CONVENIENCE SAMPLE SUMMARY REPORT

NATIONAL HIGH SCHOOL SPORTS-RELATED INJURY SURVEILLANCE STUDY

2012-2013 School Year

Compiled by:

R. Dawn Comstock, PhD

Christy L. Collins, MA

Dustin Currie, BS

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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.

For reprints/further information contact:
R. Dawn Comstock, PhD
Associate Professor
Epidemiology, Colorado School of Public Health
Pediatric Injury Prevention, Education, and Research (PIPER) program

Center for Injury Research and Policy
700 Children's Drive
Columbus, Ohio, 43205
(614) 355-5850 phone
(614) 355-5897 fax
highschoolrio@nationwidechildrens.org

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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 2005-06 school year, Dr. R. Dawn Comstock has conducted the National High School Sports-Related Injury Surveillance System to monitor injuries among US high school athletes participating in boys' football, boys' and girls' soccer, boys' and girls' volleyball, boys' and girls' basketball, boys' wrestling, boys' baseball, girls' softball, girls' field hockey, girls' gymnastics, boys' ice hockey, boys' and girls' lacrosse, boys' and girls' swimming & diving, boys' and girls' track & field, boys' and girls' cross country, and cheerleading. This surveillance has been conducted using the time- and cost-efficient RIO^{TM} (Reporting Information Online) surveillance system. This study during the 2012-13 academic year was funded by the Centers for Disease Control and Prevention (CDC), National Operating Committee on Standards for Athletic Equipment (NOCSAE), and the National Federation of State High School Associations (NFHS).

1.3 Specific Aims

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

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

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

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

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

E) To identify potential risk or protective factors.

1.4 Project Design

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

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

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

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

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

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

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

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

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

1.5 Sample Recruitment

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

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

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

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

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

School Participation by Sport, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year.*

	# Schools in Random Sample	# Schools in Convenience Sample	# Schools Total
Original Sports			
Football	92	71	163
Boys' Soccer	87	66	153
Girls' Soccer	84	63	147
Girls' Volleyball	90	71	161
Boys' Basketball	97	74	171
Girls' Basketball	96	75	171
Wrestling	81	68	149
Baseball	91	60	151
Softball	92	63	155
New Sports			
Field Hockey	21	34	55
Ice Hockey	12	20	32
Boys' Lacrosse	19	37	56
Girls' Lacrosse	19	36	55
Boys' Swimming and Diving	36	56	92
Girls' Swimming and Diving	38	55	93
Boys' Track and Field	67	73	140
Girls' Track and Field	66	72	138
Boys' Cross Country	58	71	129
Girls' Cross Country	58	78	136
Cheerleading	50	77	127
Total	**100**	**108**	**208**

*Numbers only include schools who actually reported data for the 2012-13 school year.

1.6 Data Collection

Each AT that enrolled their school in National High School Sports-Related Injury Surveillance System received an email every Monday throughout the study period reminding them to enter their school's data into the surveillance system. Each participating AT was asked to complete 45 weekly exposure reports: one for each week from July 30, 2012 through June 9, 2013. 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, 2012-13 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Overall total	**7,962**	**4,649,958**	**1.71**
Competition	**4,121**	**1,149,996**	**3.58**
Practice	**3,818**	**3,448,934**	**1.11**
Performance	**23**	**51,028**	**0.45**
Boys' football total	3,144	814,862	3.86
Competition	1,679	138,335	12.14
Practice	1,465	676,527	2.17
Boys' soccer total	416	291,519	1.43
Competition	270	87,862	3.07
Practice	146	203,657	0.72
Girls' soccer total	556	238,852	2.33
Competition	412	72,161	5.71
Practice	144	166,691	0.86
Girls' volleyball total	284	279,165	1.02
Competition	111	94,448	1.18
Practice	173	184,717	0.94
Boys' basketball total	568	376,827	1.51
Competition	300	114,787	2.61
Practice	268	262,040	1.02
Girls' basketball total	581	298,208	1.95
Competition	326	94,049	3.47
Practice	255	204,159	1.25
Boys' wrestling total	574	272,077	2.11
Competition	231	72,909	3.17
Practice	343	199,168	1.72
Boys' baseball total	246	288,730	0.85
Competition	131	99,222	1.32
Practice	115	189,508	0.61
Girls' softball total	240	205,072	1.17
Competition	131	70,041	1.87
Practice	109	135,031	0.81
Girls' Field Hockey total	123	83,070	1.48
Competition	58	27,324	2.12
Practice	65	55,746	1.17

Table 2.1 (Continued) Injury Rates by Sport and Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

	# Injuries	# Exposures	Injury rate (per 1,000 AEs)
Boys' Ice Hockey total	117	57,852	2.02
Competition	98	19,039	5.15
Practice	19	38,813	0.49
Boys' Lacrosse total	209	112,372	1.86
Competition	132	35,268	3.74
Practice	77	77,104	1.00
Girls' Lacrosse total	102	82,424	1.24
Competition	65	26,995	2.41
Practice	37	55,429	0.67
Boys' Swimming total	12	105,362	0.11
Competition	1	18,773	0.05
Practice	11	86,589	0.13
Girls' Swimming total	30	114,803	0.26
Competition	10	21,033	0.48
Practice	20	93,770	0.21
Boys' Track total	157	287,667	0.55
Competition	60	55,368	1.08
Practice	97	232,299	0.42
Girls' Track total	203	236,271	0.86
Competition	48	44,163	1.09
Practice	155	192,108	0.81
Boys' Cross Country total	84	129,244	0.65
Competition	17	21,845	0.78
Practice	67	107,399	0.62
Girls' Cross Country total	124	113,000	1.10
Competition	22	19,519	1.13
Practice	102	93,481	1.09
Cheerleading total	192	262,581	0.73
Competition	19	16,855	1.13
Practice	150	194,698	0.77
Performance	23	51,028	0.45

*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, 2012-13 School Year*

	≥1 day time loss	<1 day time loss	Total
Overall	**98.1%**	**1.9%**	**100%**
Boys' football	98.2%	1.8%	**100%**
Boys' soccer	98.1%	1.9%	**100%**
Girls' soccer	97.7%	2.3%	**100%**
Girls' volleyball	97.6%	2.4%	**100%**
Boys' basketball	97.3%	2.7%	**100%**
Girls' basketball	97.6%	2.4%	**100%**
Boys' wrestling	98.8%	1.2%	**100%**
Boys' baseball	96.1%	3.9%	**100%**
Girls' softball	98.4%	1.6%	**100%**
Girls' field hockey	98.4%	1.6%	**100%**
Boys' ice hockey	100.0%	0.0%	**100%**
Boys' lacrosse	99.5%	0.5%	**100%**
Girls' lacrosse	99.0%	1.0%	**100%**
Boys' swimming	100.0%	0.0%	**100%**
Girls' swimming	96.8%	3.2%	**100%**
Boys' track	98.7%	1.3%	**100%**
Girls' track	99.0%	1.0%	**100%**
Cheerleading	99.0%	1.0%	**100%**
Boys' cross country	96.6%	3.4%	**100%**
Girls' cross country	96.9%	3.1%	**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, 2012-13 School Year*

	Male	Female
Year in School	**n=5,356**	**n=2,370**
Freshman	24.5%	27.1%
Sophomore	23.7%	27.4%
Junior	25.4%	23.5%
Senior	26.4%	22.1%
Total†	**100%**	**100%**
Age (years)		
Minimum	12	12
Maximum	20	18
Mean (St. Dev.)	15.9 (1.3)	15.7 (1.2)
BMI		
Minimum	10.0	12.6
Maximum	49.9	42.4
Mean (St. Dev.)	24.7 (4.4)	22.0 (3.5)

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

Figure 2.1 Injury Diagnosis by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

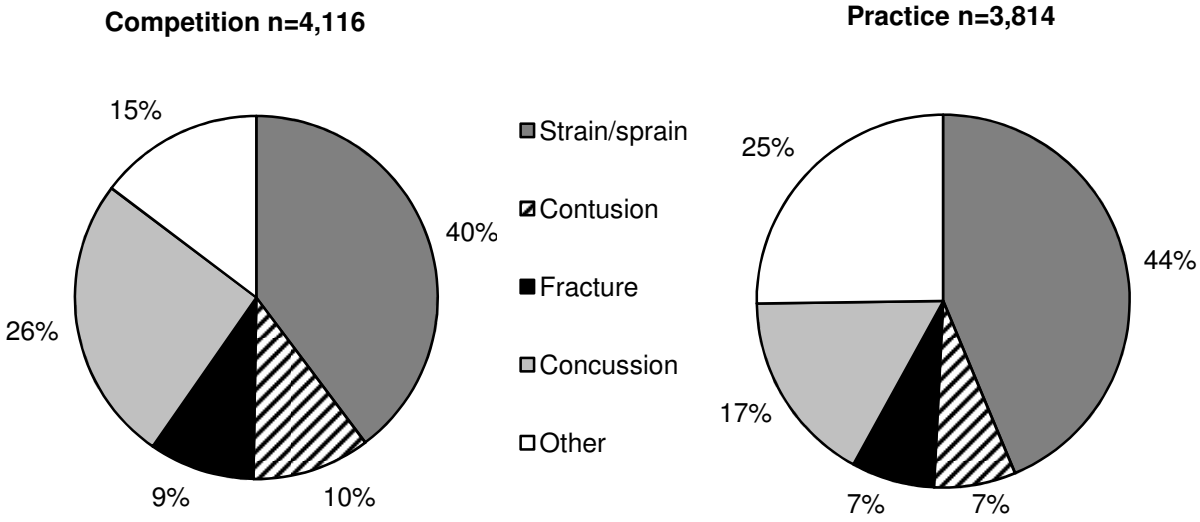


Table 2.4 Body Site of Injury by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall*	
	n	%	n	%	n	%
Body Site						
Head/face	1,175	28.5%	764	20.0%	1,943	24.4%
Ankle	642	15.6%	579	15.2%	1,224	15.4%
Knee	634	15.4%	487	12.8%	1,125	14.1%
Hip/thigh/upper leg	328	8.0%	475	12.4%	804	10.1%
Shoulder	299	7.3%	262	6.9%	563	7.1%
Hand/wrist	283	6.9%	267	7.0%	552	6.9%
Lower leg	152	3.7%	261	6.8%	414	5.2%
Trunk	158	3.8%	242	6.3%	402	5.1%
Foot	119	2.9%	150	3.9%	272	3.4%
Arm/elbow	133	3.2%	137	3.6%	270	3.4%
Neck	90	2.2%	78	2.0%	168	2.1%
Other	104	2.5%	115	3.0%	220	2.8%
Total	**4,117**	**100%**	**3,817**	**100%**	**7,957**	**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, 2012-13 School Year

	Male		Female		Total	
	n	% of ankle injuries	n	% of ankle injuries	n	% of ankle injuries
Ankle Ligament						
Anterior talofibular ligament	492	70.1%	368	75.3%	860	72.2%
Calcaneofibular ligament	210	29.9%	156	31.9%	366	30.7%
Anterior tibiofibular ligament	169	24.1%	98	20.0%	267	22.4%
Posterior talofibular ligament	64	9.1%	58	11.9%	122	10.2%
Deltoid ligament	66	9.4%	35	7.2%	101	8.5%
Posterior tibiofibular ligament	31	4.4%	20	4.1%	51	4.3%
Total Ankle Injuries	**702**		**489**		**1,191**	

*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, 2012-13 School Year

	Male		Female		Total	
	n	% of knee injuries	n	% of knee injuries	n	% of knee injuries
Knee Ligament						
Medial collateral ligament	239	32.3%	53	15.4%	292	27.0%
Anterior cruciate ligament	142	19.2%	113	32.8%	255	23.5%
Patella/patellar tendon	151	20.4%	92	26.7%	243	22.4%
Torn cartilage (meniscus)	151	20.4%	69	20.1%	220	20.3%
Lateral collateral ligament	50	6.8%	20	5.8%	70	6.5%
Posterior cruciate ligament	11	1.5%	10	2.9%	21	1.9%
Total Knee Injuries	**739**		**344**		**1,083**	

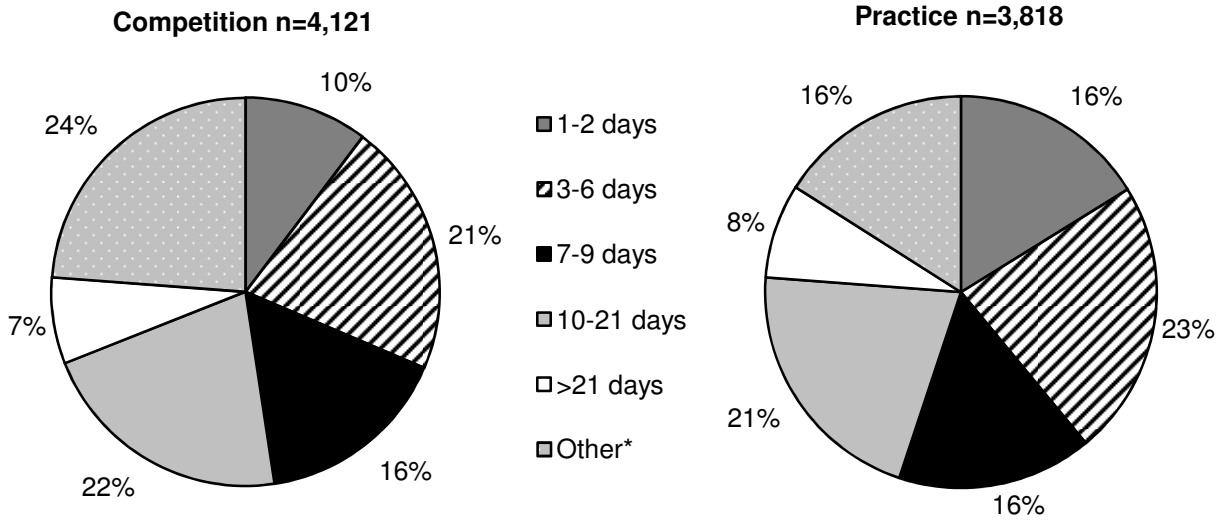
*Multiple responses allowed per injury report.
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 2.7 Ten Most Common Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=4,112		Practice n=3,813		Overall n=7,948	
	n	%	n	%	N	%
Diagnosis						
Head/face concussion	1,050	25.5%	639	16.8%	1,690	21.3%
Ankle strain/sprain	598	14.5%	532	14.0%	1,133	14.3%
Hip/thigh/upper leg strain/sprain	224	5.4%	380	10.0%	605	7.6%
Knee strain/sprain	387	9.4%	210	5.5%	597	7.5%
Knee other	154	3.7%	222	5.8%	379	4.8%
Shoulder other	165	4.0%	134	3.5%	299	3.8%
Hand/wrist fracture	146	3.6%	117	3.1%	264	3.3%
Shoulder strain/sprain	111	2.7%	109	2.9%	222	2.8%
Lower leg other	20	0.5%	150	3.9%	170	2.1%
Trunk strain/sprain	53	1.3%	113	3.0%	168	2.1%

†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, 2012-13 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, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	334	8.3%	184	4.9%	520	6.6%
Did not require surgery	3,709	91.7%	3,578	95.1%	7,308	93.4%
Total	**4,043**	**100%**	**3,762**	**100%**	**7,828**	**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, 2012-13 School Year

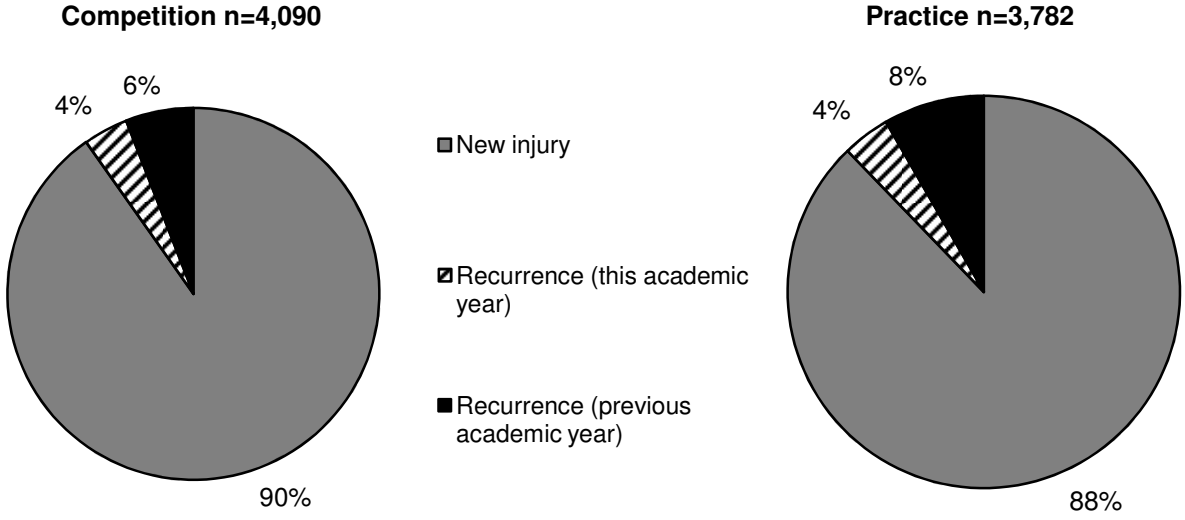


Table 2.9 Time during Season of Injury, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	1,717	21.6%
Regular season	5,934	74.7%
Post season	288	3.6%
Total	**7,939**	**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, 2012-13 School Year

	n	%
Time in Practice		
First ½ hour	412	11.6%
Second ½ hour	694	19.5%
1-2 hours into practice	2,065	58.0%
> 2 hours into practice	391	11.0%
Total	**3,562**	**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, 2012-13 School Year

	n	%
% of Injuries Evaluated by:*		
Certified athletic trainer	7,420	93.2%
General physician	2,773	34.8%
Orthopedic physician	2,603	32.7%
Neurologist	115	1.4%
Physician's assistant	113	1.4%
Chiropractor	99	1.2%
Nurse practitioner	47	0.6%
Dentist/oral surgeon	21	0.3%
Other	266	3.3%
Total	**7,962**	
% of Injuries Assessed by:*		
Evaluation	7,804	98.0%
X-ray	2,723	34.2%
MRI	826	10.4%
CT-scan	316	4.0%
Surgery	88	1.1%
Blood work/lab test	76	1.0%
Other	59	0.7%
Total	**7,962**	

*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, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**3,144**	**814,862**	**3.86**
Competition	1,679	138,335	12.14
Practice	1,465	676,527	2.17

Table 3.2 Demographic Characteristics of Injured Football Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=3,102**
Freshman	25.9%
Sophomore	23.5%
Junior	25.6%
Senior	25.0%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.8 (1.2)
BMI	
Minimum	16.0
Maximum	49.9
Mean (SE)	25.7 (4.7)

*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, 2012-13 School Year

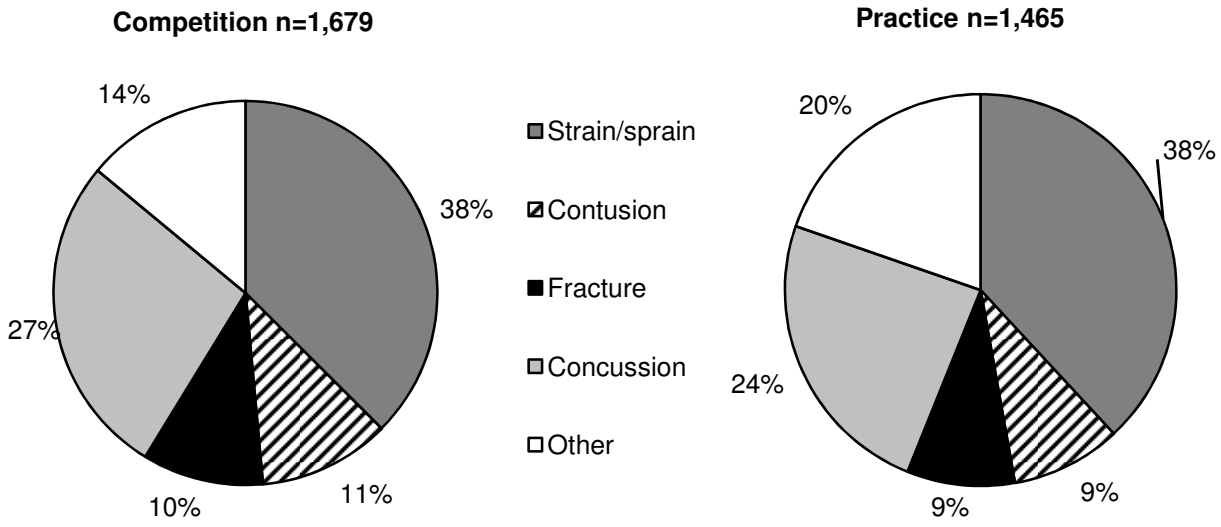


Table 3.3 Body Site of Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	475	28.3%	374	25.5%	849	27.0%
Knee	258	15.4%	190	13.0%	448	14.2%
Ankle	209	12.4%	155	10.6%	364	11.6%
Shoulder	164	9.8%	108	7.4%	272	8.7%
Hand/wrist	130	7.7%	140	9.6%	270	8.6%
Hip/thigh/upper leg	100	6.0%	144	9.8%	244	7.8%
Trunk	69	4.1%	111	7.6%	180	5.7%
Lower leg	60	3.6%	52	3.5%	112	3.6%
Arm/elbow	57	3.4%	50	3.4%	107	3.4%
Neck	62	3.7%	42	2.9%	104	3.3%
Foot	40	2.4%	43	2.9%	83	2.6%
Other	55	3.3%	56	3.8%	111	3.5%
Total	**1,679**	**100%**	**1,465**	**100%**	**3,144**	**100%**

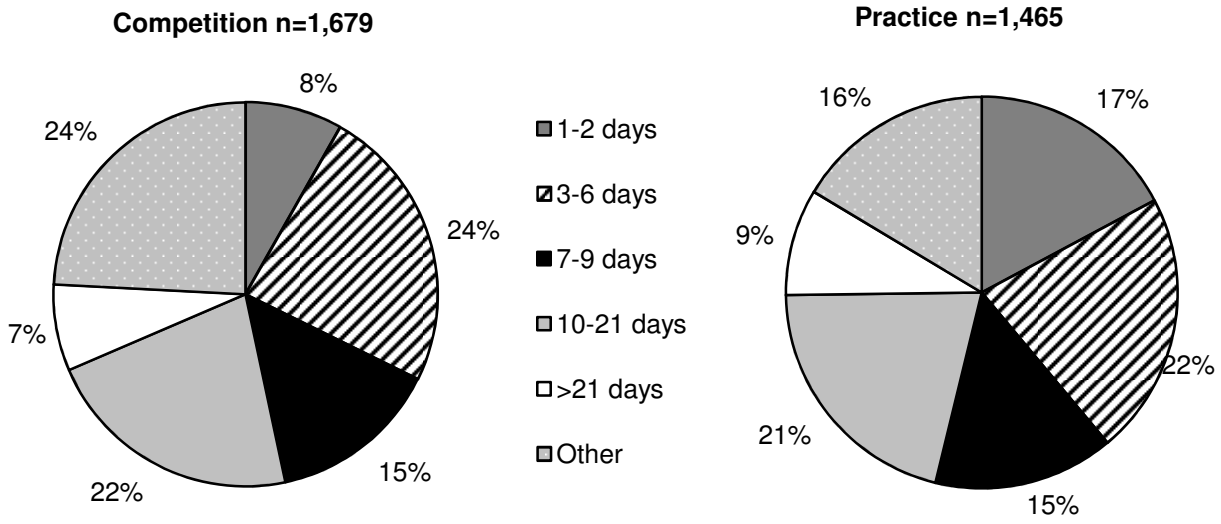
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 3.4 Ten Most Common Football Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=1,679		Practice n=1,465		Total n=3,144	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	456	27.2%	354	24.2%	810	25.8%
Ankle strain/sprain	193	11.5%	142	9.7%	335	10.7%
Knee strain/sprain	177	10.5%	101	6.9%	278	8.8%
Hip/thigh/upper leg strain/sprain	51	3.0%	108	7.4%	159	5.1%
Hand/wrist fracture	70	4.2%	74	5.1%	144	4.6%
Shoulder other	90	5.4%	53	3.6%	143	4.5%
Knee other	49	2.9%	70	4.8%	119	3.8%
Shoulder strain/sprain	61	3.6%	45	3.1%	106	3.4%
Hand/wrist strain/sprain	34	2.0%	37	2.5%	71	2.3%
Hip/thigh/upper leg contusion	40	2.4%	30	2.0%	70	2.2%

†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, 2012-13 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, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	143	8.7%	70	4.8%	213	6.9%
Did not require surgery	1,503	91.3%	1,383	95.2%	2,886	93.1%
Total	**1,646**	**100%**	**1,453**	**100%**	**3,099**	**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, 2012-13 School Year

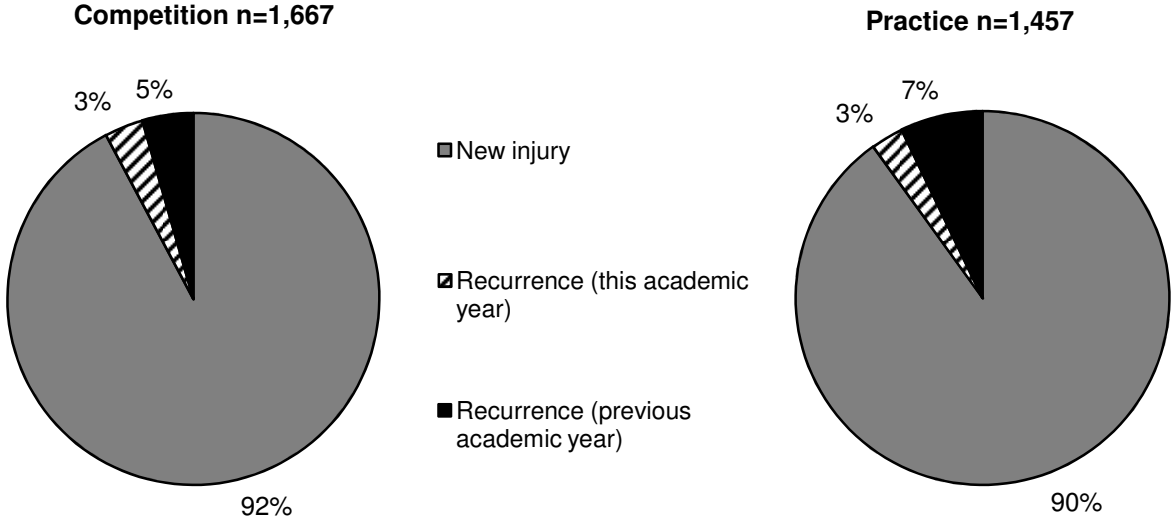


Table 3.6 Time during Season of Football Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	811	25.9%
Regular season	2,170	69.2%
Post season	155	4.9%
Total	**3,136**	**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, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	12	0.8%
First quarter	205	13.1%
Second quarter	468	29.9%
Third quarter	458	29.2%
Fourth quarter	419	26.8%
Overtime	4	0.3%
Total	**1,566**	**100%**
Field Location		
Between the 20 yard lines	1,222	79.3%
Red zone (20 yard line to goal line)	279	18.1%
End zone	23	1.5%
Off the field	17	1.1%
Total	**1,541**	**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, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	121	8.8%
Second 1/2 hour	205	14.9%
1-2 hours into practice	841	61.3%
>2 hours into practice	206	15.0%
Total	**1,373**	**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, 2012-13 School Year

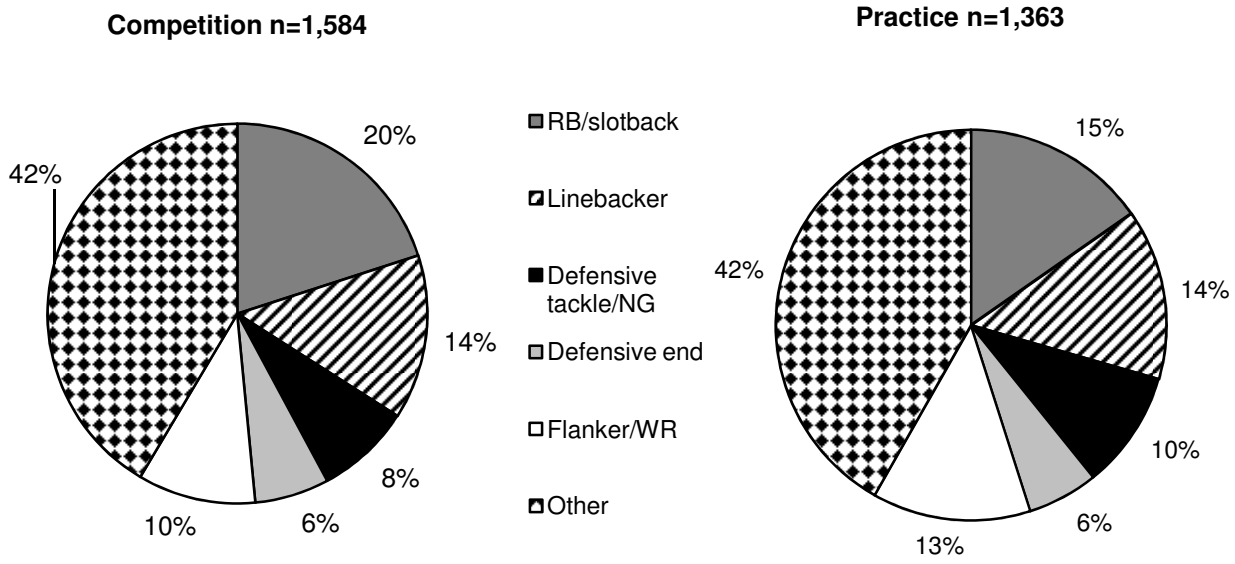
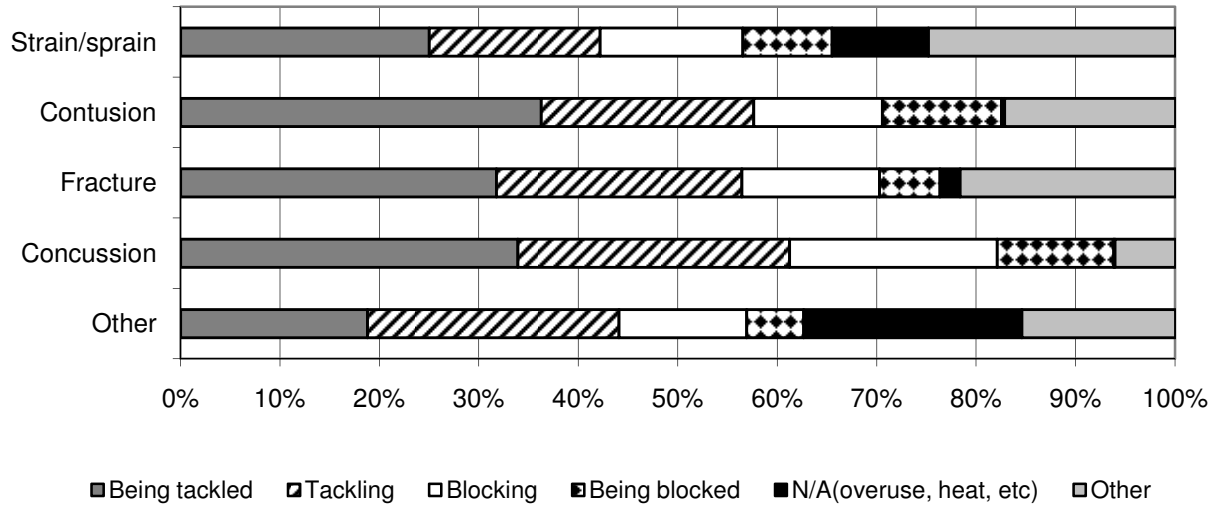


Table 3.9 Activities Leading to Football Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Being tackled	550	34.1%	298	21.1%	848	28.1%
Tackling	416	25.6%	261	18.5%	674	22.3%
Blocking	226	14.0%	245	17.4%	471	15.6%
Being blocked	167	10.4%	110	7.8%	277	9.2%
N/A (e.g., overuse, heat illness, etc.)	39	2.4%	190	13.5%	229	7.6%
Stepped on/fell on/kicked	98	6.1%	69	4.9%	167	5.5%
Rotation around a planted foot/inversion	46	2.9%	74	5.2%	120	4.0%
Uneven playing surface	8	.5%	25	1.8%	33	1.1%
Contact with ball	3	0.2%	21	1.5%	24	0.8%
Contact with blocking sled/dummy	-	0.0%	14	1.0%	14	0.5%
Contact with goal posts/yard marker/etc.	2	0.1%	3	0.2%	5	0.2%
Other	59	3.7%	102	7.2%	161	5.3%
Total	**1,611**	**100%**	**1,412**	**100%**	**3,023**	**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, 2012-13 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, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**416**	**291,519**	**1.43**
Competition	270	87,862	3.07
Practice	146	203,657	0.72

Table 4.2 Demographic Characteristics of Injured Boys' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=416**
Freshman	20.1%
Sophomore	25.5%
Junior	22.1%
Senior	32.4%
Total†	**100%**
Age (years)	
Minimum	12
Maximum	18
Mean (St. Dev.)	16.0 (1.31)
BMI	
Minimum	10.0
Maximum	40.5
Mean (St. Dev.)	22.5 (2.88)

*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, 2012-13 School Year

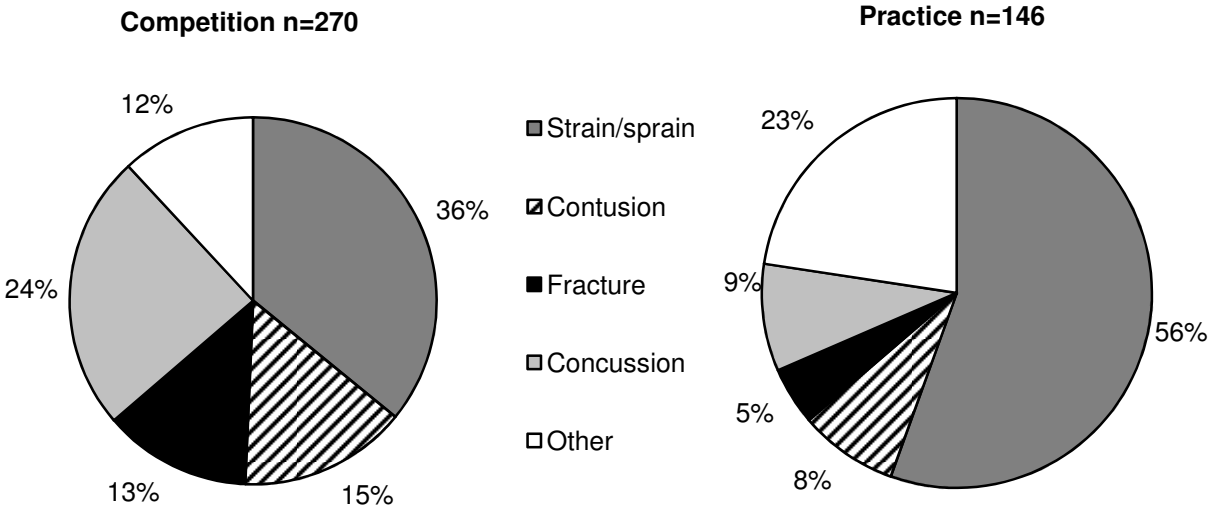


Table 4.3 Body Site of Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	**%**	**n**	**%**	**n**	**%**
Body Site						
Head/face	79	29.3%	19	13.0%	98	23.6%
Ankle	51	18.9%	22	15.1%	73	17.5%
Knee	36	13.3%	25	17.1%	61	14.7%
Hip/thigh/upper leg	25	9.3%	35	24.0%	60	14.4%
Lower leg	24	8.9%	10	6.8%	34	8.2%
Foot	20	7.4%	12	8.2%	32	7.7%
Hand/wrist	10	3.7%	6	4.1%	16	3.8%
Trunk	6	2.2%	8	5.5%	14	3.4%
Shoulder	6	2.2%	2	1.4%	8	1.9%
Arm/elbow	6	2.2%	1	0.7%	7	1.7%
Neck	1	0.4%	2	1.4%	3	0.7%
Other	6	2.2%	4	2.7%	10	2.4%
Total	**270**	**100%**	**146**	**100%**	**416**	**100%**

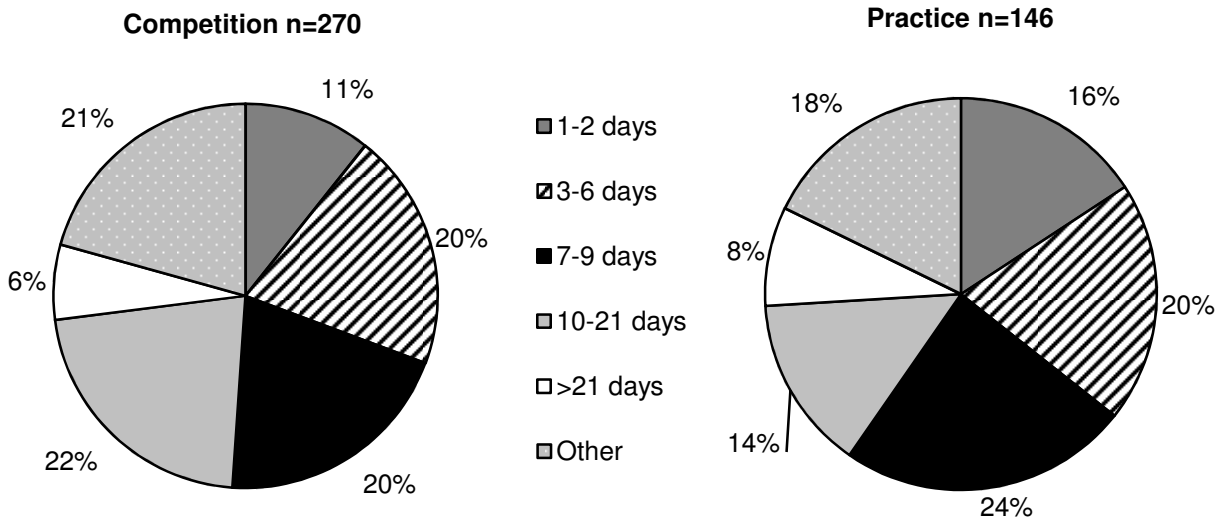
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 4.4 Ten Most Common Boys' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=270		Practice n=146		Total n=416	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	66	24.4%	13	8.9%	79	19.0%
Ankle strain/sprain	46	17.0%	21	14.4%	67	16.1%
Hip/thigh/upper leg strain/sprain	17	6.3%	29	19.9%	46	11.1%
Knee strain/sprain	15	5.6%	13	8.9%	28	6.7%
Knee other	10	3.7%	10	6.8%	20	4.8%
Head/face other	7	2.6%	5	3.4%	12	2.9%
Knee contusion	10	3.7%	2	1.4%	12	2.9%
Lower leg contusion	11	4.1%	1	0.7%	12	2.9%
Foot strain/sprain	7	2.6%	4	2.7%	11	2.6%
Foot contusion	5	1.9%	4	2.7%	9	2.2%

