

# Men's Lacrosse Injuries in the 2018 International World Championship Play

Sarah Cheney,<sup>\*†</sup> BS, Ellen Casey,<sup>‡</sup> MD, Zafir Abutalib,<sup>‡</sup> MHS, Kenneth B. Tepper,<sup>§</sup> MD, Reuven Dressler,<sup>||¶</sup> MD, MPH, and Karen Michelle Sutton,<sup>#</sup> MD

*Investigation performed at the Hospital for Special Surgery, New York, New York, USA*

**Background:** Limited data exist on injuries in men's lacrosse at the international level. As lacrosse's popularity grows rapidly across the globe, health care providers must understand how to treat lacrosse athletes.

**Purpose:** To analyze injury data from the 2018 Men's World Lacrosse Championship.

**Study Design:** Descriptive epidemiology study.

**Methods:** This study prospectively observed injuries that occurred during the 2018 Men's World Lacrosse Championship. The medical staff of each team completed injury report forms, and data were categorized into body part injury, type, mechanism, time, and location of injury.

**Results:** Over 11 days, 1019 athletes competed in 170 games, resulting in a total of 7147 athlete-exposures (AEs). A total of 140 injuries were recorded during the tournament for an injury rate of 19.6 per 1000 AEs (95% CI, 16.4-22.7). Overall, there were more contact injuries ( $n = 99$ ; 70.7%) than noncontact injuries ( $n = 41$ ; 29.3%) ( $P < .0001$ ). Contact injuries most commonly affected the upper extremity, while noncontact injuries most commonly affected the lower extremity. Contusions were the most commonly reported injury type in the tournament ( $n = 41$ ; 29.3%), followed by ligament sprains ( $n = 32$ ; 22.9%) and muscle strains ( $n = 21$ ; 15.0%). Although there was no difference between the first and second half of gameplay, the injury rate increased in the latter portion of each half (the first and third quarters vs the second and fourth quarters) ( $P < .0001$ ). A total of 4 injuries required trips to the hospital.

**Conclusion:** Lacrosse has a unique injury profile, as it includes both overhead and collision activity as well as multidirectional, cutting movements. Understanding common injury patterns may help with treatment and prevention. Fatigue may play a role in injury rate, and future research of within-game and within-tournament fatigue should explore this relationship.

**Keywords:** lacrosse; epidemiology; injury prevention; general sports trauma; medical aspects of sports

Men's lacrosse is one of the most rapidly growing sports in popularity and access at all age levels, including on the international stage. Since 2001, lacrosse participation has increased 227% within the United States.<sup>19</sup> The expansion of youth programs allows more players to start the game at a younger age, while collegiate and international teams are growing the sport throughout the country and around the world. In the summer of 2018, the Federation of International Lacrosse (FIL), now World Lacrosse, held the Men's World Lacrosse Championship in Israel in the most widely viewable lacrosse event to date.<sup>1</sup> A total of 46 countries competed in these games, compared with just 5 teams in 1990 and 29 teams in 2010.<sup>1,21</sup> Additionally, in 2018, the FIL received a provisional recognition status from the International Olympic Committee (IOC).<sup>16</sup> The current IOC recognition does not guarantee lacrosse a place at the Olympic Games but is a major step toward achieving this goal. This significant milestone will help to create

opportunities in lacrosse around the world. Given the rapid rise in the worldwide participation, and with many nations developing teams, an increased understanding of the injuries that occur in this fast-paced, collision sport is imperative for treating lacrosse athletes.

It is necessary to understand the injury profile to provide better safety for the lacrosse athlete and anticipate medical needs. Currently, there are limited data on the type and mechanism of injury in men's lacrosse.<sup>3</sup> Further, injury reporting has been focused primarily on the youth,<sup>13,15</sup> high school,<sup>11,23</sup> and collegiate levels.<sup>4,6,8-10,12,14,17,20</sup> Only 1 other study analyzed men's lacrosse injuries at the professional level.<sup>21</sup> Men's lacrosse uniquely exposes athletes to injuries associated with overhead sports, collision sports, and sports utilizing handheld equipment (sticks).<sup>9</sup> Observing and analyzing common injuries in men's lacrosse at the elite level will help to guide officiating and safety as well as proper medical staffing and emergency protocols at major international events.

