison of Mechanisms of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Mechanism			
Collision with another player	**32.5%**	30.8%	1.05 (0.86, 1.29)
Jumping/landing	**24.1%**	15.9%	**1.52 (1.15, 2.01)**
Stepped on/fell on/kicked	**11.3%**	8.2%	1.38 (0.91, 2.11)
Rotation around a planted foot/inversion	10.3%	**11.1%**	1.07 (0.72, 1.59)
N/A (e.g., overuse, heat illness, etc.)	7.4%	**13.7%**	**1.86 (1.22, 2.83)**
Contact with ball	3.4%	**7.7%**	**2.24 (1.21, 4.13)**
Other	10.8%	**12.5%**	1.16 (0.79, 1.69)
Total	**100%**	**100%**	---

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

Table 23.35 Comparison of Activities of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Activity			
Rebounding	**24.7%**	16.2%	**1.53 (1.15, 2.03)**
General play	23.5%	**27.6%**	1.29 (0.59, 2.81)
Defending	14.6%	**18.7%**	1.27 (0.93, 1.74)
Shooting	**12.4%**	5.7%	**2.16 (1.34, 3.48)**
Chasing loose ball	**12.1%**	11.7%	1.04 (0.71, 1.51)
Ball handling/dribbling	4.8%	**8.0%**	1.66 (0.96, 2.88)
Receiving pass	3.3%	**4.2%**	1.29 (0.63, 2.62)
Conditioning	1.0%	**5.2%**	**5.17 (1.79, 14.93)**
Other	**3.5%**	2.7%	1.29 (0.59, 2.81)
Total	**100%**	**100%**	---

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

23.4 Boys' Baseball and Girls' Softball

Table 23.4 Comparison of Baseball and Softball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Baseball	Softball	RR (95% CI)
Total	0.87	**1.56**	**1.80 (1.48, 2.18)**
Competition	1.26	**2.30**	**1.82 (1.39, 2.38)**
Practice	0.64	**1.16**	**1.80 (1.36, 2.38)**

Table 23.40 Comparison of Body Sites of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Baseball	Softball	IPR (95% CI)
Body Site			
Head/face	22.0%	**26.8%**	1.22 (0.86, 1.72)
Arm/elbow	**15.9%**	4.6%	**3.46 (1.78, 6.74)**
Hand/wrist	**12.6%**	12.1%	1.04 (0.62, 1.74)
Shoulder	**11.0%**	8.8%	1.25 (0.70, 2.24)
Hip/thigh/upper leg	**9.9%**	8.4%	1.18 (0.64, 2.17)
Ankle	8.2%	**14.6%**	1.78 (1.00, 3.15)
Trunk	**7.1%**	3.8%	1.90 (0.83, 4.34)
Knee	6.0%	**12.6%**	**2.08 (1.07, 4.03)**
Lower leg	3.3%	**5.0%**	1.52 (0.58, 3.98)
Foot	**2.2%**	1.3%	1.75 (0.40, 7.73)
Neck	1.1%	**1.3%**	1.14 (0.19, 6.77)
Other	0.5%	**0.8%**	1.52 (0.14, 16.67)
Total	**100%**	**100%**	---

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

Table 23.41 Comparison of Diagnoses of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Strain/sprain	35.9%	**37.2%**	1.04 (0.80, 1.34)
Contusion	12.2%	**18.0%**	1.48 (0.92, 2.38)
Concussion	11.6%	**18.4%**	1.59 (0.98, 2.57)
Fracture	**11.6%**	10.9%	1.07 (0.62, 1.83)
Other	**28.7%**	15.5%	**1.86 (1.28, 2.70)**
Total	**100%**	**100%**	---

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

Table 23.42 Most Common Baseball and Softball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Head/face concussion	11.5%	**18.4%**	1.60 (0.99, 2.59)
Hip/thigh/upper leg strain/sprain	**9.3%**	5.9%	1.60 (0.81, 3.15)
Ankle strain/sprain	7.7%	**11.7%**	1.52 (0.83, 2.81)
Shoulder other	**6.6%**	3.8%	1.75 (0.75, 4.07)
Hand/wrist fracture	6.0%	**6.3%**	1.04 (0.49, 2.21)