†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, 2012-13 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, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	22	8.3%	7	5.0%	29	7.2%
Did not require surgery	242	91.7%	134	95.0%	376	92.8%
Total	**264**	**100%**	**141**	**100%**	**405**	**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, 2012-13 School Year

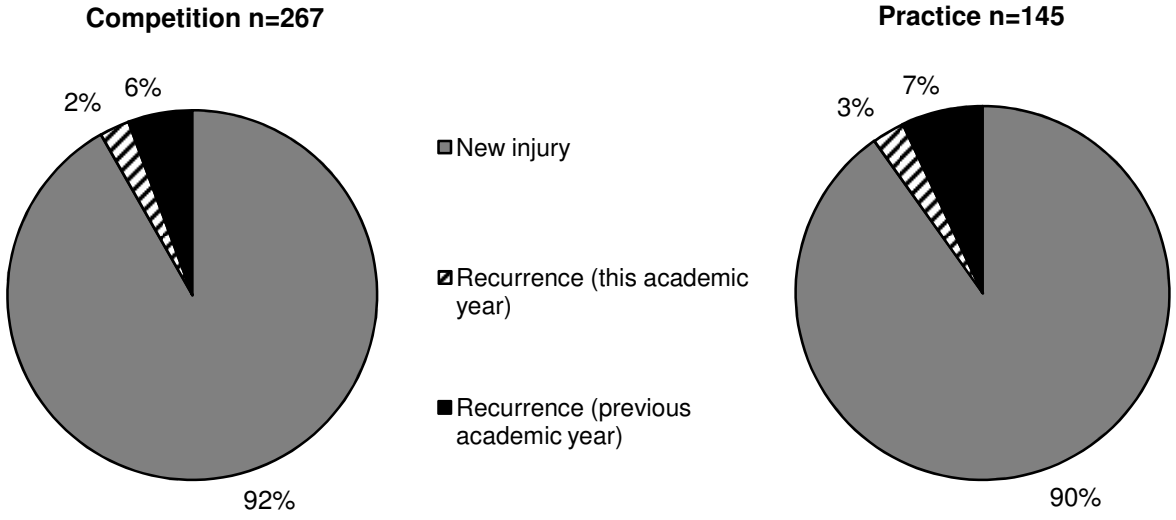


Table 4.6 Time during Season of Boys' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	86	20.9%
Regular season	309	75.0%
Post season	17	4.1%
Total	**412**	**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, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	7	2.7%
First half	77	30.0%
Second half	171	66.5%
Overtime	2	0.8%
Total	**257**	**100%**
Field Location		
Top of goal box extended to center line (offense)	79	32.1%
Top of goal box extended to center line (defense)	63	25.6%
Goal box (defense)	41	16.7%
Goal box (offense)	21	8.5%
Side of goal box (defense)	20	8.1%
Side of goal box (offense)	19	7.7%
Off the field	3	1.2%
Total	**246**	**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, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	18	12.9%
Second 1/2 hour	25	18.0%
1-2 hours into practice	82	59.0%
>2 hours into practice	14	10.1%
Total	**139**	**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, 2012-13 School Year

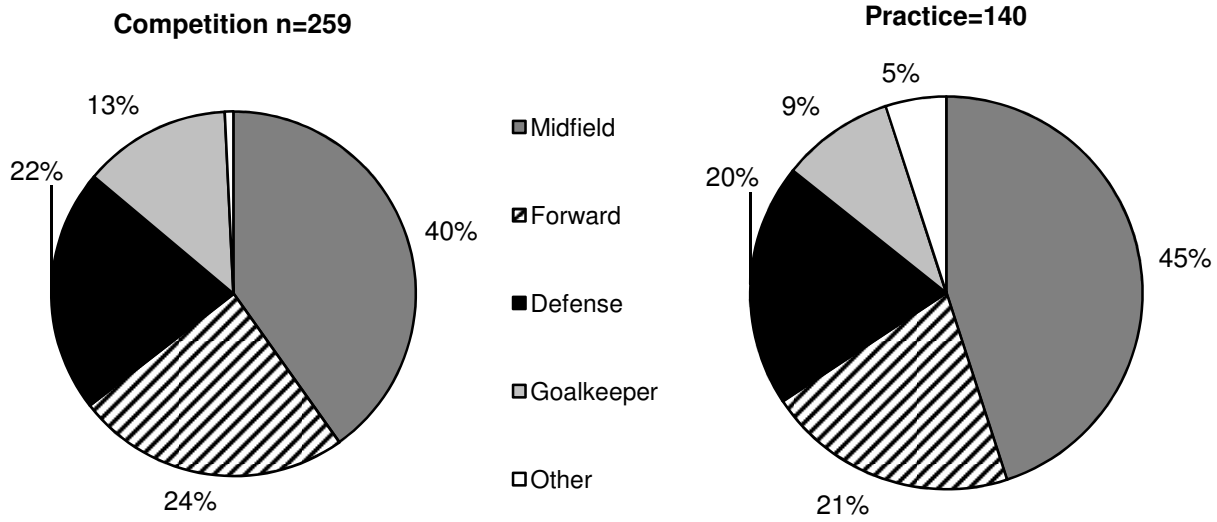
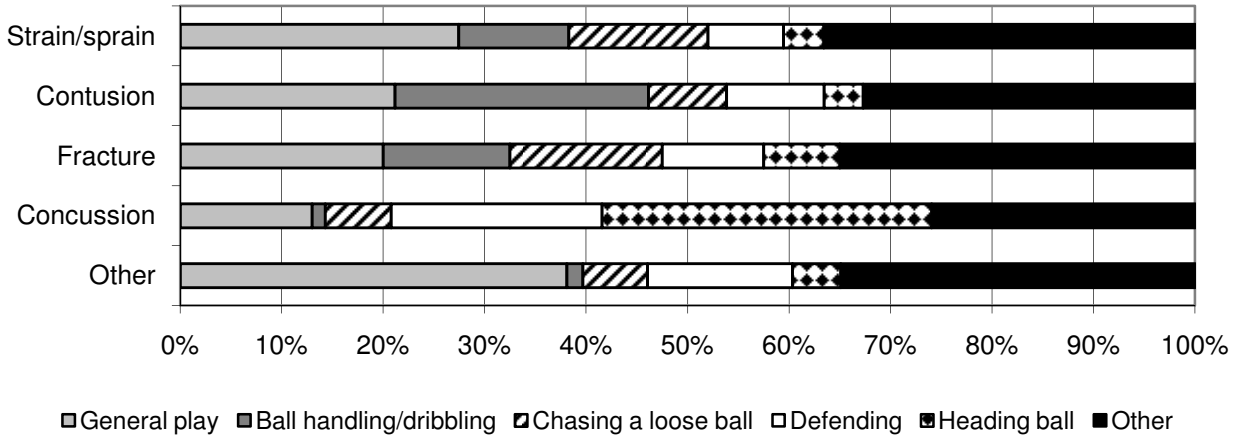


Table 4.9 Activities Leading to Boys' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	53	20.1%	48	33.6%	101	24.8%
Defending	39	14.8%	8	5.6%	47	11.5%
Chasing loose ball	32	12.1%	11	7.7%	43	10.6%
Heading ball	30	11.4%	10	7.0%	40	9.8%
Ball handling/dribbling	29	11.0%	10	7.0%	39	9.6%
Goaltending	30	11.4%	8	5.6%	38	9.3%
Passing (foot)	19	7.2%	4	2.8%	23	5.7%
Conditioning	-	0.0%	18	12.6%	18	4.4%
Receiving pass	12	4.5%	4	2.8%	16	3.9%
Shooting (foot)	7	2.7%	8	5.6%	15	3.7%
Receiving a slide tackle	5	1.9%	5	3.5%	10	2.5%
Blocking shot	3	1.1%	3	2.1%	6	1.5%
Attempting a slide tackle	3	1.1%	-	0.0%	3	0.7%
Other	2	0.8%	6	4.2%	8	2.0%
Total	**264**	**100%**	**143**	**100%**	**407**	**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, 2012-13 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, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**556**	**238,852**	**2.33**
Competition	412	72,161	5.71
Practice	144	166,691	0.86

Table 5.2 Demographic Characteristics of Injured Girls' Soccer Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=545**
Freshman	23.1%
Sophomore	21.8%
Junior	27.2%
Senior	27.9%
Total†	**100%**
Age (years)	
Minimum	12
Maximum	18
Mean (St. Dev.)	15.8 (1.3)
BMI	
Minimum	16.3
Maximum	40.3
Mean (St. Dev.)	21.8 (3.0)

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

Figure 5.1 Diagnosis of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

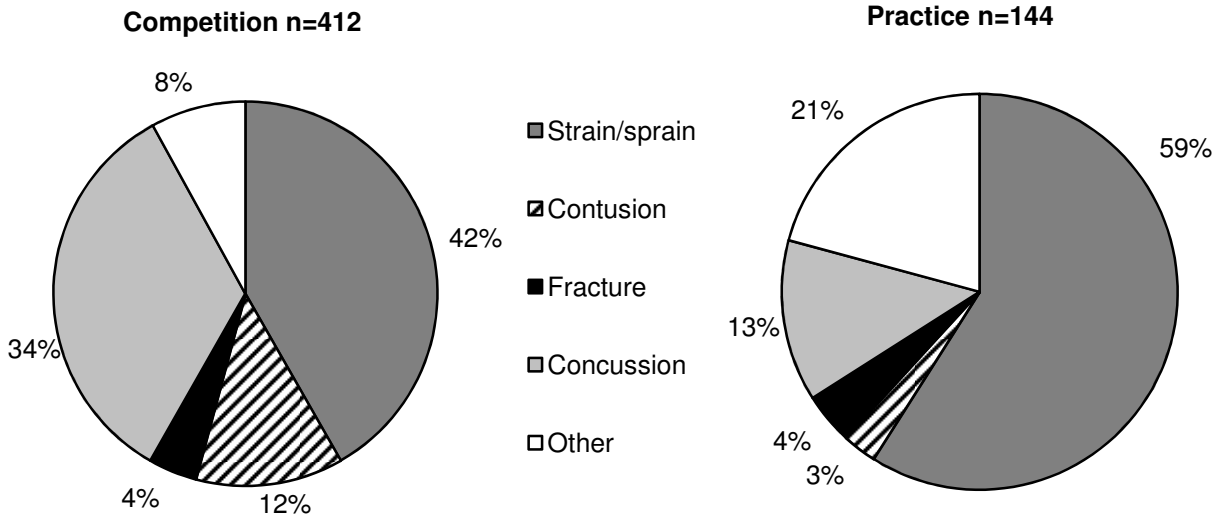


Table 5.3 Body Site of Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	145	35.2%	22	15.3%	167	30.0%
Ankle	76	18.4%	23	16.0%	99	17.8%
Knee	76	18.4%	21	14.6%	97	17.4%
Hip/thigh/upper leg	38	9.2%	41	28.5%	79	14.2%
Lower leg	20	4.9%	9	6.3%	29	5.2%
Foot	16	3.9%	12	8.3%	28	5.0%
Trunk	14	3.4%	5	3.5%	19	3.4%
Arm/elbow	10	2.4%	1	0.7%	11	2.0%
Hand/wrist	6	1.5%	4	2.8%	10	1.8%
Shoulder	7	1.7%	2	1.4%	9	1.6%
Neck	2	0.5%	1	0.7%	3	0.5%
Other	2	0.5%	3	2.1%	5	0.9%
Total	**412**	**100%**	**144**	**100%**	**556**	**100%**

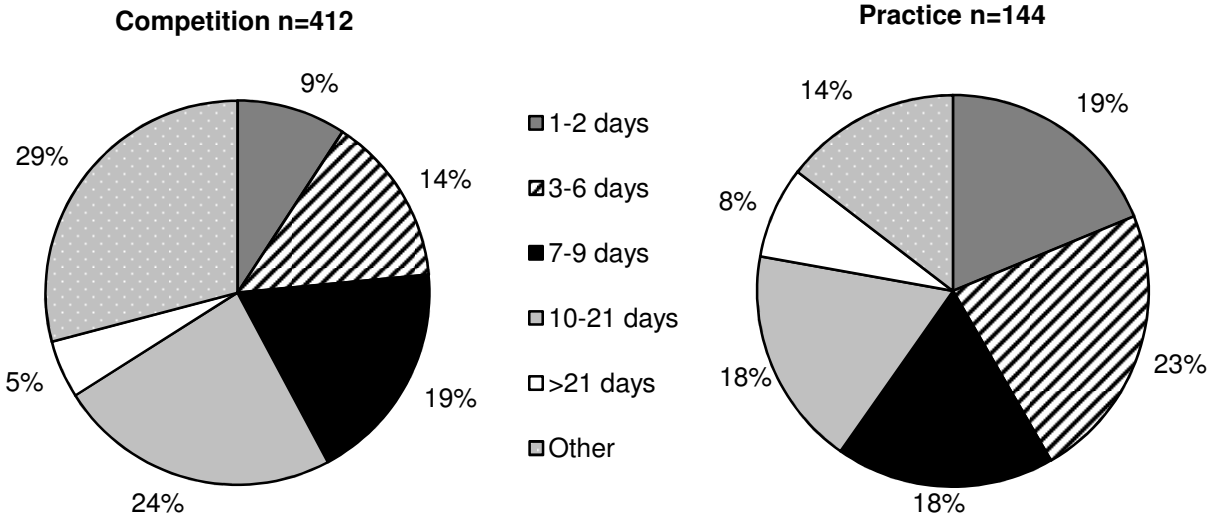
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 5.4 Ten Most Common Girls' Soccer Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=412		Practice n=144		Total n=556	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	139	33.7%	19	13.2%	158	28.4%
Ankle strain/sprain	72	17.5%	23	16.0%	95	17.1%
Hip/thigh/upper leg strain/sprain	29	7.0%	39	27.1%	68	12.2%
Knee strain/sprain	50	12.1%	9	6.3%	59	10.6%
Knee other	12	2.9%	11	7.6%	23	4.1%
Knee contusion	13	3.2%	1	0.7%	14	2.5%
Lower leg contusion	10	2.4%	-	0.0%	10	1.8%
Hip/thigh/upper leg contusion	8	1.9%	1	0.7%	9	1.6%
Foot strain/sprain	6	1.5%	3	2.1%	9	1.6%
Trunk strain/sprain	6	1.5%	3	2.1%	9	1.6%

†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, 2012-13 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, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	34	8.4%	7	4.9%	41	7.5%
Did not require surgery	373	91.6%	135	95.1%	508	92.5%
Total	**407**	**100%**	**142**	**100%**	**549**	**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, 2012-13 School Year

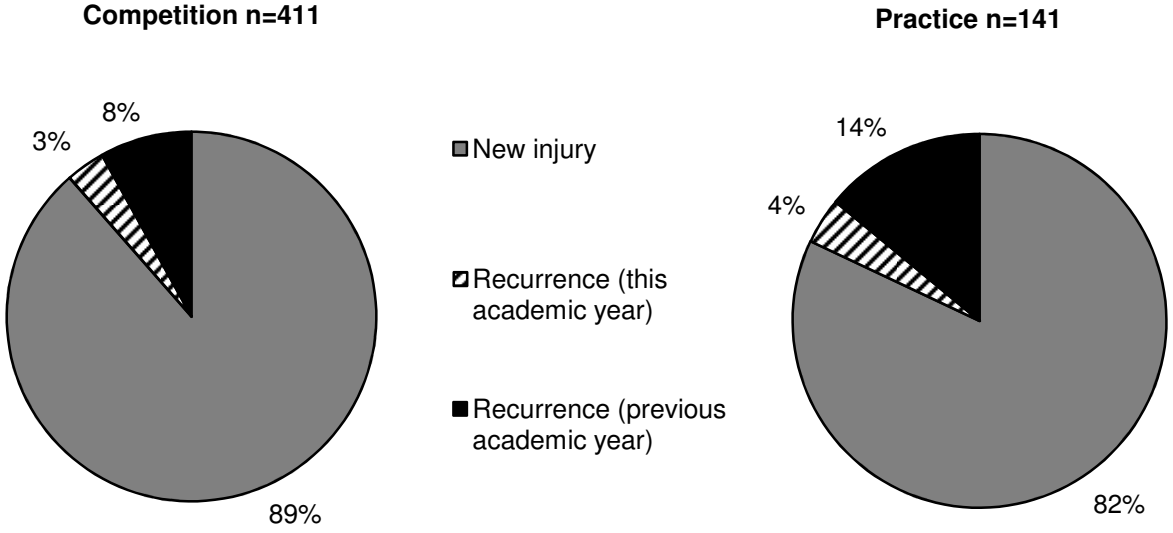


Table 5.6 Time during Season of Girls' Soccer Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	100	18.0%
Regular season	426	76.8%
Post season	29	5.2%
Total	**555**	**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, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	4	1.0%
First half	127	33.2%
Second half	250	65.4%
Overtime	1	0.3%
Total	**382**	**100%**
Field Location		
Top of goal box extended to center line (offense)	137	35.8%
Top of goal box extended to center line (defense)	85	22.2%
Goal box (defense)	57	14.9%
Side of goal box (defense)	42	11.0%
Goal box (offense)	29	7.6%
Side of goal box (offense)	26	6.8%
Off the field	7	1.8%
Total	**383**	**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, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	14	10.4%
Second 1/2 hour	37	27.4%
1-2 hours into practice	77	57.0%
>2 hours into practice	7	5.2%
Total	**135**	**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, 2012-13 School Year

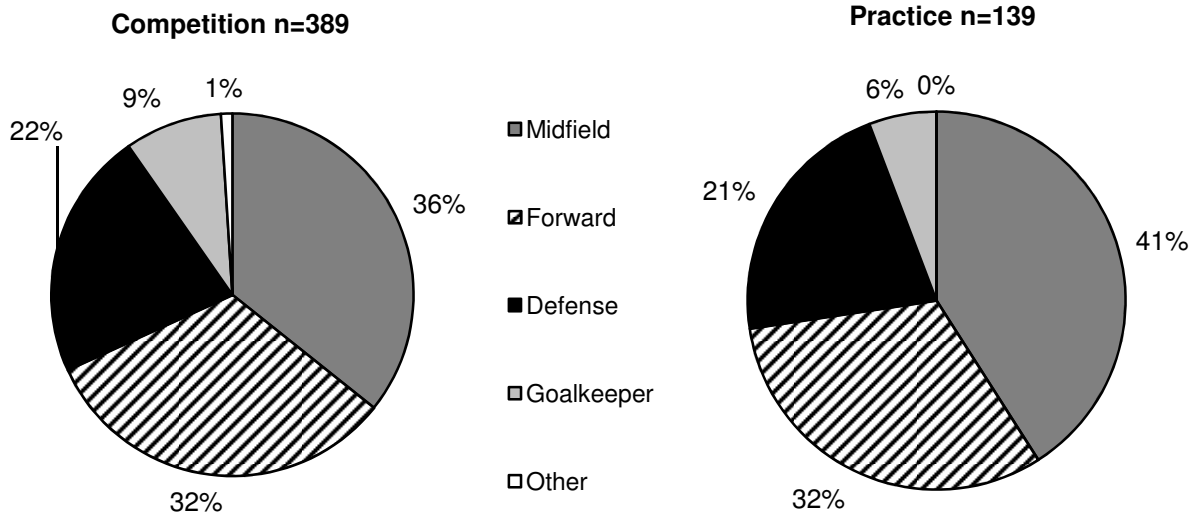
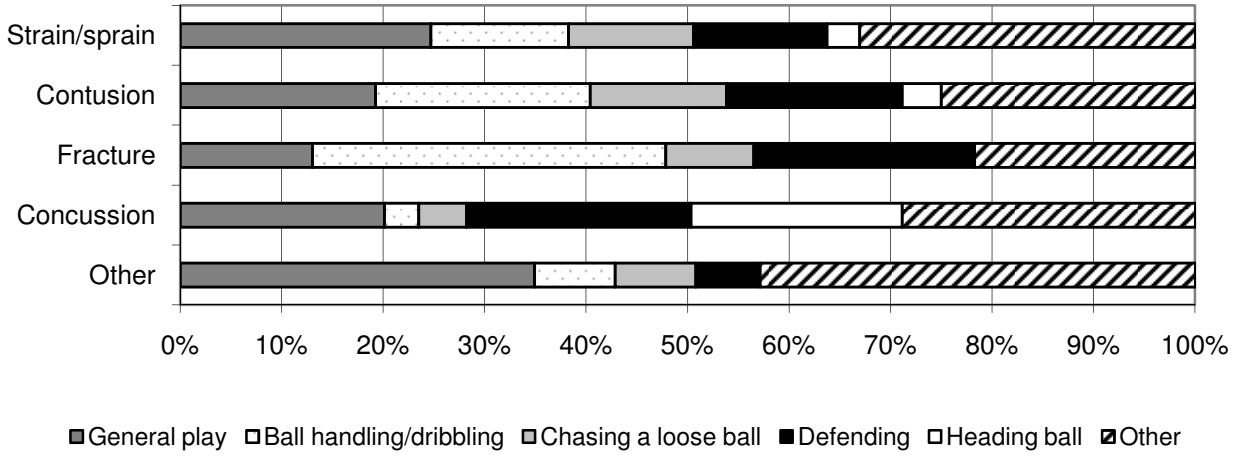


Table 5.9 Activities Leading to Girls' Soccer Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	85	21.5%	42	29.6%	127	23.6%
Defending	74	18.7%	10	7.0%	84	15.6%
Ball handling/dribbling	52	13.1%	11	7.7%	63	11.7%
Chasing loose ball	39	9.8%	13	9.2%	52	9.7%
Heading ball	35	8.8%	6	4.2%	41	7.6%
Goaltending	30	7.6%	5	3.5%	35	6.5%
Receiving pass	30	7.6%	4	2.8%	34	6.3%
Passing (foot)	19	4.8%	10	7.0%	29	5.4%
Shooting (foot)	12	3.0%	15	10.6%	27	5.0%
Conditioning	-	0.0%	21	14.8%	21	3.9%
Blocking shot	8	2.0%	2	1.4%	10	1.9%
Attempting a slide tackle	4	1.0%	1	0.7%	5	0.9%
Receiving a slide tackle	3	0.8%	-	0.0%	3	0.6%
Other	5	1.3%	2	1.4%	7	1.3%
Total	**396**	**100%**	**142**	**100%**	**538**	**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, 2012-13 School Year



VI. Girls' Volleyball Injury Epidemiology

Table 6.1 Girls' Volleyball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**284**	**279,165**	**1.02**
Competition	111	94,448	1.18
Practice	173	184,717	0.94

Table 6.2 Demographic Characteristics of Injured Girls' Volleyball Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=276**
Freshman	24.6%
Sophomore	28.3%
Junior	24.6%
Senior	22.5%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.6 (1.2)
BMI	
Minimum	16.2
Maximum	42.4
Mean (St. Dev.)	22.1 (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 6.1 Diagnosis of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

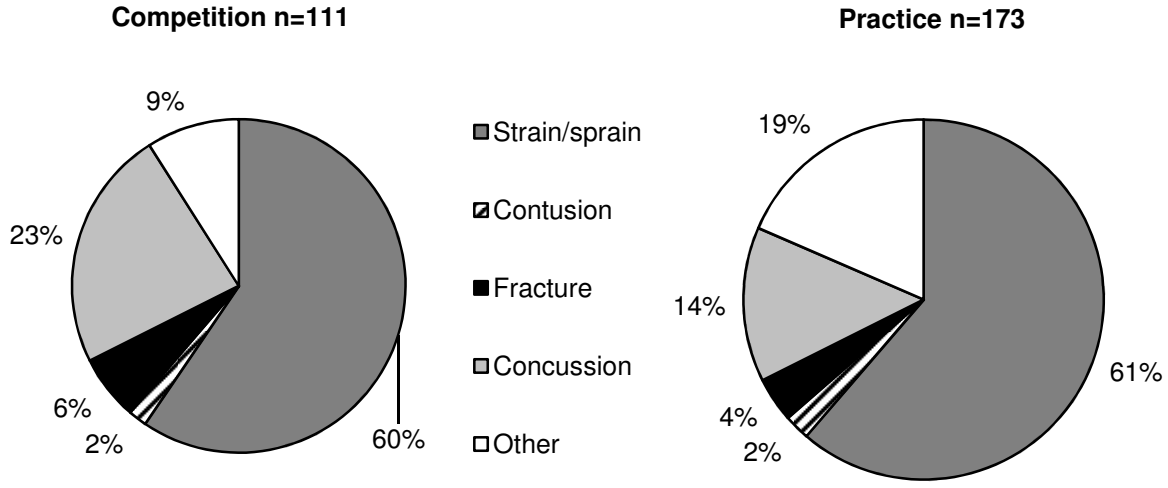


Table 6.3 Body Site of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

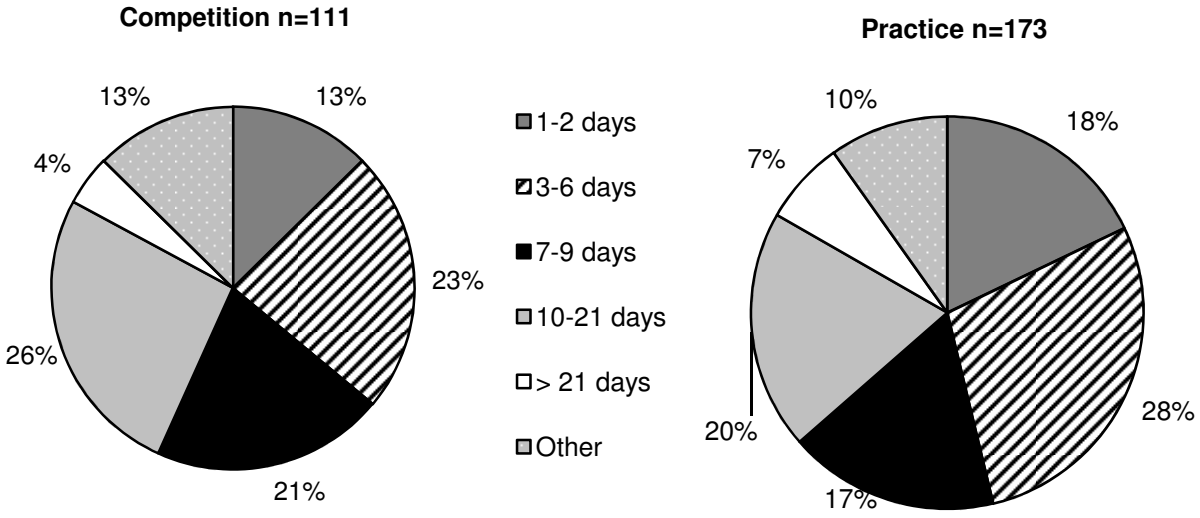
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Ankle	45	40.5%	71	41.0%	116	40.8%
Head/face	27	24.3%	24	13.9%	51	18.0%
Knee	10	9.0%	18	10.4%	28	9.9%
Hand/wrist	15	13.5%	9	5.2%	24	8.5%
Shoulder	4	3.6%	10	5.8%	14	4.9%
Foot	4	3.6%	10	5.8%	14	4.9%
Trunk	4	3.6%	9	5.2%	13	4.6%
Lower leg	-	0.0%	10	5.8%	10	3.5%
Hip/thigh/upper leg	1	0.9%	6	3.5%	7	2.5%
Arm/elbow	1	0.9%	2	1.2%	3	1.1%
Other	-	0.0%	4	2.3%	4	1.4%
Total	**111**	**100%**	**173**	**100%**	**284**	**100%**

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

Table 6.4 Ten Most Common Girls' Volleyball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=111		Practice n=173		Total n=284	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	44	39.6%	68	39.3%	112	39.4%
Head/face concussion	26	23.4%	24	13.9%	50	17.6%
Hand/wrist strain/sprain	9	8.1%	6	3.5%	15	5.3%
Knee strain/sprain	6	5.4%	9	5.2%	15	5.3%
Knee other	4	3.6%	7	4.0%	11	3.9%
Shoulder other	3	2.7%	6	3.5%	9	3.2%
Trunk strain/sprain	3	2.7%	4	2.3%	7	2.5%
Lower leg strain/sprain	-	0.0%	7	4.0%	7	2.5%
Hand/wrist fracture	5	4.5%	2	1.2%	7	2.5%
Foot strain/sprain	2	1.8%	3	1.7%	5	1.8%

Figure 6.2 Time Loss of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 6.5 Girls' Volleyball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	4	3.6%	4	2.4%	8	2.8%
Did not require surgery	106	96.4%	167	97.7%	273	97.2%
Total	**110**	**100%**	**171**	**100%**	**281**	**100%**

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

Figure 6.3 History of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

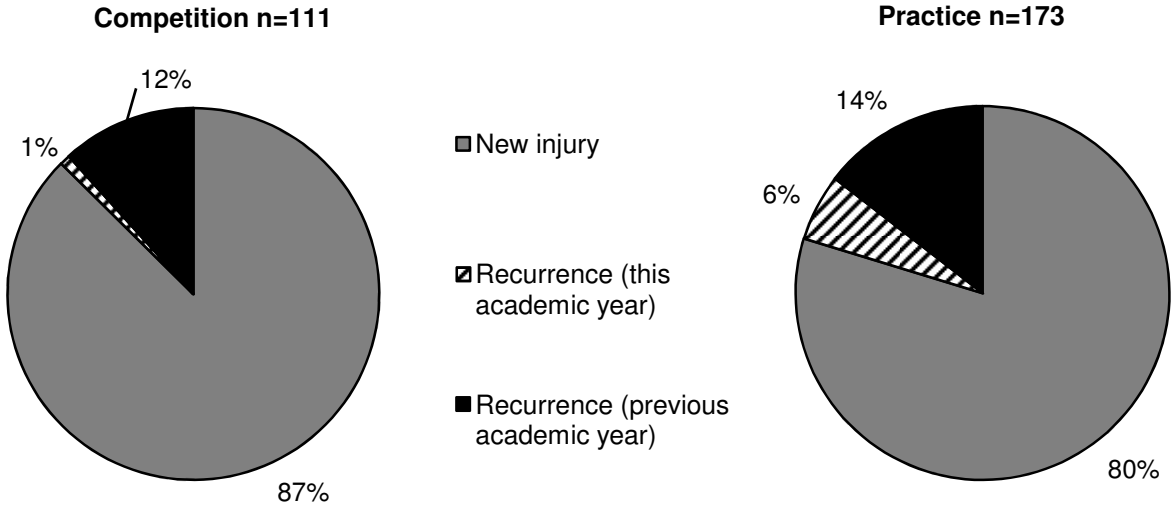


Table 6.6 Time during Season of Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	64	22.5%
Regular season	214	75.4%
Post season	6	2.1%
Total	**284**	**100%**

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

Table 6.7 Competition-Related Variables for Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	19	18.3%
First set	15	14.4%
Second set	38	36.5%
Third set	27	26.0%
Fourth set	5	4.8%
Total	**104**	**100%**
Court Location		
Middle forward	28	27.5%
Right forward	20	19.6%
Left forward	18	17.6%
Left back	17	16.7%
At the net	9	8.8%
Outside the playable area	6	5.9%
Outside court (your side)	2	2.0%
Outside court (opponent's side)	1	1.0%
Right back (server)	1	1.0%
Total	**102**	**100%**

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

Table 6.8 Practice-Related Variables for Girls' Volleyball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	25	15.2%
Second 1/2 hour	33	20.0%
1-2 hours into practice	91	55.2%
>2 hours into practice	16	9.7%
Total	**165**	**100%**

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

Figure 6.4 Player Position of Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

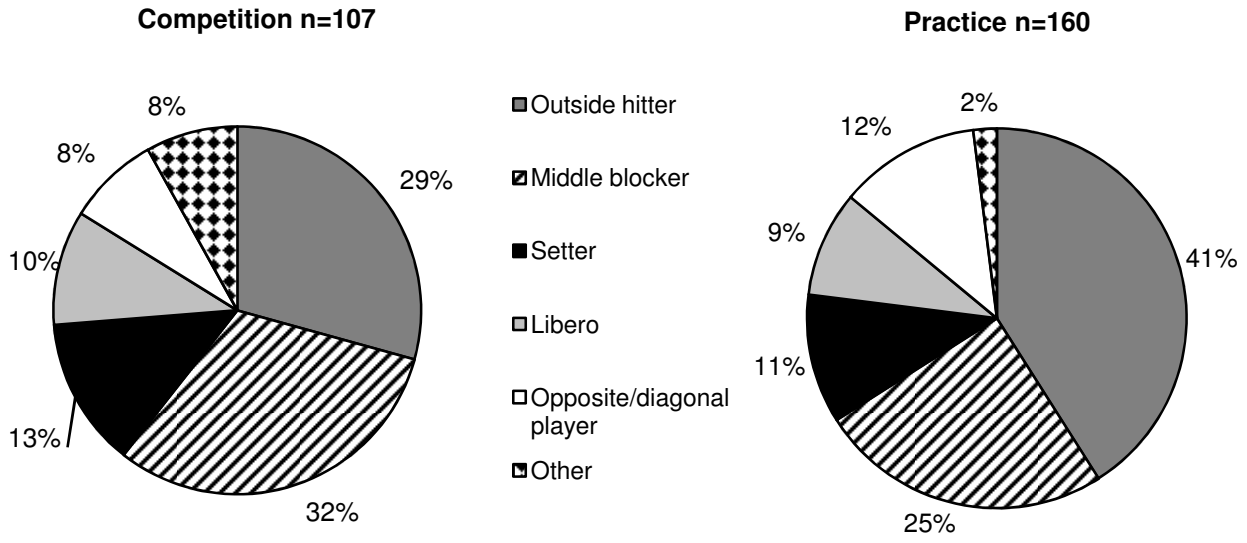
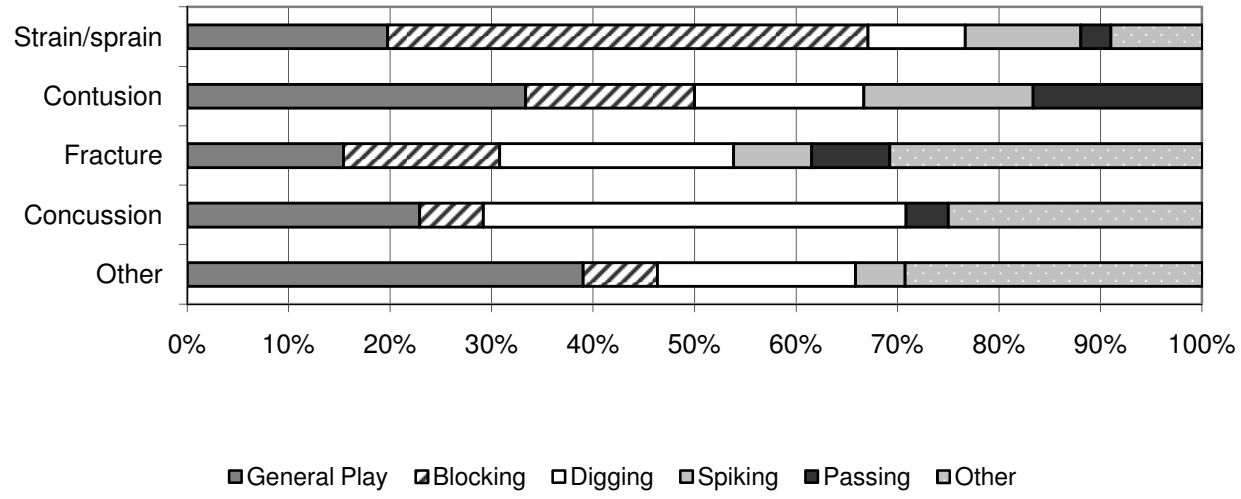


Table 6.9 Activities Leading to Girls' Volleyball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Blocking	38	34.9%	50	30.1%	88	32.0%
General play	16	14.7%	48	28.9%	64	23.3%
Digging	23	21.1%	25	15.1%	48	17.5%
Spiking	9	8.3%	14	8.4%	23	8.4%
Setting	5	4.6%	5	3.0%	10	3.6%
Passing	3	2.8%	6	3.6%	9	3.3%
Serving	2	1.8%	6	3.6%	8	2.9%
Conditioning	-	0.0%	8	4.8%	8	2.9%
Other	13	11.9%	4	2.4%	17	6.2%
Total	**109**	**100%**	**166**	**100%**	**275**	**100%**

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

Figure 6.5 Activity Resulting in Girls' Volleyball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



VII. Boys' Basketball Injury Epidemiology

Table 7.1 Boys' Basketball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**568**	**376,827**	**1.51**
Competition	300	114,787	2.61
Practice	268	262,040	1.02

Table 7.2 Demographic Characteristics of Injured Boys' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=559**
Freshman	24.0%
Sophomore	25.4%
Junior	26.7%
Senior	24.0%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	15.9 (1.3)
BMI	
Minimum	15.8
Maximum	42.6
Mean (St. Dev.)	23.0 (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 7.1 Diagnosis of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