The aim of this study is to provide an updated analysis of injury surveillance data from the 2018 Men's Lacrosse World Championship to reflect the growth and evolution

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of the sport at the international level. The men's world championship has a unique format, requiring the teams to play multiple games over an 11-day period, with a small roster size of 23 players. The data presented here will highlight potential injury patterns at this level and play schedules in order to better inform injury prevention measures, including performance training, equipment modification, rule changes, and event planning.

## METHODS

### Data Collection

Injuries sustained during the gameplay of the 2018 Men's World Lacrosse Championship were prospectively recorded using a standardized lacrosse injury reporting form (Appendix Figure A1). A reportable injury was defined as one that resulted in the removal of the player from the game and required medical attention by a team athletic trainer or physician. After a reportable injury, the player may have returned to gameplay immediately or could have had restricted participation pending further evaluation. Injuries that occurred during training sessions or warm-ups were not consistently recorded and therefore excluded from the data set.

The medical staff for each of the 46 teams submitted a standardized lacrosse injury reporting form at the end of each game. The data collected included information about the player as well as the type and mechanism of injury, the field location, and the game segment in which the injury occurred. The injury forms were returned to the research team for data analysis. Within the data provided by the injury form, there was no category regarding injury severity. However, in this paper, we have commented on the specific injuries that required hospital evaluation.

### Statistical Methods

Injury rate was calculated by dividing the total number of reported injuries by the total number of athlete-exposures (AEs) over the course of the tournament. An AE was defined as any single player participating in any single game. The number of games played for each roster member was recorded on the tournament's official website rosters. The injury rate was standardized to the number of injuries per 1000 AEs in order to effectively compare the injury rate

with other studies. The 95% CIs were calculated for the injury rates based on the assumptions of a normal approximation to a Poisson distribution.

Further analysis described the type and mechanism of injury and the body region injured. Continuous variables are reported as means and standard deviations, while discrete variables are reported as frequencies and percentages in the descriptive analysis. Comparison among groups of discrete variables were evaluated using the Fisher exact test. Statistical significance was defined as  $P \leq .05$ . All analyses were completed using Microsoft Excel and Stata, Version 14.2 (StataCorp).

## RESULTS

A total of 1019 athletes competed in 170 games over 11 days, resulting in a total of 7147 AEs. Each team played between 6 and 8 games, depending on their advancement in the tournament. Players who did not participate in the gameplay or suffered any tournament-ending injuries were excluded. Medical staff recorded data for a total of 140 injuries during the tournament for an injury rate of 19.6 per 1000 AEs (95% CI, 16.4-22.7). Of all reported injuries, only 10 were associated with a penalty. No correlation was observed between a team's experience in international play and rate of injury nor between final standing and rate of injury.

### Mechanism of Injury

Overall, there were significantly more contact injuries ( $n = 99$ ; 70.7%) than noncontact injuries ( $n = 41$ ; 29.3%) ( $P < .0001$ ). Contact injuries were further differentiated as a result of impact with a player ( $n = 39$ ; 39.3%), stick ( $n = 23$ ; 23.2%), ground ( $n = 17$ ; 17.1%), the ball ( $n = 9$ ; 9.1%), or the goal/equipment ( $n = 3$ ; 3.0%).

As shown in Table 1, the majority of injuries occurred while running forward ( $n = 67$ ) or changing direction (cutting/dodging) ( $n = 26$ ). Noncontact injuries were significantly associated with cutting/dodging ( $P = .002$ ).

