

1. Int J Inj Contr Saf Promot. 2010 Feb 16:1-8.

Common Game Injury Scenarios in Men's and Women's Lacrosse

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Previous research has found that the location, type and mechanisms of injuries in lacrosse players vary by gender. The patterns and risk factors of injuries in lacrosse players are still not well known. The study population consists of lacrosse players who utilised the accident medical insurance provided to US Lacrosse members. Cluster analysis was used to explore the aetiology of lacrosse-related injuries. Between 2002 and 2006 there were 593 game injuries, 496 in men and 97 in women. There were six clusters of injuries in women and five clusters of injuries in men. Play scenarios resulting in injury differed by the position played. In all the five injury clusters in males, the primary injury mechanism was by contact, either with another player, a stick or a ball. In women, body-to-body and stick-to-body, and no contact were the most common injury mechanisms. In both genders, the majority of injuries occurred during legal play. These results provide a picture of high-risk situations that lead to injuries in male and female lacrosse players. Future efforts should be made to confirm these results through epidemiologic studies. Further research should also address the effectiveness of interventions that could reduce the risk of injury in these situations.

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2. J Athl Train. 2007 Apr-Jun;42(2):262-9.

Descriptive Epidemiology of Collegiate Women's Lacrosse Injuries: National Collegiate Athletic Association Injury Surveillance System, 1988-1989 through 2003-2004

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OBJECTIVE: To review 16 years of National Collegiate Athletic Association injury surveillance data for women's lacrosse and identify potential areas for injury prevention initiatives. **BACKGROUND:** Women's lacrosse is a fast-paced, primarily noncontact sport. Participation in collegiate women's lacrosse almost doubled between the 1988-1989 and 2003-2004 seasons. Lacrosse equipment consists of sticks made of wood or a synthetic material and a hard rubber ball. Until recently, mouth guards were the only required protective equipment.

MAIN RESULTS:

Collegiate women's lacrosse game injury rates increased over the 16-year study period. More than 60% of all severe game injuries were lower extremity sprains and strains and knee internal derangements, most frequently the result of noncontact incidents. The most common injury scenarios by injury mechanism and player activity were no contact while ball handling (16.4%) and contact from a stick while ball handling (10.5%). Contact from a stick or a ball accounted for 5.6% and 5.2% of injuries sustained during shooting activities, respectively. Approximately 22% of all game and 12% of all practice injuries involved the head and neck. Contact from a stick accounted for the majority (56.0%) of above-the-neck injuries in games; contact from the ball accounted for 20.0% of these injuries. Participants had 5 times the risk of sustaining a concussion in a game as in a practice (0.70 versus 0.15 injuries per 1000 athletic-exposures, rate ratio = 4.7, 95% confidence interval = 3.8, 6.5).

RECOMMENDATIONS: To reduce the lower extremity injuries that comprise the greatest injury burden in women's lacrosse, future researchers should evaluate proprioceptive, plyometric, and balance training interventions designed specifically for female players. Other research areas of great interest involve determining whether protective eyewear (mandated in 2004) reduces injuries to the eye, orbit, and nasal area and identifying any unintended consequences of the mandate, such as increased risk of injuries to other areas of the face or more aggressive play.

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3. J Athl Train. 2007 Apr-Jun;42(2):255-61.

Descriptive Epidemiology of Collegiate Men's Lacrosse Injuries: National Collegiate Athletic Association Injury Surveillance System, 1988-1989 through 2003-2004

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OBJECTIVE: To review 16 years of National Collegiate Athletic Association (NCAA) injury surveillance data for men's lacrosse and identify potential areas for injury prevention initiatives.

BACKGROUND: During the sample period, the number of sponsoring institutions and the number of participants in men's college lacrosse grew significantly. Overall, an average of 18% of NCAA institutions participated in the annual NCAA Injury Surveillance System data collection for this sport.