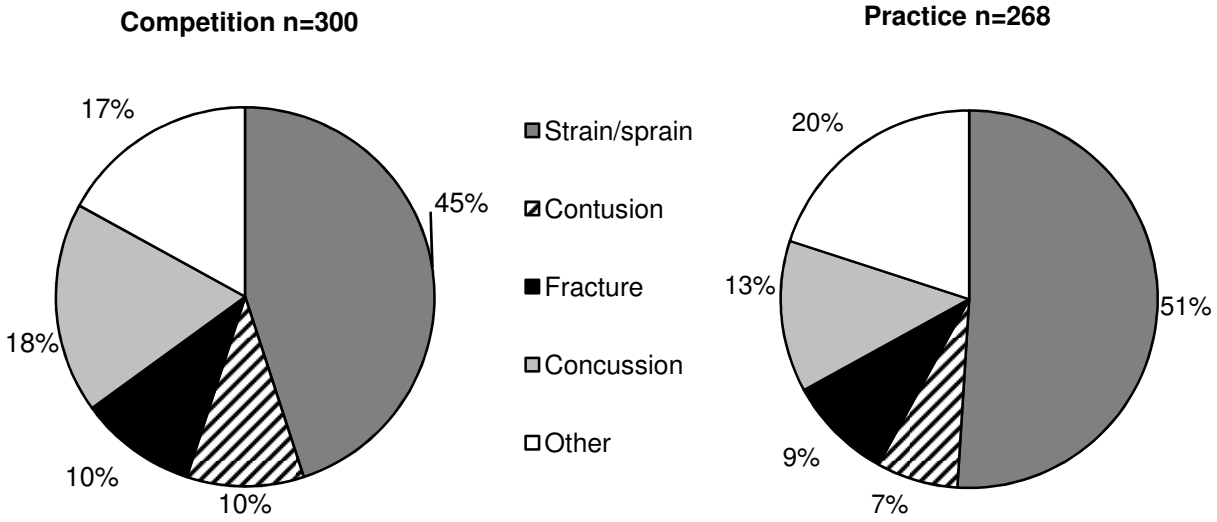


Table 7.3 Body Site of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

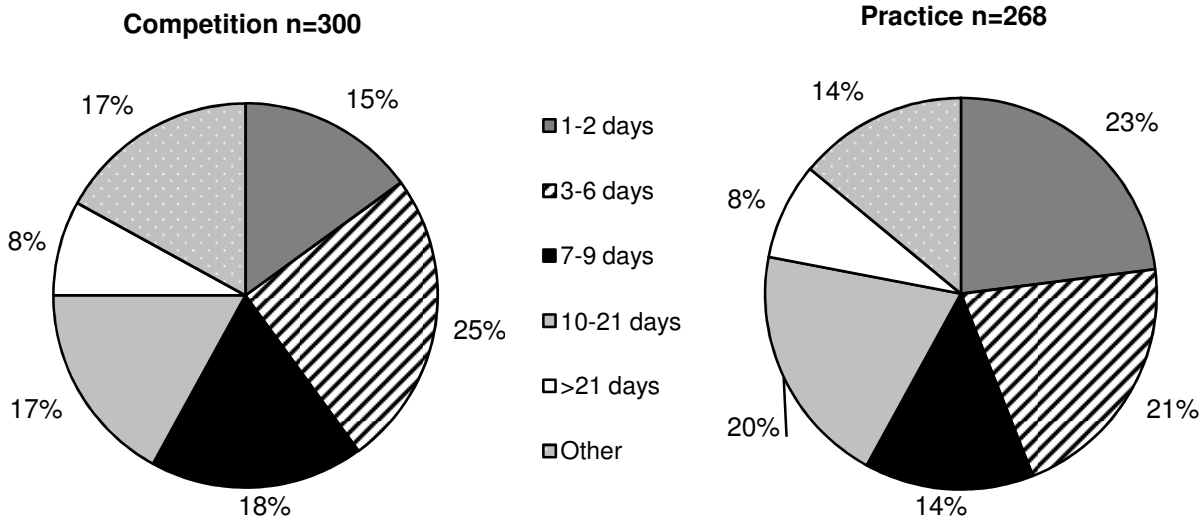
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Ankle	77	25.7%	88	32.8%	165	29.0%
Head/face	83	27.7%	56	20.9%	139	24.5%
Knee	42	14.0%	30	11.2%	72	12.7%
Hand/wrist	16	5.3%	27	10.1%	43	7.6%
Hip/thigh/upper leg	23	7.7%	17	6.3%	40	7.0%
Trunk	19	6.3%	11	4.1%	30	5.3%
Shoulder	13	4.3%	8	3.0%	21	3.7%
Foot	9	3.0%	10	3.7%	19	3.3%
Lower leg	5	1.7%	10	3.7%	15	2.6%
Arm/elbow	10	3.3%	4	1.5%	14	2.5%
Neck	3	1.0%	-	0.0%	3	0.5%
Other	-	0.0%	7	2.6%	7	1.2%
Total	**300**	**100%**	**268**	**100%**	**568**	**100%**

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

Table 7.4 Ten Most Common Boys' Basketball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=300		Practice n=268		Total n=568	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	75	25.0%	83	31.0%	158	27.8%
Head/face concussion	55	18.3%	34	12.7%	89	15.7%
Knee strain/sprain	27	9.0%	11	4.1%	38	6.7%
Head/face other	18	6.0%	16	6.0%	34	6.0%
Knee other	10	3.3%	14	5.2%	24	4.2%
Hip/thigh/upper leg strain/sprain	9	3.0%	14	5.2%	23	4.0%
Hand/wrist fracture	7	2.3%	11	4.1%	18	3.2%
Hand/wrist strain/sprain	4	1.3%	10	3.7%	14	2.5%
Trunk strain/sprain	7	2.3%	7	2.6%	14	2.5%
Head/face fracture	8	2.7%	5	1.9%	13	2.3%

Figure 7.2 Time Loss of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 7.5 Boys' Basketball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	29	9.8%	17	6.5%	46	8.3%
Did not require surgery	267	90.2%	243	93.5%	510	91.7%
Total	**296**	**100%**	**260**	**100%**	**556**	**100%**

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

Figure 7.3 History of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

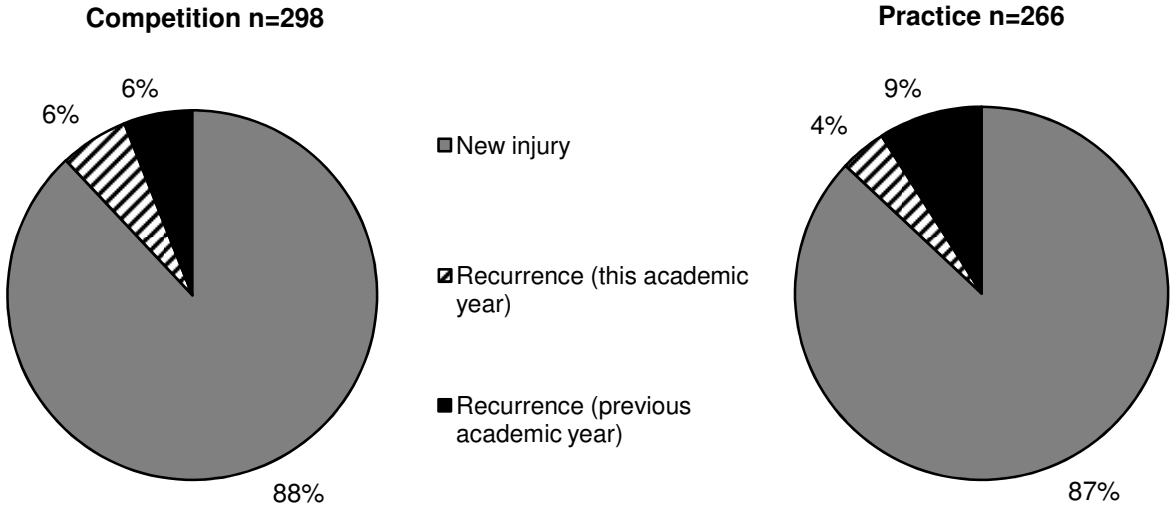


Table 7.6 Time during Season of Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	96	17.0%
Regular season	448	79.4%
Post season	20	3.5%
Total	**564**	**100%**

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

Table 7.7 Competition-Related Variables for Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition-warm-ups	10	3.5%
First quarter	27	9.4%
Second quarter	79	27.4%
Third quarter	98	34.0%
Fourth quarter	74	25.7%
Total	**288**	**100%**
Court Location		
Inside lane (offense)	81	28.7%
Inside lane (defense)	75	26.6%
Between 3 pt arc and lane (offense)	33	11.7%
Between 3 pt arc and lane (defense)	29	10.3%
Outside 3 point arc - offense	24	8.5%
Outside 3 point arc - defense	19	6.7%
Backcourt	12	4.3%
Out of bounds	8	2.8%
Off the court	1	0.4%
Total	**282**	**100%**

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

Table 7.8 Practice-Related Variables for Boys' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	27	10.8%
Second 1/2 hour	59	23.7%
1-2 hours into practice	145	58.2%
>2 hours into practice	18	7.2%
Total	**249**	**100%**

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

Figure 7.4 Player Position of Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

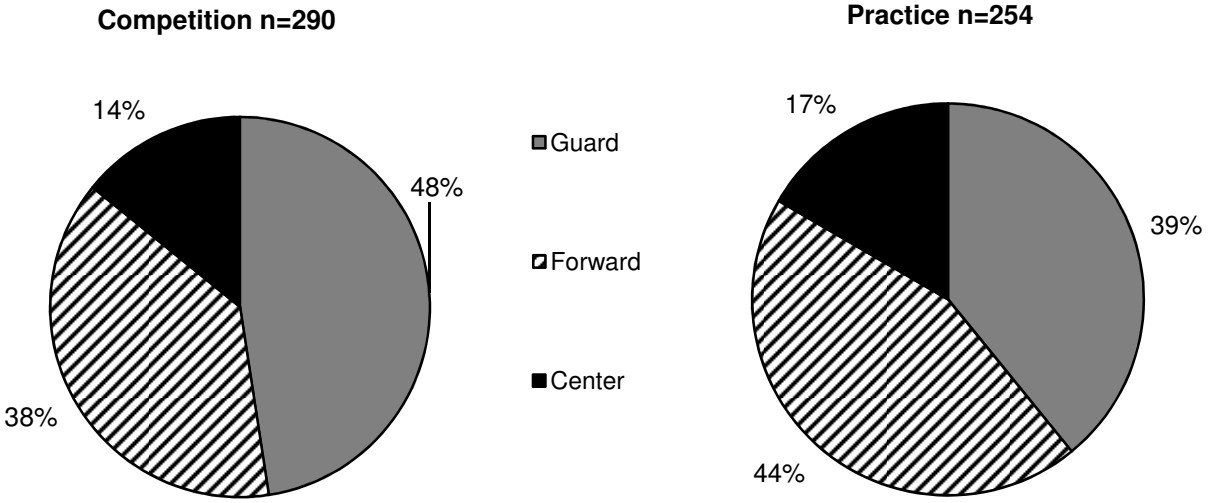
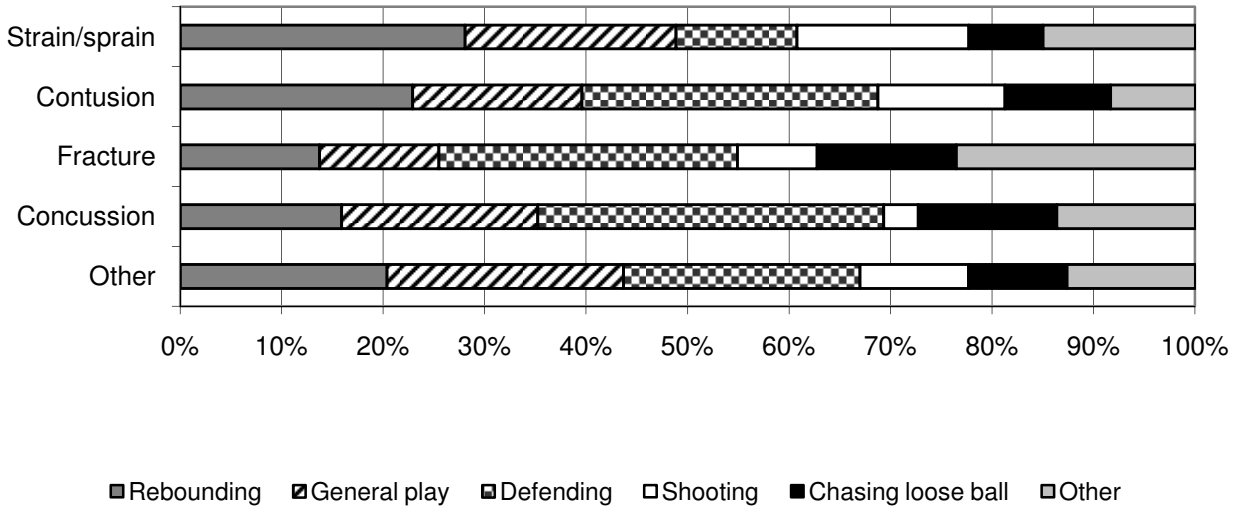


Table 7.9 Activities Leading to Boys' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Rebounding	67	22.9%	59	23.0%	126	22.9%
Defending	77	26.3%	37	14.4%	114	20.7%
General play	40	13.7%	69	26.8%	109	19.8%
Shooting	44	15.0%	24	9.3%	68	12.4%
Chasing loose ball	34	11.6%	19	7.4%	53	9.6%
Ball handling/dribbling	18	6.1%	7	2.7%	25	4.5%
Receiving pass	6	2.0%	17	6.6%	23	4.2%
Conditioning	0	0.0%	13	5.1%	13	2.4%
Passing	0	0.0%	3	1.2%	3	0.5%
Other	7	2.4%	9	3.5%	16	2.9%
Total	**293**	**100%**	**257**	**100%**	**550**	**100%**

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

Figure 7.5 Activity Resulting in Boys' Basketball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



VIII. Girls' Basketball Injury Epidemiology

Table 8.1 Girls' Basketball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**581**	**298,208**	**1.95**
Competition	326	94,049	3.47
Practice	255	204,159	1.25

Table 8.2 Demographic Characteristics of Injured Girls' Basketball Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=571**
Freshman	32.4%
Sophomore	29.8%
Junior	17.2%
Senior	20.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.5 (1.2)
BMI	
Minimum	15.5
Maximum	38.8
Mean (St. Dev.)	22.2 (3.2)

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

Figure 8.1 Diagnosis of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

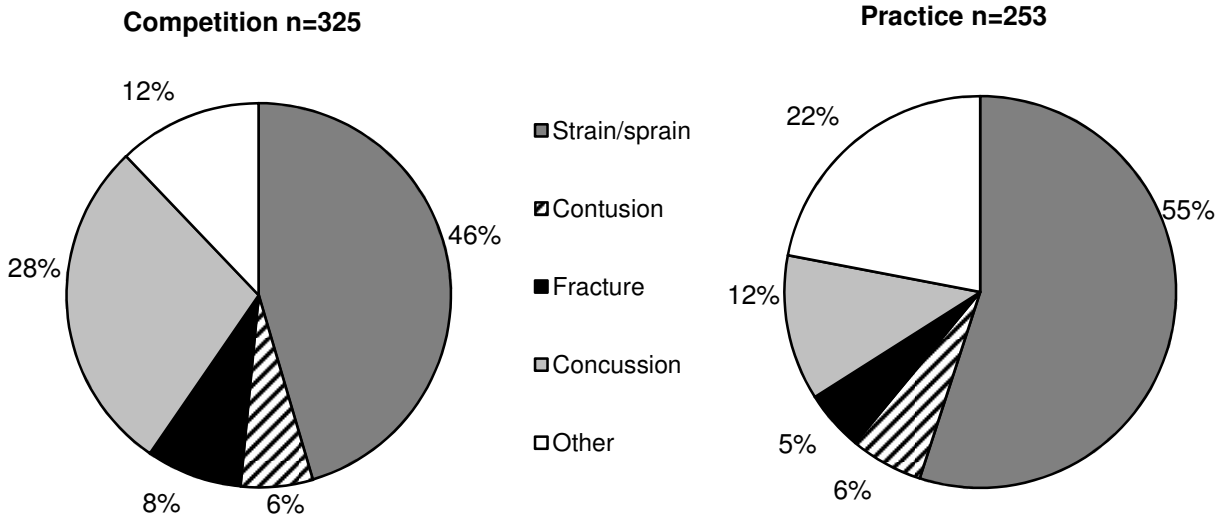


Table 8.3 Body Site of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

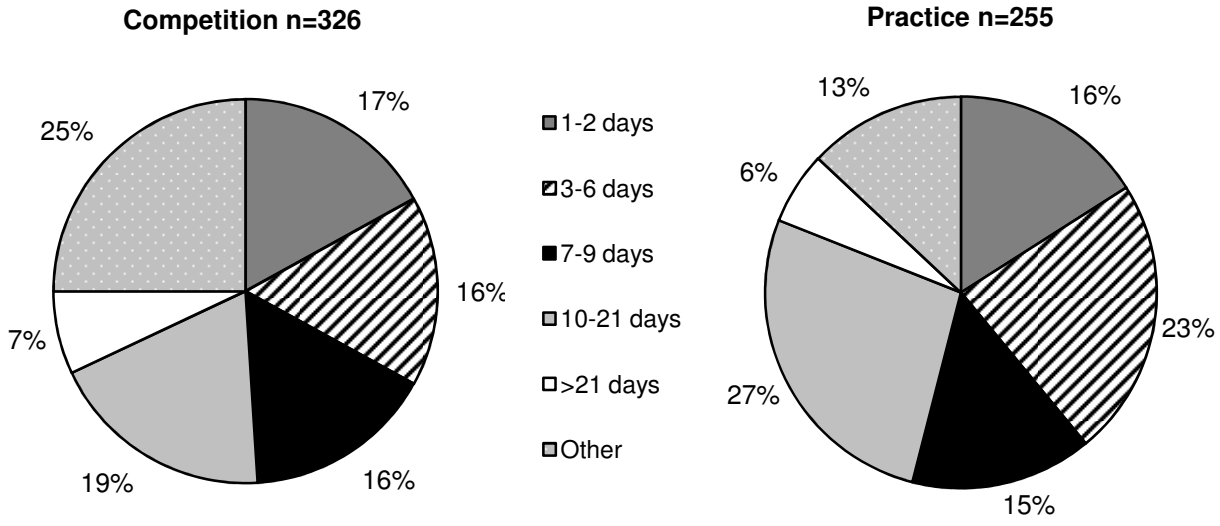
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Ankle	83	25.5%	82	32.2%	165	28.4%
Head/face	106	32.6%	37	14.5%	143	24.7%
Knee	69	21.2%	37	14.5%	106	18.3%
Hand/wrist	21	6.5%	17	6.7%	38	6.6%
Hip/thigh/upper leg	10	3.1%	20	7.8%	30	5.2%
Trunk	8	2.5%	17	6.7%	25	4.3%
Foot	9	2.8%	12	4.7%	21	3.6%
Shoulder	6	1.8%	13	5.1%	19	3.3%
Lower leg	6	1.8%	12	4.7%	18	3.1%
Arm/elbow	6	1.8%	4	1.6%	10	1.7%
Neck	1	0.3%	2	0.8%	3	0.5%
Other	-	0.0%	2	0.8%	2	0.3%
Total	**325**	**100%**	**255**	**100%**	**580**	**100%**

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

Table 8.4 Ten Most Common Girls' Basketball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=324		Practice n=253		Total n=577	
	n	%	n	%	n	%
Diagnosis						
Ankle strain/sprain	78	24.1%	80	31.6%	158	27.4%
Head/face concussion	91	28.1%	30	11.9%	121	21.0%
Knee strain/sprain	41	12.7%	12	4.7%	53	9.2%
Knee other	19	5.9%	14	5.5%	33	5.7%
Hip/thigh/upper leg sprain/strain	7	2.2%	17	6.7%	24	4.2%
Knee contusion	8	2.5%	9	3.6%	17	2.9%
Hand/wrist fracture	11	3.4%	6	2.4%	17	2.9%
Trunk other	4	1.2%	11	4.3%	15	2.6%
Hand/wrist strain/sprain	7	2.2%	7	2.8%	14	2.4%
Shoulder other	4	1.2%	7	2.8%	11	1.9%

Figure 8.2 Time Loss of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 8.5 Girls' Basketball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	35	10.9%	18	7.1%	53	9.2%
Did not require surgery	286	89.1%	235	92.9%	521	90.8%
Total	**321**	**100%**	**253**	**100%**	**574**	**100%**

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

Figure 8.3 History of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

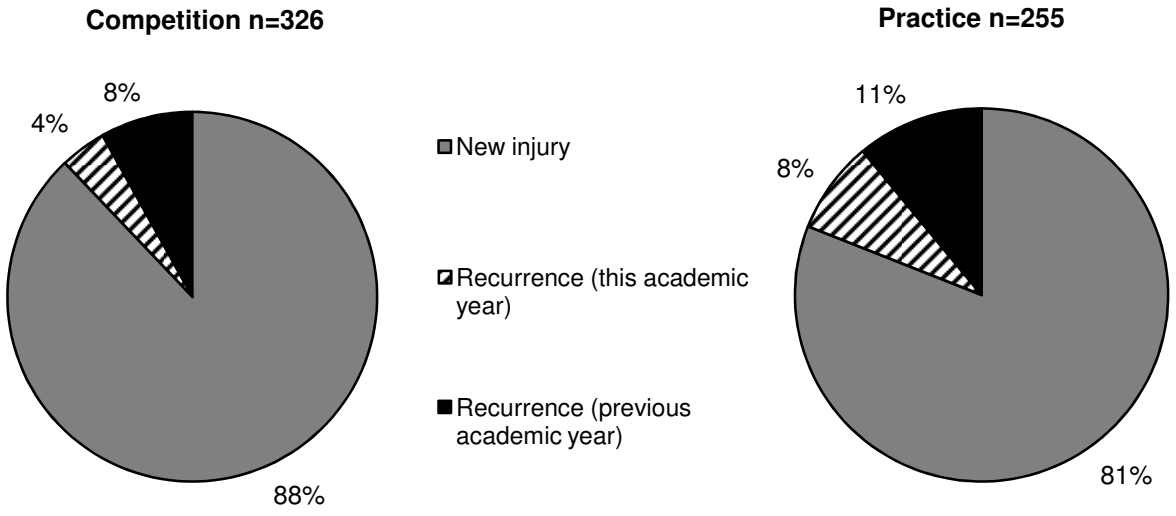


Table 8.6 Time during Season of Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	105	18.1%
Regular season	470	80.9%
Post season	6	1.0%
Total	**581**	**100%**

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

Table 8.7 Competition-Related Variables for Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/Warm-ups	13	4.3%
First quarter	22	7.2%
Second quarter	87	28.6%
Third quarter	94	30.9%
Fourth quarter	88	28.9%
Total	**304**	**100%**
Court Location		
Inside lane (defense)	66	22.5%
Inside lane (offense)	58	19.8%
Outside 3 point arc - offense	44	15.0%
Between 3 point arc and lane (offense)	34	11.6%
Between 3 point arc and lane (defense)	32	10.9%
Outside 3 point arc - defense	29	9.9%
Backcourt	17	5.8%
Out of bounds	9	3.1%
Off the court	4	1.4%
Total	**293**	**100%**

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

Table 8.8 Practice-Related Variables for Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	33	13.5%
Second 1/2 hour	47	19.2%
1-2 hours into practice	156	63.7%
>2 hours into practice	9	3.7%
Total	**245**	**100%**

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

Figure 8.4 Player Position of Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

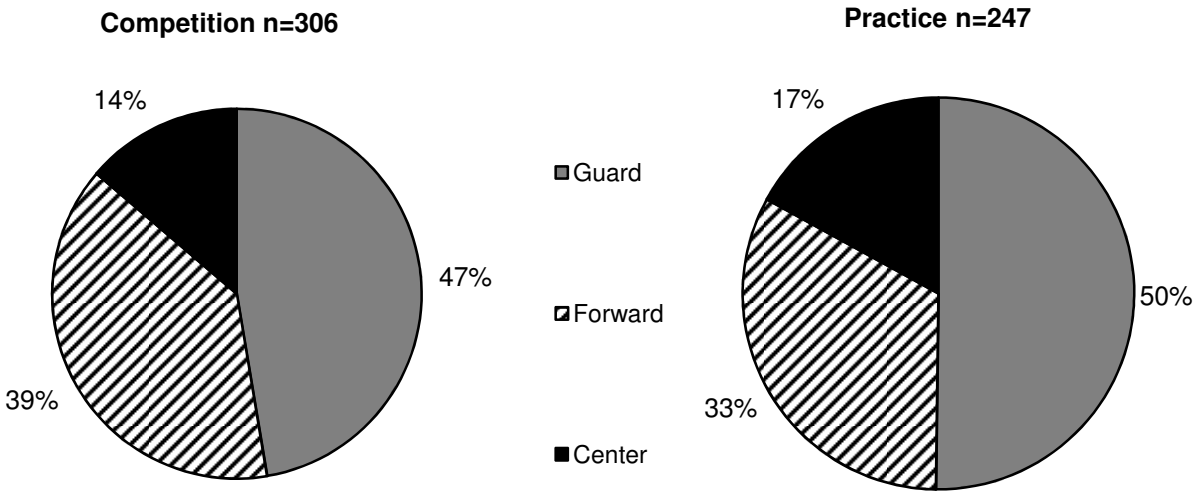
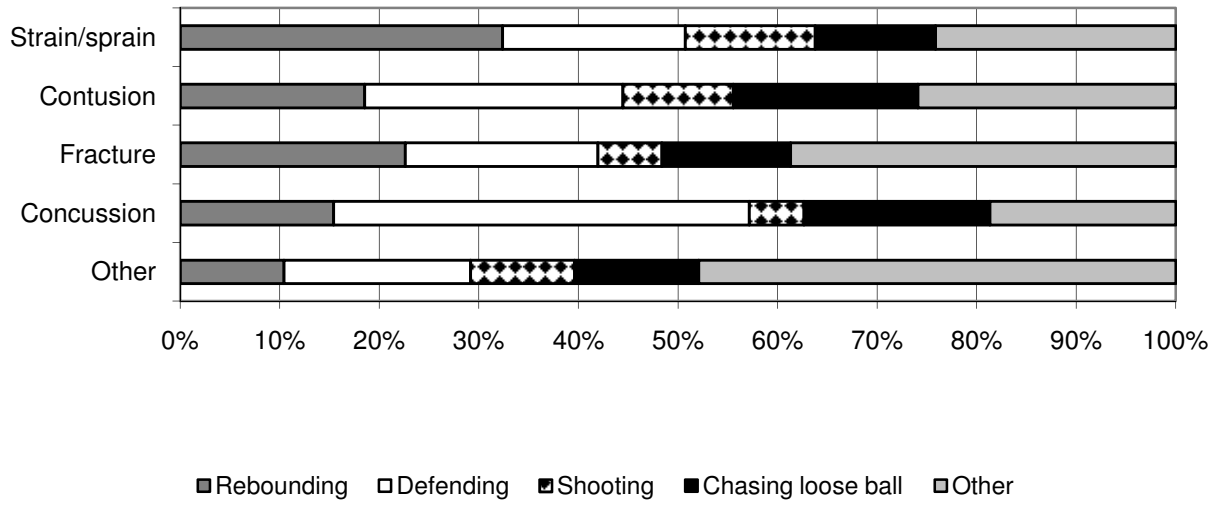


Table 8.9 Activities Leading to Girls' Basketball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	69	22.3%	83	33.6%	152	27.3%
Defending	67	21.6%	32	13.0%	99	17.8%
Rebounding	56	18.1%	42	17.0%	98	17.6%
Chasing loose ball	41	13.2%	16	6.5%	57	10.2%
Shooting	28	9.0%	14	5.7%	42	7.5%
Ball handling/dribbling	25	8.1%	15	6.1%	40	7.2%
Receiving pass	16	5.2%	14	5.7%	30	5.4%
Conditioning	-	0.0%	19	7.7%	19	3.4%
Passing	5	1.6%	5	2.0%	10	1.8%
Other	3	1.0%	7	2.8%	10	1.8%
Total	**310**	**100%**	**247**	**100%**	**557**	**100%**

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

Figure 8.5 Activity Resulting in Girls' Basketball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



IX. Wrestling Injury Epidemiology

Table 9.1 Wrestling Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**574**	**272,077**	**2.11**
Competition	231	72,909	3.17
Practice	343	199,168	1.72

Table 9.2 Demographic Characteristics of Injured Wrestlers, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=558**
Freshman	27.4%
Sophomore	22.2%
Junior	23.8%
Senior	26.5%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.9 (1.3)
BMI	
Minimum	12.6
Maximum	44.7
Mean (St. Dev.)	23.7 (4.8)

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

Figure 9.1 Diagnosis of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

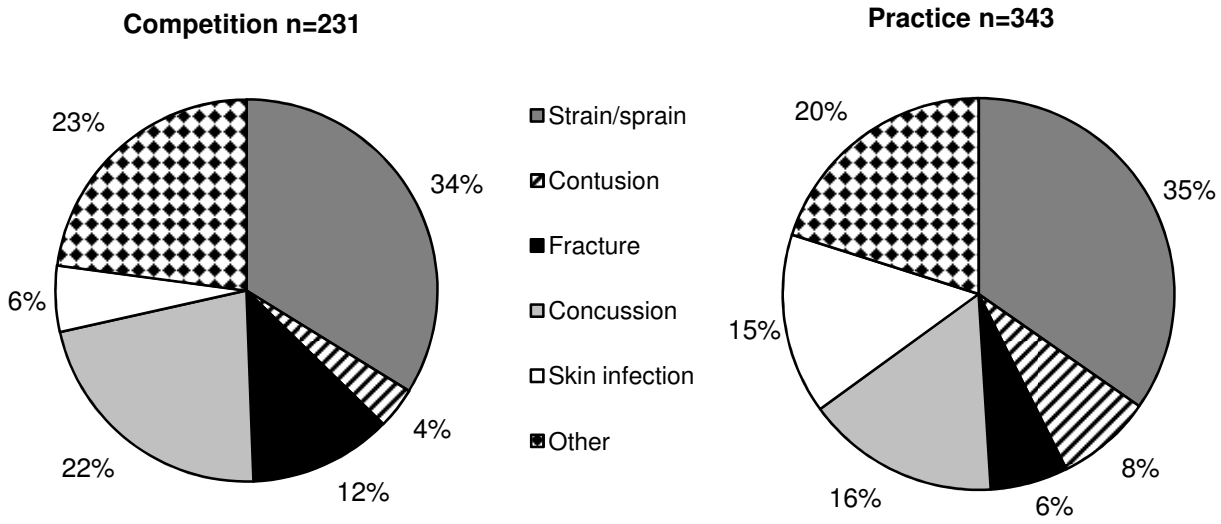


Table 9.3 Body Site of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

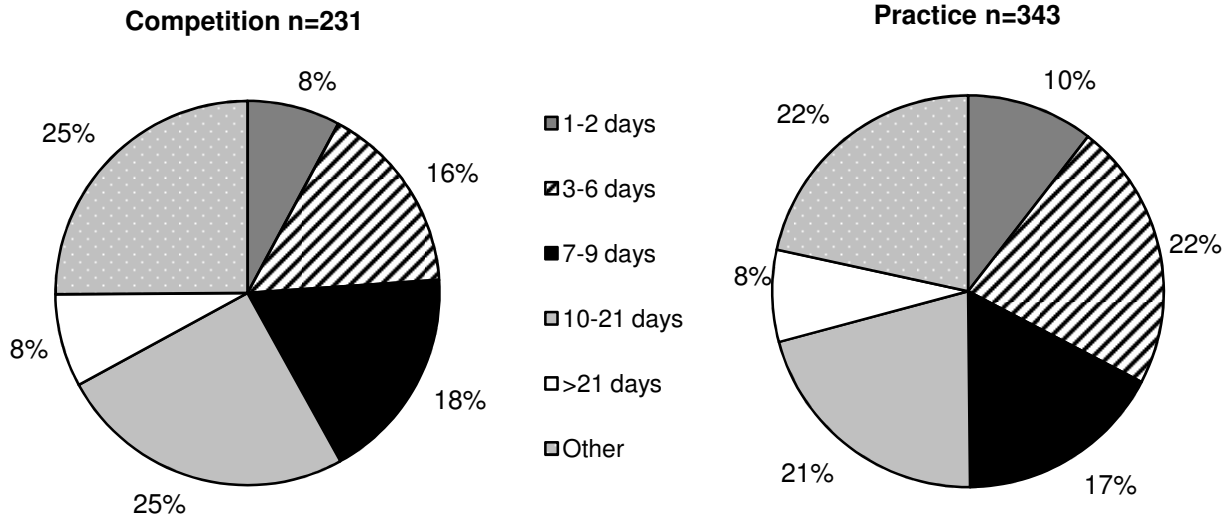
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	65	28.3%	82	23.9%	147	25.7%
Knee	41	17.8%	56	16.3%	97	16.9%
Shoulder	35	15.2%	44	12.8%	79	13.8%
Arm/elbow	15	6.5%	39	11.4%	54	9.4%
Trunk	15	6.5%	31	9.0%	46	8.0%
Hand/wrist	17	7.4%	23	6.7%	40	7.0%
Ankle	15	6.5%	21	6.1%	36	6.3%
Hip/thigh/upper leg	6	2.6%	14	4.1%	20	3.5%
Neck	6	2.6%	12	3.5%	18	3.1%
Lower leg	2	0.9%	6	1.7%	8	1.4%
Foot	3	1.3%	4	1.2%	7	1.2%
Other	10	4.3%	11	3.2%	21	3.7%
Total	**230**	**100%**	**343**	**100%**	**573**	**100%**

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

Table 9.4 Ten Most Common Wrestling Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=230		Practice n=343		Total n=573	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	51	22.2%	55	16.0%	106	18.5%
Knee strain/sprain	20	8.7%	26	7.6%	46	8.0%
Shoulder other	19	8.3%	22	6.4%	41	7.2%
Shoulder strain/sprain	16	7.0%	20	5.8%	36	6.3%
Knee other	19	8.3%	16	4.7%	35	6.1%
Ankle strain/sprain	13	5.7%	20	5.8%	33	5.8%
Head/face skin infection	4	1.7%	13	3.8%	17	3.0%
Arm/elbow skin infection	4	1.7%	13	3.8%	17	3.0%
Arm/elbow strain/sprain	4	1.7%	12	3.5%	16	2.8%
Hand/wrist fracture	9	3.9%	6	1.7%	15	2.6%

Figure 9.2 Time Loss of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 9.5 Wrestling Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	15	6.7%	21	6.3%	36	6.5%
Did not require surgery	208	93.3%	314	93.7%	522	93.5%
Total	**223**	**100%**	**335**	**100%**	**558**	**100%**

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

Figure 9.3 History of Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

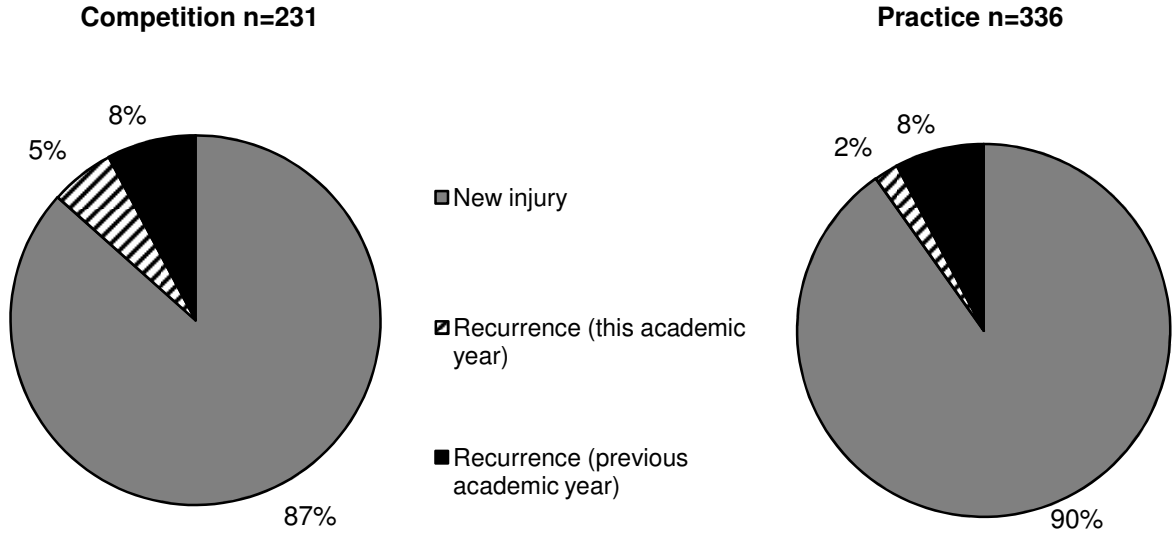


Table 9.6 Time during Season of Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	83	14.5%
Regular season	464	81.0%
Post season	26	4.5%
Total	**573**	**100%**

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

Table 9.7 Competition-Related Variables for Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	3	1.5%
First period	28	13.9%
Second period	90	44.8%
Third period	79	39.3%
Overtime	1	0.5%
Total	**201**	**100%**
Mat Location		
Within 28 ft. circle	205	97.6%
Out of bounds	3	1.4%
Off the mat	2	1.0%
Total	**210**	**100%**

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

Table 9.8 Practice-Related Variables for Wrestling Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	58	18.0%
Second 1/2 hour	56	17.4%
1-2 hours into practice	158	49.1%
>2 hours into practice	50	15.5%
Total	**322**	**100%**

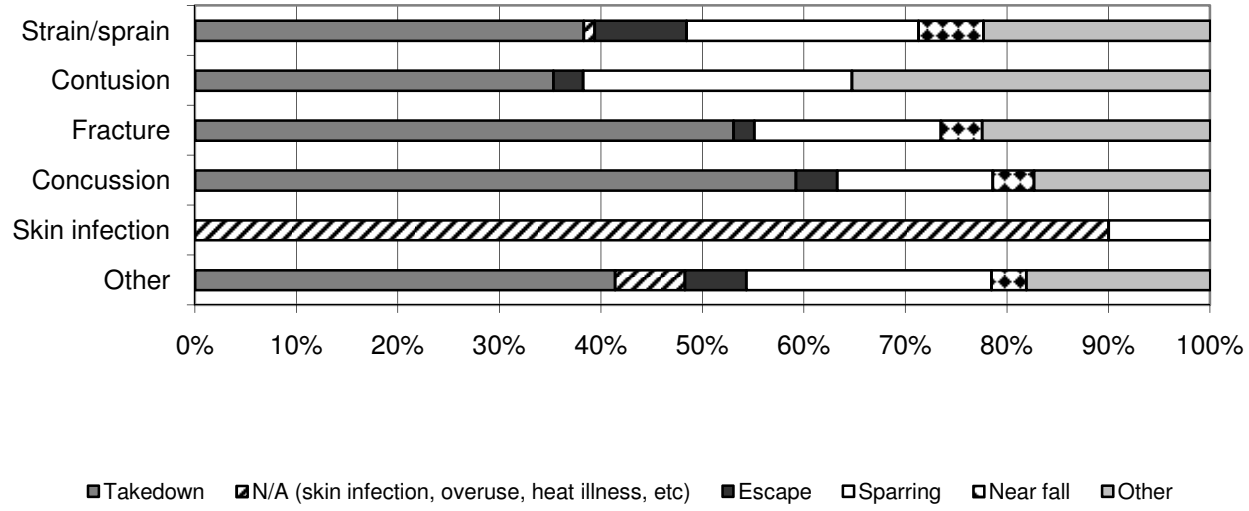
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 9.9 Activities Leading to Wrestling Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Takedown	106	48.6%	110	33.6%	216	39.6%
Sparring	38	17.4%	72	22.0%	110	20.2%
N/A (skin infection, overuse, etc.)	11	5.0%	53	16.2%	64	11.7%
Fall	6	2.8%	24	7.3%	30	5.5%
Escape	16	7.3%	14	4.3%	30	5.5%
Near fall	14	6.4%	8	2.4%	22	4.0%
Reversal	9	4.1%	11	3.4%	20	3.7%
Riding	11	5.0%	6	1.8%	17	3.1%
Conditioning	-	0.0%	10	3.1%	10	1.8%
Other	7	3.2%	19	5.8%	26	4.8%
Total	**218**	**100%**	**327**	**100%**	**545**	**100%**

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

Figure 9.4 Activities Resulting in Wrestling Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



X. Baseball Injury Epidemiology

Table 10.1 Baseball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**246**	**288,730**	**0.85**
Competition	131	99,222	1.32
Practice	115	189,508	0.61

Table 10.2 Demographic Characteristics of Injured Baseball Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=243**
Freshman	23.5%
Sophomore	19.8%
Junior	25.1%
Senior	31.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	19
Mean (St. Dev.)	16.2 (1.3)
BMI	
Minimum	18.0
Maximum	43.0
Mean (St. Dev.)	24.0 (3.4)