### Type of Injury

Contusions were the most commonly reported injury type in the tournament ( $n = 41$ ; 29.3%), followed by ligament sprains ( $n = 32$ ; 22.9%) and muscle strains ( $n = 21$ ; 15%). As shown in Table 2, contusions were almost always the

\*Address correspondence to Sarah Cheney, BS, Georgetown University School of Medicine, 1816 S Street, Northwest Washington, Washington, DC, 20009 (email: sarahcheney4@gmail.com).

†Georgetown University School of Medicine, Washington, District of Columbia, USA.

‡Hospital for Special Surgery, New York, New York, USA.

§MedStar Orthopaedic Institute, Baltimore, Maryland, USA.

||Clalit Health Services, Yahalom-Maale Adumim Medical Center, Maale Adumim, Israel.

¶Hadassah Hospital, Department of Family Medicine, Jerusalem, Israel.

#Hospital for Special Surgery/Cornell Medical Center Program, New York, New York, USA.

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Ethical approval for this study was obtained from the Hospital for Special Surgery (study No. 2018-1836).

TABLE 1  
Mechanism of Injury<sup>a</sup>

| Sport-Specific Movement | Noncontact Injury (n = 41) | Contact Injury (n = 99) | P Value     |
|-------------------------|----------------------------|-------------------------|-------------|
| Stationary              | 3 (7.3)                    | 10 (10.1)               | .76         |
| Running forward         | 15 (36.6)                  | 52 (52.5)               | .097        |
| Backpedaling            | 2 (4.9)                    | 5 (5.1)                 | >.99        |
| Cutting/dodging         | <b>16 (39)</b>             | <b>10 (10.1)</b>        | <b>.002</b> |
| Jumping                 | 0 (0)                      | 3 (3)                   | .56         |
| Shooting                | 1 (2.4)                    | 0 (0)                   | .29         |
| Defending               | 0 (0)                      | 1 (1)                   | >.99        |
| Riding                  | 0 (0)                      | 1 (1)                   | >.99        |
| Body check              | 0 (0)                      | 1 (1)                   | >.99        |
| Throwing check          | 0 (0)                      | 1 (1)                   | >.99        |
| Face-off                | 0 (0)                      | 1 (1)                   | >.99        |
| Goalie                  | 0 (0)                      | 1 (1)                   | .52         |
| Ground ball             | 1 (2.4)                    | 1 (1)                   | .50         |
| Other                   | 3 (7.3)                    | 1 (1)                   | .075        |
| Unspecified             | 0 (0)                      | 11 (11.1)               |             |

<sup>a</sup>Data are reported as n (%). Bolded text indicates a statistically significant difference ( $P < .05$ ; Fisher exact test).

TABLE 2  
Type of Injury<sup>a</sup>

| Injury Type            | Noncontact Injury (n = 41) | Contact Injury (n = 99) | P Value         |
|------------------------|----------------------------|-------------------------|-----------------|
| Contusion              | <b>2 (4.9)</b>             | <b>39 (39.4)</b>        | <b>&lt;.001</b> |
| Strain                 | <b>11 (26.8)</b>           | <b>10 (10.1)</b>        | <b>.018</b>     |
| Sprain                 | 13 (31.7)                  | 19 (19.2)               | .12             |
| Muscle stiffness/spasm | 0 (0)                      | 1 (1)                   | >.99            |
| Concussion             | 0 (0)                      | 3 (3)                   | .56             |
| Head and neck          | 0 (0)                      | 2 (2)                   | >.99            |
| Laceration             | 1 (2.4)                    | 2 (2)                   | >.99            |
| Joint dysfunction      | 1 (2.4)                    | 2 (2)                   | >.99            |
| Fracture               | 0 (0)                      | 5 (5.1)                 | .32             |
| Dislocation            | 0 (0)                      | 1 (1)                   | >.99            |
| Abrasion               | 0 (0)                      | 2 (2)                   | >.99            |
| Illness                | 2 (4.9)                    | 2 (2)                   | .58             |
| Other                  | <b>9 (21.6)</b>            | <b>6 (6)</b>            | <b>.013</b>     |
| Unspecified            | 2 (4.9)                    | 5 (5.1)                 |                 |

<sup>a</sup>Data are reported as n (%). Bolded text indicates a statistically significant difference ( $P < .05$ ; Fisher exact test).

result of contact injury ( $P < .001$ ). Most of contusions were caused by impact with a stick (n = 17; 43.6%), followed by impact with a player (n = 11; 28.2%) and impact with the ball (n = 9; 23.1%). Strains were more commonly the result of noncontact injury ( $P = .018$ ).