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

Table 23.43 Comparison of Time Loss of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Baseball	Softball	IPR (95% CI)
Time Loss			
1-2 days	**17.6%**	15.1%	1.17 (0.76, 1.80)
3-6 days	18.7%	**25.5%**	1.37 (0.94, 1.98)
7-9 days	10.4%	**13.0%**	1.24 (0.73, 2.13)
10-21 days	**22.0%**	17.2%	1.28 (0.87, 1.89)
22 days or more	**12.1%**	7.9%	1.52 (0.85, 2.72)
Other	19.2%	**21.3%**	1.11 (0.76, 1.07)
Total	**100%**	**100%**	---

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

Table 23.44 Comparison of Mechanisms of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Mechanism			
Contact with another player	**14.4%**	13.6%	1.06 (0.65, 1.70)
Throwing - pitching	**14.4%**	3.0%	**4.82 (2.14, 10.86)**
N/A (overuse, heat illness, conditioning, etc.)	10.5%	**10.6%**	1.01 (0.58, 1.78)
Hit by batted ball	9.4%	**13.2%**	1.41 (0.80, 2.46)
Hit by pitch	**8.3%**	3.4%	**2.43 (1.06, 5.62)**
Contact with bases	7.2%	**12.8%**	1.78 (0.96, 3.31)
Contact with thrown ball (non-pitch)	6.1%	**11.9%**	1.96 (1.00, 3.83)
Throwing - not pitching	**5.5%**	5.1%	1.08 (0.48, 2.45)
Rotation around a planted foot/inversion	3.9%	**7.2%**	1.87 (0.79, 4.41)
Other	**20.4%**	19.1%	1.07 (0.72, 1.58)
Total	**100%**	**100%**	---

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

Table 23.45 Comparison of Activities of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Activity			
Pitching	**17.8%**	6.0%	**2.98 (1.64, 5.42)**
Fielding a batted ball	17.2%	**27.7%**	**1.61 (1.10, 2.35)**
Running bases	**16.7%**	11.5%	1.45 (0.90, 2.35)
Batting	**13.9%**	6.8%	**2.04 (1.12, 3.71)**
Throwing (not pitching)	**9.4%**	7.2%	1.31 (0.69, 2.49)
Fielding a thrown ball	6.1%	**6.4%**	1.04 (0.49, 2.22)
General play	**5.6%**	4.3%	1.31 (0.56, 3.07)
Sliding	3.9%	**12.8%**	**3.28 (1.48, 7.30)**
Catching	3.3%	**8.5%**	**2.55 (1.05, 6.23)**
Conditioning	2.2%	**3.4%**	1.53 (0.47, 5.01)
Other	3.9%	**5.5%**	1.42 (0.58, 3.49)
Total	**100%**	**100%**	---

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

23.5 Boys' and Girls' Swimming

Table 23.5 Comparison of Boys' and Girls' Swimming Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' swimming	Girls' swimming	RR (95% CI)
Total	0.19	**0.38**	**2.02 (1.04, 4.12)**
Competition	0.08	**0.14**	1.77 (0.16, 19.49)
Practice	0.21	**0.43**	**2.04 (1.01, 4.12)**

Table 23.50 Comparison of Body Sites of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Body Site			
Shoulder	**66.7%**	39.3%	1.70 (0.92, 3.12)
Head/face	**16.7%**	10.7%	1.56 (0.30, 8.15)
Lower leg	**16.7%**	0.0%	---
Knee	0.0%	**17.9%**	---
Trunk	0.0%	**17.9%**	---
Ankle	0.0%	**10.7%**	---
Arm/elbow	0.0%	**3.6%**	---
Total	**100%**	**100%**	**---**

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

Table 23.51 Comparison of Diagnoses of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Concussion	**16.7%**	10.7%	1.56 (0.30, 8.15)
Strain/sprain	8.3%	**35.7%**	4.29 (0.62, 29.86)
Contusion	0.0%	**3.6%**	---
Fracture	0.0%	0.0%	---
Other	**75.0%**	50.0%	1.50 (0.92, 2.46)
Total	**100%**	**100%**	---