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

Figure 10.1 Diagnosis of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

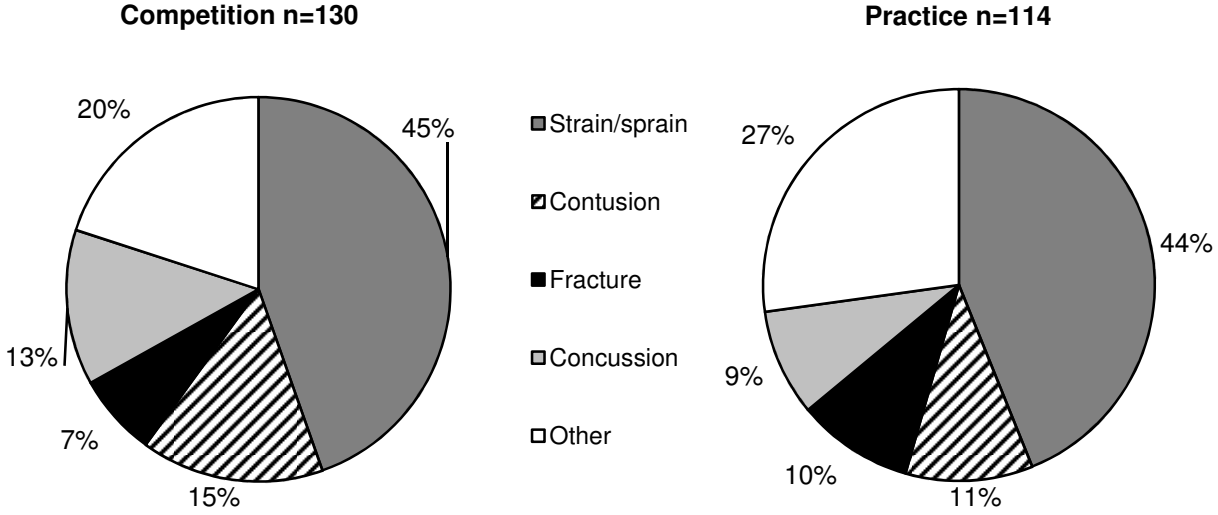


Table 10.3 Body Site of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

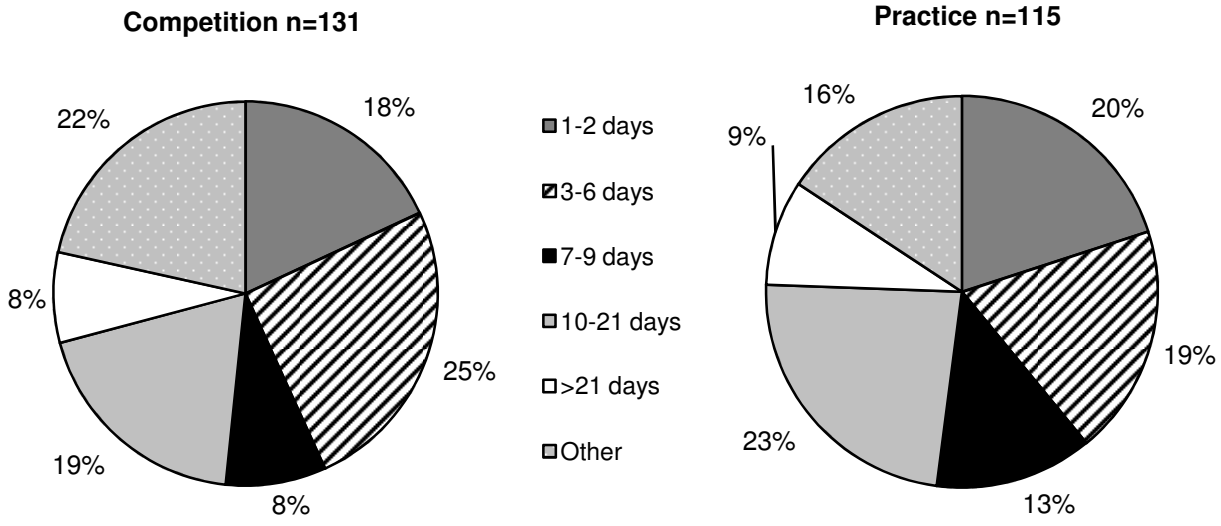
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	21	16.0%	21	18.3%	42	17.1%
Shoulder	13	9.9%	26	22.6%	39	15.9%
Hip/thigh/upper leg	20	15.3%	10	8.7%	30	12.2%
Ankle	17	13.0%	12	10.4%	29	11.8%
Arm/elbow	11	8.4%	15	13.0%	26	10.6%
Hand/wrist	16	12.2%	8	7.0%	24	9.8%
Knee	15	11.5%	5	4.3%	20	8.1%
Trunk	6	4.6%	6	5.2%	12	4.9%
Lower leg	5	3.8%	5	4.3%	10	4.1%
Neck	3	2.3%	3	2.6%	6	2.4%
Foot	1	0.8%	3	2.6%	4	1.6%
Other	3	2.3%	1	0.9%	4	1.6%
Total	**131**	**100%**	**115**	**100%**	**246**	**100%**

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

Table 10.4 Ten Most Common Baseball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=130		Practice n=114		Total n=244	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	17	13.1%	10	8.8%	27	11.1%
Ankle strain/sprain	15	11.5%	9	7.9%	24	9.8%
Hip/thigh/upper leg strain/sprain	17	13.1%	6	5.3%	23	9.4%
Shoulder other	8	6.2%	11	9.6%	19	7.8%
Shoulder strain/sprain	4	3.1%	13	11.4%	17	7.0%
Trunk strain/sprain	6	4.6%	5	4.4%	11	4.5%
Arm/elbow other	3	2.3%	7	6.1%	10	4.1%
Arm/elbow strain/sprain	3	2.3%	6	5.3%	9	3.7%
Knee strain/sprain	5	3.8%	4	3.5%	9	3.7%
Hand/wrist fracture	6	4.6%	3	2.6%	9	3.7%

Figure 10.2 Time Loss of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 10.5 Baseball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	4	3.1%	13	11.6%	17	7.1%
Did not require surgery	125	96.9%	99	88.4%	224	92.9%
Total	**129**	**100%**	**112**	**100%**	**241**	**100%**

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

Figure 10.3 History of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

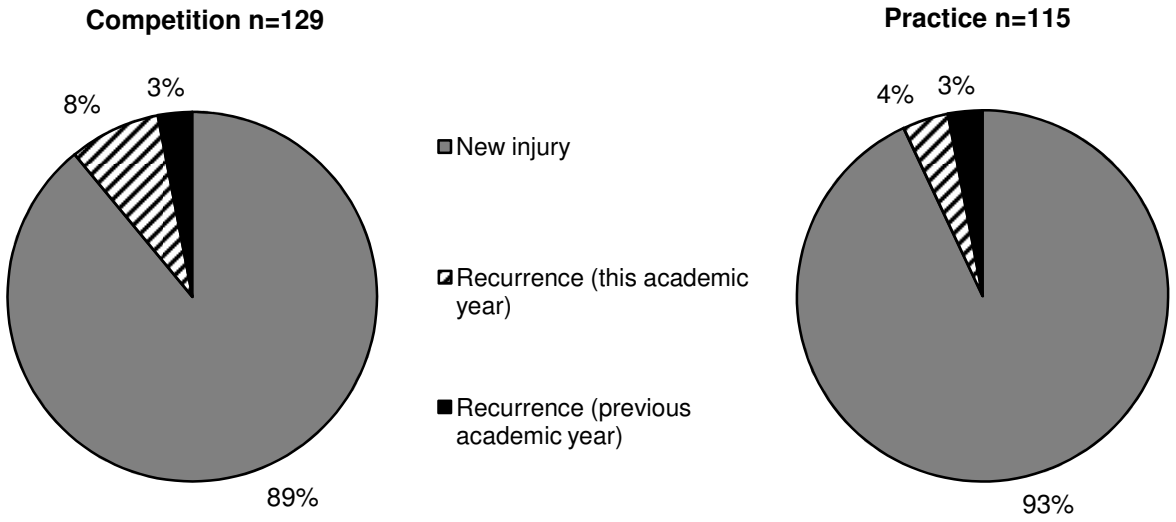


Table 10.6 Time during Season of Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	54	22.0%
Regular season	186	75.9%
Post season	5	2.0%
Total	**245**	**100.0%**

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

Table 10.7 Competition-Related Variables for Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	9	7.6%
First inning	6	5.1%
Second inning	14	11.9%
Third inning	18	15.3%
Fourth inning	31	26.3%
Fifth inning	24	20.3%
Sixth inning	8	6.8%
Seventh inning	7	5.9%
Extra innings	1	0.8%
Total	**118**	**100%**
Field Location		
Home plate	36	28.8%
First base	22	17.6%
Second base	20	16.0%
Third base	6	4.8%
Infield	7	5.6%
Pitcher's mound	18	14.4%
Outfield	10	8.0%
Foul territory	1	0.8%
Other	5	4.0%
Total	**125**	**100%**

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

Table 10.8 Practice-Related Variables for Baseball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	17	15.7%
Second 1/2 hour	26	24.1%
1-2 hours into practice	60	55.6%
>2 hours into practice	5	4.6%
Total	**108**	**100%**

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

Figure 10.4 Player Position of Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

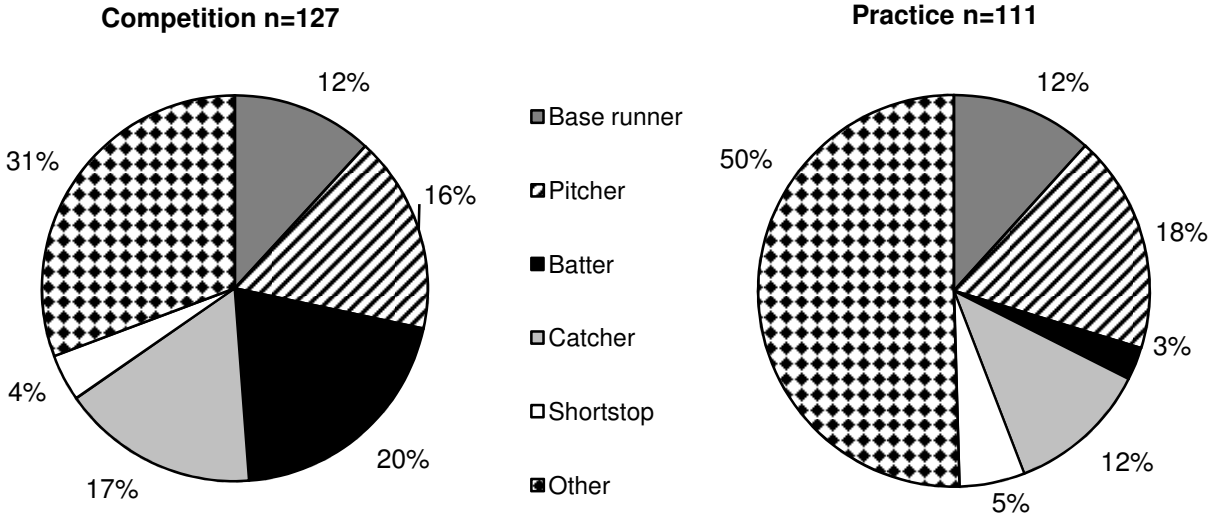
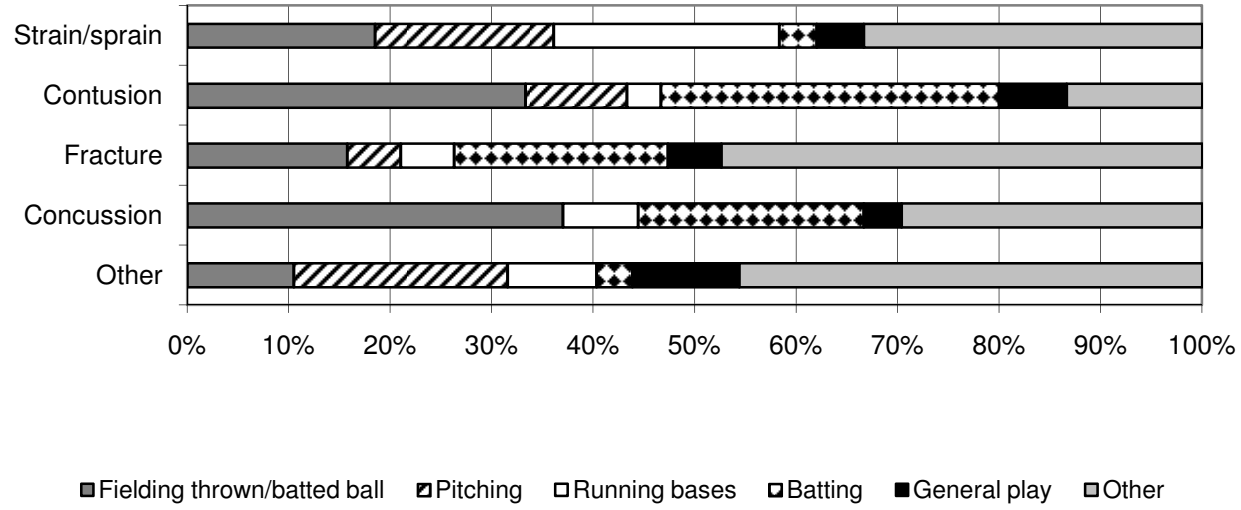


Table 10.9 Activities Leading to Baseball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Fielding a batted ball	15	11.7%	22	19.1%	37	15.2%
Pitching	18	14.1%	17	14.8%	35	14.4%
Running bases	26	20.3%	8	7.0%	34	14.0%
Batting	22	17.2%	4	3.5%	26	10.7%
Throwing (not pitching)	4	3.1%	19	16.5%	23	9.5%
Sliding	12	9.4%	9	7.8%	21	8.6%
Catching	11	8.6%	8	7.0%	19	7.8%
General play	6	4.7%	9	7.8%	15	6.2%
Fielding a thrown ball	9	7.0%	3	2.6%	12	4.9%
Conditioning	-	0.0%	6	5.2%	6	2.5%
Other	5	3.9%	10	8.7%	15	6.2%
Total	**128**	**100%**	**115**	**100%**	**243**	**100%**

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

Figure 10.5 Activity Resulting in Baseball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XI. Softball Injury Epidemiology

Table 11.1 Softball Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**240**	**205,072**	**1.17**
Competition	131	70,041	1.87
Practice	109	135,031	0.81

Table 11.2 Demographic Characteristics of Injured Softball Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=240**
Freshman	32.1%
Sophomore	26.3%
Junior	22.5%
Senior	19.2%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.8 (1.2)
BMI	
Minimum	15.8
Maximum	40.4
Mean (St. Dev.)	23.7 (4.9)

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

Figure 11.1 Diagnosis of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

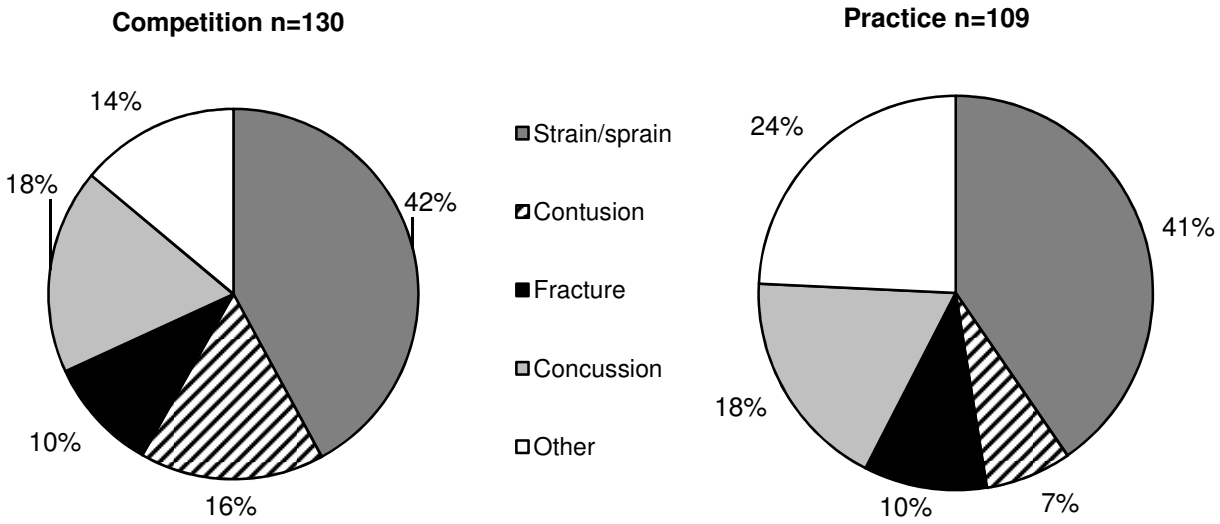


Table 11.3 Body Site of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

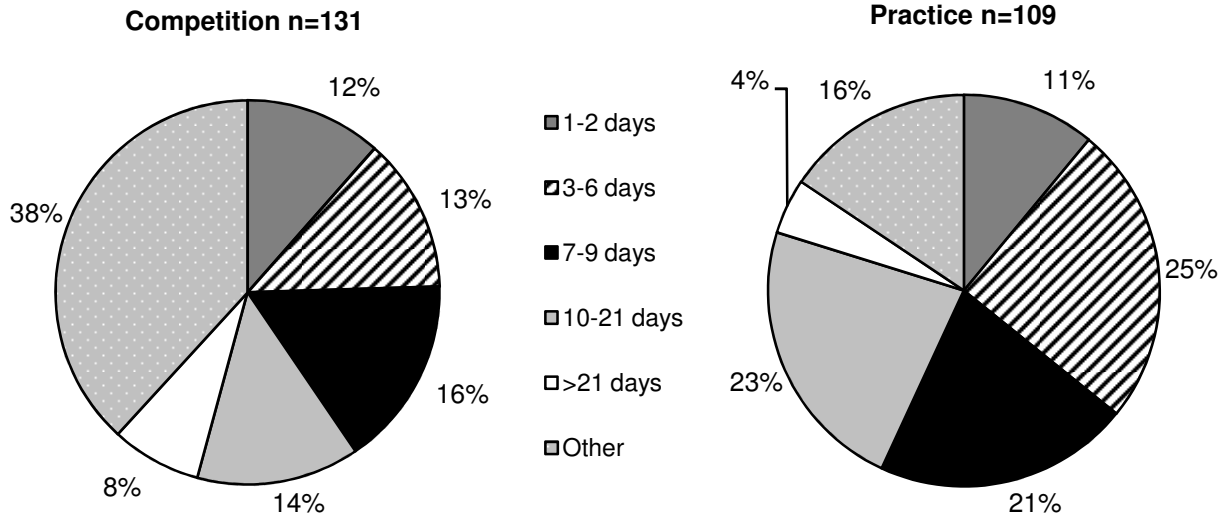
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	29	22.1%	27	24.8%	56	23.3%
Ankle	23	17.6%	14	12.8%	37	15.4%
Knee	23	17.6%	10	9.2%	33	13.8%
Shoulder	11	8.4%	17	15.6%	28	11.7%
Hand/wrist	17	13.0%	8	7.3%	25	10.4%
Hip/thigh/upper leg	6	4.6%	12	11.0%	18	7.5%
Arm/elbow	7	5.3%	8	7.3%	15	6.3%
Lower leg	7	5.3%	2	1.8%	9	3.8%
Trunk	3	2.3%	6	5.5%	9	3.8%
Foot	2	1.5%	3	2.8%	5	2.1%
Neck	2	1.5%	-	0.0%	2	0.8%
Other	1	0.8%	2	1.8%	3	1.3%
Total	**131**	**100%**	**109**	**100%**	**240**	**100%**

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

Table 11.4 Ten Most Common Softball Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=130		Practice n=109		Total n=239	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	23	17.7%	20	18.3%	43	18.0%
Ankle strain/sprain	22	16.9%	12	11.0%	34	14.2%
Knee strain/sprain	17	13.1%	3	2.8%	20	8.4%
Shoulder other	8	6.2%	11	10.1%	19	7.9%
Hip/thigh/upper leg strain/sprain	4	3.1%	11	10.1%	15	6.3%
Hand/wrist fracture	8	6.2%	3	2.8%	11	4.6%
Shoulder strain/sprain	2	1.5%	6	5.5%	8	3.3%
Knee contusion	5	3.8%	3	2.8%	8	3.3%
Head/face contusion	4	3.1%	3	2.8%	7	2.9%
Hand/wrist strain/sprain	4	3.1%	2	1.8%	6	2.5%

Figure 11.2 Time Loss of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 11.5 Softball Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	11	8.5%	3	2.8%	14	5.9%
Did not require surgery	118	91.5%	104	97.2%	222	94.1%
Total	**129**	**100%**	**107**	**100%**	**236**	**100%**

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

Figure 11.3 History of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

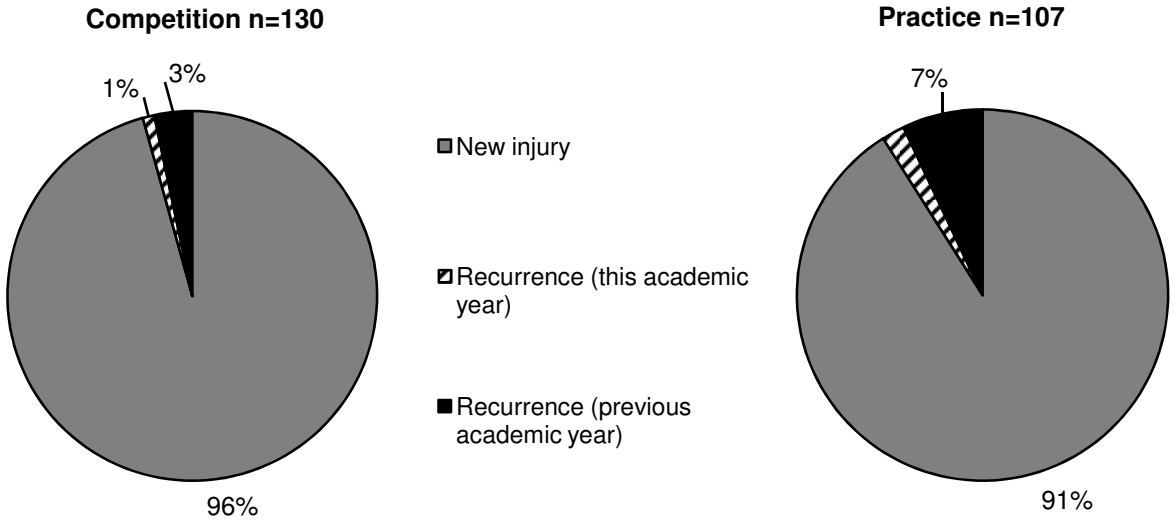


Table 11.6 Time during Season of Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	61	25.4%
Regular season	174	72.5%
Post season	5	2.1%
Total	**240**	**100%**

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

Table 11.7 Competition-Related Variables for Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	15	12.7%
First inning	6	5.1%
Second inning	15	12.7%
Third inning	19	16.1%
Fourth inning	23	19.5%
Fifth inning	21	17.8%
Sixth inning	8	6.8%
Seventh inning	9	7.6%
Extra innings	2	1.7%
Total	**118**	**100%**
Field Location		
Home plate	27	21.8%
First base	21	16.9%
Second base	19	15.3%
Third base	16	12.9%
Outfield	17	13.7%
Pitcher's mound	9	7.3%
Infield	6	4.8%
Foul territory	5	4.0%
Other	4	3.2%
Total	**124**	**100%**

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

Table 11.8 Practice-Related Variables for Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	14	14.4%
Second 1/2 hour	18	18.6%
1-2 hours into practice	62	63.9%
>2 hours into practice	3	3.1%
Total	**97**	**100%**

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

Figure 11.4 Player Position of Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

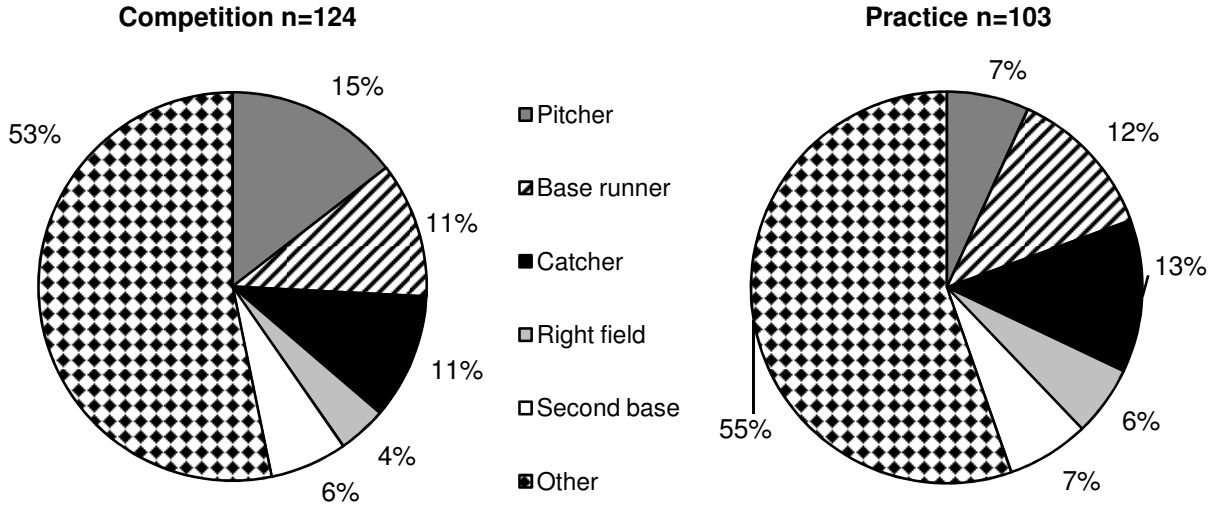
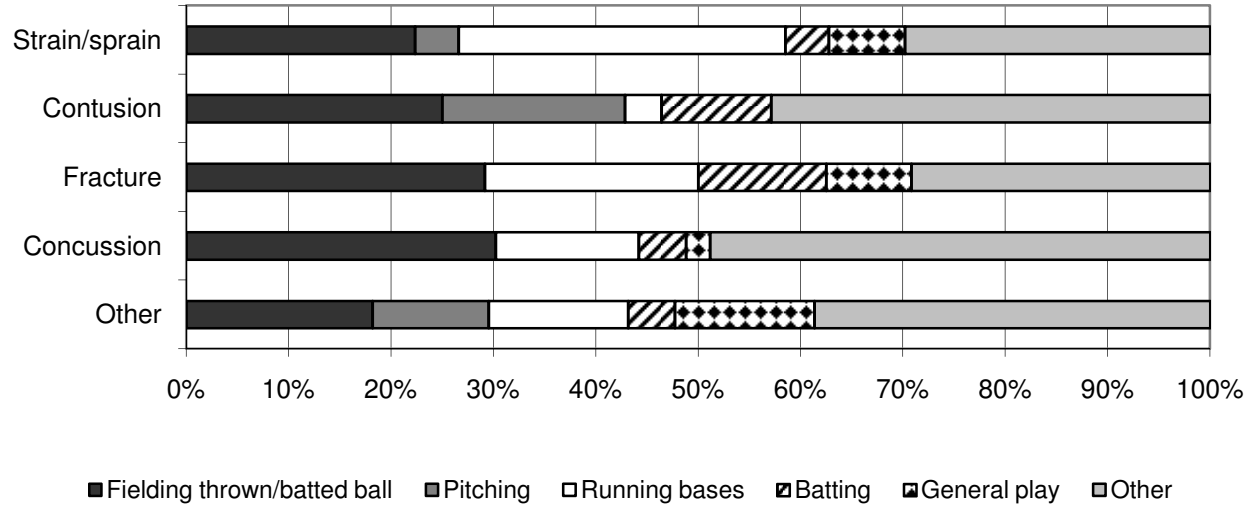


Table 11.9 Activities Leading to Softball Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running bases	29	23.0%	19	17.6%	48	20.5%
Fielding a batted ball	23	18.3%	15	13.9%	38	16.2%
Catching	14	11.1%	11	10.2%	25	10.7%
Sliding	16	12.7%	5	4.6%	21	9.0%
Throwing (not pitching)	4	3.2%	17	15.7%	21	9.0%
Fielding a thrown ball	10	7.9%	8	7.4%	18	7.7%
General play	4	3.2%	12	11.1%	16	6.8%
Pitching	10	7.9%	5	4.6%	15	6.4%
Batting	8	6.3%	6	5.6%	14	6.0%
Conditioning	1	0.8%	8	7.4%	9	3.8%
Other	7	5.6%	2	1.9%	9	3.8%
Total	**126**	**100%**	**108**	**100%**	**234**	**100%**

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

Figure 11.5 Activity Resulting in Softball Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XII. Girls' Field Hockey Injury Epidemiology

Table 12.1 Girls' Field Hockey Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**123**	**83,070**	**1.48**
Competition	58	27,324	2.12
Practice	65	55,746	1.17

Table 12.2 Demographic Characteristics of Injured Girls' Field Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=120**
Freshman	15.8%
Sophomore	28.3%
Junior	25.8%
Senior	30.0%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.7 (1.3)
BMI	
Minimum	16.1
Maximum	35.2
Mean (St. Dev.)	22.5 (3.5)

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

Figure 12.1 Diagnosis of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

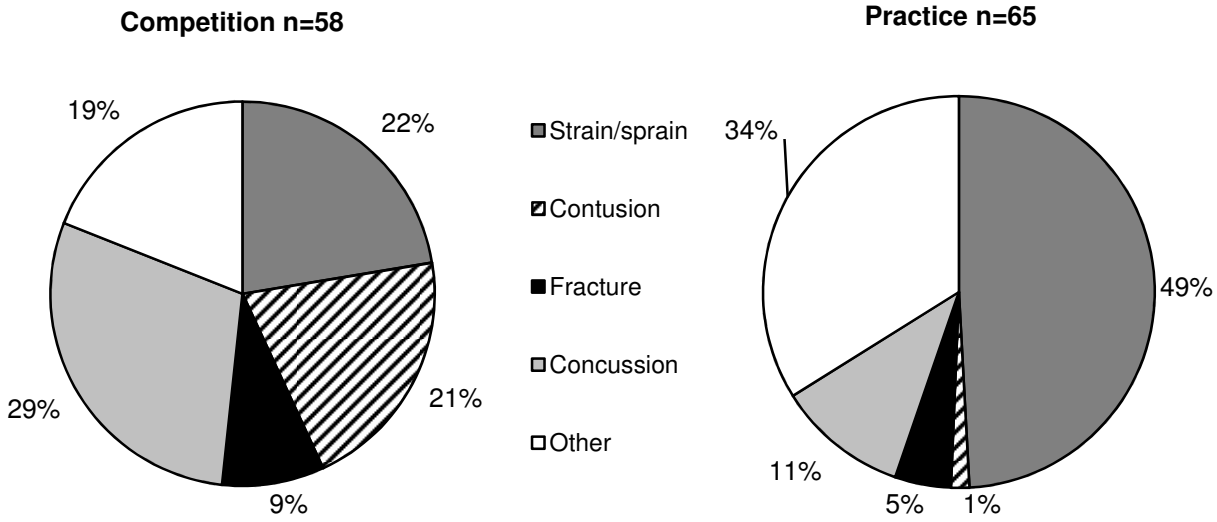


Table 12.3 Body Site of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

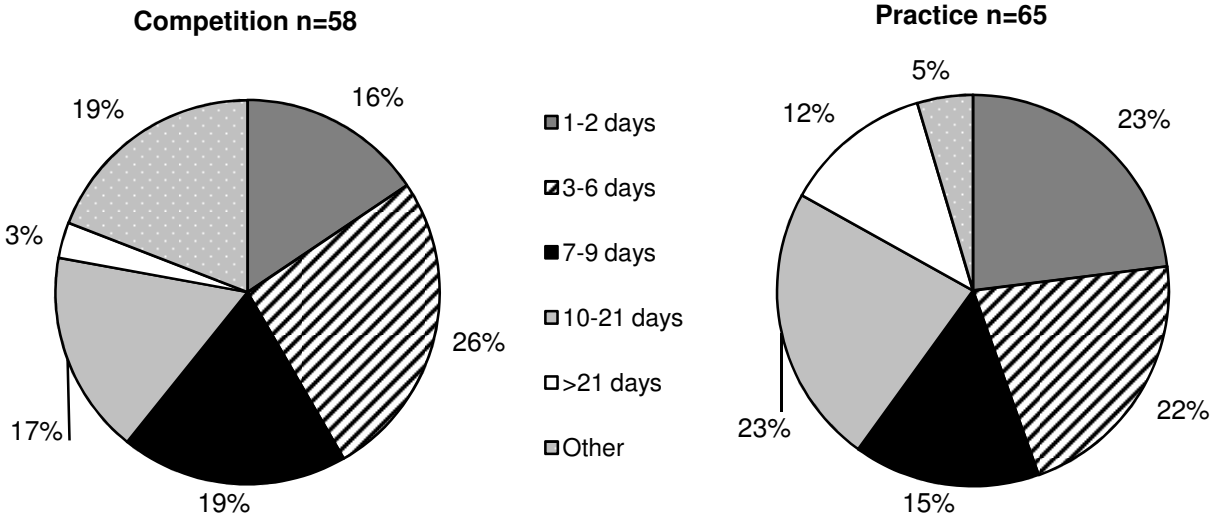
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	19	33.3%	10	15.6%	29	24.0%
Hip/thigh/upper leg	3	5.3%	20	31.3%	23	19.0%
Knee	11	19.3%	6	9.4%	17	14.0%
Hand/wrist	12	21.1%	3	4.7%	15	12.4%
Ankle	4	7.0%	6	9.4%	10	8.3%
Lower leg	1	1.8%	9	14.1%	10	8.3%
Foot	3	5.3%	4	6.3%	7	5.8%
Trunk	1	1.8%	5	7.8%	6	5.0%
Shoulder	1	1.8%	-	0.0%	1	0.8%
Other	2	3.5%	1	1.6%	3	2.5%
Total	**57**	**100%**	**64**	**100%**	**121**	**100%**

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

Table 12.4 Ten Most Common Girls' Field Hockey Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=57		Practice n=64		Total n=121	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	17	29.8%	7	10.9%	24	19.8%
Hip/thigh/upper leg strain/sprain	2	3.5%	19	29.7%	21	17.4%
Ankle strain/sprain	4	7.0%	6	9.4%	10	8.3%
Knee other	5	8.8%	5	7.8%	10	8.3%
Lower leg other	-	0.0%	8	12.5%	8	6.6%
Hand/wrist fracture	5	8.8%	2	3.1%	7	5.8%
Foot strain/sprain	2	3.5%	3	4.7%	5	4.1%
Knee contusion	4	7.0%	1	1.6%	5	4.1%
Head/face other	2	3.5%	2	3.1%	4	3.3%
Hand/wrist strain/sprain	2	3.5%	1	1.6%	3	2.5%

Figure 12.2 Time Loss of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 12.5 Girls' Field Hockey Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	2	3.6%	1	1.5%	3	2.5%
Did not require surgery	54	96.4%	64	98.5%	118	97.5%
Total	**56**	**100%**	**65**	**100%**	**121**	**100%**

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

Figure 12.3 History of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

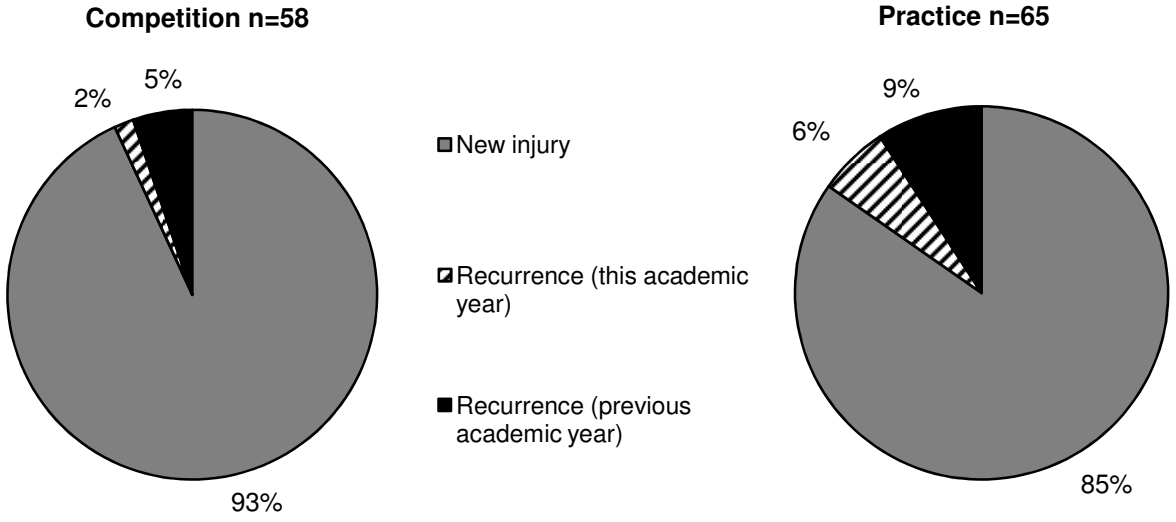


Table 12.6 Time during Season of Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	34	27.9%
Regular season	87	71.3%
Post season	1	0.8%
Total	**122**	**100%**

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

Table 12.7 Competition-Related Variables for Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	1	1.8%
First half	15	26.8%
Second half	40	71.4%
Overtime	-	0.0%
Total	**56**	**100%**
Field Location		
Between 25-yard line and center line	24	42.9%
Within 25-yard line	13	23.2%
Within 16-yard arc	10	17.9%
Goal area/circle	6	10.7%
Sideline	2	3.6%
Other	1	1.8%
Total	**56**	**100%**

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

Table 12.8 Practice-Related Variables for Girls' Field Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	5	8.1%
Second 1/2 hour	15	24.2%
1-2 hours into practice	34	54.8%
>2 hours into practice	8	12.9%
Total	**62**	**100%**

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

Figure 12.4 Player Position of Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

