

# Epidemiology of Elbow Dislocations in High School Athletes



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# BACKGROUND

- Elbow is 2<sup>nd</sup> most commonly dislocated joint
- Dislocations make up 10-25% of all elbow injuries
- Highest incidence of elbow dislocations between ages 10-19



# PURPOSE

- Describe epidemiology of elbow dislocations in high school athletics
- Evaluate differences by sex, sport, mechanism/setting of injury, and time to return to play
- Facilitate development of focused prevention strategies

# METHODS

- Descriptive epidemiologic study from 2005-2014
- Utilized High School Sports-Related Injury Surveillance System, High School RIO (Reporting Information Online)
- One hundred nationally representative high schools included capturing data from 20 sports

# METHODS

- Data was captured in terms of athlete exposures (AEs)
- Injury rates were calculated per 100,000 AEs
- Rate ratios (RR) were also calculated

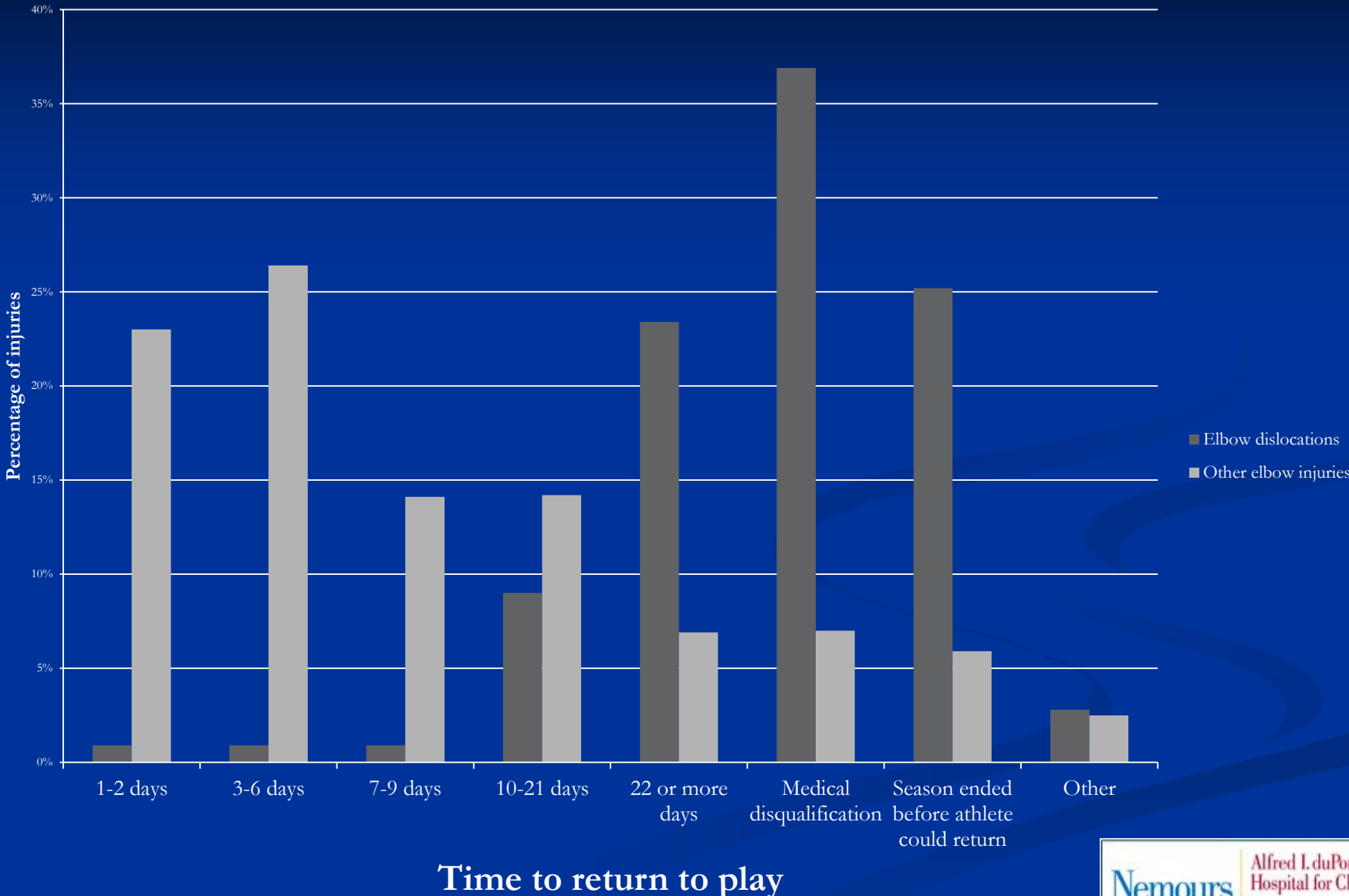
Table 1. Elbow Dislocation Injury Rates by Sport and Exposure Type, National High School Sports-Related Injury Surveillance Study, United States, 2005-06 through 2013-14 School Years

