

An Evaluation of Illegal Activity/Foul Play as a Potential Risk Factor for Injury

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Background

- Each sport has a unique set of rules developed to promote fair competition and protect participants from injury
- The impact of illegal activity/foul play on sports injury rates has not been studied in detail
- Illegal activity/foul play has been largely overlooked as a risk factor for sports injuries

Objectives

- To compare sport and gender differences in injury rates and proportions of injuries related to illegal activity
- To describe the epidemiology of high school sports injuries related to illegal activity

Methodology

- Study sample
 - 100 nationally representative US high schools
 - NATA affiliated BOC athletic trainer reporting
- Data collection
 - Internet-based data collection tool, HS RIO™
 - Weekly reporting throughout academic year
- Data analyses
 - Injury rates
 - National estimates
 - Injury proportion ratios

Definitions

- Injury = an injury that occurred as a result of an organized high school athletic competition, required medical attention, and resulted in restriction of the athlete's participation for ≥ 1 days beyond the day of injury
- Athletic exposure (AE) = one athlete participating in one competition
- Illegal/foul play injury = an injury directly related to action ruled illegal/foul play by a ref/official or disciplinary committee

General Results, 2005/06 and 2006/07

■ Overall

- 4,618 injuries during 971,794 AE
 - 4.75 per 1,000 AE
 - Range: football, 12.80 per 1,000 AE to volleyball, 1.63 per 1,000 AE
- Boys vs. girls, RR=1.23, 95% CI 1.75-2.00