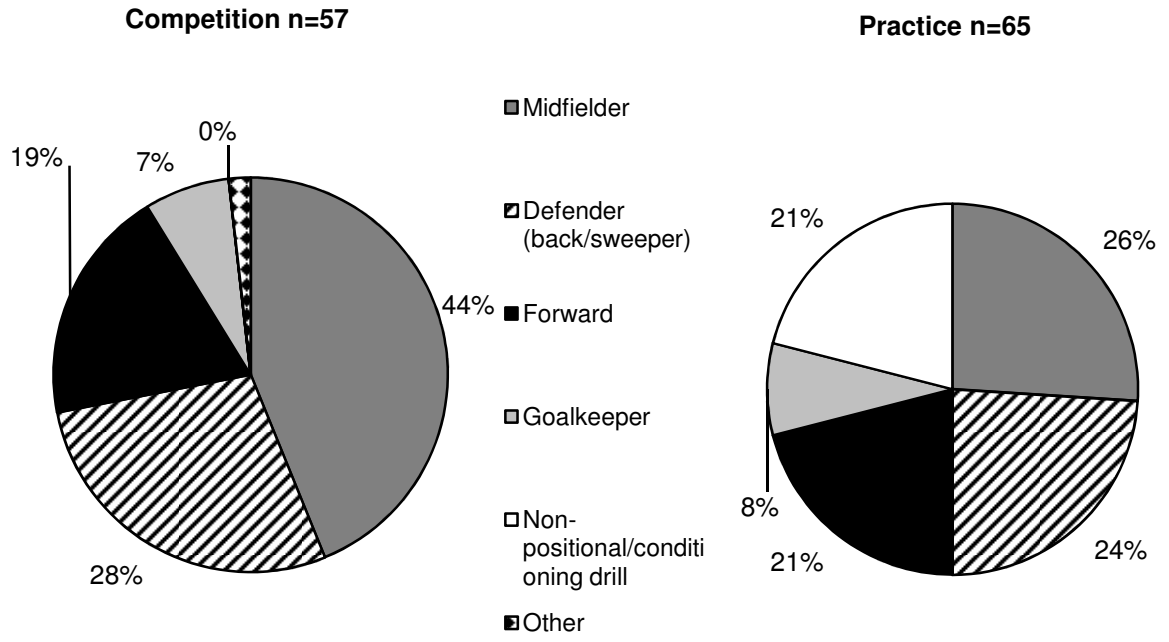
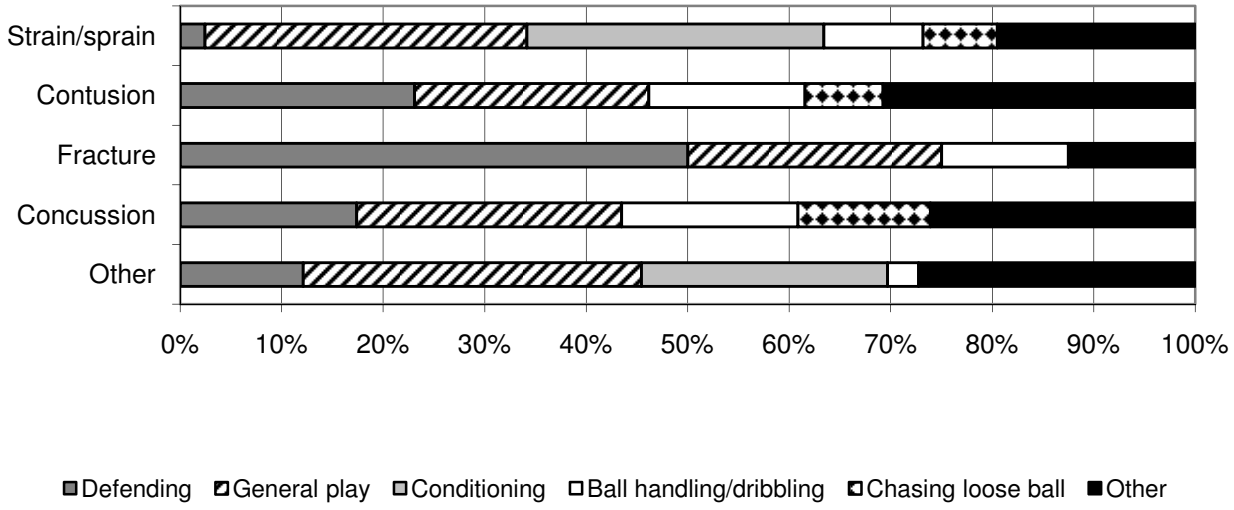


Table 12.9 Activities Leading to Girls' Field Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	14	24.6%	21	34.4%	35	29.7%
Conditioning	-	0.0%	20	32.8%	20	16.9%
Defending	14	24.6%	2	3.3%	16	13.6%
Ball handling/dribbling	9	15.8%	3	4.9%	12	10.2%
Chasing a loose ball	5	8.8%	2	3.3%	7	5.9%
Goaltending	3	5.3%	4	6.6%	7	5.9%
Passing	5	8.8%	1	1.6%	6	5.1%
Receiving pass	3	5.3%	1	1.6%	4	3.4%
Shooting	1	1.8%	2	3.3%	3	2.5%
Blocking shot	2	3.5%	-	0.0%	2	1.7%
Other	1	1.8%	5	8.2%	6	5.1%
Total	**57**	**100%**	**61**	**100%**	**118**	**100%**

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

Figure 12.5 Activity Resulting in Girls' Field Hockey Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XIII. Boys' Ice Hockey Injury Epidemiology

Table 13.1 Boys' Ice Hockey Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**117**	**57,852**	**2.02**
Competition	98	19,039	5.15
Practice	19	38,813	0.49

Table 13.2 Demographic Characteristics of Injured Boys' Ice Hockey Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=115**
Freshman	14.8%
Sophomore	22.6%
Junior	33.9%
Senior	28.7%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	16.1 (1.3)
BMI	
Minimum	17.8
Maximum	37.6
Mean (St. Dev.)	23.6 (2.9)

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

Figure 13.1 Diagnosis of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

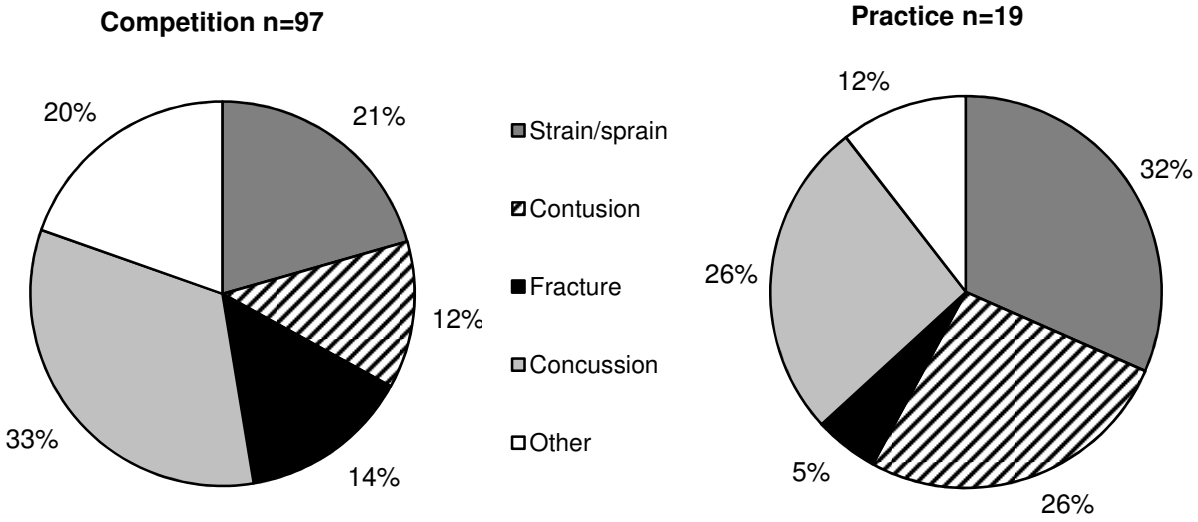


Table 13.3 Body Site of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

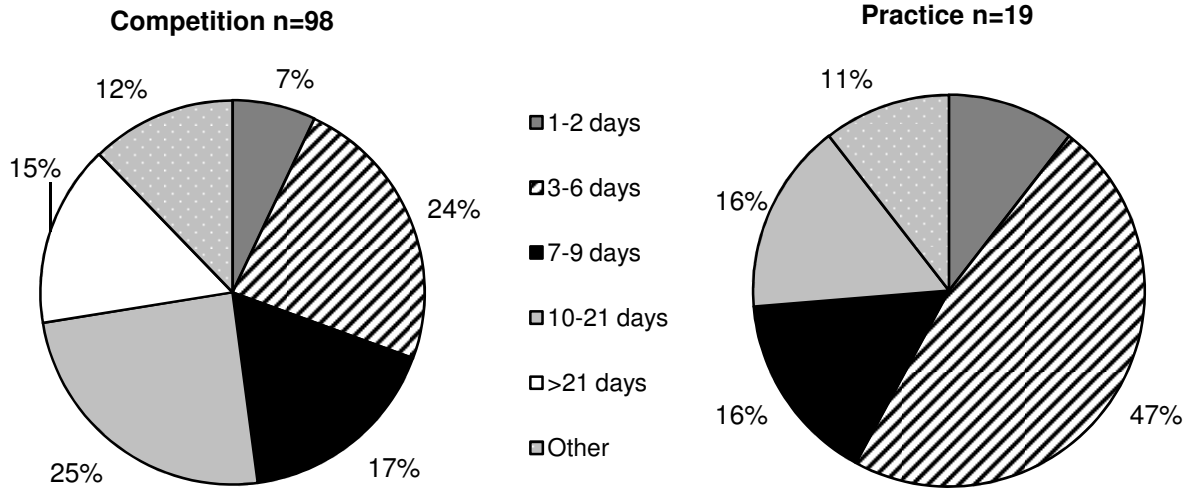
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	37	37.8%	5	26.3%	42	35.9%
Shoulder	22	22.4%	1	5.3%	23	19.7%
Hip/thigh/upper leg	4	4.1%	6	31.6%	10	8.5%
Knee	6	6.1%	2	10.5%	8	6.8%
Hand/wrist	8	8.2%	-	0.0%	8	6.8%
Trunk	3	3.1%	2	10.5%	5	4.3%
Ankle	4	4.1%	1	5.3%	5	4.3%
Arm/elbow	3	3.1%	1	5.3%	4	3.4%
Neck	3	3.1%	0	0.0%	3	2.6%
Foot	1	1.0%	1	5.3%	2	1.7%
Lower leg	-	0.0%	-	0.0%	-	0.0%
Other	7	7.1%	-	0.0%	7	6.0%
Total	**98**	**100%**	**19**	**100%**	**117**	**100%**

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

Table 13.4 Ten Most Common Boys' Ice Hockey Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=97		Practice n=19		Total n=116	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	32	33.0%	5	26.3%	37	31.9%
Shoulder other	12	12.4%	-	0.0%	12	10.3%
Shoulder strain/sprain	7	7.2%	-	0.0%	7	6.0%
Hip/thigh/upper leg strain/sprain	2	2.1%	4	21.1%	6	5.2%
Other fracture	5	5.2%	-	0.0%	5	4.3%
Ankle strain/sprain	4	4.1%	1	5.3%	5	4.3%
Hand/wrist fracture	5	5.2%	-	0.0%	5	4.3%
Hip/thigh/upper leg contusion	2	2.1%	2	10.5%	4	3.4%
Trunk contusion	2	2.1%	2	10.5%	4	3.4%
Knee strain/sprain	2	2.1%	1	5.3%	3	2.6%

Figure 13.2 Time Loss of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 13.5 Boys' Ice Hockey Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	9	9.4%	-	0.0%	9	7.8%
Did not require surgery	87	90.6%	19	100.0%	106	92.2%
Total	**96**	**100%**	**19**	**100%**	**115**	**100%**

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

Figure 13.3 History of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

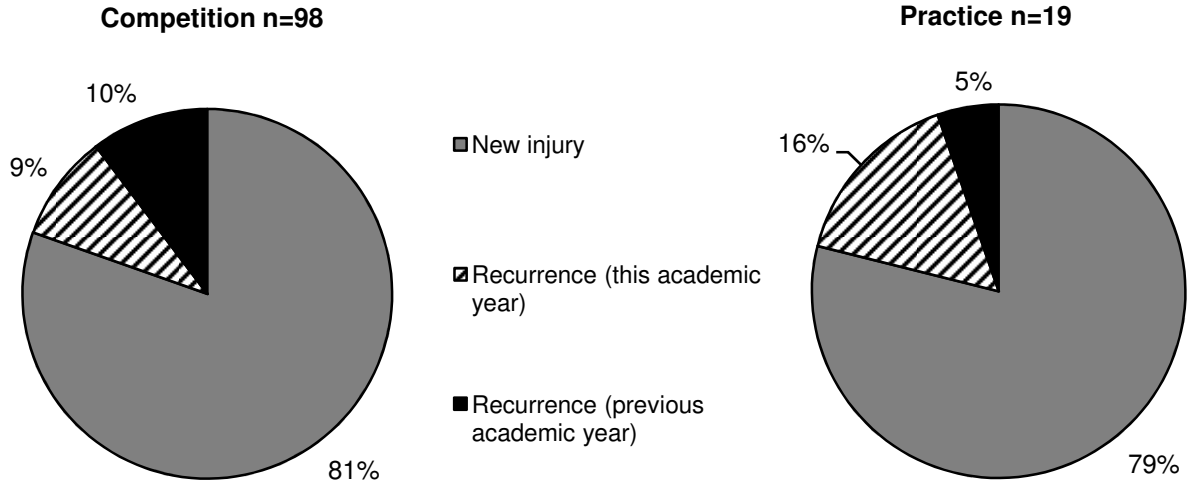


Table 13.6 Time during Season of Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	8	6.8%
Regular season	107	91.5%
Post season	2	1.7%
Total	**117**	**100%**

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

Table 13.7 Competition-Related Variables for Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Warm-ups	-	0.0%
First period	19	21.6%
Second period	41	46.6%
Third period	28	31.8%
Overtime	-	0.0%
Total	**88**	**100%**
Rink Location		
Between goal line and blue line	35	43.2%
Corner	18	22.2%
Neutral zone	14	17.3%
Behind goal	6	7.4%
Face-off circle	4	4.9%
Goal area	2	2.5%
Bench	1	1.2%
Other	1	1.2%
Total	**81**	**100%**

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

Table 13.8 Practice-Related Variables for Boys' Ice Hockey Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	3	17.6%
Second 1/2 hour	1	5.9%
1-2 hours into practice	10	58.8%
>2 hours into practice	3	17.6%
Total	**17**	**100%**

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

Figure 13.4 Player Position of Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

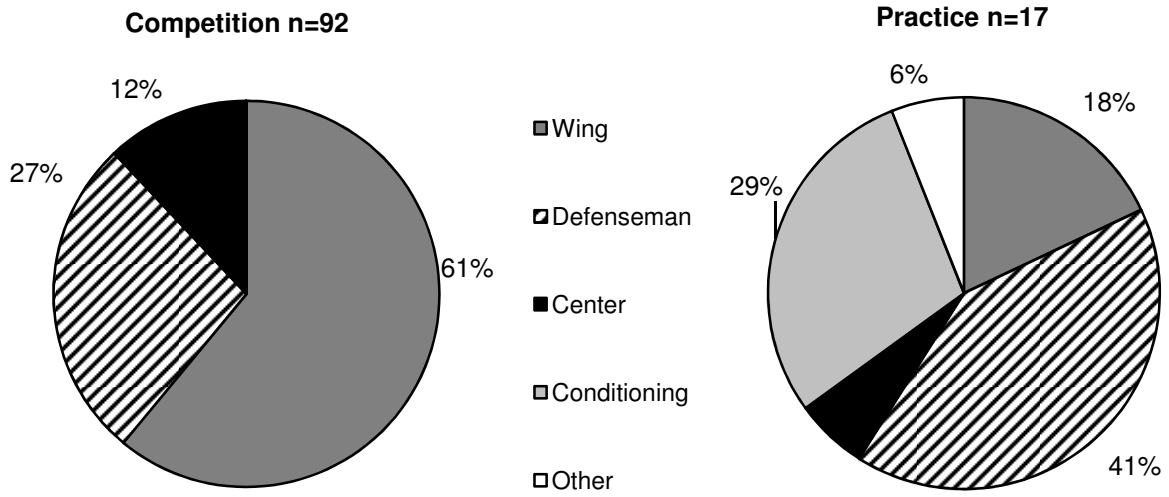
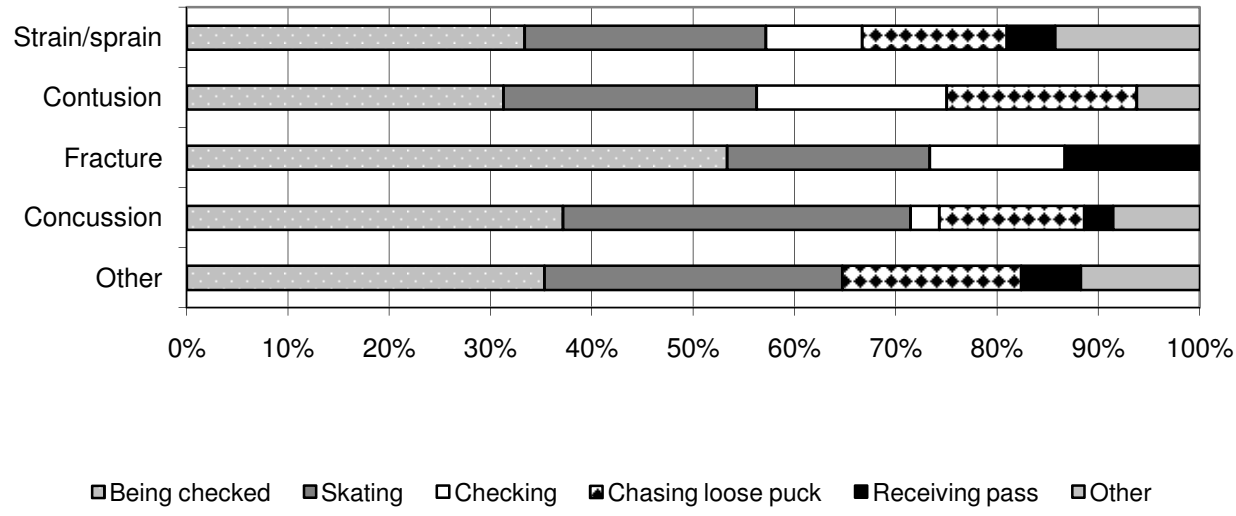


Table 13.9 Activities Leading to Boys' Ice Hockey Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Being checked	36	40.9%	3	17.6%	39	37.1%
Skating	21	23.9%	8	47.1%	29	27.6%
Chasing loose puck	12	13.6%	2	11.8%	14	13.3%
Checking	8	9.1%	-	0.0%	8	7.6%
Receiving pass	5	5.7%	1	5.9%	6	5.7%
Line change	2	2.3%	-	0.0%	2	1.9%
Shooting	1	1.1%	-	0.0%	1	1.0%
Face-off	1	1.1%	-	0.0%	1	1.0%
Other	2	2.3%	3	17.6%	5	4.8%
Total	**88**	**100%**	**17**	**100%**	**105**	**100%**

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

Figure 13.5 Activity Resulting in Boys' Ice Hockey Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XIV. Boys' Lacrosse Injury Epidemiology

Table 14.1 Boys' Lacrosse Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**209**	**112,372**	**1.86**
Competition	132	35,268	3.74
Practice	77	77,104	1.00

Table 14.2 Demographic Characteristics of Injured Boys' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=206**
Freshman	18.9%
Sophomore	25.2%
Junior	26.2%
Senior	29.6%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	20
Mean (St. Dev.)	16.3 (1.4)
BMI	
Minimum	17.4
Maximum	34.5
Mean (St. Dev.)	24.0 (3.1)

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

Figure 14.1 Diagnosis of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

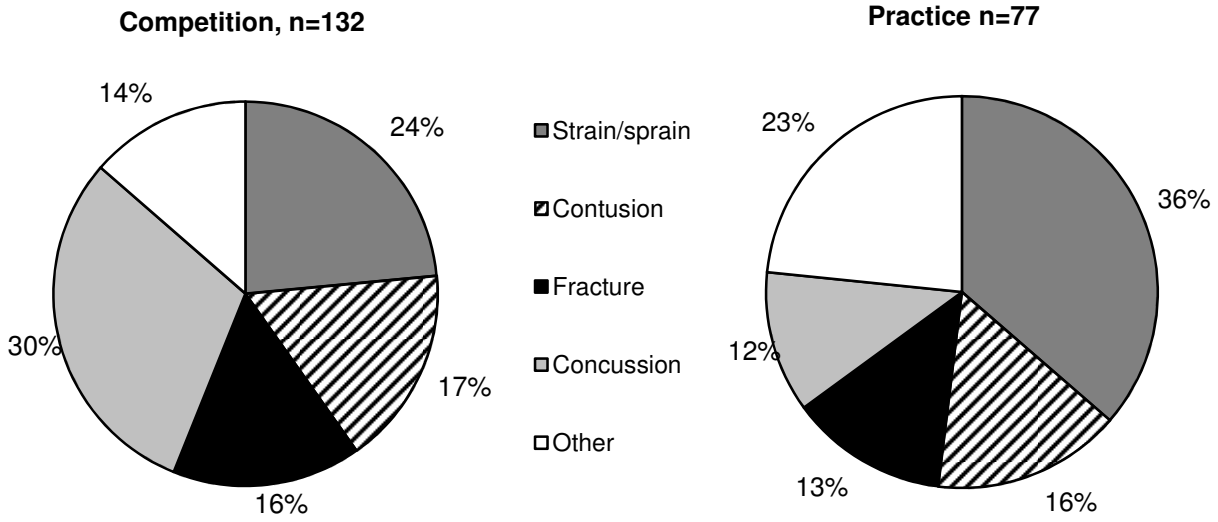


Table 14.3 Body Site of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

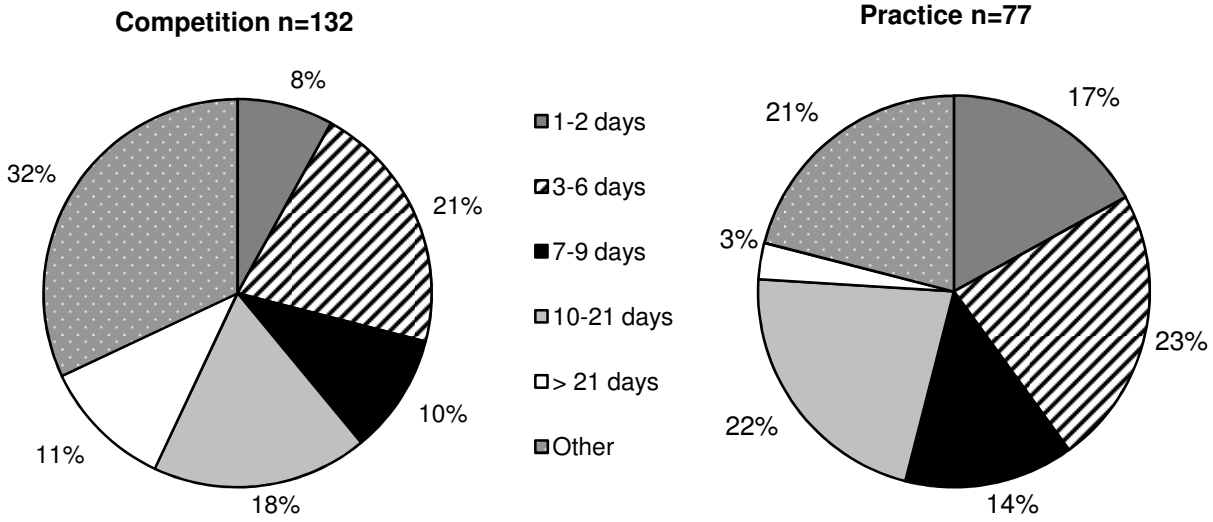
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	45	34.4%	10	13.0%	55	26.4%
Knee	19	14.5%	12	15.6%	31	14.9%
Hip/thigh/upper leg	10	7.6%	12	15.6%	22	10.6%
Ankle	7	5.3%	11	14.3%	18	8.7%
Hand/wrist	10	7.6%	6	7.8%	16	7.7%
Shoulder	11	8.4%	4	5.2%	15	7.2%
Lower leg	4	3.1%	6	7.8%	10	4.8%
Trunk	5	3.8%	3	3.9%	8	3.8%
Arm/elbow	4	3.1%	2	2.6%	6	2.9%
Neck	3	2.3%	1	1.3%	4	1.9%
Foot	1	0.8%	1	1.3%	2	1.0%
Other	12	9.2%	9	11.7%	21	10.1%
Total	**131**	**100%**	**77**	**100%**	**208**	**100%**

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

Table 14.4 Ten Most Common Boys' Lacrosse Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=131		Practice n=77		Total n=208	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	38	29.0%	9	11.7%	47	22.6%
Hip/thigh/upper leg strain/sprain	6	4.6%	11	14.3%	17	8.2%
Knee strain/sprain	11	8.4%	5	6.5%	16	7.7%
Ankle strain/sprain	6	4.6%	9	11.7%	15	7.2%
Other fracture	7	5.3%	5	6.5%	12	5.8%
Hand/wrist fracture	8	6.1%	1	1.3%	9	4.3%
Knee other	3	2.3%	5	6.5%	8	3.8%
Shoulder other	5	3.8%	2	2.6%	7	3.4%
Lower leg other	0	0.0%	6	7.8%	6	2.9%
Shoulder strain/sprain	4	3.1%	1	1.3%	5	2.4%

Figure 14.2 Time Loss of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 14.5 Boys' Lacrosse Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	17	13.1%	8	10.5%	25	12.1%
Did not require surgery	113	86.9%	68	89.5%	181	87.9%
Total	**130**	**100%**	**76**	**100%**	**206**	**100%**

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

Figure 14.3 History of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

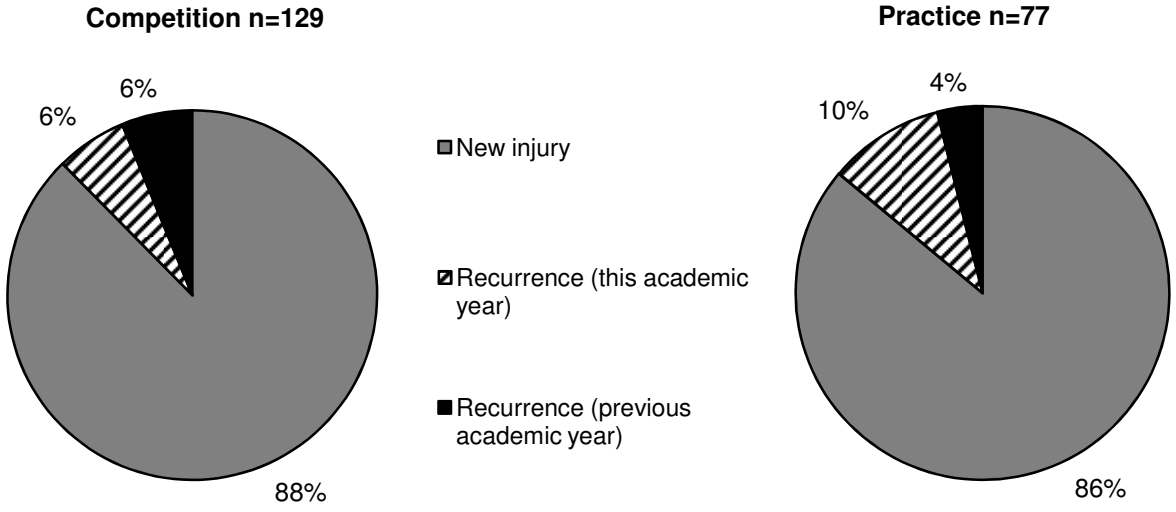


Table 14.6 Time during Season of Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	43	20.6%
Regular season	165	78.9%
Post season	1	0.5%
Total	**209**	**100%**

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

Table 14.7 Competition-Related Variables for Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-competition/warm-ups	2	1.6%
First quarter	7	5.6%
Second quarter	39	31.5%
Third quarter	42	33.9%
Fourth quarter	34	27.4%
Overtime	-	0.0%
Total	**124**	**100%**
Field Location		
Midfield	53	42.7%
Goal area	32	25.8%
Defensive area	29	23.4%
Wing area	10	8.1%
Sideline	-	0.0%
Total	**124**	**100%**

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

Table 14.8 Practice-Related Variables for Boys' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First ½ hour	2	2.6%
Second ½ hour	22	28.9%
1-2 hours into practice	45	59.2%
> 2 hours into practice	7	9.2%
Total	**76**	**100%**

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

Figure 14.4 Player Position of Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

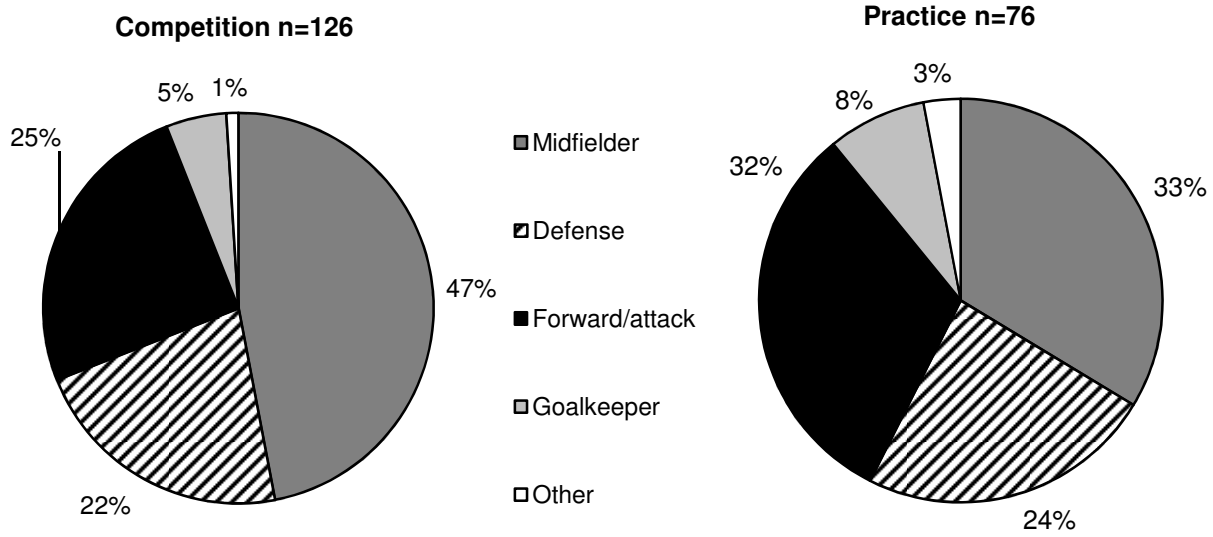
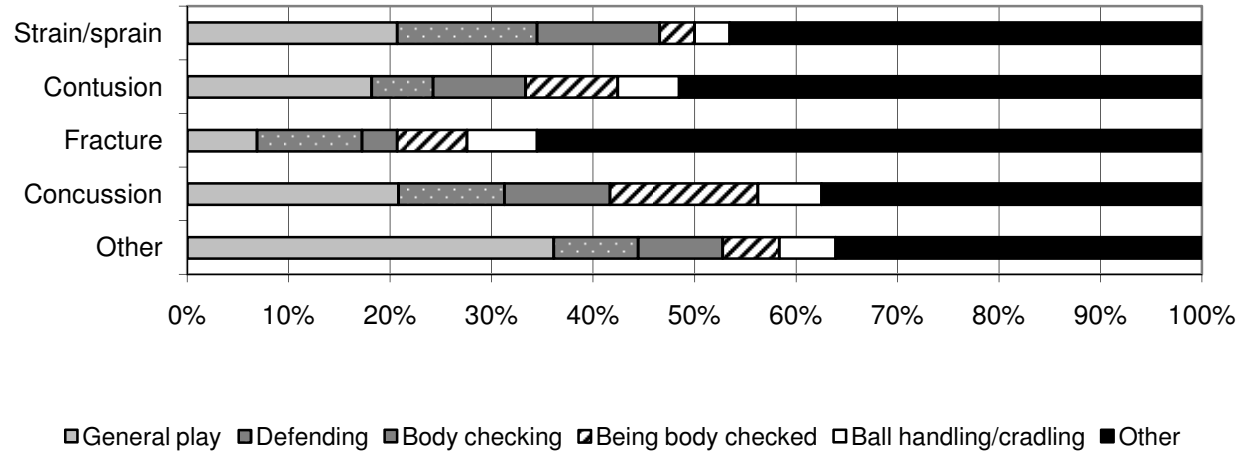


Table 14.9 Activities Leading to Boys' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	22	17.2%	21	27.6%	43	21.1%
Chasing loose ball	20	15.6%	4	5.3%	24	11.8%
Defending	12	9.4%	9	11.8%	21	10.3%
Body checking	13	10.2%	6	7.9%	19	9.3%
Being body checked	11	8.6%	5	6.6%	16	7.8%
Being crosse/stick checked	12	9.4%	4	5.3%	16	7.8%
Shooting	9	7.0%	5	6.6%	14	6.9%
Goaltending	6	4.7%	6	7.9%	12	5.9%
Ball handling/cradling	6	4.7%	5	6.6%	11	5.4%
Crosse/stick checking	6	4.7%	-	0.0%	6	2.9%
Conditioning	-	0.0%	5	6.6%	5	2.5%
Passing	3	2.3%	1	1.3%	4	2.0%
Receiving pass	3	2.3%	-	0.0%	3	1.5%
Face-off	2	1.6%	-	0.0%	2	1.0%
Blocking shot	1	0.8%	1	1.3%	2	1.0%
Other	2	1.6%	4	5.3%	6	2.9%
Total	**128**	**100%**	**76**	**100%**	**204**	**100%**

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

Figure 14.5 Activity Resulting in Boys' Lacrosse Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XV. Girls' Lacrosse Injury Epidemiology

Table 15.1 Girls' Lacrosse Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**102**	**82,424**	**1.24**
Competition	65	26,995	2.41
Practice	37	55,429	0.67

Table 15.2 Demographic Characteristics of Injured Girls' Lacrosse Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=99**
Freshman	18.2%
Sophomore	31.3%
Junior	32.3%
Senior	18.2%
Total	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	16.0 (1.0)
BMI	
Minimum	16.2
Maximum	31.3
Mean (St. Dev.)	21.8 (3.3)

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

Figure 15.1 Diagnosis of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

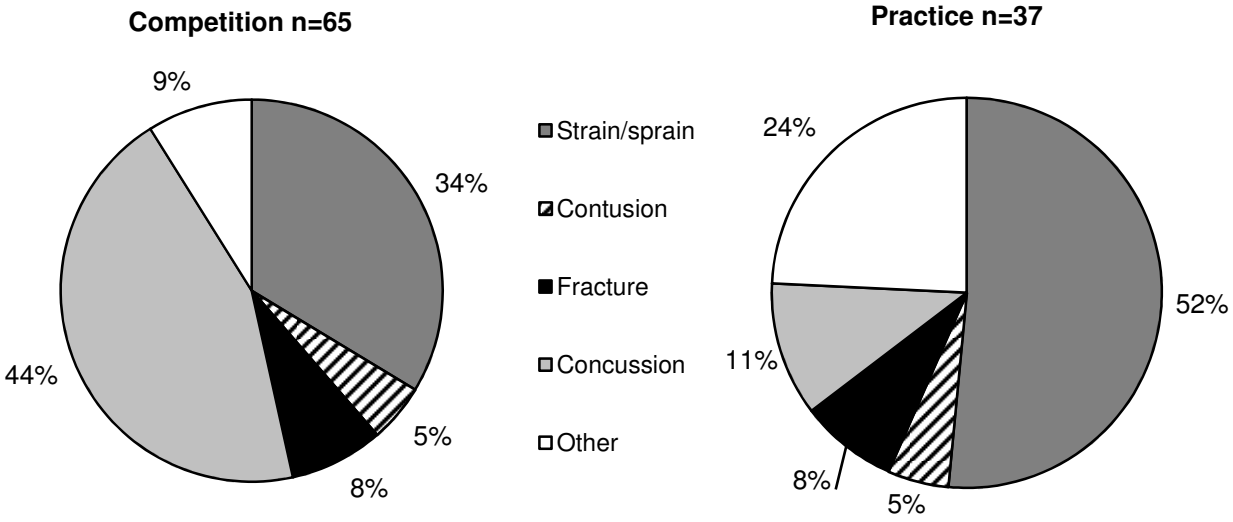


Table 15.3 Body Site of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

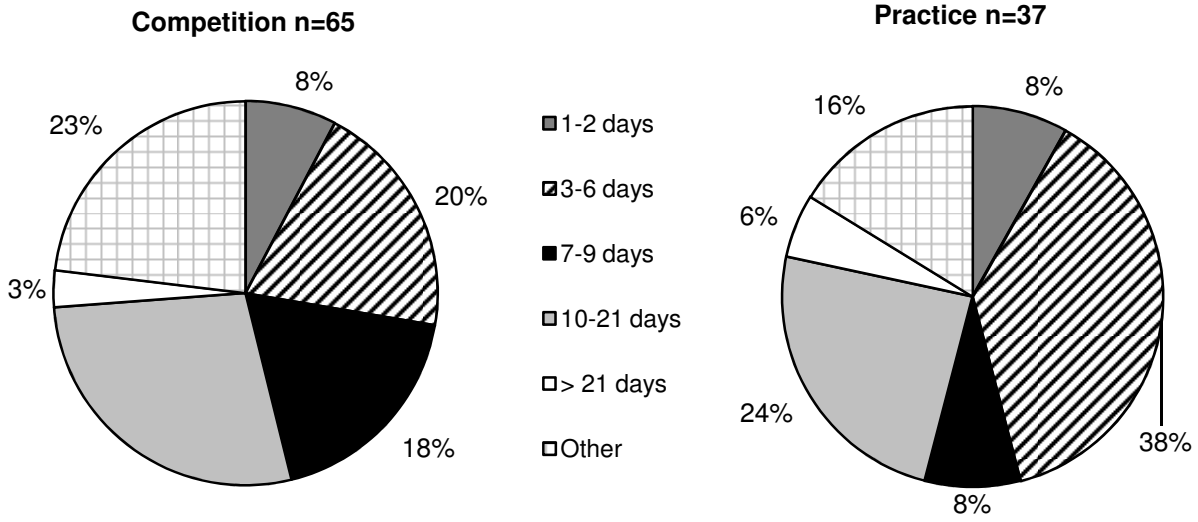
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Head/face	32	49.2%	4	10.8%	36	35.3%
Ankle	9	13.8%	11	29.7%	20	19.6%
Knee	9	13.8%	5	13.5%	14	13.7%
Hip/thigh/upper leg	4	6.2%	7	18.9%	11	10.8%
Lower leg	3	4.6%	2	5.4%	5	4.9%
Hand/wrist	3	4.6%	1	2.7%	4	3.9%
Foot	-	0.0%	4	10.8%	4	3.9%
Arm/elbow	2	3.1%	-	0.0%	2	2.0%
Shoulder	2	3.1%	-	0.0%	2	2.0%
Other	1	1.5%	1	2.7%	2	2.0%
Trunk	-	0.0%	1	2.7%	1	1.0%
Neck	-	0.0%	1	2.7%	1	1.0%
Total	**65**	**100%**	**37**	**100%**	**102**	**100%**

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

Table 15.4 Ten Most Common Girls' Lacrosse Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=65		Practice n=37		Total n=102	
	n	%	n	%	n	%
Diagnosis						
Head/face concussion	29	44.6%	4	10.8%	33	32.4%
Ankle strain/sprain	7	10.8%	10	27.0%	17	16.7%
Hip/thigh/upper leg strain/sprain	4	6.2%	7	18.9%	11	10.8%
Knee strain/sprain	7	10.8%	1	2.7%	8	7.8%
Knee other	2	3.1%	4	10.8%	6	5.9%
Hand/wrist fracture	2	3.1%	1	2.7%	3	2.9%
Lower leg strain/sprain	3	4.6%	-	0.0%	3	2.9%
Ankle fracture	2	3.1%	-	0.0%	2	2.0%
Head/face other	2	3.1%	-	0.0%	2	2.0%
Foot other	-	0.0%	2	5.4%	2	2.0%

Figure 15.2 Time Loss of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 15.5 Girls' Lacrosse Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	4	6.5%	2	5.6%	6	6.1%
Did not require surgery	58	93.5%	34	94.4%	92	93.9%
Total	**62**	**100%**	**36**	**100%**	**98**	**100%**

