



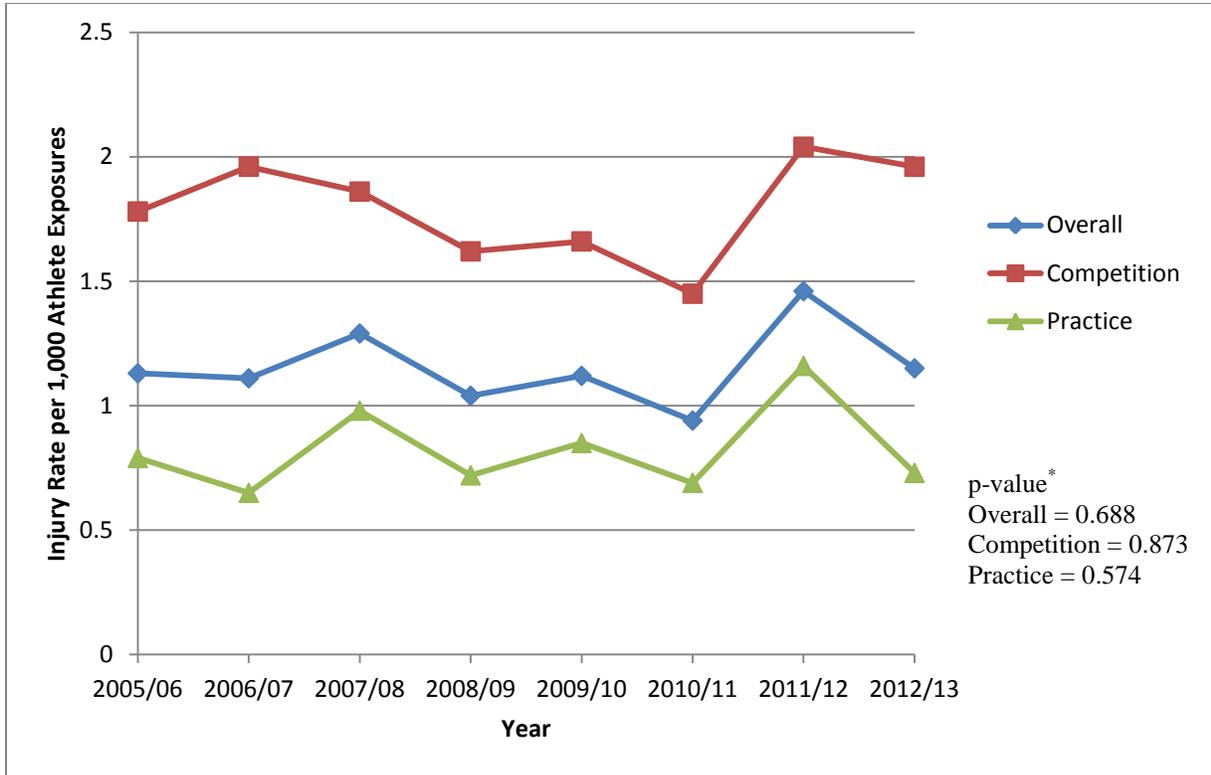
**NFHS INJURY SURVEILLANCE OVERVIEW**  
**SOFTBALL – 2012-13**

- Girls' softball injury rates have remained consistent over time. Information from the 2012/13 High School RIO™ Original Summary Report:
  - Actual Injuries: Overall 147, Competition 85, Practice 62
  - Injury Rates (per 1,000 AE): Overall 1.15, Competition 1.96, Practice 0.73
  - National Est. Injuries: Overall 58,124, Competition 35,477, Practice 22,647
- Information from the High School RIO Convenience Study:
- General injury patterns in 2012/13
  - Most commonly injured body sites included the head/face (20.5%), ankle (15.0%), and knee (13.4%)
    - Shoulder injuries represented 11.4% of all softball injuries in comparison to 15.9% of all baseball injuries
    - Hand injuries represented 9.4% of all softball injuries in comparison to 5.3% of all baseball injuries
  - Most common diagnoses included sprain/strain (40.5%), however, concussions represent an additional 18.7% of all injuries.
  - Most common basic mechanisms associated with injury were contact with playing apparatus (38.7%) and no contact/overuse/chronic (33.2%)
  - Most commonly injured positions were base runner (12.5%), pitcher and catcher (10.8% each) and left and center fielder (10.0% each)
  - 21.7% of all competition-related injuries occurred at home plate
- Head/Face/Mouth/Teeth injuries from 2005/06 through 2012/13
  - The most common head/face/mouth/teeth injury diagnoses included concussion (62.9%), contusion (17.8%), fracture (10.1%), and laceration (6.7%)
  - The most common specific mechanisms associated with head/face/mouth/teeth injury included contact with thrown ball (non-pitch) (33.5%), hit by batted ball (26.4%), and contact with another player (18.6%). The proportion of head/face injuries associated with being hit by pitch was much lower in softball (3.1%) compared to baseball (13.9%)
- Ankle injuries from 2005/06 through 2012/13