Sport	Number of Competition Injuries	Number of Competition Exposures	Competition Rate (per 100,000 AEs)	Number of Practice Injuries	Number of Practice Exposures	Practice Rate (per 100,000 AEs)	Number of Overall Injuries	Number of Overall Exposures	Overall Rate (per 100,000 AEs)	Rate Ratio of Competition to Practice****	95% Confidence Interval
Boys' wrestling	34	513,087	6.63	19	1,458,363	1.30	53	1,971,450	2.69	5.09	2.92, 9.08
Girls' gymnastics	0	15,026	0.00	2	65,713	3.04	2	80,739	2.48	-	-
Boys' football	31	1,010,148	3.07	12	4,919,146	0.24	43	5,929,294	0.73	12.58	6.56, 25.40
Coed cheerleading	0	288,247**	0.00	3	821,242	0.37	3	1,109,489	0.27	-	-
Boys' lacrosse	0	203,574	0.00	1	459,386	0.22	1	662,960	0.15	-	-
Boys' basketball	5	800,766	0.62	2	1,879,623	0.11	7	2,680,389	0.26	5.87	1.16, 43.67
Girls' soccer	3	576,995	0.52	0	1,323,457	0.00	3	1,900,452	0.16	-	-
Girls' volleyball	0	674,255	0.00	1	1,327,787	0.08	1	2,002,042	0.05	-	-
Boys' baseball	1	714,137	0.14	0	1,326,908	0.00	1	2,041,045	0.05	-	-
Girls' basketball	1	656,725	0.15	0	1,503,811	0.00	1	2,160,536	0.05	-	-
Total*	75	7,985,273	0.94	40	22,429,906	0.18	115	30,415,179	0.38	5.27	3.60, 7.80

**Table 2: Characteristics of Athletes Suffering an Elbow Dislocation by Gender, National High School Sports-Related Injury Surveillance Study, United States, 2005-06 through 2013-14 School Years**

<b>Characteristics</b>	<b>Boys</b>	<b>Girls</b>
<b>Age (Years), Mean (SD)</b>	16.2 (1.2)	16.3 (1.0)
<b>Height (Inches), Mean (SD)</b>	69.4 (3.3)	65.3 (1.4)
<b>Weight (Pounds), Mean (SD)</b>	163.2 (33.6)	117.7 (10.6)
<b>Year in School, (%)</b>		
<b>Freshman</b>	16 (15.7%)	2 (22.2%)
<b>Sophomore</b>	34 (33.3%)	1 (11.1%)
<b>Junior</b>	26 (25.5%)	3 (33.3%)
<b>Senior</b>	26 (25.5)	3 (33.3%)
<b>Play Level, (%)</b>		
<b>Varsity</b>	58 (60.4%)	8 (88.9%)
<b>Junior Varsity</b>	25 (26.0%)	1 (11.1%)
<b>Freshmen</b>	8 (8.3%)	0 (0.0%)
<b>Combined</b>	4 (4.2%)	0 (0.0%)
<b>Other</b>	1 (1.0%)	0 (0.0%)
<b>Total, (%)</b>	<b>105 (91.3%)</b>	<b>10 (8.7%)</b>

# Severity of Elbow Injuries (in Terms of Time Loss) by Diagnosis, National High School Sports-Related Injury Surveillance Study, United States, 2005-06 through 2013-14 School Years





# Conclusions

- Elbow dislocations less common but more morbidity and long-term effects in high school athletes.
- Highest incidence: Boys' football and wrestling, followed by Girls' gymnastics
- Injury prevention strategies, such as focused simulations, training drills, and alternate playing surfaces may reduce risk.