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

Figure 15.3 History of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

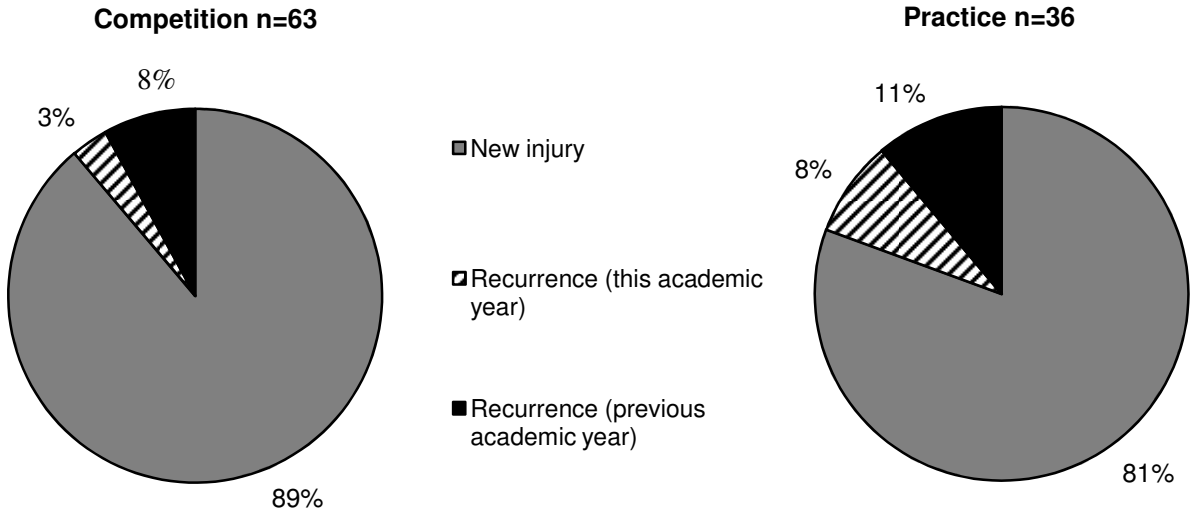


Table 15.6 Time during Season of Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	18	17.6%
Regular season	84	82.4%
Post season	-	0.0%
Total	**102**	**100%**

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

Table 15.7 Competition-Related Variables for Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Competition		
Pre-Competition-Warm-ups	-	0.0%
First half	20	36.4%
Second half	35	63.6%
Overtime	-	0.0%
Total	**55**	**100%**
Field Location		
Midfield (between restraining lines)	30	56.6%
Critical scoring area (including the fan and arc)	15	28.3%
Goal circle	6	11.3%
Sideline	2	3.8%
Center circle	-	0.0%
Endline	-	0.0%
Total	**53**	**100%**

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

Table 15.8 Practice-Related Variables for Girls' Lacrosse Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	4	12.5%
Second 1/2 hour	12	37.5%
1-2 hours into practice	12	37.5%
>2 hours into practice	4	12.5%
Total	**32**	**100%**

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

Figure 15.4 Player Position of Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

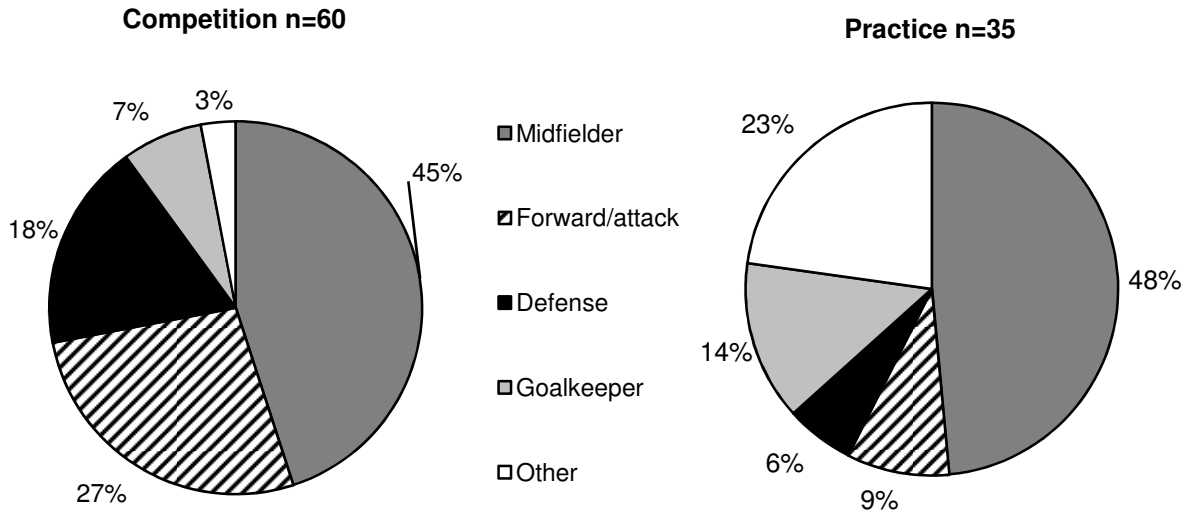
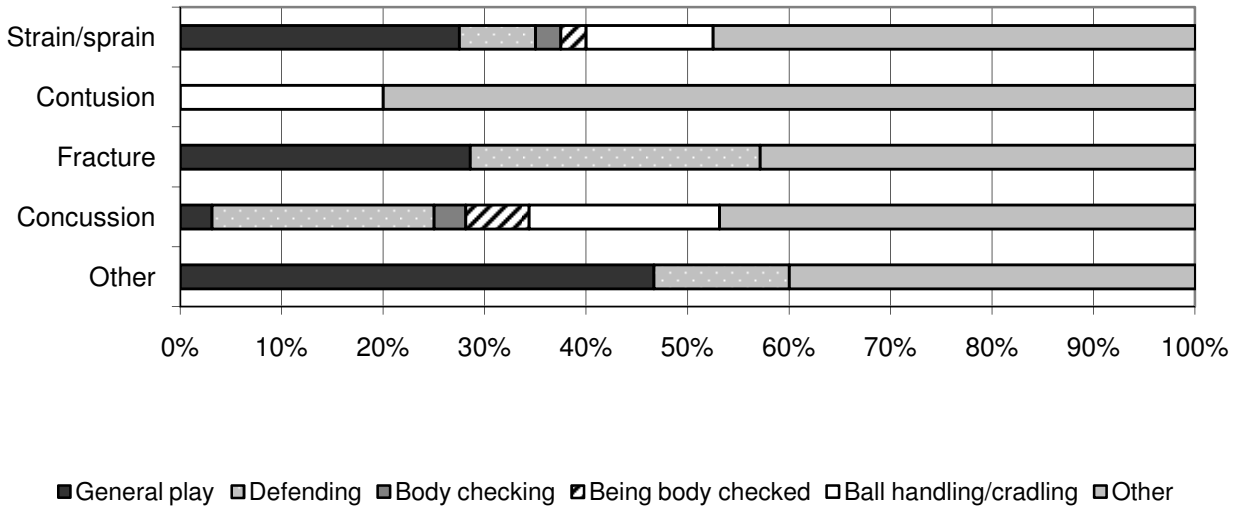


Table 15.9 Activities Leading to Girls' Lacrosse Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
General play	12	19.4%	9	24.3%	21	21.2%
Defending	11	17.7%	3	8.1%	14	14.1%
Conditioning	-	0.0%	13	35.1%	13	13.1%
Ball handling/cradling	9	14.5%	3	8.1%	12	12.1%
Being crosse/stick checked	5	8.1%	1	2.7%	6	6.1%
Goaltending	3	4.8%	1	2.7%	4	4.0%
Chasing loose ball	4	6.5%	-	0.0%	4	4.0%
Receiving pass	2	3.2%	2	5.4%	4	4.0%
Passing	3	4.8%	1	2.7%	4	4.0%
Crosse/stick checking	2	3.2%	1	2.7%	3	3.0%
Being body checked	3	4.8%	-	0.0%	3	3.0%
Shooting	1	1.6%	1	2.7%	2	2.0%
Body checking	2	3.2%	-	0.0%	2	2.0%
Other	5	8.1%	2	5.4%	7	7.1%
Total	**62**	**100%**	**37**	**100%**	**99**	**100%**

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

Figure 15.5 Activity Resulting in Girls' Lacrosse Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XVI. Boys' Swimming and Diving Injury Epidemiology

Table 16.1 Boys' Swimming and Diving Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**12**	**105,362**	**0.11**
Competition	1	18,773	0.05
Practice	11	86,589	0.13

Table 16.2 Demographic Characteristics of Injured Boys' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=11**
Freshman	18.2%
Sophomore	36.4%
Junior	9.1%
Senior	36.4%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	18
Mean (St. Dev.)	15.7 (1.3)
BMI	
Minimum	20.7
Maximum	25.1
Mean (St. Dev.)	22.1 (1.4)

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

Figure 16.1 Diagnosis of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

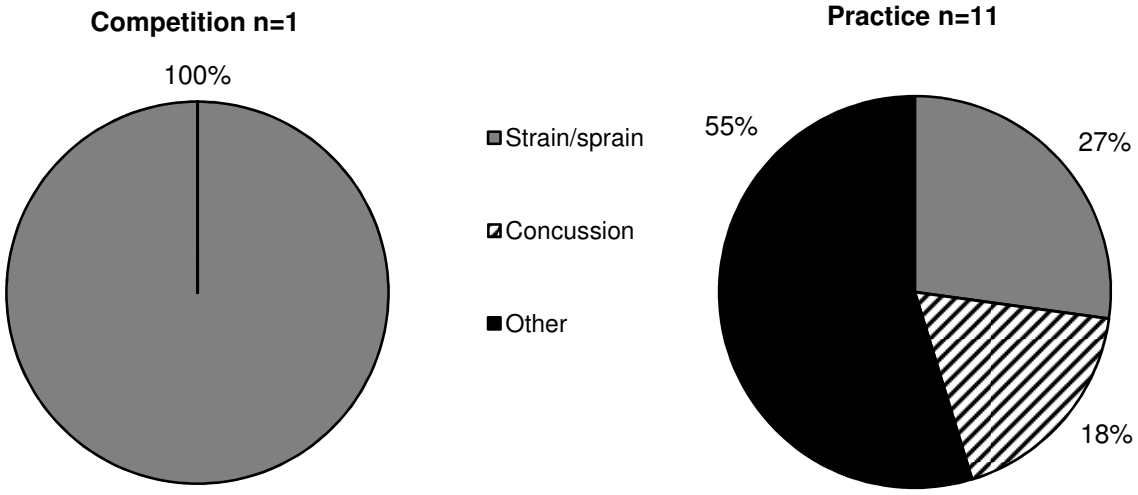


Table 16.3 Body Site of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

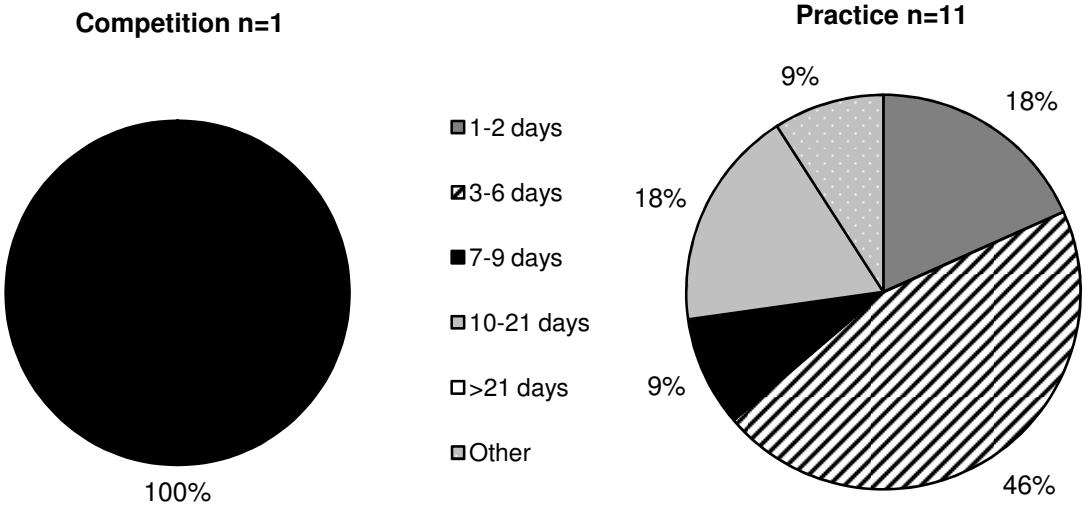
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Shoulder	-	0.0%	6	54.5%	6	50.0%
Head/face	-	0.0%	2	18.2%	2	16.7%
Knee	-	0.0%	2	18.2%	2	16.7%
Hip/thigh/upper leg	1	100.0%	-	0.0%	1	8.3%
Lower leg	-	0.0%	1	9.1%	1	8.3%
Total	**1**	**100%**	**11**	**100%**	**12**	**100%**

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

Table 16.4 Most Common Boys' Swimming and Diving Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=1		Practice n=11		Total n=12	
	n	%	n	%	n	%
Diagnosis						
Shoulder other	-	0.0%	5	45.5%	5	41.7%
Head/face concussion	-	0.0%	2	18.2%	2	16.7%
Hip/thigh/upper leg strain/sprain	1	100.0%	-	0.0%	1	8.3%
Knee strain/sprain	-	0.0%	1	9.1%	1	8.3%
Knee other	-	0.0%	1	9.1%	1	8.3%
Lower leg strain/sprain	-	0.0%	1	9.1%	1	8.3%
Shoulder strain/sprain	-	0.0%	1	9.1%	1	8.3%
Total	**1**	**100%**	**11**	**100%**	**12**	**100%**

Figure 16.2 Time Loss of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 16.5 Boys' Swimming and Diving Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

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

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

Figure 16.3 History of Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

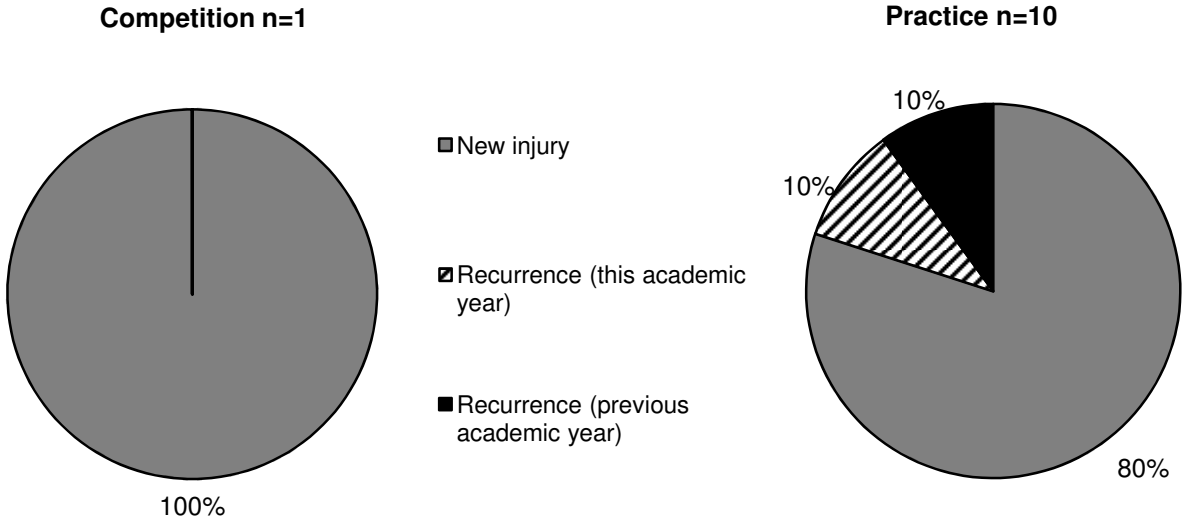


Table 16.6 Time during Season of Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	-	0.0%
Regular season	11	100%
Post season	-	0.0%
Total	**11**	**100%**

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

Table 16.7 Pool Location for Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Pool Location		
In pool	10	90.9%
Starting platform	1	8.3%
Poolside	-	0.0%
Other	-	0.0%
Total	**11**	**100%**

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

Table 16.8 Practice-Related Variables for Boys' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	1	11.1%
Second 1/2 hour	1	11.1%
1-2 hours into practice	7	77.8%
>2 hours into practice	-	0.0%
Total	**9**	**100%**

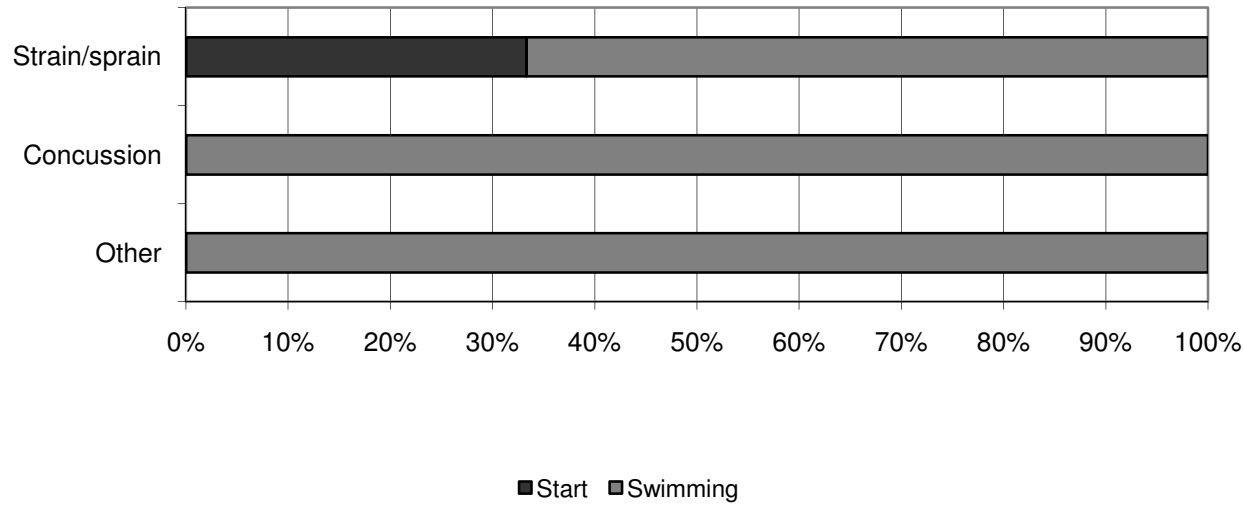
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 16.9 Activities Leading to Boys' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Swimming	-	0.0%	10	100.0%	10	90.9%
Start	1	100.0%	-	0.0%	1	9.1%
Total	**1**	**100%**	**11**	**100%**	**11**	**100%**

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

Figure 16.4 Activity Resulting in Boys' Swimming and Diving Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XVII. Girls' Swimming and Diving Injury Epidemiology

Table 17.1 Girls' Swimming and Diving Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**30**	**114,803**	**0.26**
Competition	10	21,033	0.48
Practice	20	93,770	0.21

Table 17.2 Demographic Characteristics of Injured Girls' Swimming and Diving Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=29**
Freshman	27.6%
Sophomore	34.5%
Junior	24.1%
Senior	13.8%
Total†	**100%**
Age (years)	
Minimum	14
Maximum	17
Mean (St. Dev.)	15.3 (1.1)
BMI	
Minimum	18.3
Maximum	35.2
Mean (St. Dev.)	21.3 (3.6)

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

Figure 17.1 Diagnosis of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

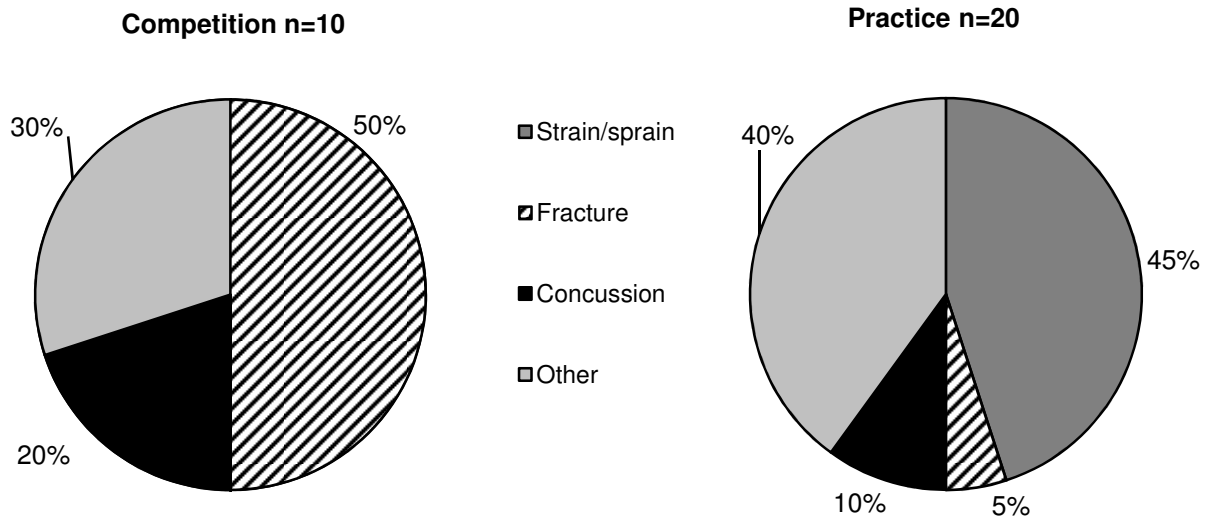


Table 17.3 Body Site of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

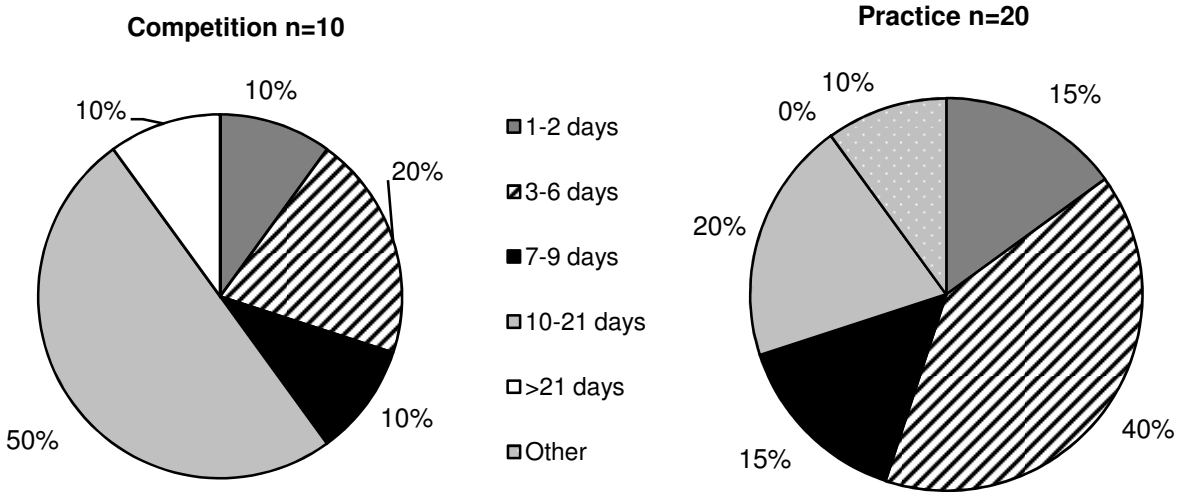
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Shoulder	3	30.0%	8	40.0%	11	36.7%
Head/face	2	20.0%	2	10.0%	4	13.3%
Trunk	1	10.0%	3	15.0%	4	13.3%
Knee	1	10.0%	2	10.0%	3	10.0%
Foot	-	0.0%	2	10.0%	2	6.7%
Hip/thigh/upper leg	1	10.0%	-	0.0%	1	3.3%
Ankle	1	10.0%	-	0.0%	1	3.3%
Hand/wrist	-	0.0%	1	5.0%	1	3.3%
Arm/elbow	-	0.0%	1	5.0%	1	3.3%
Other	1	10.0%	1	5.0%	2	6.7%
Total	**10**	**100%**	**20**	**100%**	**30**	**100%**

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

Table 17.4 Ten Most Common Girls' Swimming and Diving Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=10		Practice n=20		Total n=30	
	n	%	n	%	n	%
Diagnosis						
Shoulder other	1	10.0%	5	25.0%	6	20.0%
Shoulder strain/sprain	2	20.0%	3	15.0%	5	16.7%
Head/face concussion	2	20.0%	2	10.0%	4	13.3%
Trunk strain/sprain	1	10.0%	3	15.0%	4	13.3%
Knee other	1	10.0%	1	5.0%	2	6.7%
Hip/thigh/upper leg strain/sprain	1	10.0%	-	0.0%	1	3.3%
Knee strain/sprain	-	0.0%	1	5.0%	1	3.3%
Ankle strain/sprain	1	10%	-	0.0%	1	3.3%
Foot fracture	-	0.0%	1	5.0%	1	3.3%
Arm/elbow strain/sprain	-	0.0%	1	5.0%	1	3.3%

Figure 17.2 Time Loss of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 17.5 Girls' Swimming and Diving Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	-	0.0%	1	5.0%	1	3.3%
Did not require surgery	10	100.0%	19	95.0%	29	96.7%
Total	**10**	**100%**	**20**	**100%**	**30**	**100%**

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

Figure 17.3 History of Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

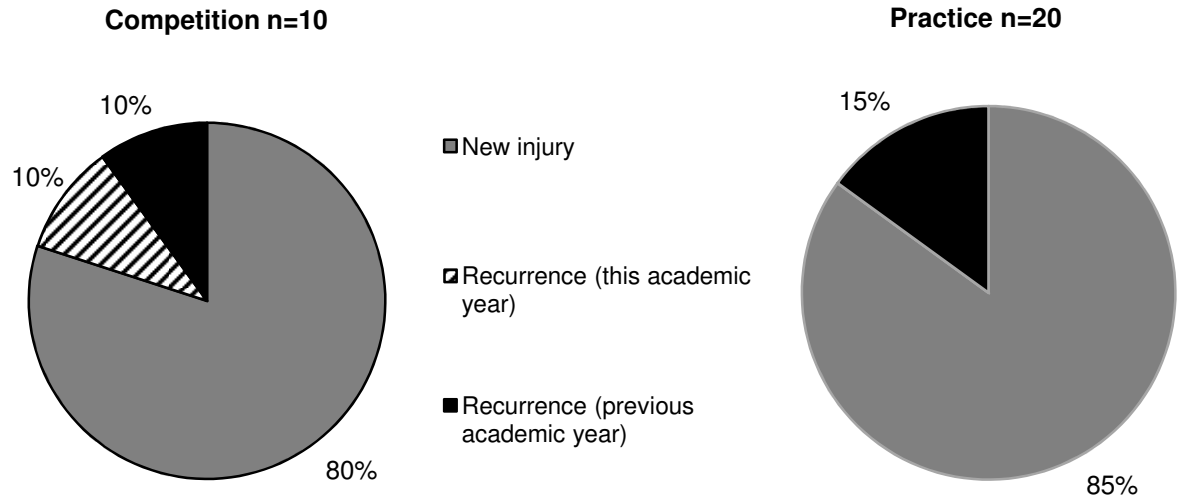


Table 17.6 Time during Season of Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	2	6.7%
Regular season	26	86.7%
Post season	2	6.7%
Total	**30**	**100%**

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

Table 17.7 Competition-Related Variables for Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Pool Location		
In pool	23	79.3%
Starting platform/board/blocks	4	13.8%
Poolside	2	6.9%
Other	-	0.0%
Total	**29**	**100%**

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

Table 17.8 Practice-Related Variables for Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	N	%
Time in Practice		
First 1/2 hour	2	10.5%
Second 1/2 hour	3	15.8%
1-2 hours into practice	13	68.4%
>2 hours into practice	1	5.3%
Total	**19**	**100%**

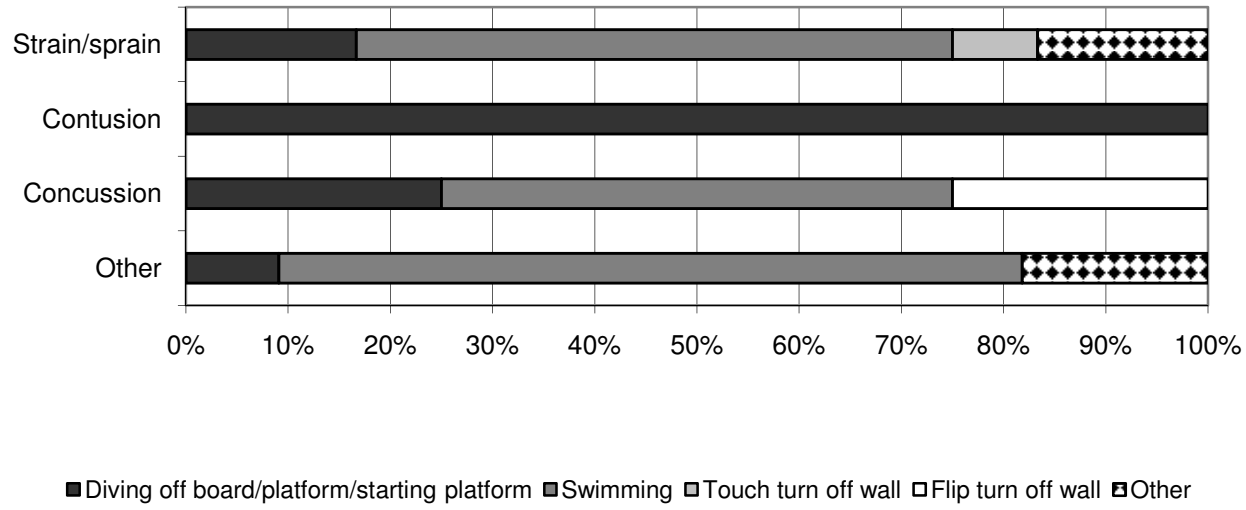
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 17.9 Activities Leading to Girls' Swimming and Diving Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	N	%	n	%
Activity						
Swimming	8	80.0%	9	50.0%	17	60.7%
Diving off board/platform/block	2	20.0%	3	16.7%	5	17.9%
Flip turn off wall	-	0.0%	1	5.6%	1	3.6%
Touch turn off wall	-	0.0%	1	5.6%	1	3.6%
Other	-	0.0%	3	16.7%	3	10.7%
Total	**10**	**100%**	**18**	**100%**	**28**	**100%**

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

Figure 17.4 Activity Resulting in Girls' Swimming and Diving Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XVIII. Boys' Track and Field Injury Epidemiology

Table 18.1 Boys' Track and Field Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**157**	**287,667**	**0.55**
Competition	60	55,368	1.08
Practice	97	232,299	0.42

Table 18.2 Demographic Characteristics of Injured Boys' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=152**
Freshman	27.0%
Sophomore	18.4%
Junior	23.0%
Senior	31.6%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	16.2 (1.4)
BMI	
Minimum	18.0
Maximum	34.9
Mean (St. Dev.)	22.8 (2.7)

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

Figure 18.1 Diagnosis of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

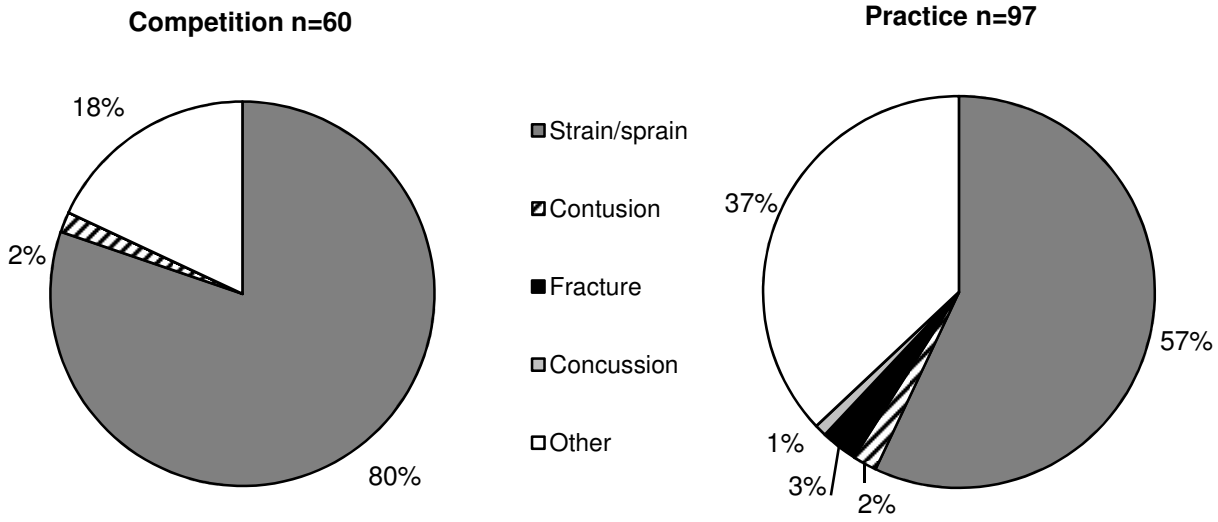


Table 18.3 Body Site of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

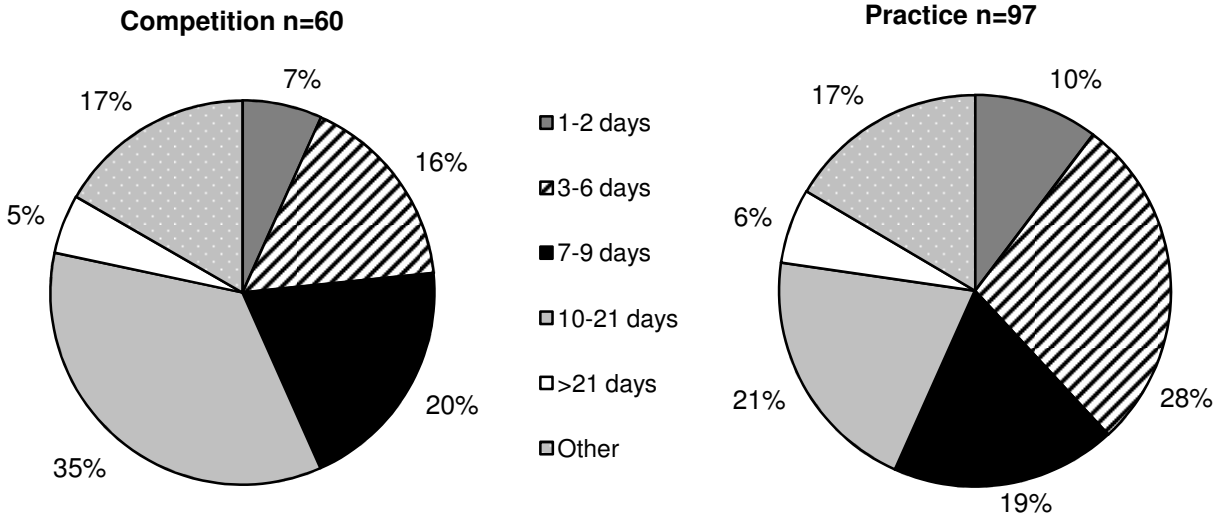
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Hip/thigh/upper leg	44	73.3%	34	35.1%	78	49.7%
Lower leg	-	0.0%	20	20.6%	20	12.7%
Knee	5	8.3%	13	13.4%	18	11.5%
Ankle	4	6.7%	12	12.4%	16	10.2%
Foot	3	5.0%	7	7.2%	10	6.4%
Trunk	2	3.3%	3	3.1%	5	3.2%
Hand/wrist	-	0.0%	3	3.1%	3	1.9%
Head/face	-	0.0%	3	3.1%	3	1.9%
Shoulder	1	1.7%	-	0.0%	1	0.6%
Arm/elbow	-	0.0%	1	1.0%	1	0.6%
Neck	1	1.7%	-	0.0%	1	0.6%
Other	-	0.0%	1	1.0%	1	0.6%
Total	**60**	**100%**	**97**	**100%**	**157**	**100%**

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

Table 18.4 Ten Most Common Boys' Track and Field Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=60		Practice n=97		Total n=157	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	40	66.7%	29	48.3%	69	43.9%
Knee other	4	6.7%	10	16.7%	14	8.9%
Ankle strain/sprain	4	6.7%	9	15.0%	13	8.3%
Lower leg other	-	0.0%	13	21.7%	13	8.3%
Hip/thigh/upper leg other	4	6.7%	5	8.3%	9	5.7%
Lower leg strain/sprain	-	0.0%	6	10.0%	6	3.8%
Trunk strain/sprain	2	3.3%	3	5.0%	5	3.2%
Foot strain/sprain	-	0.0%	4	6.7%	4	2.5%
Knee strain/sprain	1	1.7%	3	5.0%	4	2.5%
Foot other	2	3.3%	2	3.3%	4	2.5%

Figure 18.2 Time Loss of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 18.5 Boys' Track and Field Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	-	0.0%	4	4.2%	4	2.5%
Did not require surgery	59	100.0%	92	95.8%	151	97.5%
Total	**59**	**100%**	**96**	**100%**	**155**	**100%**

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

Figure 18.3 History of Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

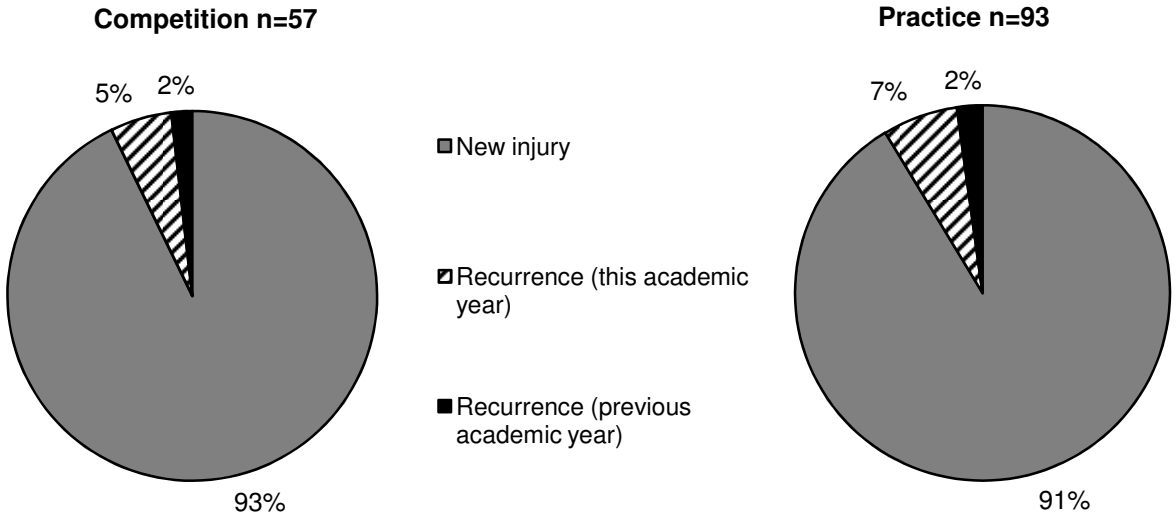


Table 18.6 Time during Season of Boys' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	34	21.7%
Regular season	122	77.7%
Post season	1	0.6%
Total	**157**	**100%**

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

Table 18.7 Practice-Related Variables for Boys' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	14	16.1%
Second 1/2 hour	28	32.2%
1-2 hours into practice	41	47.1%
>2 hours into practice	4	4.6%
Total	**87**	**100%**