- The most common ankle injury diagnoses was sprain/strain (85.5%) followed by fracture (6.3%)
  - The specific mechanism most commonly associated with ankle injury was contact with bases (43.0%)
  - The specific activities most commonly associated with ankle injury were running bases (34.9%) and sliding (28.9%)
  
- Hand/wrist injuries from 2005/06 through 2012/13
  - The most common hand/wrist injury diagnosis was fracture (43.5%)
  - While only 4.4% of all hand/wrist injuries required surgery, 14.5% kept the athlete out of play >22 days and another 6.3% resulted in medical disqualification for the season
  - The most common specific mechanisms associated with hand/wrist injury included hit by a batted ball (19.8%), contact with thrown ball (non-pitch) (18.6%) and hit by pitch (18.6%).
  - The most common positions sustaining hand injuries were the batter (17.1%) and catcher (17.1%)
  
- Fielding-related injuries from 2005/06 through 2012/13
  - The most commonly injured body site during fielding included the head/face/mouth/teeth (37.4%) and hand (18.4%)
  - The most common diagnoses of injury sustained during fielding included sprain/strain (28.4%), concussion (21.1%), contusion (20.1%), and fracture (17.4%)
  
- Additional tables and figures regarding girls' softball follow this synopsis.

1. Trends over time

**Figure 1: Girls' Softball Injury Rates over Time, High School RIO™, Original Study, 2005/06-2012/13**



\*p-value level of significance = 0.05

**Table 1: Softball Injury Outcome by Sliding Direction in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Time Loss		How did the athlete slide?			Total
		feet first	head first	unknown	
returned to activity in 1-2 days	N	4	1	0	5
	%	4.5%	5.0%	0.0%	4.6%
returned to activity in 3-6 days	N	18	5	0	23
	%	20.5%	25.0%	0.0%	21.1%
returned to activity in 7-9 days	N	13	3	0	16
	%	14.8%	15.0%	0.0%	14.7%
returned to activity in 10-21 days	N	15	3	0	18
	%	17.0%	15.0%	0.0%	16.5%
returned to activity in 22 days or more	N	15	6	0	21
	%	17.0%	30.0%	0.0%	19.3%
medical disqualification for season	N	9	0	1	10
	%	10.2%	0.0%	100.0%	9.2%
athlete chooses not to continue (no medical disqualification)	N	1	0	0	1
	%	1.1%	0.0%	0.0%	0.9%
other	N	0	1	0	1
	%	0.0%	5.0%	0.0%	0.9%
returned to activity in less than 1 day (should only be chosen for fractures, concussions, and/or dental injuries)	N	1	0	0	1
	%	1.1%	0.0%	0.0%	0.9%
season ended before athlete returned to activity	N	12	1	0	13
	%	13.6%	5.0%	0.0%	11.9%
Total	N	88	20	1	109
	%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 2: Softball Injury Diagnosis by Sliding Direction in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Injury Diagnosis		How did the athlete slide?			Total
		feet first	head first	unknown	
abrasion	N	2	0	0	2
	%	2.2%	0.0%	0.0%	1.8%
bursitis	N	1	0	0	1
	%	1.1%	0.0%	0.0%	0.9%
concussion	N	9	2	0	11
	%	9.8%	9.5%	0.0%	9.6%
contusion	N	4	3	0	7
	%	4.3%	14.3%	0.0%	6.1%
dislocation	N	2	3	1	6
	%	2.2%	14.3%	100.0%	5.3%
fracture	N	17	5	0	22
	%	18.5%	23.8%	0.0%	19.3%
hyperextension	N	0	1	0	1
	%	0.0%	4.8%	0.0%	0.9%
laceration	N	0	2	0	2
	%	0.0%	9.5%	0.0%	1.8%
ligament sprain (incomplete tear)	N	10	0	0	10
	%	10.9%	0.0%	0.0%	8.8%
other	N	1	1	0	2
	%	1.1%	4.8%	0.0%	1.8%
subluxation	N	0	2	0	2
	%	0.0%	9.5%	0.0%	1.8%
ligament sprain	N	36	2	0	38
	%	39.1%	9.5%	0.0%	33.3%
muscle strain	N	7	0	0	7
	%	7.6%	0.0%	0.0%	6.1%
tendon strain	N	3	0	0	3
	%	3.3%	0.0%	0.0%	2.6%
Total	N	92	21	1	114