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

Table 23.52 Most Common Boys' and Girls' Swimming Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Shoulder other	**66.7%**	21.4%	**3.11 (1.38, 7.02)**
Lower leg other	**8.3%**	0.0%	**---**
Shoulder strain/sprain	0.0%	**17.9%**	---
Trunk other	0.0%	**7.1%**	---
Trunk strain/sprain	**0.0%**	**7.1%**	---

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

Table 23.53 Comparison of Time Loss of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Time Loss			
1-2 days	**16.7%**	14.3%	1.17 (0.25, 5.53)
3-6 days	16.7%	**32.1%**	1.93 (0.49, 7.63)
7-9 days	**25.0%**	3.6%	7.00 (0.81, 60.68)
10-21 days	25.0%	**28.6%**	1.14 (0.37, 3.58)
22 days or more	0.0%	**10.7%**	---
Other	**16.7%**	10.7%	1.56 (0.30, 8.15)
Total	**100%**	**100%**	---

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

Table 23.54 Comparison of Mechanisms of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Mechanism			
N/A (overuse, heat illness, conditioning, etc.)	58.3%	**75.0%**	1.29 (0.76, 2.17)
Contact with wall	**25.0%**	3.6%	7.00 (0.81, 60.68)
Contact with another person	**8.3%**	3.6%	2.33 (0.16, 34.31)
Other	8.3%	**17.9%**	2.14 (0.28, 16.44)
Total	**100%**	**100%**	**---**

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

Table 23.55 Comparison of Activities of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Activity			
Swimming	**75.0%**	64.3%	1.17 (0.76, 1.79)
Flip turn off wall	**8.3%**	3.6%	2.33 (0.16, 34.31)
Diving off board/platform/starting platform	0.0%	**17.9%**	---
Other	**16.7%**	14.3%	1.17 (0.25, 5.53)
Total	**100%**	**100%**	---

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

23.6 Boys' and Girls' Track and Field

Table 23.6 Comparison of Boys' and Girls' Track and Field Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' track	Girls' track	RR (95% CI)
Total	0.74	**0.93**	**1.25 (1.01, 1.54)**
Competition	**1.16**	1.07	1.08 (0.72, 1.62)
Practice	0.64	**0.89**	**1.39 (1.09, 1.79)**

Table 23.60 Comparison of Body Sites of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' track	Girls' track	IPR (95% CI)
Body Site			
Hip/thigh/upper leg	**49.1%**	34.6%	**1.42 (1.10, 1.83)**
Lower leg	15.2%	**23.5%**	1.55 (0.99, 2.42)
Ankle	**11.5%**	11.2%	1.03 (0.57, 1.86)
Knee	6.7%	**12.3%**	1.84 (0.92, 3.68)
Trunk	**5.5%**	3.9%	1.40 (0.53, 3.66)
Foot	4.8%	**8.4%**	1.73 (0.75, 3.97)
Shoulder	**2.4%**	1.7%	1.45 (0.33, 6.37)
Head/face	**1.8%**	1.7%	1.09 (0.22, 5.30)
Arm/elbow	**1.2%**	0.6%	2.17 (0.20, 23.71)
Hand/wrist	0.0%	**1.7%**	---
Neck	0.0%	**0.6%**	**---**
Other	**1.8%**	0.0%	---
Total	**100%**	**100%**	---

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

Table 23.61 Comparison of Diagnoses of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Strain/sprain	**67.3%**	51.1%	**1.32 (1.10, 1.57)**
Contusion	2.4%	**4.5%**	1.85 (0.57, 6.04)
Fracture	1.2%	**3.4%**	2.78 (0.57, 13.59)
Concussion	1.2%	**1.7%**	1.39 (0.24, 8.22)
Other	27.9%	**39.3%**	**1.41 (1.04, 1.92)**
Total	**100%**	**100%**	---

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

Table 23.62 Most Common Boys' and Girls' Track and Field Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Hip/thigh/upper leg strain/sprain	**43.0%**	29.6%	**1.45 (1.09, 1.94)**
Lower leg other	11.5%	**19.0%**	1.65 (0.98, 2.78)
Hip/thigh/upper leg other	**5.5%**	4.5%	1.22 (0.48, 3.09)
Trunk strain/sprain	**3.6%**	1.7%	2.17 (0.55, 8.54)
Shoulder strain/sprain	**1.8%**	1.7%	1.09 (0.22, 5.30)