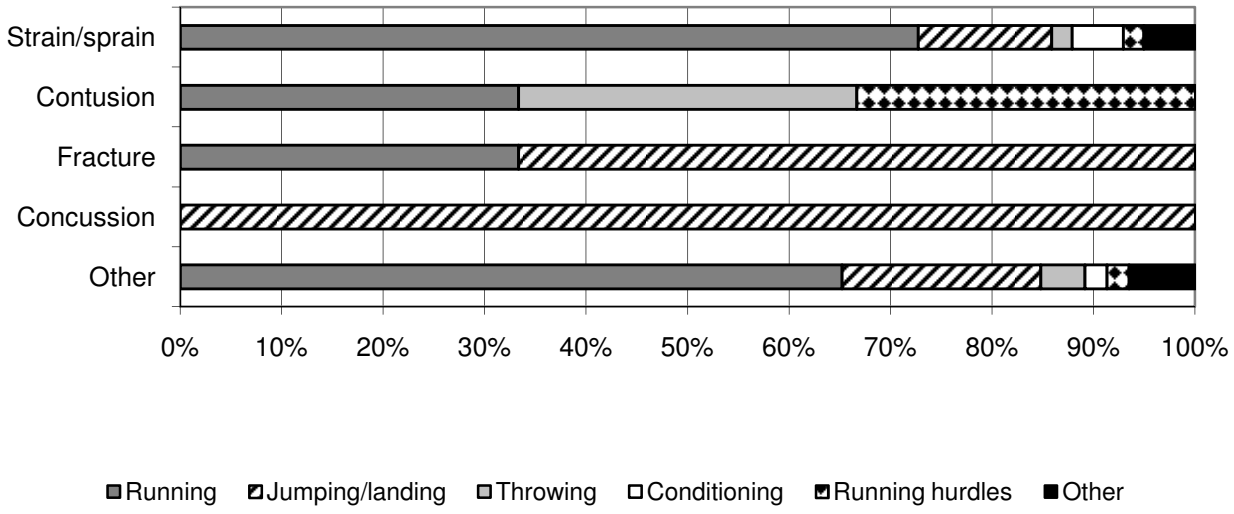
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 18.8 Activities Leading to Boys' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	42	73.7%	62	65.3%	104	68.4%
Jumping/landing	11	19.3%	14	14.7%	25	16.4%
Conditioning	-	0.0%	6	6.3%	6	3.9%
Throwing	-	0.0%	5	5.3%	5	3.3%
Running hurdles	3	5.3%	1	1.1%	4	2.6%
Warming up	-	0.0%	2	2.1%	2	1.3%
Baton hand off	-	0.0%	1	1.1%	1	0.7%
Other	1	1.8%	4	4.2%	5	3.3%
Total	**57**	**100%**	**95**	**100%**	**152**	**100%**

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

Figure 18.4 Activity Resulting in Boys' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XIX. Girls' Track and Field Injury Epidemiology

Table 19.1 Girls' Track and Field Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**203**	**236,271**	**0.86**
Competition	48	44,163	1.09
Practice	155	192,108	0.81

Table 19.2 Demographic Characteristics of Injured Girls' Track and Field Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=195**
Freshman	26.7%
Sophomore	26.7%
Junior	27.7%
Senior	19.0%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.9 (1.2)
BMI	
Minimum	15.6
Maximum	32.9
Mean (St. Dev.)	21.1 (3.5)

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

Figure 19.1 Diagnosis of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

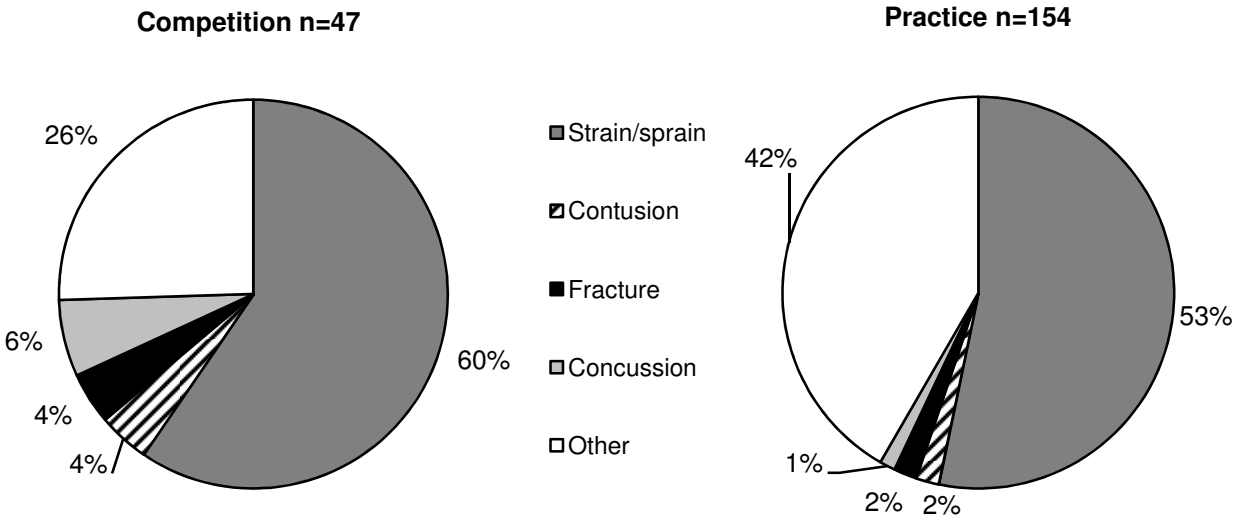


Table 19.3 Body Site of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

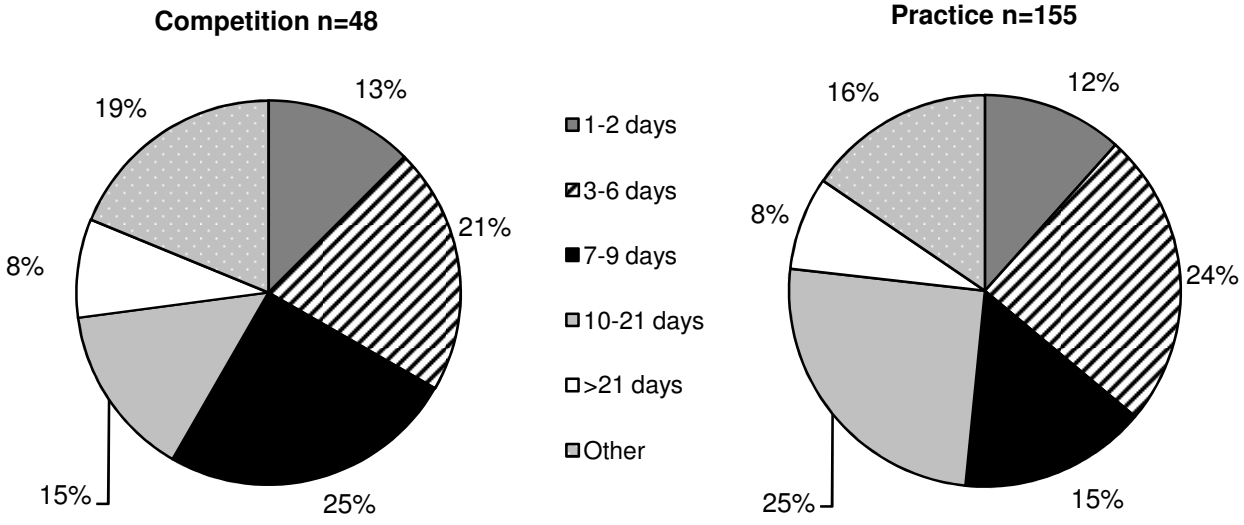
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Hip/thigh/upper leg	20	41.7%	52	33.5%	72	35.5%
Lower leg	7	14.6%	42	27.1%	49	24.1%
Knee	7	14.6%	18	11.6%	25	12.3%
Ankle	4	8.3%	13	8.4%	17	8.4%
Foot	3	6.3%	6	3.9%	9	4.4%
Trunk	2	4.2%	7	4.5%	9	4.4%
Head/face	3	6.3%	5	3.2%	8	3.9%
Shoulder	-	0.0%	4	2.6%	4	2.0%
Hand/wrist	-	0.0%	2	1.3%	2	1.0%
Arm/elbow	1	2.1%	1	0.6%	2	1.0%
Other	1	2.1%	5	3.2%	6	3.0%
Total	**48**	**100%**	**155**	**100%**	**203**	**100%**

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

Table 19.4 Ten Most Common Girls' Track and Field Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=47		Practice n=154		Total n=201	
	n	%	n	%	n	%
Diagnosis						
Hip/thigh/upper leg strain/sprain	18	38.3%	46	29.9%	64	31.8%
Lower leg other	5	10.6%	29	18.8%	34	16.9%
Knee other	3	6.4%	14	9.1%	17	8.5%
Ankle strain/sprain	4	8.5%	9	5.8%	13	6.5%
Lower leg strain/sprain	1	2.1%	12	7.8%	13	6.5%
Knee strain/sprain	4	8.5%	4	2.6%	8	4.0%
Hip/thigh/upper leg other	1	2.1%	6	3.9%	7	3.5%
Head/face concussion	3	6.4%	2	1.3%	5	2.5%
Other other	1	2.1%	4	2.6%	5	2.5%
Trunk strain/sprain	-	0.0%	4	2.6%	4	2.0%

Figure 19.2 Time Loss of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 19.5 Girls' Track and Field Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	5	10.6%	1	0.7%	6	3.0%
Did not require surgery	42	89.4%	149	99.3%	191	97.0%
Total	**47**	**100%**	**150**	**100%**	**197**	**100%**

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

Figure 19.3 History of Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

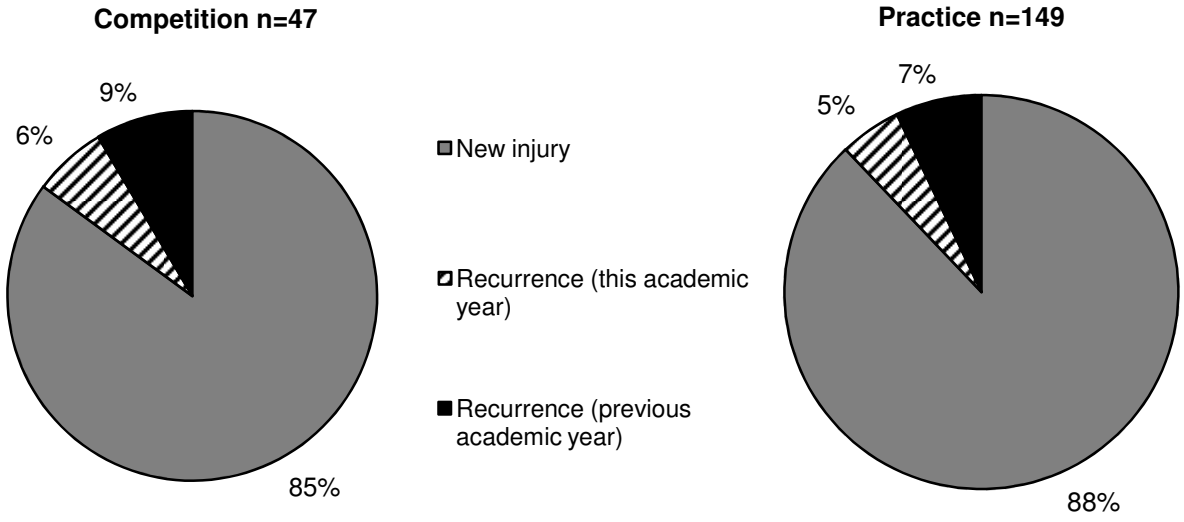


Table 19.6 Time during Season of Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	59	29.4%
Regular season	139	69.2%
Post season	3	1.5%
Total	**201**	**100%**

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

Table 19.7 Practice-Related Variables for Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	18	13.5%
Second 1/2 hour	43	32.3%
1-2 hours into practice	66	49.6%
>2 hours into practice	6	4.5%
Total	**133**	**100%**

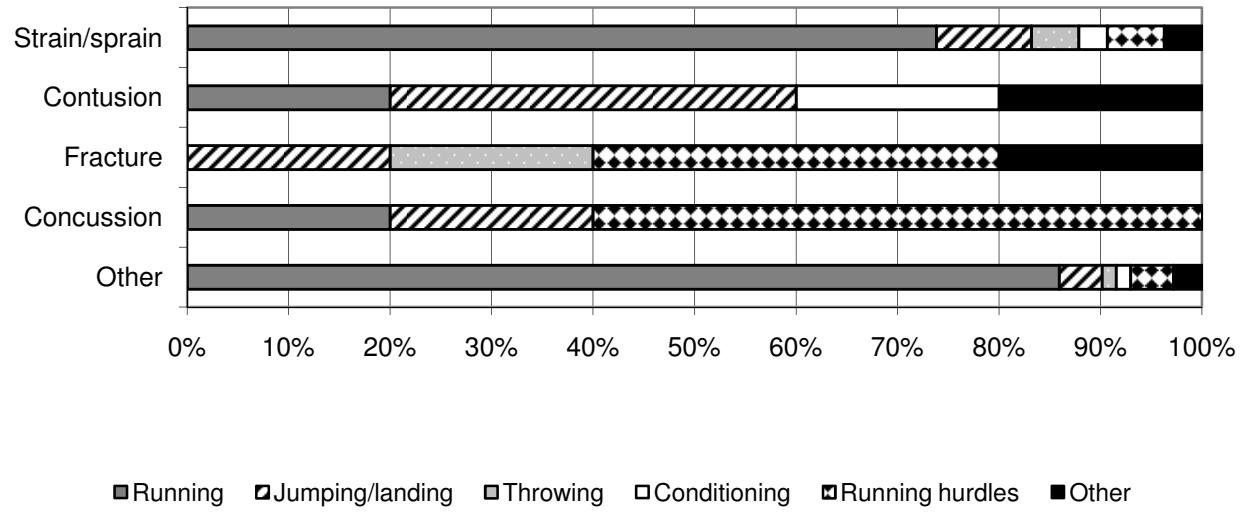
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 19.8 Activities Leading to Girls' Track and Field Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	28	58.3%	115	78.2%	143	73.3%
Jumping/landing	7	14.6%	11	7.5%	18	9.2%
Running hurdles	8	16.7%	6	4.1%	14	7.2%
Conditioning	-	0.0%	5	3.4%	5	2.6%
Throwing	2	4.2%	5	3.4%	7	3.6%
Warming up	-	0.0%	2	1.4%	2	1.0%
Leaving Block	-	0.0%	1	0.7%	1	0.5%
Baton hand off	1	2.1%	-	0.0%	1	0.5%
Hit by shotput/discus/javelin/hammer	1	2.1%	-	0.0%	1	0.5%
Other	1	2.1%	2	1.4%	3	1.5%
Total	**48**	**100%**	**147**	**100%**	**195**	**100%**

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

Figure 19.4 Activity Resulting in Girls' Track and Field Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XX. Boys' Cross Country Injury Epidemiology

Table 20.1 Boys' Cross Country Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**84**	**129,244**	**0.65**
Competition	17	21,845	0.78
Practice	67	107,399	0.62

Table 20.2 Demographic Characteristics of Injured Boys' Cross Country Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=84**
Freshman	21.4%
Sophomore	28.6%
Junior	20.2%
Senior	29.8%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.6 (1.3)
BMI	
Minimum	17.0
Maximum	25.8
Mean (St. Dev.)	21.4 (2.0)

*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 20.1 Diagnosis of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

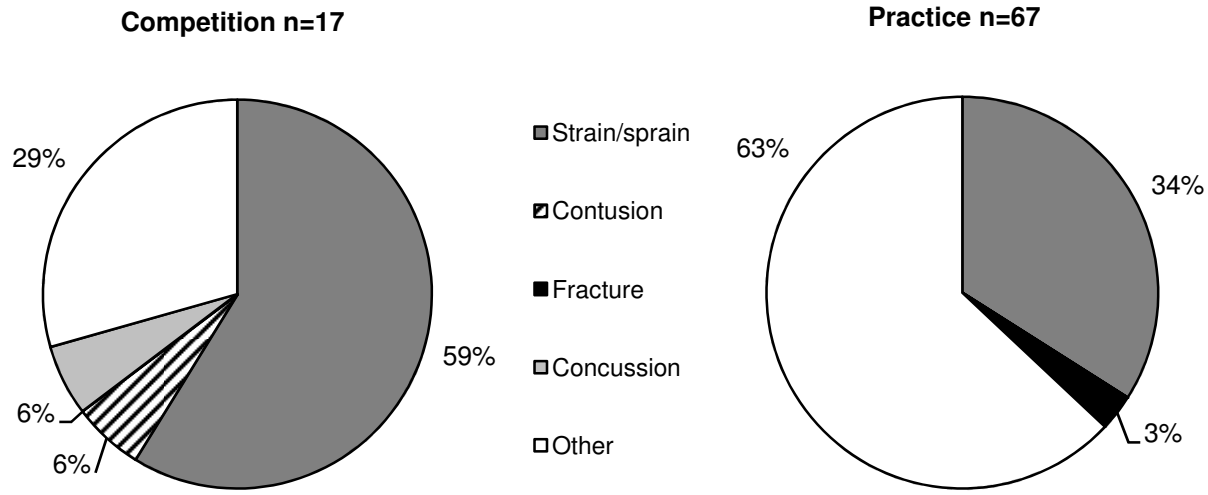


Table 20.3 Body Site of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

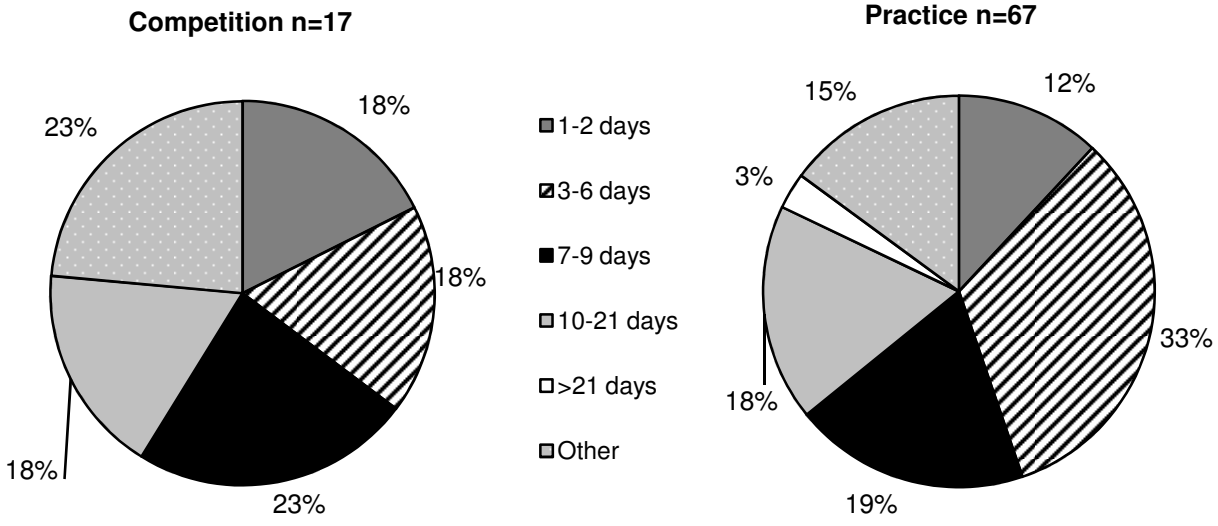
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Lower leg	3	17.6%	23	34.3%	26	31.0%
Hip/thigh/upper leg	4	23.5%	16	23.9%	20	23.8%
Knee	2	11.8%	14	20.9%	16	19.0%
Ankle	5	29.4%	6	9.0%	11	13.1%
Foot	-	0.0%	3	4.5%	3	3.6%
Trunk	-	0.0%	2	3.0%	2	2.4%
Head/face	1	5.9%	-	0.0%	1	1.2%
Other	2	11.8%	3	4.5%	5	6.0%
Total	**17**	**100%**	**67**	**100%**	**84**	**100%**

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

Table 20.4 Ten Most Common Boys' Cross Country Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=17		Practice n=67		Total n=84	
	n	%	n	%	n	%
Diagnosis						
Lower leg other	1	5.9%	19	28.4%	20	23.8%
Hip/thigh/upper leg strain/sprain	3	17.6%	11	16.4%	14	16.7%
Knee other	1	5.9%	13	19.4%	14	16.7%
Ankle strain/sprain	4	23.5%	5	7.5%	9	10.7%
Hip/thigh/upper leg other	1	5.9%	5	7.5%	6	7.1%
Lower leg strain/sprain	2	11.8%	3	4.5%	5	6.0%
Other	2	11.8%	2	3.0%	4	4.8%
Foot other	-	0.0%	2	3.0%	2	2.4%
Knee strain/sprain	1	5.9%	1	1.5%	2	2.4%
Trunk strain/sprain	-	0.0%	1	1.5%	1	1.2%

Figure 20.2 Time Loss of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 20.5 Boys' Cross Country Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Need for surgery						
Required surgery	-	0.0%	-	0.0%	-	0.0%
Did not require surgery	17	100.0%	66	100.0%	83	100.0%
Total	**17**	**100%**	**66**	**100%**	**83**	**100%**

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

Figure 20.3 History of Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

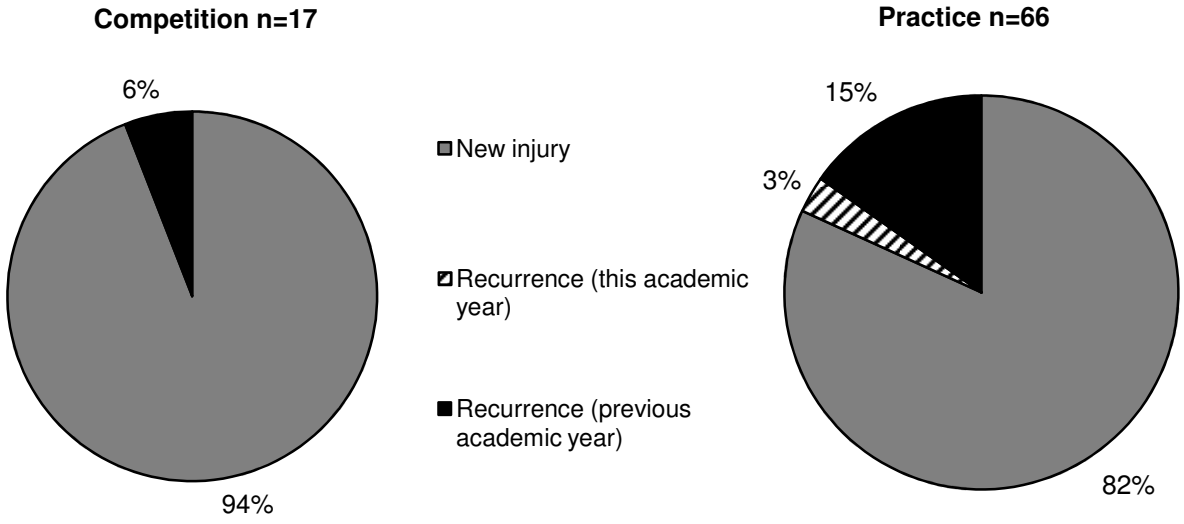


Table 20.6 Time during Season of Boys' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	20	23.8%
Regular season	60	71.4%
Post season	4	4.8%
Total	**84**	**100%**

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

Table 20.7 Practice-Related Variables for Boys' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	7	12.3%
Second 1/2 hour	20	35.1%
1-2 hours into practice	24	42.1%
>2 hours into practice	6	10.5%
Total	**57**	**100%**

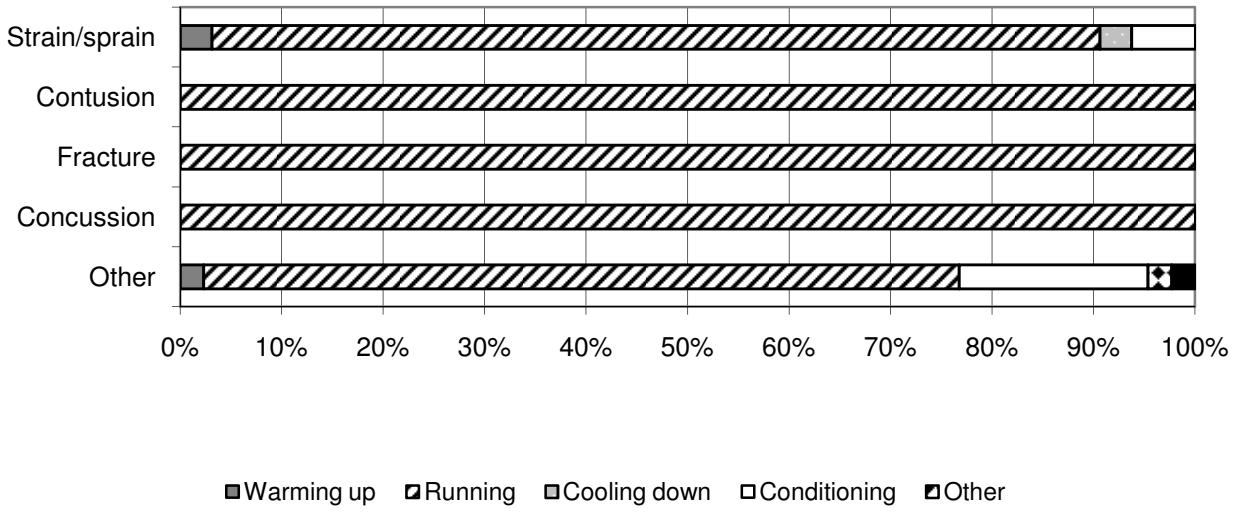
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 20.8 Activities Leading to Boys' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	n	%	n	%
Activity						
Running	17	100.0%	47	77.0%	64	82.1%
Conditioning	-	0.0%	10	16.4%	10	12.8%
Warming up	-	0.0%	2	3.3%	2	2.6%
Cooling down	-	0.0%	1	1.6%	1	1.3%
Other	-	0.0%	1	1.6%	1	1.3%
Total	**17**	**100%**	**61**	**100%**	**78**	**100%**

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

Figure 20.4 Activity Resulting in Boys' Cross Country Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XXI. Girls' Cross Country Injury Epidemiology

Table 21.1 Girls' Cross Country Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**124**	**113,000**	**1.10**
Competition	22	19,519	1.13
Practice	102	93,481	1.09

Table 21.2 Demographic Characteristics of Injured Girls' Cross Country Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=124**
Freshman	25.8%
Sophomore	41.1%
Junior	17.7%
Senior	15.3%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.4 (1.1)
BMI	
Minimum	16.3
Maximum	30.3
Mean (St. Dev.)	20.5 (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 21.1 Diagnosis of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

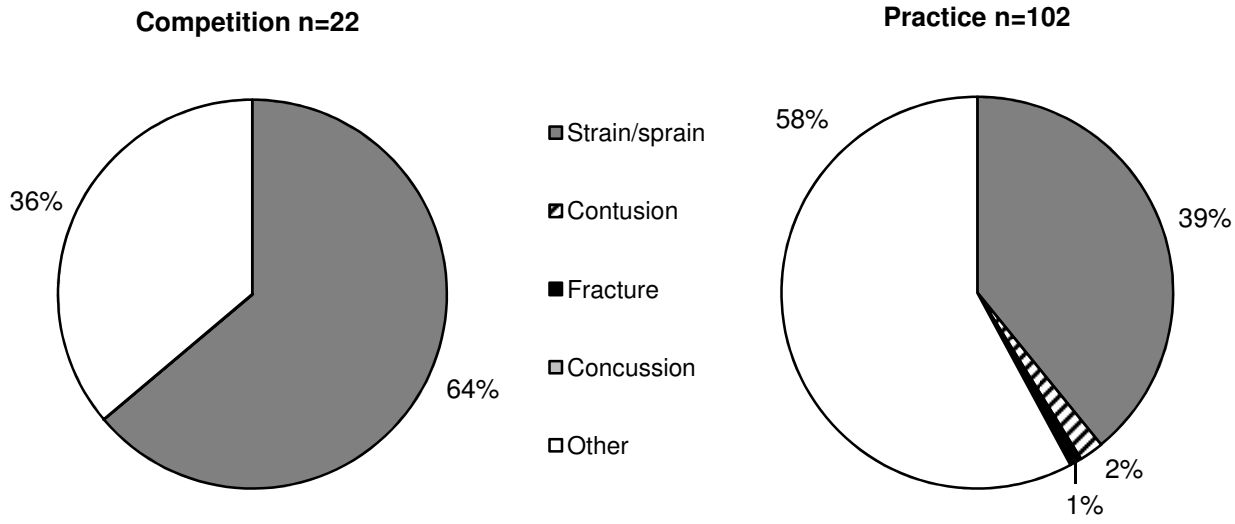


Table 21.3 Body Site of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

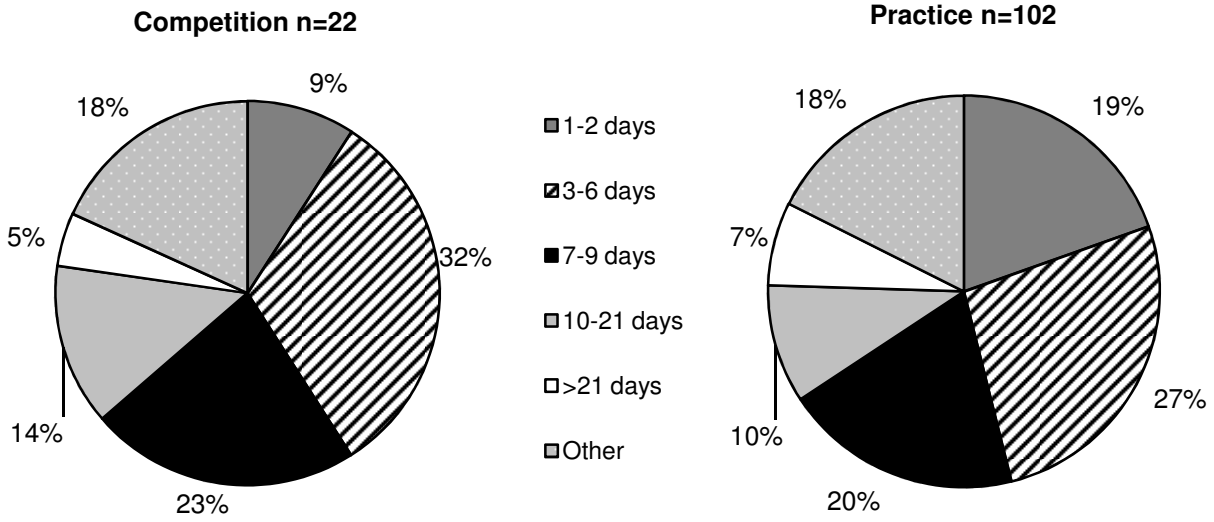
	Competition		Practice		Overall	
	n	%	n	%	n	%
Body Site						
Lower leg	4	18.2%	41	40.2%	45	36.3%
Hip/thigh/upper leg	8	36.4%	26	25.5%	34	27.4%
Ankle	6	27.3%	11	10.8%	17	13.7%
Knee	1	4.5%	11	10.8%	12	9.7%
Foot	3	13.6%	7	6.9%	10	8.1%
Trunk	-	0.0%	3	2.9%	3	2.4%
Head/face	-	0.0%	1	1.0%	1	0.8%
Shoulder	-	0.0%	1	1.0%	1	0.8%
Other	-	0.0%	1	1.0%	1	0.8%
Total	**22**	**100%**	**102**	**100%**	**124**	**100%**

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

Table 21.4 Ten Most Common Girls' Cross Country Injury Diagnoses by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition n=22		Practice n=102		Total n=124	
	n	%	n	%	n	%
Diagnosis						
Lower leg other	2	9.1%	27	26.5%	29	23.4%
Hip/thigh/upper leg strain/sprain	6	27.3%	14	13.7%	20	16.1%
Lower leg strain/sprain	2	9.1%	13	12.7%	15	12.1%
Hip/thigh/upper leg other	2	9.1%	12	11.8%	14	11.3%
Ankle strain/sprain	4	18.2%	9	8.8%	13	10.5%
Knee other	1	4.5%	10	9.8%	11	8.9%
Foot other	1	4.5%	4	3.9%	5	4.0%
Foot strain/sprain	2	9.1%	2	2.0%	4	3.2%
Ankle other	2	9.1%	2	2.0%	4	3.2%
Trunk strain/sprain	-	0.0%	2	2.0%	2	1.6%

Figure 21.2 Time Loss of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



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

Table 21.5 Girls' Cross Country Injuries Requiring Surgery by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

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

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

Figure 21.3 History of Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

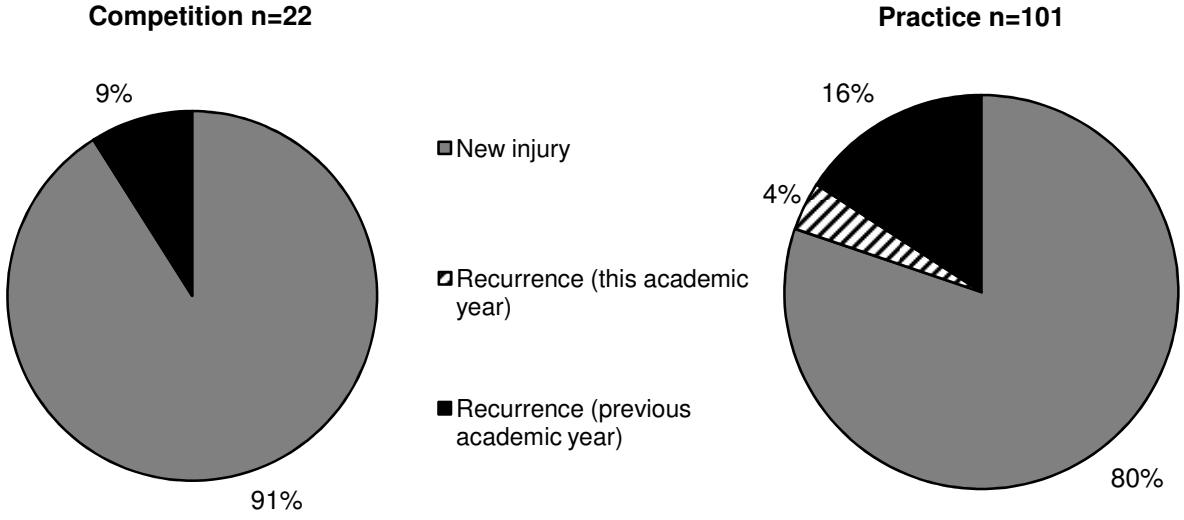


Table 21.6 Time during Season of Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	24	19.4%
Regular season	97	78.2%
Post season	3	2.4%
Total	**124**	**100%**

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

Table 21.7 Practice-Related Variables for Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	17	17.9%
Second 1/2 hour	27	28.4%
1-2 hours into practice	39	41.1%
>2 hours into practice	12	12.6%
Total	**95**	**100%**

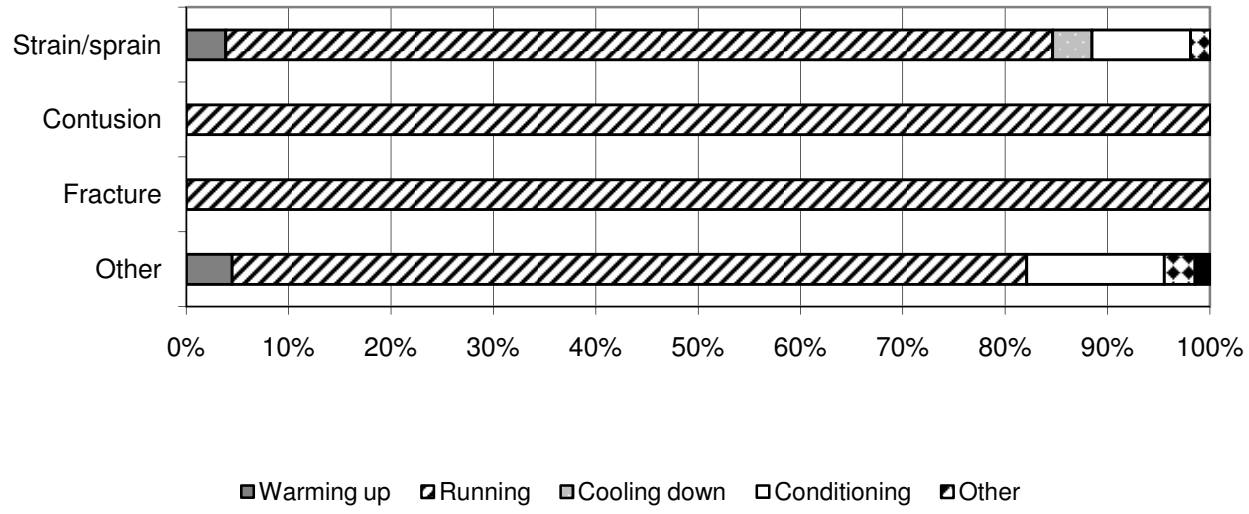
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 21.8 Activities Leading to Girls' Cross Country Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Overall	
	n	%	N	%	n	%
Activity						
Running	20	100.0%	77	76.2%	97	80.2%
Conditioning	-	0.0%	14	13.9%	14	11.6%
Warming up	-	0.0%	5	5.0%	5	4.1%
Cooling down	-	0.0%	2	2.0%	2	1.7%
Other	-	0.0%	3	3.0%	3	2.5%
Total	**20**	**100%**	**101**	**100%**	**121**	**100%**

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

Figure 21.4 Activity Resulting in Girls' Cross Country Injuries by Injury Diagnosis, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year



XXII. Cheerleading Injury Epidemiology

Table 22.1 Cheerleading Injury Rates by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	# Injuries	# Exposures	Injury rate (per 1,000 athlete-exposures)
Total	**192**	**262,581**	**0.73**
Competition	19	16,855	1.13
Practice	150	194,698	0.77
Performance	23	51,028	0.45

Table 22.2 Demographic Characteristics of Injured Cheerleading Athletes, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year*

Year in School	**n=190**
Freshman	30.0%
Sophomore	26.8%
Junior	23.2%
Senior	20.0%
Total†	**100%**
Age (years)	
Minimum	13
Maximum	18
Mean (St. Dev.)	15.5 (1.2)
BMI	
Minimum	16.0
Maximum	33.7
Mean (St. Dev.)	21.8 (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 22.1 Diagnosis of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