MAIN RESULTS: Over the sample period, athletes were almost 4 times more likely to sustain injuries in games than in practices (12.58 versus 3.24 injuries per 1000 athlete-exposures [A-Es], rate ratio = 3.9, 95% confidence interval = 3.7, 4.1). Approximately half of all game (48.1%) and practice (58.7%) injuries were to the lower extremity, followed by the upper extremity (26.2% in games, 16.9% in practices), and the head and neck (11.7% in games, 6.2% in practices). In games and practices, the most common injuries were ankle ligament sprains (11.3% and 16.4%, respectively). The disparity among preseason, regular-season, and postseason injuries may be due to athlete acclimatization to the rigors of the sport throughout the season. Changes in helmet design may account for the rise in the concussion rate since the 1995-1996 season.

RECOMMENDATIONS: We recommend research into the mechanism of head injuries and the implications of design changes to protective helmets, as well as further investigation of the best designs for shoulder and chest protection.

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4. Am J Sports Med. 2007 Feb;35(2):207-15. Epub 2007 Jan 4.

Head, Face, and Eye Injuries in Scholastic and Collegiate Lacrosse: A 4-Year Prospective Study

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BACKGROUND: Risks and mechanisms of head, face, and eye injuries in high school and college lacrosse are not well documented. **PURPOSE:** To identify (1) primary mechanisms of head, face, and eye injuries in lacrosse and (2) differences in injury risk between the men's and women's game and between high school and collegiate levels.

STUDY DESIGN: Descriptive epidemiological study.

METHODS: The authors gathered data on 507,000 girls' and boys' high school and 649,573 women's and men's college lacrosse athletic exposures using sport-specific injury surveillance systems over 4 seasons. They identified the most common scenarios for head, face, and eye injuries.

RESULTS: The high school girls' head, face, and eye injury rate (0.54 per 1000 athletic exposures) was significantly higher (incident rate ratio, 1.42; 95% confidence interval, 1.09-1.86) than that for boys (0.38 per 1000 athletic exposures); college women (0.77 per 1000 athletic exposures) sustained a higher rate of injuries (incident rate ratio, 1.76; 95% confidence interval, 1.42-2.19) than did men (0.44 per 1000 athletic exposures). Concussions constituted a higher percentage of injuries among boys (73%) and men (85%) than among girls (40%) and women (41%). Men sustained few facial injuries, whereas a substantial proportion of women's injuries involved the face and orbital area.

CONCLUSION: Although permitting only incidental contact, women's lacrosse had higher rates of head, face, and eye injuries at both the high school and collegiate levels. Concussion was the most common injury. For men, the primary injury mechanism was player-to-player contact; women's injuries primarily resulted from stick or ball contact. High school injury rates were lower than were college rates, but the nature of injuries, body parts affected, and mechanisms were similar.

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5. Am J Sports Med. 2005 Sep;33(9):1305-14. Epub 2005 Jul 6.

Epidemiology of Lacrosse Injuries in High School-Aged Girls and Boys: A 3-Year Prospective Study

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OBJECTIVE: To report the types, mechanisms, and circumstances of lacrosse injuries incurred by high school-aged girls and boys during organized interscholastic and summer camp games.

STUDY DESIGN: Descriptive epidemiology study.

METHODS: For 3 years, the authors gathered data on girls' and boys' lacrosse injuries for 359 040 high school and 28 318 summer camp athletic exposures using a lacrosse-specific computerized injury surveillance system. The most prevalent injuries were organized into multifactorial injury scenarios.

RESULTS: In high school play, the injury rate for adolescent boys (2.89 per 1000 athletic exposures) was slightly higher than that for girls (2.54 per 1000 athletic exposures) (incidence rate ratio = 1.14; 95% confidence interval, 1.00-1.30). The most prevalent injuries for adolescent girls and boys were knee and ankle sprains resulting from noncontact mechanisms. Male players had significantly higher rates of shoulder, neck, trunk, and back injuries and higher game-to-practice injury ratios. In addition, they had higher rates of concussive events from player-to-player contact. Female players had higher rates of overall head injuries, many involving contusions and abrasions from stick and ball contact.

CONCLUSIONS: The overall injury rates for boys' and girls' high school lacrosse were significantly lower than those for collegiate play. Significant differences existed between adolescent boys and girls with respect to injury mechanisms, body parts injured, and player and team activity at the time of injury.

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