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

Table 23.63 Comparison of Time Loss of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' track	Girls' track	IPR (95% CI)
Time Loss			
1-2 days	13.9%	**14.0%**	1.00 (0.59, 1.85)
3-6 days	24.8%	**34.1%**	1.37 (0.98, 1.92)
7-9 days	**18.8%**	17.9%	1.05 (0.67, 1.64)
10-21 days	**21.8%**	17.9%	1.22 (0.80, 1.87)
22 days or more	**7.3%**	2.2%	**3.26 (1.07, 9.89)**
Other	13.3%	**14.0%**	1.05 (0.62, 1.78)
Total	**100%**	**100%**	---

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

Table 23.64 Comparison of Mechanisms of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Mechanism			
N/A (e.g., overuse, heat illness, conditioning, etc.)	54.0%	**60.3%**	1.12 (0.93, 1.35)
Contact with ground/track/surface	**17.8%**	14.5%	1.23 (0.75, 1.99)
Fall/trip	**6.7%**	3.4%	2.01 (0.76, 5.32)
Rotation around planted foot/inversion	5.5%	**7.3%**	1.32 (0.58, 3.00)
Contact with field equipment	3.1%	**3.4%**	1.09 (0.34, 3.51)
Uneven playing surface	**1.8%**	1.1%	1.65 (0.28, 9.73)
Stepped on/kicked	**0.6%**	0.0%	---
Contact with another person	0.0%	**2.2%**	---
Other	**10.4%**	7.8%	1.33 (0.68, 2.62)
Total	**100%**	**100%**	---

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

Table 23.65 Comparison of Activities of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2011-12 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Activity			
Running	**66.5%**	61.5%	1.08 (0.92, 1.27)
Jumping/landing	12.8%	**17.3%**	1.35 (0.81, 2.26)
Conditioning	**6.1%**	4.5%	1.36 (0.55, 3.37)
Throwing	4.3%	**4.5%**	1.05 (0.39, 2.82)
Running hurdles	3.0%	**5.0%**	1.65 (0.56, 4.82)
Warming up	1.8%	**3.9%**	2.14 (0.56, 8.13)
Leaving block	**1.2%**	1.1%	1.09 (0.16, 7.66)
Hit by shot put/discus/javelin/hammer	0.6%	**1.1%**	1.83 (0.17, 20.02)
Other	**3.7%**	1.1%	3.27 (0.67, 16.00)
Total	**100%**	**100%**	---

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

XXIV. Reporter Demographics & Compliance

During the 2011-12 school year, 208 ATs were invited to participate in the study at the beginning of the school year. ATs were expected to report for every week in which they were enrolled. For example, an AT who joined the study as a replacement school in week 10 was not expected to report for weeks 1-9. Overall, 174 enrolled ATs reported an average of 37 study weeks. The majority of ATs (77.2%) reported all the weeks during which they were enrolled, with only 16.9% 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 2010-11 academic year yielded 96.3% sensitivity, 100.0% specificity, a positive predictive value of 100.0%, and a negative predictive value of 99.5%.

Prior to the start of the 2011-12 High School RIO™ study, participating ATs were asked to complete a short demographics survey. Three-quarters (80.2%) of participating high schools were public schools, with the remainder being private. All ATs except one provided services to athletes of their high school on 5 or more days each week. Over 80% (81.3%) of ATs participating during the 2011-12 study year had previously participated in the High School RIO™ study.

An online "End of Season" survey gave all participating ATs (both in the original study as well as in the expanded study (n=183 combined) the opportunity to provide feedback on their experiences with High School RIO™. This survey was completed by 132 ATs (72.1%). Average reporting time burdens were 19 minutes for the weekly exposure report and 9 minutes for the injury report form. Using a 5 point Likert scale, RIO™ was overwhelmingly reported to be either very easy (49.2%) or somewhat easy (42.4%) to use (5 and 4 on the Likert scale,

respectively), with ATs being either very satisfied (58.3%) or somewhat satisfied (33.3%) 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 2012-13 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.