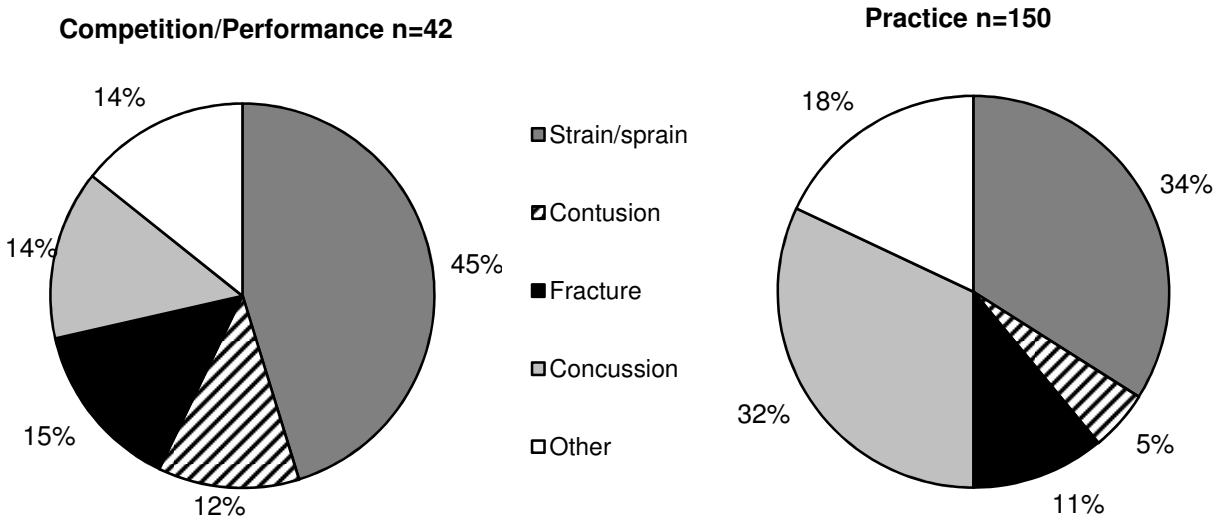


Table 22.3 Body Site of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

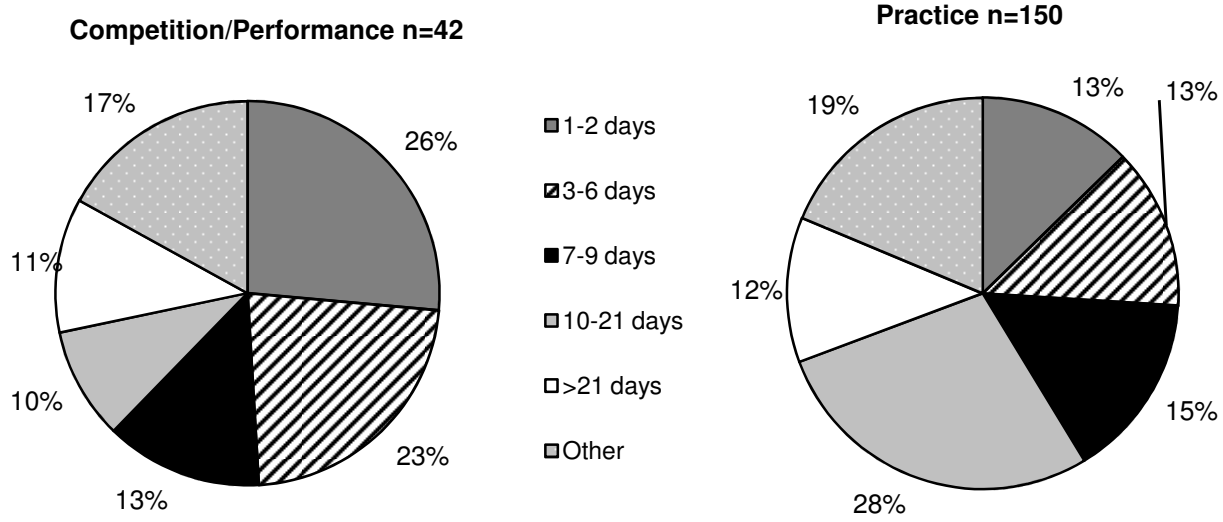
	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Body Site								
Head/face	6	31.6%	60	40.0%	4	17.4%	70	36.5%
Ankle	2	10.5%	20	13.3%	3	13.0%	25	13.0%
Knee	3	15.8%	10	6.7%	4	17.4%	17	8.9%
Neck	3	15.8%	14	9.3%	-	0.0%	17	8.9%
Hand/wrist	2	10.5%	9	6.0%	2	8.7%	13	6.8%
Trunk	-	0.0%	9	6.0%	2	8.7%	11	5.7%
Shoulder	-	0.0%	8	5.3%	2	8.7%	10	5.2%
Foot	1	5.3%	6	4.0%	3	13.0%	10	5.2%
Arm/elbow	-	0.0%	7	4.7%	-	0.0%	7	3.6%
Hip/thigh/upper leg	-	0.0%	3	2.0%	1	4.3%	4	2.1%
Lower leg	1	5.3%	1	0.7%	1	4.3%	3	1.6%
Other	1	5.3%	3	2.0%	1	4.3%	1	4.3%
Total	**19**	**100%**	**150**	**100%**	**23**	**100%**	**192**	**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, 2012-13 School Year

	Competition n=19		Practice n=150		Performance n=23		Total n=192	
	n	%	n	%	n	%	n	%
Diagnosis								
Head/face concussion	4	21.1%	48	32.0%	1	4.3%	53	27.6%
Ankle strain/sprain	2	10.5%	16	10.7%	3	13.0%	21	10.9%
Neck strain/sprain	1	5.3%	11	7.3%	-	0.0%	12	6.3%
Knee other	1	5.3%	5	3.3%	3	13.0%	9	4.7%
Trunk strain/sprain	-	0.0%	6	4.0%	2	8.7%	8	4.2%
Head/face other	-	0.0%	7	4.7%	-	0.0%	7	3.6%
Hand/wrist fracture	2	10.5%	4	2.7%	1	4.3%	7	3.6%
Shoulder strain/sprain	-	0.0%	4	2.7%	2	8.7%	6	3.1%
Knee strain/sprain	1	5.3%	5	3.3%	-	0.0%	6	3.1%
Head/face contusion	2	10.5%	3	2.0%	1	4.3%	6	3.1%

Figure 22.2 Time Loss of Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 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, 2012-13 School Year

	Competition		Practice		Performance		Overall	
	n	%	n	%	n	%	n	%
Need for surgery								
Required surgery	-	0.0%	6	4.0%	2	8.7%	8	4.2%
Did not require surgery	18	100.0%	143	96.0%	21	91.3%	182	95.8%
Total	**18**	**100%**	**149**	**100%**	**23**	**100%**	**190**	**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, 2012-13 School Year

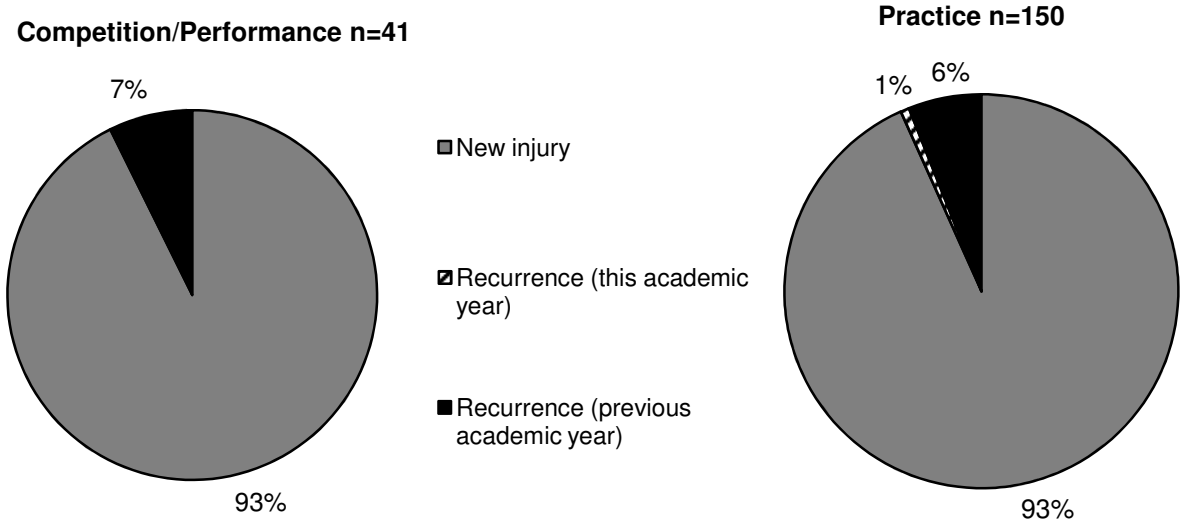


Table 22.6 Time during Season of Cheerleading Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	n	%
Time in Season		
Preseason	15	7.8%
Regular season	175	91.1%
Post season	2	1.0%
Total	**192**	**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, 2012-13 School Year

	n	%
Time in Practice		
First 1/2 hour	12	8.5%
Second 1/2 hour	16	11.3%
1-2 hours into practice	102	71.8%
>2 hours into practice	12	8.5%
Total	**142**	**100%**

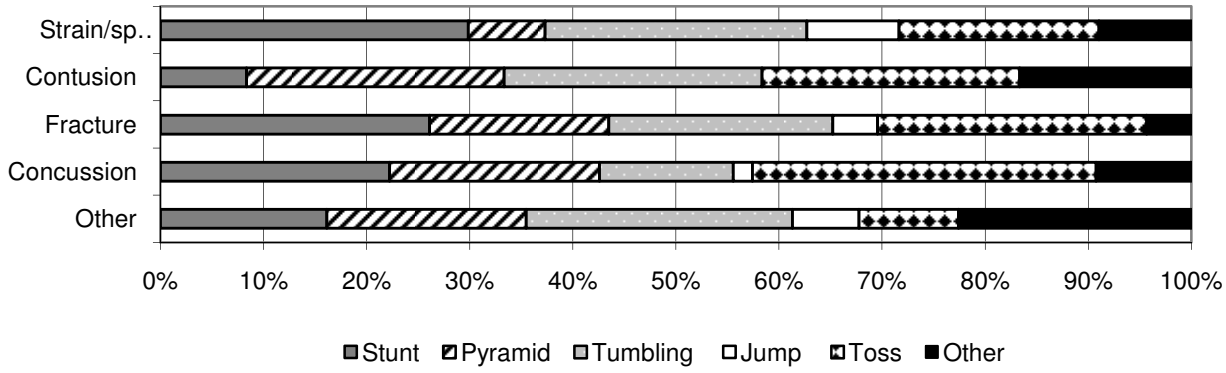
†Totals and n's are not always equal due to slight rounding or missing responses.

Table 22.8 Activities Leading to Cheerleading Injuries by Type of Exposure, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Competition		Practice		Performance		Overall	
	n	%	N	%	n	%	n	%
Activity								
Stunt	-	0.0%	40	27.2%	4	18.2%	44	23.5%
Toss	6	33.3%	34	23.1%	3	13.6%	43	23.0%
Tumbling	4	22.2%	29	19.7%	7	31.8%	40	21.4%
Pyramid	2	11.1%	27	18.4%	-	0.0%	29	15.5%
Jump	4	22.2%	6	4.1%	-	0.0%	10	5.3%
Warm-up	-	0.0%	1	0.7%	3	13.6%	4	2.1%
Other	2	11.1%	10	6.8%	5	22.7%	17	9.1%
Total	**18**	**100%**	**147**	**100%**	**22**	**100%**	**187**	**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, 2012-13 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, 2012-13 School Year

	Boys' soccer	Girls' soccer*	RR (95% CI)†
Total	1.43	**2.33**	**1.63 (1.44, 1.85)**
Competition	3.07	**5.71**	**1.86 (1.60, 2.17)**
Practice	0.72	**0.86**	1.21 (0.96, 1.52)

*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, 2012-13 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Body Site			
Head/face	23.6%	**30.0%**	**1.28 (1.03, 1.58)**
Hip/thigh/upper leg	**14.4%**	14.2%	1.02 (0.71, 1.46)
Ankle	17.5%	**17.8%**	1.02 (0.77, 1.34)
Knee	14.7%	**17.4%**	1.19 (0.89, 1.60)
Foot	**7.7%**	5.0%	1.53 (0.94, 2.50)
Lower leg	**8.2%**	5.2%	1.57 (0.97, 2.53)
Hand/wrist	**3.8%**	1.8%	2.14 (0.98, 4.66)
Trunk	3.4%	**3.4%**	1.02 (0.52, 2.00)
Shoulder	**1.9%**	1.6%	1.19 (0.46, 3.05)
Arm/elbow	1.7%	**2.0%**	1.18 (0.46, 3.01)
Neck	**0.7%**	0.5%	1.34 (0.27, 6.59)
Other	**2.4%**	0.9%	2.67 (0.92, 7.76)
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, 2012-13 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Strain/sprain	42.8%	**46.2%**	1.08 (0.94, 1.25)
Concussion	19.0%	**28.4%**	**1.50 (1.18, 1.90)**
Contusion	**12.5%**	9.9%	1.26 (0.88, 1.81)
Fracture	**10.1%**	4.1%	**2.44 (1.49, 3.99)**
Other	**15.6%**	11.3%	1.38 (1.00, 1.90)
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, 2012-13 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Diagnosis			
Head/face concussion	19.0%	**28.4%**	**1.50 (1.18, 1.90)**
Hip/thigh/upper leg strain/sprain	11.1%	**12.2%**	1.11 (0.78, 1.57)
Ankle strain/sprain	16.1%	**17.1%**	1.06 (0.80, 1.41)
Knee strain/sprain	6.7%	**10.6%**	**1.58 (1.02, 2.43)**
Knee other	**4.8%**	4.1%	1.16 (0.65, 2.09)

*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, 2012-13 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Time Loss			
1-2 days	**12.5%**	11.7%	1.07 (0.76, 1.51)
3-6 days	**20.0%**	16.5%	1.21 (0.92, 1.58)
7-9 days	**21.6%**	18.5%	1.17 (0.91, 1.50)
10-21 days	19.2%	**22.3%**	1.16 (0.90, 1.49)
22 days or more	**7.0%**	5.6%	1.25 (0.77, 2.04)
Other	19.7%	**25.4%**	**1.29 (1.01, 1.64)**
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, 2012-13 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Mechanism			
Contact with another player	**34.0%**	28.1%	**1.21 (1.00, 1.47)**
N/A (overuse, heat illness, conditioning, etc.)	**14.4%**	14.1%	1.02 (0.75, 1.40)
Stepped on/fell on/kicked	**12.7%**	9.9%	1.28 (0.90, 1.84)
Contact with ball	9.3%	**18.3%**	**1.98 (1.39, 2.81)**
Rotation around planted foot/inversion	10.8%	**11.7%**	1.09 (0.76, 1.57)
Slide tackle	**4.6%**	4.2%	1.10 (0.61, 1.99)
Uneven playing surface	**2.4%**	2.0%	1.21 (0.52, 2.83)
Contact with goal	**0.7%**	0.2%	4.00 (0.42, 38.29)
Other	11.0%	**11.4%**	1.04 (0.69, 1.56)
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, 2012-13 School Year

	Boys' soccer	Girls' soccer	IPR (95% CI)
Soccer Activity			
General play	**24.8%**	23.6%	1.05 (0.84, 1.32)
Defending	11.5%	**15.6%**	1.35 (0.97, 1.89)
Heading ball	**9.8%**	7.6%	1.29 (0.85, 1.96)
Chasing loose ball	**10.6%**	9.7%	1.09 (0.75, 1.60)
Ball handling/dribbling	9.6%	**11.7%**	1.22 (0.84, 1.78)
Goaltending	**9.3%**	6.5%	1.44 (0.92, 2.23)
Shooting (foot)	3.7%	**5.0%**	1.36 (0.73, 2.53)
Passing (foot)	**5.7%**	5.4%	1.05 (0.62, 1.78)
Conditioning	**4.4%**	3.9%	1.13 (0.61, 2.10)
Receiving pass	3.9%	**6.3%**	1.61 (0.90, 2.87)
Blocking shot	1.5%	**1.9%**	1.26 (0.46, 3.44)
Attempting slide tackle	0.7%	**0.9%**	1.26 (0.30, 5.25)
Receiving slide tackle	**2.5%**	0.6%	**4.41 (1.22, 15.91)**
Other	**2.0%**	1.3%	1.51 (0.55, 4.13)
Total	**100%**	**100%**	-

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

23.2 Boys' and Girls' Basketball

Table 23.2 Comparison of Boys' and Girls' Basketball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' basketball	Girls' basketball	RR (95% CI)
Total	1.51	**1.95**	**1.29 (1.15, 1.45)**
Competition	2.61	**3.47**	**1.33 (1.13, 1.55)**
Practice	1.02	**1.25**	**1.22 (1.03, 1.45)**

Table 23.20 Comparison of Body Sites of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Body Site			
Ankle	**29.0%**	28.4%	1.02 (0.85, 1.23)
Head/face	24.5%	**24.7%**	1.01 (0.82, 1.23)
Knee	12.7%	**18.3%**	**1.44 (1.09, 1.90)**
Hand/wrist	**7.6%**	6.6%	1.16 (0.76, 1.76)
Hip/thigh/upper leg	**7.0%**	5.2%	1.36 (0.86, 2.16)
Trunk	**5.3%**	4.3%	1.23 (0.73, 2.06)
Lower leg	2.6%	**3.1%**	1.18 (0.60, 2.31)
Foot	3.3%	**3.6%**	1.08 (0.59, 1.99)
Shoulder	**3.7%**	3.3%	1.13 (0.61, 2.08)
Arm/elbow	**2.5%**	1.7%	1.43 (0.64, 3.19)
Neck	**0.5%**	0.5%	1.02 (0.21, 5.04)
Other	**1.2%**	0.3%	3.57 (0.75, 17.13)
Total	**100%**	**100%**	-

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

Table 23.21 Comparison of Diagnoses of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Strain/sprain	47.9%	**49.5%**	1.03 (0.92, 1.16)
Concussion	15.7%	**20.9%**	**1.34 (1.04, 1.71)**
Fracture	**9.5%**	6.9%	1.37 (0.93, 2.03)
Contusion	**8.6%**	6.2%	1.39 (0.92, 2.10)
Other	**18.3%**	16.4%	1.11 (0.87, 1.44)
Total	**100%**	**100%**	-

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

Table 23.22 Most Common Boys' and Girls' Basketball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Diagnosis			
Ankle strain/sprain	**27.8%**	27.2%	1.02 (0.85, 1.23)
Head/face concussion	15.7%	**20.8%**	**1.33 (1.04, 1.70)**
Knee strain/sprain	6.7%	**9.1%**	1.36 (0.91, 2.04)
Knee other	4.2%	**5.7%**	1.37 (0.80, 2.34)

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

Table 23.23 Comparison of Time Loss of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Time Loss			
1-2 days	**18.5%**	16.2%	1.14 (0.89, 1.47)
3-6 days	**23.1%**	19.3%	1.20 (0.96, 1.50)
7-9 days	**16.2%**	15.8%	1.02 (0.79, 1.33)
10-21 days	18.3%	**22.2%**	1.21 (0.96, 1.53)
22 days or more	**8.3%**	6.7%	1.23 (0.82, 1.86)
Other	15.7%	**19.8%**	1.26 (0.98, 1.62)
Total	**100%**	**100%**	-

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

Table 23.24 Comparison of Mechanisms of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Mechanism			
Collision with another player	**32.9%**	25.5%	**1.29 (1.07, 1.55)**
Jumping/landing	**23.5%**	20.0%	1.18 (0.94, 1.47)
Stepped on/fell on/kicked	**9.0%**	7.1%	1.27 (0.85, 1.89)
Rotation around a planted foot/inversion	11.8%	**16.5%**	**1.39 (1.04, 1.86)**
N/A (e.g., overuse, heat illness, etc.)	7.9%	**11.7%**	**1.48 (1.03, 2.13)**
Contact with ball	4.1%	**5.1%**	1.24 (0.73, 2.12)
Other	10.8%	**14.2%**	1.31 (0.96, 1.80)
Total	**100%**	**100%**	-

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

Table 23.25 Comparison of Activities of Boys' and Girls' Basketball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' basketball	Girls' basketball	IPR (95% CI)
Basketball Activity			
Rebounding	**22.9%**	17.6%	**1.30 (1.03, 1.65)**
General play	19.8%	**27.3%**	**1.38 (1.11, 1.71)**
Defending	**20.7%**	17.8%	1.17 (0.92, 1.49)
Shooting	**12.4%**	7.5%	**1.64 (1.14, 2.37)**
Chasing loose ball	9.6%	**10.2%**	1.06 (0.75, 1.51)
Ball handling/dribbling	4.5%	**7.2%**	1.58 (0.97, 2.57)
Receiving pass	4.2%	**5.4%**	1.19 (0.76, 2.19)
Conditioning	2.4%	**3.4%**	1.44 (0.72, 2.89)
Other	3.5%	**3.6%**	1.04 (0.56, 1.93)
Total	**100%**	**100%**	-

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

23.3 Boys' Baseball and Girls' Softball

Table 23.3 Comparison of Baseball and Softball Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Baseball	Softball	RR (95% CI)
Total	0.85	**1.17**	**1.37 (1.15, 1.64)**
Competition	1.32	**1.87**	**1.42 (1.11, 1.81)**
Practice	0.61	**0.81**	**1.33 (1.02, 1.73)**

Table 23.30 Comparison of Body Sites of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Baseball	Softball	IPR (95% CI)
Body Site			
Head/face	17.1%	**23.3%**	1.37 (0.96, 1.96)
Arm/elbow	**10.6%**	6.3%	1.69 (0.92, 3.11)
Hand/wrist	9.8%	**10.4%**	1.07 (0.63, 1.82)
Shoulder	**15.9%**	11.7%	1.36 (0.87, 2.14)
Hip/thigh/upper leg	**12.2%**	7.5%	1.63 (0.93, 2.84)
Ankle	11.8%	**15.4%**	1.31 (0.83, 2.06)
Trunk	**4.9%**	3.8%	1.30 (0.56, 3.03)
Knee	8.1%	**13.8%**	**1.69 (1.00, 2.86)**
Lower leg	**4.1%**	3.8%	1.08 (0.45, 2.62)
Foot	1.6%	**2.1%**	1.28 (0.35, 4.71)
Neck	**2.4%**	0.8%	2.93 (0.60, 14.36)
Other	**1.6%**	1.3%	1.30 (0.29, 5.75)
Total	**100%**	**100%**	-

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

Table 23.31 Comparison of Diagnoses of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Strain/sprain	**44.3%**	41.4%	1.07 (0.87, 1.31)
Contusion	**13.1%**	12.1%	1.08 (0.68, 1.73)
Concussion	11.1%	**18.0%**	**1.63 (1.04, 2.54)**
Fracture	8.2%	**10.0%**	1.23 (0.70, 2.16)
Other	**23.4%**	18.4%	1.27 (0.89, 1.80)
Total	**100%**	**100%**	-

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

Table 23.32 Most Common Baseball and Softball Injury Diagnoses*, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Baseball	Softball	IPR (95% CI)
Diagnosis			
Head/face concussion	11.0%	**17.9%**	**1.63 (1.04, 2.55)**
Hip/thigh/upper leg strain/sprain	**9.3%**	6.3%	1.50 (0.80, 2.80)
Ankle strain/sprain	9.8%	**14.2%**	1.45 (0.89, 2.37)
Shoulder other	7.7%	**7.9%**	1.03 (0.56, 1.89)
Hand/wrist fracture	3.7%	**4.6%**	1.25 (0.53, 2.97)

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

Table 23.33 Comparison of Time Loss of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Baseball	Softball	IPR (95% CI)
Time Loss			
1-2 days	**19.1%**	11.3%	**1.70 (1.10, 2.63)**
3-6 days	**22.4%**	18.3%	1.22 (0.86, 1.74)
7-9 days	10.6%	**18.3%**	**1.74 (1.11, 2.72)**
10-21 days	**21.1%**	17.9%	1.18 (0.82, 1.70)
22 days or more	**8.1%**	6.3%	1.30 (0.68, 2.48)
Other	18.7%	**27.9%**	**1.49 (1.07, 2.08)**
Total	**100%**	**100%**	-

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

Table 23.34 Comparison of Mechanisms of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Mechanism			
Contact with another player	9.4%	**13.2%**	1.41 (0.85, 2.34)
Throwing - pitching	**10.7%**	4.3%	**2.49 (1.23, 5.06)**
N/A (overuse, heat illness, conditioning, etc.)	11.9%	**12.8%**	1.08 (0.67, 1.74)
Hit by batted ball	7.8%	**10.3%**	1.32 (0.74, 2.34)
Hit by pitch	**7.8%**	5.1%	1.52 (0.75, 3.06)
Contact with bases	9.8%	**12.0%**	1.22 (0.73, 2.04)
Contact with thrown ball (non-pitch)	5.3%	**12.4%**	**2.33 (1.24, 4.36)**
Throwing - not pitching	**9.4%**	4.7%	**2.01 (1.00, 4.02)**
Rotation around a planted foot/inversion	5.3%	**8.5%**	1.60 (0.82, 3.15)
Other	**22.5%**	16.7%	1.35 (0.94, 1.96)
Total	**100%**	**100%**	-

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

Table 23.35 Comparison of Activities of Baseball and Softball Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Baseball	Softball	IPR (95% CI)
Baseball/Softball Activity			
Pitching	**14.4%**	6.4%	**2.25 (1.26, 4.00)**
Fielding a batted ball	15.2%	**16.2%**	1.07 (0.70, 1.62)
Running bases	14.0%	**20.5%**	1.47 (0.98, 2.19)
Batting	**10.7%**	6.0%	1.79 (0.96, 3.34)
Throwing (not pitching)	**9.4%**	9.0%	1.06 (0.60, 1.85)
Fielding a thrown ball	4.9%	**7.7%**	1.56 (0.77, 3.16)
General play	6.2%	**6.8%**	1.11 (0.56, 2.19)
Sliding	8.6%	**9.0%**	1.04 (0.58, 1.85)
Catching	7.8%	**10.7%**	1.37 (0.77, 2.41)
Conditioning	2.5%	**3.8%**	1.56 (0.56, 4.31)
Other	**6.2%**	3.8%	1.61 (0.72, 3.60)
Total	**100%**	**100%**	-

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

23.4 Boys' and Girls' Swimming

Table 23.4 Comparison of Boys' and Girls' Swimming Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' swimming	Girls' swimming	RR (95% CI)
Total	0.11	**0.26**	**2.29 (1.19, 4.65)**
Competition	0.05	**0.48**	**8.93 (1.50, 195.40)**
Practice	0.13	**0.21**	1.68 (0.81, 3.63)

Table 23.40 Comparison of Body Sites of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Body Site			
Shoulder	**50.0%**	36.7%	1.36 (0.65, 2.85)
Head/face	**16.7%**	13.3%	1.25 (0.26, 5.95)
Knee	**16.7%**	10.0%	1.67 (0.32, 8.76)
Thigh/upper leg	**8.3%**	3.3%	2.50 (0.17, 36.82)
Trunk	0.0%	**13.3%**	-
Lower leg	**8.3%**	0.0%	-
Foot	0.0%	**6.7%**	-
Ankle	0.0%	**3.3%**	-
Arm/elbow	0.0%	**3.3%**	-
Hand/wrist	0.0%	**3.3%**	-
Other	0.0%	**6.7%**	-
Total	**100%**	**100%**	**-**

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

Table 23.41 Comparison of Diagnoses of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Strain/sprain	33.3%	**46.7%**	1.40 (0.58, 3.40)
Concussion	**16.7%**	13.3%	1.25 (0.26, 5.95)
Fracture	0.0%	**3.3%**	-
Other	**50.0%**	36.7%	1.36 (0.65, 2.85)
Total	**100%**	**100%**	-

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

Table 23.42 Most Common Boys' and Girls' Swimming Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Diagnosis			
Shoulder other	**41.7%**	20.0%	2.08 (0.78, 5.55)
Head/face concussion	**16.7%**	13.3%	1.25 (0.26, 5.95)
Lower leg other	**8.3%**	0.0%	**-**
Shoulder strain/sprain	8.3%	**16.7%**	2.00 (0.26, 15.38)

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

Table 23.43 Comparison of Time Loss of Boys' and Girls' Swimming Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Time Loss			
1-2 days	**16.7%**	13.3%	1.25 (0.26, 5.95)
3-6 days	**41.7%**	33.3%	1.25 (0.54, 2.89)
7-9 days	**16.7%**	13.3%	1.25 (0.26, 5.95)
10-21 days	16.7%	**30.0%**	1.80 (0.45, 7.14)
22 days or more	0.0	**3.3%**	-
Other	**8.3%**	6.7%	1.25 (0.13, 12.53)
Total	**100%**	**100%**	-

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

Table 23.44 Comparison of Mechanisms of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Mechanism			
N/A (overuse, heat illness, conditioning, etc.)	**75.0%**	70.0%	1.07 (0.72, 1.60)
Contact with wall	**8.3%**	3.3%	2.50 (0.17, 36.82)
Contact with another person	8.3%	**10.0%**	1.20 (0.14, 10.43)
Other	8.3%	**16.7%**	2.00 (0.26, 15.38)
Total	**100%**	**100%**	**-**

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

Table 23.45 Comparison of Activities of Boys' and Girls' Swimming and Diving Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' swimming	Girls' swimming	IPR (95% CI)
Swimming Activity			
Swimming	**90.9%**	60.7%	**1.50 (1.05, 2.13)**
Flip turn off wall	0.0%	**3.6%**	-
Diving off board/platform/starting platform	0.0%	**17.9%**	-
Other	9.1%	**17.9%**	1.96 (0.26, 14.97)
Total	**100%**	**100%**	-

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

23.5 Boys' and Girls' Track and Field

Table 23.5 Comparison of Boys' and Girls' Track and Field Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' track	Girls' track	RR (95% CI)
Total	0.55	**0.86**	**1.57 (1.28, 1.94)**
Competition	1.08	**1.09**	1.00 (0.68, 1.47)
Practice	0.42	**0.81**	**1.93 (1.50, 2.50)**

Table 23.50 Comparison of Body Sites of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' track	Girls' track	IPR (95% CI)
Body Site			
Hip/thigh/upper leg	**49.7%**	35.5%	**1.40 (1.10, 1.79)**
Lower leg	12.7%	**24.1%**	**1.90 (1.18, 3.05)**
Ankle	**10.2%**	8.4%	1.22 (0.64, 2.33)
Knee	12.3%	**11.5%**	1.07 (0.61, 1.90)
Trunk	3.2%	**4.4%**	1.39 (0.48, 4.07)
Foot	**6.4%**	4.4%	1.44 (0.60, 3.45)
Shoulder	0.6%	**2.0%**	3.09 (0.35, 27.41)
Head/face	1.9%	**3.9%**	2.06 (0.56, 7.65)
Arm/elbow	0.6%	**1.0%**	1.55 (0.14, 16.91)
Hand/wrist	**1.9%**	1.0%	1.94 (0.33, 11.47)
Neck	**0.6%**	0.0%	**-**
Other	0.6%	**3.0%**	4.64 (0.56, 38.15)
Total	**100%**	**100%**	-

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

Table 23.51 Comparison of Diagnoses of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Strain/sprain	**65.6%**	54.7%	**1.20 (1.01, 1.42)**
Contusion	1.9%	**2.5%**	1.30 (0.32, 5.37)
Fracture	1.9%	**2.5%**	1.30 (0.32, 5.37)
Concussion	0.6%	**2.5%**	3.91 (0.46, 33.09)
Other	29.9%	**37.8%**	1.26 (0.94, 1.70)
Total	**100%**	**100%**	-

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

Table 23.52 Most Common Boys' and Girls' Track and Field Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' track	Girls' track	IPR (95% CI)
Diagnosis			
Hip/thigh/upper leg strain/sprain	**43.9%**	31.5%	**1.39 (1.07, 1.82)**
Lower leg other	8.3%	**16.7%**	**2.02 (1.11, 3.70)**
Hip/thigh/upper leg other	**5.7%**	3.4%	1.66 (0.63, 4.37)
Ankle strain/sprain	**8.3%**	6.4%	1.29 (0.62, 2.71)
Lower leg strain/sprain	3.8%	**6.4%**	1.68 (0.65, 4.31)
Knee other	**8.9%**	8.4%	1.07 (0.54, 2.09)

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

Table 23.53 Comparison of Time Loss of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' track	Girls' track	IPR (95% CI)
Time Loss			
1-2 days	8.9%	**11.8%**	1.33 (0.71, 2.48)
3-6 days	23.6%	**23.6%**	1.00 (0.69, 1.46)
7-9 days	**19.1%**	17.7%	1.08 (0.70, 1.67)
10-21 days	**26.1%**	22.7%	1.15 (0.80, 1.66)
22 days or more	5.7%	**7.9%**	1.38 (0.62, 3.03)
Other	**16.6%**	16.3%	1.02 (0.64, 1.63)
Total	**100%**	**100%**	-

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

Table 23.54 Comparison of Mechanisms of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Mechanism			
N/A (e.g., overuse, heat illness, conditioning, etc.)	66.0%	**70.2%**	1.06 (0.92, 1.23)
Contact with ground/track/surface	8.0%	**8.9%**	1.11 (0.55, 2.26)
Fall/trip	**4.7%**	2.6%	1.78 (0.58, 5.51)
Rotation around planted foot/inversion	4.0%	**5.2%**	1.31 (0.49, 3.52)
Contact with field equipment	4.7%	**5.2%**	1.12 (0.44, 2.88)
Uneven playing surface	0.7%	**2.6%**	3.93 (0.46, 33.25)
Stepped on/kicked	**0.7%**	0.0%	-
Contact with another person	**2.7%**	0.0%	-
Other	**8.7%**	5.2%	1.66 (0.75, 3.67)
Total	**100%**	**100%**	-

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

Table 23.55 Comparison of Activities of Boys' and Girls' Track and Field Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' track	Girls' track	IPR (95% CI)
Track Activity			
Running	68.4%	**73.3%**	1.07 (0.93, 1.23)
Jumping/landing	**16.4%**	9.2%	**1.78 (1.01, 3.14)**
Conditioning	**3.9%**	2.6%	1.54 (0.48, 4.95)
Throwing	3.3%	**3.6%**	1.09 (0.35, 3.37)
Running hurdles	2.6%	**7.2%**	2.73 (0.92, 8.12)
Warming up	**1.3%**	1.0%	1.28 (0.18, 9.00)
Leaving block	0.0%	**0.5%**	-
Hit by shot put/discus/javelin/hammer	0.0%	**0.5%**	-
Other	**3.9%**	2.1%	1.92 (0.55, 6.70)
Total	**100%**	**100%**	-

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

23.6 Boys' and Girls' Cross Country

Table 23.6 Comparison of Boys' and Girls' Cross Country Injury Rates, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' cross country	Girls' cross country	RR (95% CI)
Total	0.65	**1.10**	**1.69 (1.28, 2.23)**
Competition	0.78	**1.13**	1.45 (0.77, 2.77)
Practice	0.62	**1.09**	**1.75 (1.29, 2.39)**

Table 23.60 Comparison of Body Sites of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Body Site			
Lower leg	31.0%	**36.3%**	1.17 (0.79, 1.74)
Hip/thigh/upper leg	23.8%	**27.4%**	1.15 (0.71, 1.86)
Knee	**19.0%**	9.7%	1.97 (0.98, 3.95)
Ankle	13.1%	**13.7%**	1.05 (0.52, 2.12)
Foot	3.6%	**8.1%**	2.26 (0.64, 7.96)
Trunk	2.4%	**2.4%**	1.02 (0.17, 5.95)
Head/face	**1.2%**	0.8%	1.48 (0.09, 23.28)
Shoulder	0.0%	**0.8%**	-
Other	**6.0%**	0.8%	7.38 (0.88, 62.05)
Total	**100%**	**100%**	-

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

Table 23.61 Comparison of Diagnoses of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Diagnosis			
Strain/sprain	39.3%	**43.5%**	1.11 (0.80, 1.55)
Contusion	1.2%	**1.6%**	1.36 (0.13, 14.70)
Fracture	**2.4%**	0.8%	2.95 (0.27, 32.04)
Concussion	**1.2%**	0.0%	-
Other	**56.0%**	54.0%	1.04 (0.81, 1.33)
Total	**100%**	**100%**	-

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

Table 23.62 Most Common Boys' and Girls' Cross Country Injury Diagnoses, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Diagnosis			
Lower leg other	**23.8%**	23.4%	1.02 (0.62, 1.68)
Hip/thigh/upper leg strain sprain	**16.7%**	16.1%	1.03 (0.55, 1.93)
Lower leg strain/sprain	6.0%	**12.1%**	2.03 (0.77, 5.38)
Hip/thigh/upper leg other	7.1%	**11.3%**	1.58 (0.63, 3.95)
Ankle strain/sprain	**10.7%**	10.5%	1.02 (0.46, 2.28)
Knee other	**16.7%**	8.9%	1.88 (0.90, 3.94)

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

Table 23.63 Comparison of Time Loss of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Time Loss			
1-2 days	13.1%	**17.7%**	1.36 (0.69, 2.64)
3-6 days	**29.8%**	27.4%	1.09 (0.70, 1.68)
7-9 days	**20.2%**	20.2%	1.00 (0.58, 1.74)
10-21 days	**17.9%**	10.5%	1.70 (0.86, 3.39)
22 days or more	2.4%	**6.5%**	2.71 (0.59, 12.45)
Other	16.7%	**17.7%**	1.07 (0.58, 1.96)
Total	**100%**	**100%**	-

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

Table 23.64 Comparison of Mechanisms of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Track Mechanism			
Overuse	57.5%	**61.5%**	1.07 (0.85, 1.35)
Contact with ground/track/surface	7.5%	**12.3%**	1.64 (0.66, 4.05)
Fall/trip	5.0%	**7.4%**	1.48 (0.47, 4.63)
Rotation around planted foot/inversion	**2.5%**	2.5%	1.02 (0.17, 5.95)
Contact with obstacle	**2.5%**	0.8%	3.05 (0.28, 33.08)
Uneven surface	**15.0%**	5.7%	**2.61 (1.08, 6.36)**
N/A (e.g., heat illness, conditioning, etc.)	**5.0%**	4.9%	1.02 (0.30, 3.49)
Contact with another person	0.0%	**0.8%**	-
Other	**5.0%**	4.1%	1.22 (0.34, 4.41)
Total	**100%**	**100%**	-

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

Table 23.65 Comparison of Activities of Boys' and Girls' Cross Country Injuries, High School Sports-Related Injury Surveillance Study, US, 2012-13 School Year

	Boys' cross country	Girls' cross country	IPR (95% CI)
Track Activity			
Running	**82.1%**	80.2%	1.02 (0.89, 1.17)
Conditioning	**12.8%**	11.6%	1.11 (0.52, 2.37)
Warming up	2.6%	**4.1%**	1.64 (0.31, 8.66)
Cooldown	1.3%	**1.7%**	1.29 (0.12, 13.98)
Other	1.3%	**2.5%**	1.93 (0.21, 18.26)
Total	**100%**	**100%**	-

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

XXIV. Reporter Demographics & Compliance

During the 2012-13 school year, 246 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, 208 enrolled ATs reported an average of 40 study weeks. The majority of ATs (86.1%) reported all the weeks during which they were enrolled, with only 12.5% of ATs missing over 10 weeks. Internal validity checks during the 2012-13 academic year yielded 95.8% sensitivity, 100.0% specificity, a positive predictive value of 100.0%, and a negative predictive value of 98.2%.

Prior to the start of the 2012-13 High School RIO™ study, participating ATs were asked to complete a short demographics survey. Three-quarters (81.0%) 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% (84.0%) of ATs participating during the 2012-13 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=216 including those ATs who did not report any data)) the opportunity to provide feedback on their experiences with High School RIO™. This survey was completed by 138 ATs (63.9%). Average reporting time burdens were 17 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 (56.5%) or somewhat easy (37.0%) to use (5 and 4 on the Likert scale, respectively), with ATs being either very satisfied (70.0%) or somewhat satisfied (24.6%) 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 2013-14 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.