### Body Part Injured

The most commonly injured region of the body was the lower limb, accounting for almost half of the total injuries (n = 66; 47.1%). Notably, the head and neck region sustained a total of 21 injuries (15.0%). The knee sustained the

TABLE 3  
Contact and Noncontact Injuries by Body Region

| Body Part and Region | Noncontact Injury (n = 41) | Contact Injury (n = 99) | P Value     |
|----------------------|----------------------------|-------------------------|-------------|
| Lower limb           | 35 (85.4)                  | 31 (31.3)               | .45         |
| Hip/groin/pelvis     | 2 (5.7)                    | 1 (3.2)                 | .21         |
| Upper leg            | 7 (20)                     | 6 (19.4)                | .055        |
| Knee                 | <b>13 (37.1)</b>           | <b>9 (29)</b>           | <b>.002</b> |
| Lower leg            | <b>6 (17.1)</b>            | <b>3 (9.7)</b>          | <b>.019</b> |
| Ankle                | 7 (20)                     | 9 (29)                  | .24         |
| Foot                 | 0 (0)                      | 3 (9.7)                 | .56         |
| Upper limb           | 1 (2.4)                    | 29 (29.3)               | .23         |
| Shoulder             | <b>0 (0)</b>               | <b>13 (44.8)</b>        | <b>.011</b> |
| Upper arm            | 1 (100)                    | 1 (3.4)                 | .5          |
| Elbow                | 0 (0)                      | 1 (3.4)                 | >.99        |
| Forearm              | 0 (0)                      | 2 (6.9)                 | >.99        |
| Wrist                | 0 (0)                      | 7 (24.1)                | .11         |
| Hand                 | 0 (0)                      | 3 (10.3)                | .56         |
| Thumb/fingers        | 0 (0)                      | 2 (6.9)                 | >.99        |
| Head and neck        | 1 (2.4)                    | 20 (20.2)               | .67         |
| Head                 | 1 (100)                    | 5 (25)                  | .67         |
| Face                 | 0 (0)                      | 4 (20)                  | .32         |
| Mouth/teeth          | 0 (0)                      | 4 (20)                  | .32         |
| Neck                 | 0 (0)                      | 7 (35)                  | .11         |
| Trunk and back       | 1 (2.4)                    | 15 (15.1)               | .13         |
| Back/spine           | 0 (0)                      | 5 (33.3)                | .32         |
| Chest/ribs           | 0 (0)                      | 9 (60)                  | .058        |
| Abdominal            | 1 (100)                    | 1 (6.7)                 | .5          |
| Unspecified          | 3 (7.3)                    | 4 (4)                   |             |

<sup>a</sup>Data are reported as n (%). Bolded text indicates a statistically significant difference ( $P < .05$ ; Fisher exact test).

most injuries of any specific joint (n = 22; 15.7% of total), followed by the ankle (n = 16; 11.4% of total), the shoulder, and the upper leg (n = 13; 9.3% each of total). Contact and noncontact injuries are broken down by body part in Table 3. Number of injuries by body region are shown in Figure 1.

The shoulder was the most common site of contact injury, which usually occurs from contact with another player (n = 8) or contact with the ground (n = 4). The lower limb was the only region of the body that had a greater percentage of noncontact (n = 35; 85.4%) than contact injuries (n = 29; 29.3%). In contrast, contact injuries were more evenly distributed across body regions (Figure 2).