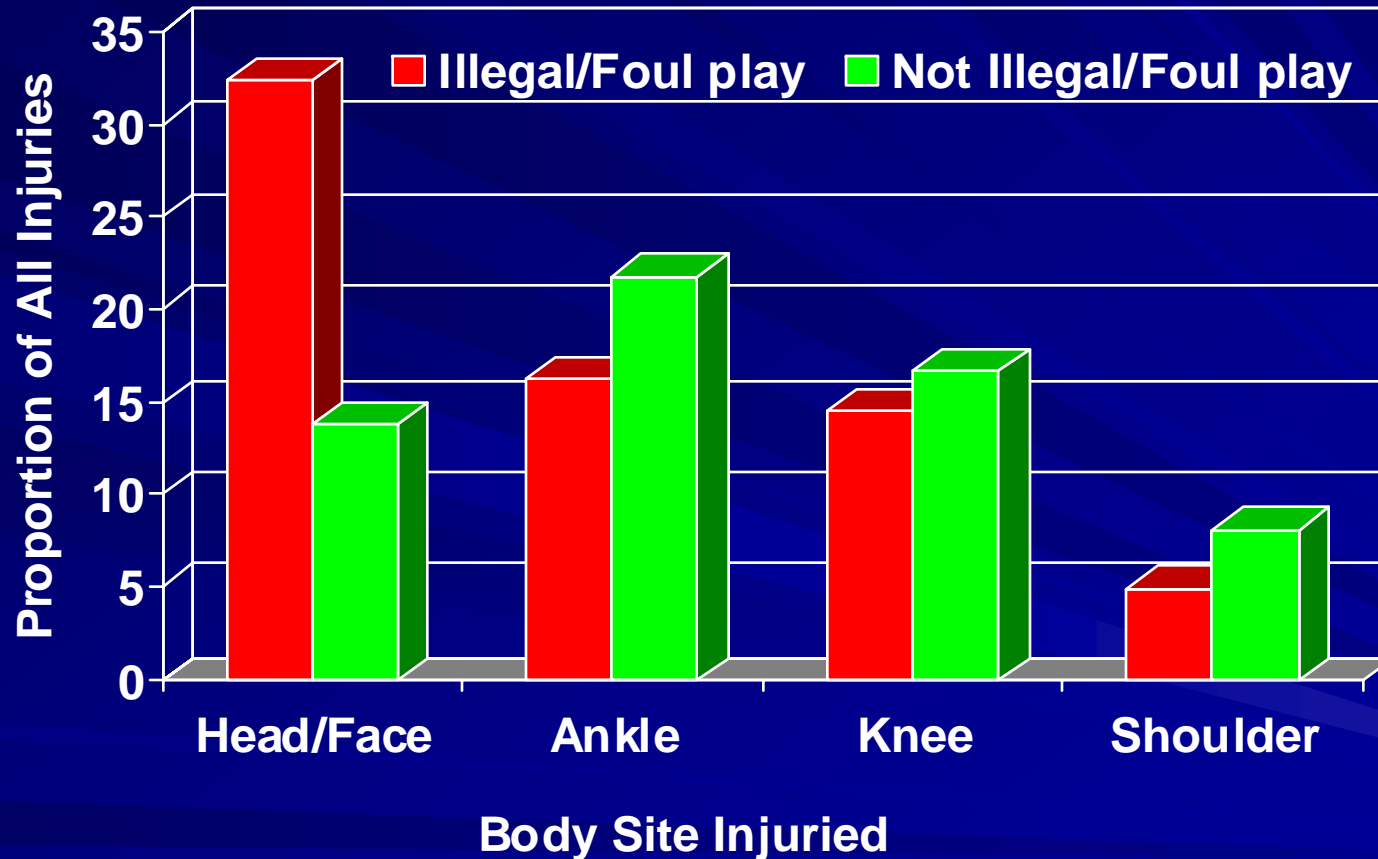
■ Illegal/foul play

- 238 (5.2%)
- Estimated 98,066 nationally
- 0.24 per 1,000 AE
- Girls vs. boys, RR-1.99. 95% CI 1.46-2.71

Rates and Proportions by Sport

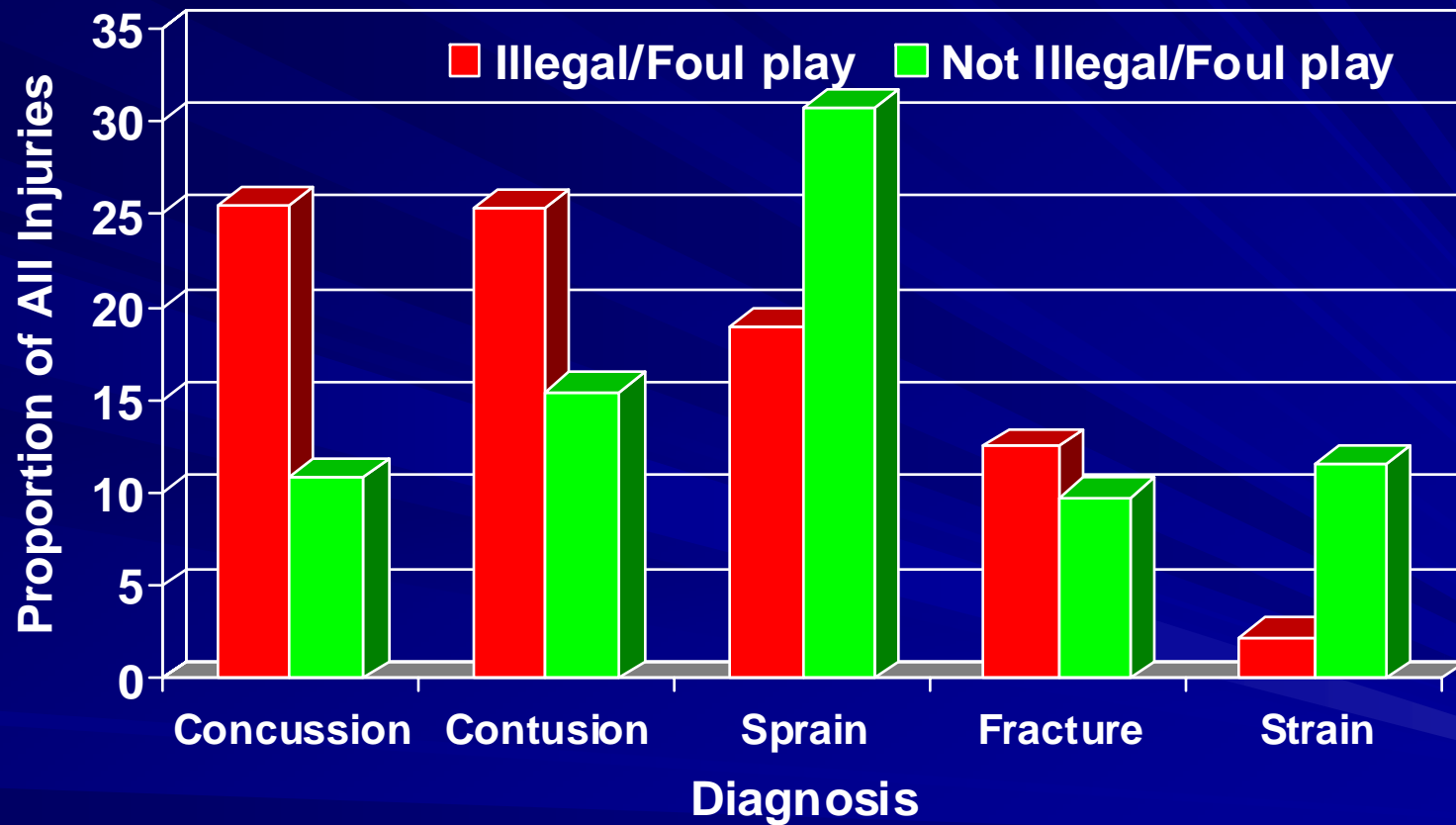
Sport	Rate per 1,000	Proportion
Boys' football	0.23	1.6
Boys' soccer	0.50	11.4
Girls' soccer	0.55	11.9
Girls' volleyball	0.01	1.8
Boys' basketball	0.32	10.3
Girls' basketball	0.36	14.0
Boys' wrestling	0.15	4.8
Boys' baseball	0.07	4.0
Girls' softball	0.01	0.7