	%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 3: Softball Injury Body Part by Sliding Direction in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Body Part		How did the athlete slide?			Total
		feet first	head first	unknown	
head/face	N	9	3	0	12
	%	9.8%	14.3%	0.0%	10.5%
neck/cervical spine	N	1	1	0	2
	%	1.1%	4.8%	0.0%	1.8%
shoulder	N	0	5	0	5
	%	0.0%	23.8%	0.0%	4.4%
elbow	N	1	1	0	2
	%	1.1%	4.8%	0.0%	1.8%
wrist	N	1	1	0	2
	%	1.1%	4.8%	0.0%	1.8%
hand	N	2	8	1	11
	%	2.2%	38.1%	100.0%	9.6%
lower back/l-spine/pelvis	N	1	0	0	1
	%	1.1%	0.0%	0.0%	0.9%
thigh/upper leg	N	4	0	0	4
	%	4.3%	0.0%	0.0%	3.5%
knee	N	13	2	0	15
	%	14.1%	9.5%	0.0%	13.2%
lower leg	N	12	0	0	12
	%	13.0%	0.0%	0.0%	10.5%
ankle	N	45	0	0	45
	%	48.9%	0.0%	0.0%	39.5%
foot	N	3	0	0	3
	%	3.3%	0.0%	0.0%	2.6%
Total	N	92	21	1	114
	%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 4: Softball Injury Need for Surgery by Sliding Direction in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Surgery required:		How did the athlete slide?			Total
		feet first	head first	unknown	
no	N	85	18	1	104
	%	92.4%	90.0%	100.0%	92.0%
yes, injury was repaired with surgery prior to athlete's return to play	N	7	0	0	7
	%	7.6%	0.0%	0.0%	6.2%
yes, but athlete postponed surgery to continue to play	N	0	2	0	2
	%	0.0%	10.0%	0.0%	1.8%
Total	N	92	20	1	113
	%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 5: Softball Field Location by Sliding Direction in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Field Location		How did the athlete slide?			Total
		feet first	head first	unknown	
home plate	N	22	1	0	23
	%	34.9%	5.6%	0.0%	28.0%
first base	N	1	3	1	5
	%	1.6%	16.7%	100.0%	6.1%
second base	N	27	8	0	35
	%	42.9%	44.4%	0.0%	42.7%
third base	N	13	6	0	19
	%	20.6%	33.3%	0.0%	23.2%
Total	N	63	18	1	82
	%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 6: Type of Base Athlete Slid Into by Sliding Direction in Softball Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Type of Base		How did the athlete slide?			Total
		feet first	head first	unknown	
break away base	N	21	4	0	25
	%	22.8%	19.0%	0.0%	21.9%
safety base	N	6	2	0	8
	%	6.5%	9.5%	0.0%	7.0%
traditional base	N	49	9	0	58
	%	53.3%	42.9%	0.0%	50.9%
unknown	N	16	6	1	23
	%	17.4%	28.6%	100.0%	20.2%
Total	N	92	21	1	114
	%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 7: Softball Injury Outcome by Type of Base Athlete Slid Into in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Time Loss		What type of base was the athlete sliding into?				Total
		break away base	safety base	traditional base	unknown	
returned to activity in 1-2 days	N	2	0	3	1	6
	%	8.3%	0.0%	5.2%	4.5%	5.4%
returned to activity in 3-6 days	N	7	1	12	3	23
	%	29.2%	14.3%	20.7%	13.6%	20.7%
returned to activity in 7-9 days	N	4	2	9	1	16
	%	16.7%	28.6%	15.5%	4.5%	14.4%
returned to activity in 10-21 days	N	4	3	10	1	18
	%	16.7%	42.9%	17.2%	4.5%	16.2%
returned to activity in 22 days or more	N	5	1	10	6	22
	%	20.8%	14.3%	17.2%	27.3%	19.8%
medical disqualification for season	N	1	0	7	2	10
	%	4.2%	0.0%	12.1%	9.1%	9.0%
athlete chooses not to continue (no medical disqualification)	N	0	0	0	1	1
	%	0.0%	0.0%	0.0%	4.5%	0.9%
other	N	0	0	0	1	1
	%	0.0%	0.0%	0.0%	4.5%	0.9%
returned to activity in less than 1 day (should only be chosen for fractures, concussions, and/or dental injuries)	N	1	0	0	0	1
	%	4.2%	0.0%	0.0%	0.0%	0.9%
season ended before athlete returned to activity	N	0	0	7	6	13
	%	0.0%	0.0%	12.1%	27.3%	11.7%
Total	N	24	7	58	22	111