### Time and Place of Injury

The highest number of injuries occurred in the fourth quarter (n = 48; 34.3%) (Table 4). The rate of injury approximately doubled in the second segment of each game half (18 in the first quarter vs 42 in the second quarter; 27 in the third quarter vs 48 in the fourth quarter). Although there was no difference between the first and second half of game-play, injury rate increased in the latter portion of each half ( $P < .0001$ ). Specifically, there was a statistically significant difference in the injury rate of the first and third quarters as compared with the second and fourth quarters.

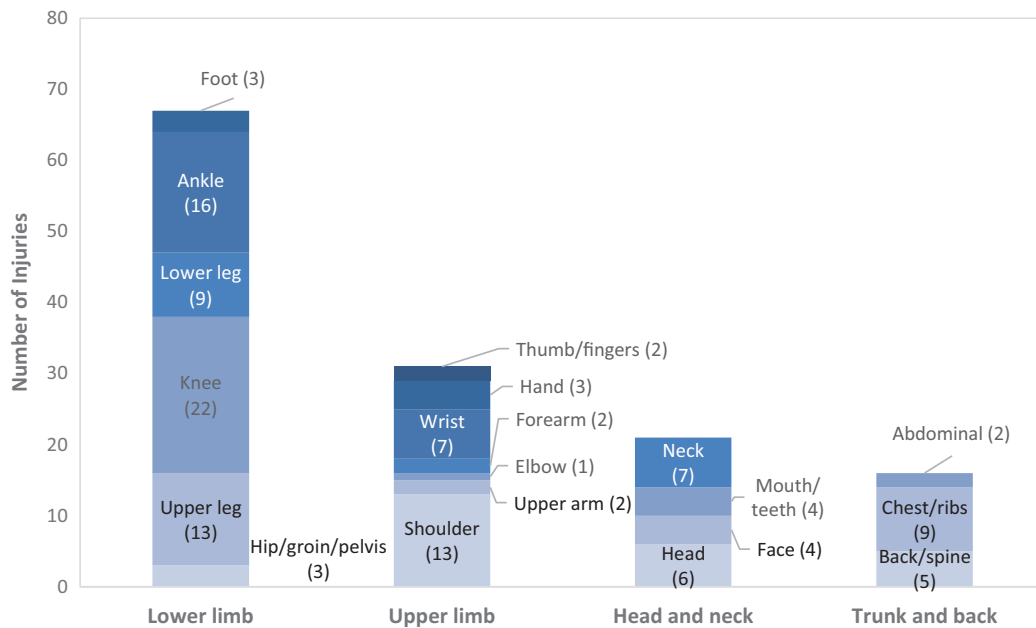


Figure 1. Number of injuries by body region.