Body Site Comparison



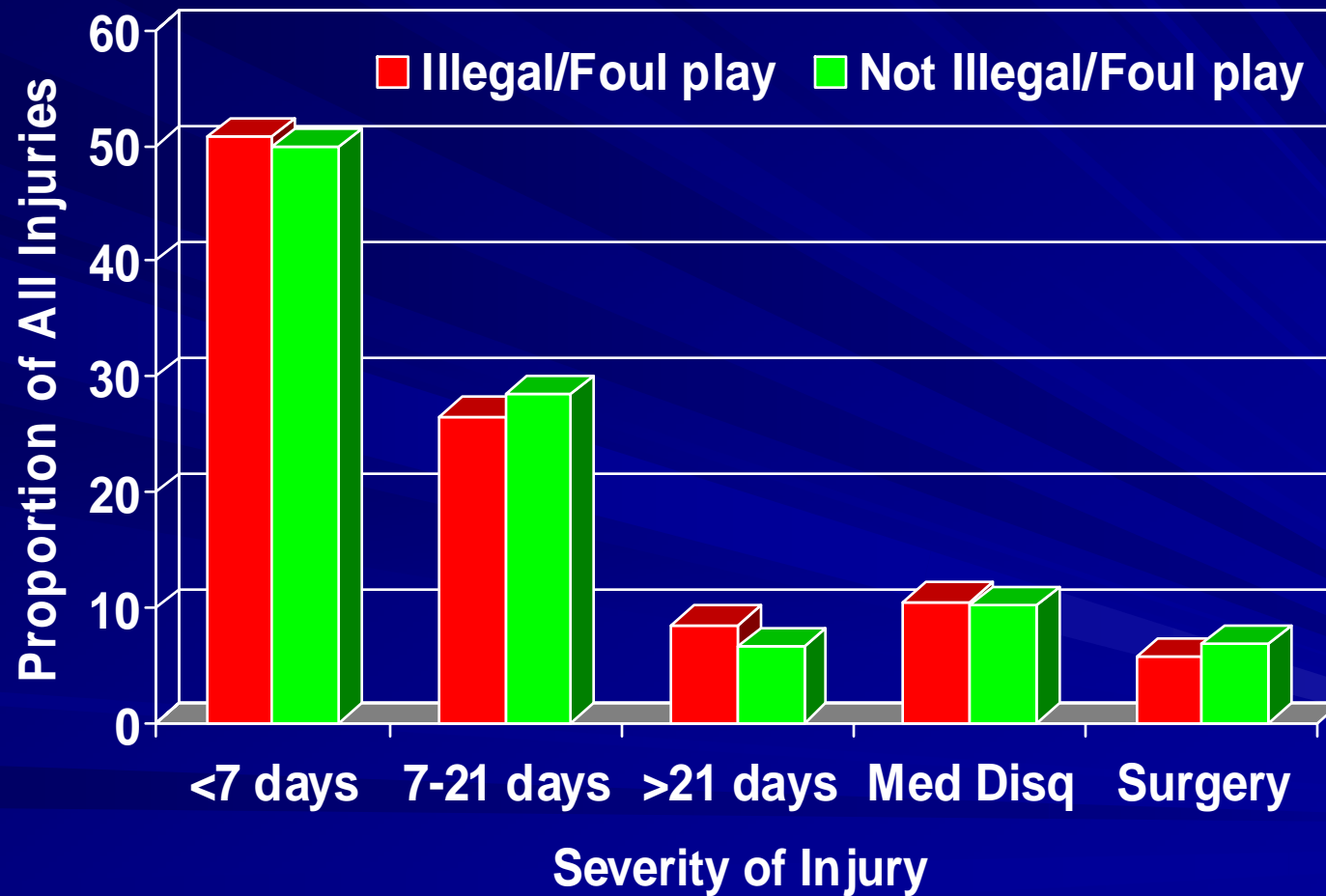
Head/Face IPR=2.35, 95% CI 1.82-3.04

Diagnoses Comparison

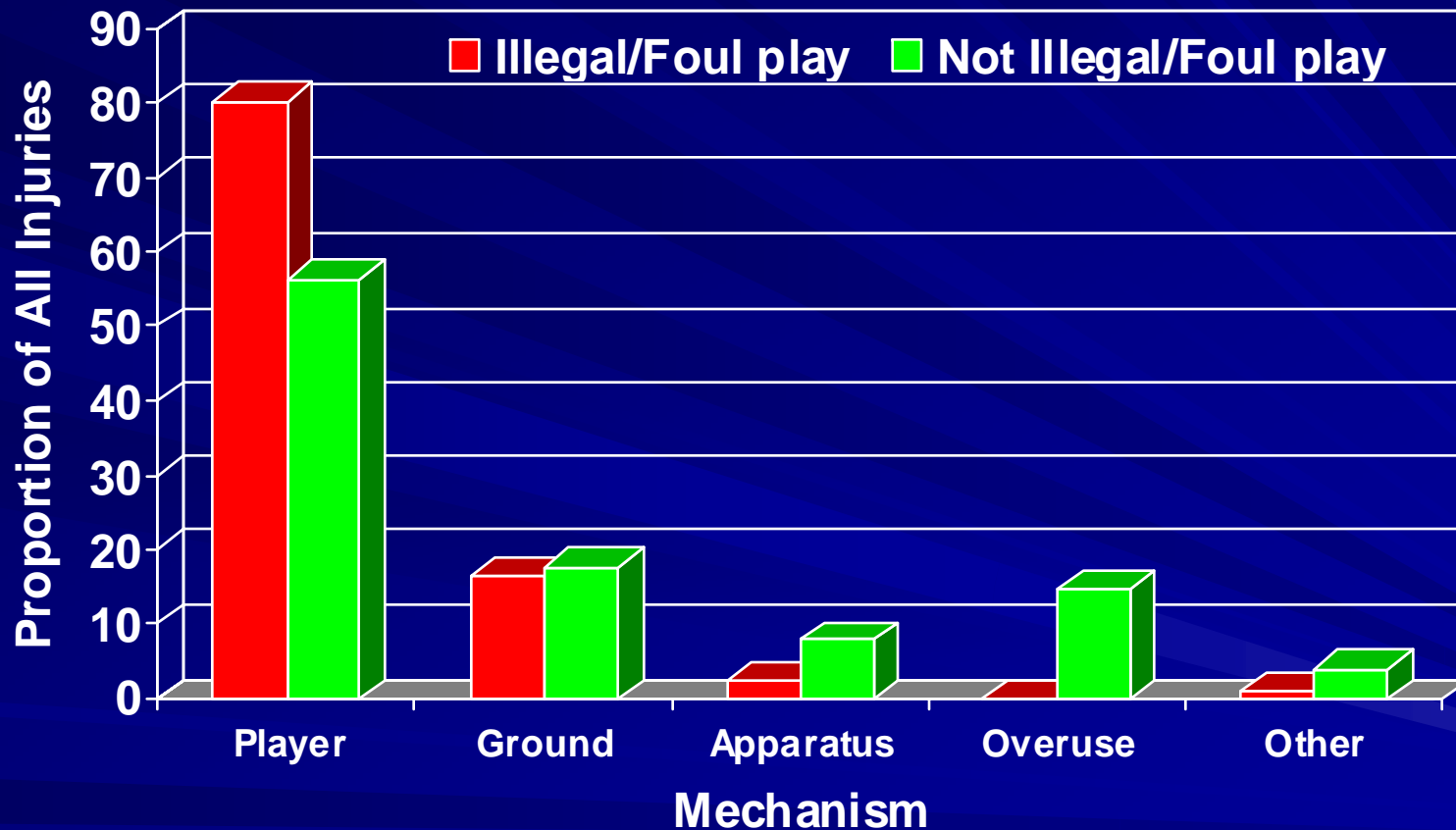


Concussion IPR=2.35, 95% CI 1.71-3.22

Severity Comparison



Mechanism Comparison



Player contact IPR=1.43, 95% CI 1.31-1.56

Limitations

- Inability to differentiate between inadvertent illegal activity and intentional foul play
- Generalizability
 - Only schools with NATA BOC AT eligible
- Underestimation
 - Only time loss injuries captured by AT reported

Injury Prevention

- Injuries attributed to foul play should be largely preventable
- Potential interventions
 - Education about dangers
 - Enhanced enforcement of sports' rules
 - Promotion of fair play/sportsmanship
 - Policies limiting participation

Conclusions

- First nationally representative study of high school sports injuries attributed to illegal activity/foul play
- Illegal activity/foul play is an overlooked risk factor for sports injuries
- Reducing illegal activity/foul play may significantly reduce incidence of concussion
- Well designed cohort studies needed

Acknowledgement and Contacts

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