	%	100.0%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 8: Softball Injury Diagnosis by Type of Base Athlete Slid Into in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Diagnosis		What type of base was the athlete sliding into?				Total
		break away base	safety base	traditional base	unknown	
abrasion	N	1	0	0	1	2
	%	4.0%	0.0%	0.0%	4.3%	1.7%
bursitis	N	0	0	1	0	1
	%	0.0%	0.0%	1.7%	0.0%	0.9%
concussion	N	1	1	7	2	11
	%	4.0%	12.5%	11.7%	8.7%	9.5%
contusion	N	0	0	8	0	8
	%	0.0%	0.0%	13.3%	0.0%	6.9%
dislocation	N	1	0	3	2	6
	%	4.0%	0.0%	5.0%	8.7%	5.2%
fracture	N	3	1	10	9	23
	%	12.0%	12.5%	16.7%	39.1%	19.8%
hyperextension	N	1	0	0	0	1
	%	4.0%	0.0%	0.0%	0.0%	0.9%
laceration	N	1	1	0	0	2
	%	4.0%	12.5%	0.0%	0.0%	1.7%
ligament sprain (incomplete tear)	N	4	0	4	2	10
	%	16.0%	0.0%	6.7%	8.7%	8.6%
other	N	0	0	2	0	2
	%	0.0%	0.0%	3.3%	0.0%	1.7%
subluxation	N	0	0	0	2	2
	%	0.0%	0.0%	0.0%	8.7%	1.7%
ligament sprain	N	8	4	22	4	38
	%	32.0%	50.0%	36.7%	17.4%	32.8%
muscle strain	N	5	1	0	1	7
	%	20.0%	12.5%	0.0%	4.3%	6.0%
tendon strain	N	0	0	3	0	3
	%	0.0%	0.0%	5.0%	0.0%	2.6%
Total	N	25	8	60	23	116
	%	100.0%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 9: Softball Injury Body Part by Type of Base Athlete Slid Into in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Body Part		What type of base was the athlete sliding into?				Total
		break away base	safety base	traditional base	unknown	
head/face	N	2	1	7	2	12
	%	8.0%	12.5%	11.7%	8.7%	10.3%
neck/cervical spine	N	1	0	1	0	2
	%	4.0%	0.0%	1.7%	0.0%	1.7%
shoulder	N	1	0	3	2	6
	%	4.0%	0.0%	5.0%	8.7%	5.2%
elbow	N	2	0	0	0	2
	%	8.0%	0.0%	0.0%	0.0%	1.7%
wrist	N	0	0	2	0	2
	%	0.0%	0.0%	3.3%	0.0%	1.7%
hand	N	2	2	5	3	12
	%	8.0%	25.0%	8.3%	13.0%	10.3%
lower back/l-spine/pelvis	N	0	1	0	0	1
	%	0.0%	12.5%	0.0%	0.0%	0.9%
thigh/upper leg	N	2	0	1	1	4
	%	8.0%	0.0%	1.7%	4.3%	3.4%
knee	N	2	2	8	3	15
	%	8.0%	25.0%	13.3%	13.0%	12.9%
lower leg	N	2	0	5	5	12
	%	8.0%	0.0%	8.3%	21.7%	10.3%
ankle	N	11	2	25	7	45
	%	44.0%	25.0%	41.7%	30.4%	38.8%
foot	N	0	0	3	0	3
	%	0.0%	0.0%	5.0%	0.0%	2.6%
Total	N	25	8	60	23	116
	%	100.0%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 10: Softball Injury Need for Surgery by Type of Base Athlete Slid Into in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Surgery required:		What type of base was the athlete sliding into?				Total
		break away base	safety base	traditional base	unknown	
no	N	23	7	55	21	106
	%	92.0%	87.5%	91.7%	95.5%	92.2%
yes, injury was repaired with surgery prior to athlete's return to play	N	1	0	5	1	7
	%	4.0%	0.0%	8.3%	4.5%	6.1%
yes, but athlete postponed surgery to continue to play	N	1	1	0	0	2
	%	4.0%	12.5%	0.0%	0.0%	1.7%
Total	N	25	8	60	22	115
	%	100.0%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.

**Table 11: Softball Injury Field Location by Type of Base Athlete Slid Into in Injuries with Sliding Mechanism, High School RIO™, Convenience Study, 2008/09-2012/13\***

Field Location		What type of base was the athlete sliding into?				Total
		break away base	safety base	traditional base	unknown	
home plate	N	1	1	21	0	23
	%	4.8%	16.7%	48.8%	0.0%	27.4%
first base	N	0	2	2	2	6
	%	0.0%	33.3%	4.7%	14.3%	7.1%
second base	N	13	2	14	7	36
	%	61.9%	33.3%	32.6%	50.0%	42.9%
third base	N	7	1	6	5	19
	%	33.3%	16.7%	14.0%	35.7%	22.6%
Total	N	21	6	43	14	84
	%	100.0%	100.0%	100.0%	100.0%	100.0%

\*Due to a low level of non-response, totals are always similar but are not always equal to the total number of injuries.