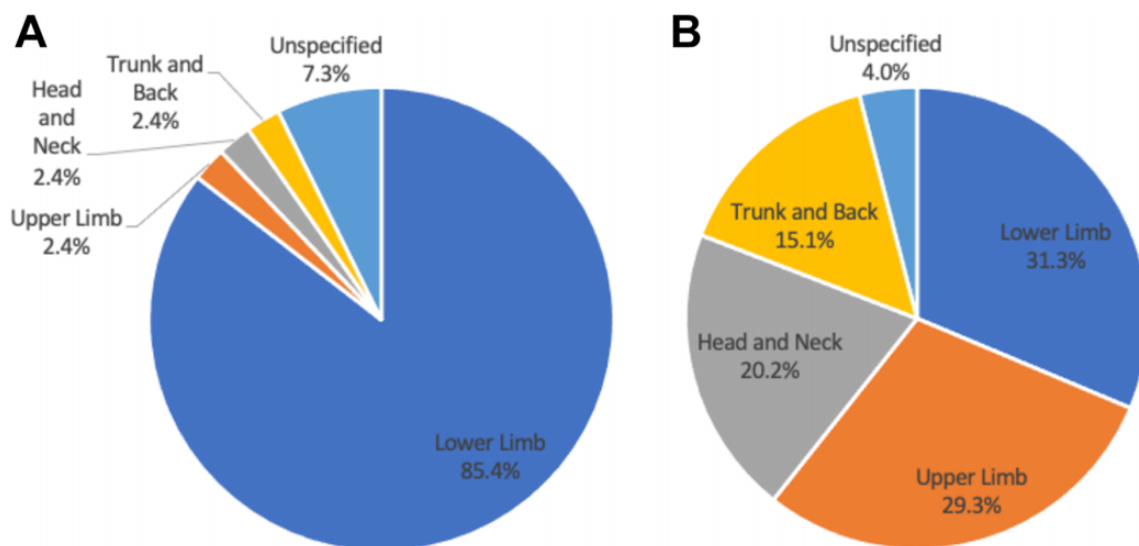


Figure 2. Percentage of (A) noncontact and (B) contact injuries by body region.

TABLE 4  
Injuries by Game Segment

| Game segment   | Injuries, n (%) |
|----------------|-----------------|
| First quarter  | 18 (12.9)       |
| Second quarter | 42 (30)         |
| Third quarter  | 27 (19.3)       |
| Fourth quarter | 48 (34.3)       |
| Postgame       | 1 (0.7)         |
| Scrimmage      | 1 (0.7)         |

Injuries were spread across the field, with 41 (29.3%) reported in the defensive third, 36 (25.7%) in the attacking third, and 34 (24.3%) in the midfield. Injuries rates among attackers (n = 42; 30%), midfielders (n = 44; 31.4%), and defenders (n = 46; 32.9%) were similar and all were greater than that of goalies (n = 7; 5.0%).

#### Hospitalizations

A number of serious injuries took place during the tournament, including 3 concussions, 1 shoulder subluxation, 2 shoulder dislocations, and 1 clavicle fracture. In total,

5 players required trips to the hospital: 2 shoulder dislocations, 1 thumb sprain requiring a radiograph, 1 clavicle fracture that required surgery, and 1 player who had heat stroke. While there were no follow-up data on the first 3 players, the clavicle fracture was operated on in Israel, and the player with heat stroke was taken to the emergency department, given intravenous fluids, and kept overnight.

## DISCUSSION

The total injury rate at this international lacrosse tournament (19.6/1000 AEs) was higher than in previously reported injury rates at the high school (2.12/1000 AEs) and collegiate levels (4.83/1000 AEs).<sup>17</sup> The men's World Lacrosse injury rate is also higher than that of a combined 15 collegiate sport rate of 13.8 injuries/1000 AEs.<sup>12</sup> The only other previous injury data of international lacrosse reported an injury rate of 39.5 injuries per 1000 hours of play.<sup>21</sup> However, we did not have the available data to calculate hours of play and could not make a direct comparison with this injury rate. That said, both the 2018 and the 2010 world championship reported contusions, sprains, and strains as the most common types of injury.<sup>21</sup>

It is not clear why international play would have an increased injury rate; however, a large number of games condensed over a short time in tournament play likely contributes to the increased injury rate. Additionally, it is important to note that the 2018 tournament took place in Netanya, Israel, in the middle of July where the temperature hovered around 86°F to 90°F. Previous World Lacrosse championship tournaments took place in the United Kingdom (2010) and United States (Denver, Colorado) (2014), in more moderate climates. The medical staff at the 2018 tournament regularly referred to heat and their concern for dehydration, fatigue, and even heat stroke, as evidenced by the hospitalization of 1 player. The heat may play a significant role in international lacrosse both because of the added padding and helmets worn by the players and because of the relatively small rosters. At 23 players per team, international teams are much smaller than the National Collegiate Athletic Association standards.

Contact injuries were more common than noncontact injuries during the world championship. While most contact injuries occurred in the upper extremity, specifically the shoulder, most noncontact injuries occurred in the lower extremity. Contact injuries to the shoulder resulted in contusions, joint dislocations, and fractures, while noncontact injuries to the knee and the ankle were most often ligament strains or sprains. Unsurprisingly, in this multidirectional, lateral pivoting sport, noncontact injuries were associated with a cutting/dodging movement (Table 1). As lacrosse is both a fast-paced running and a collision sport, we must be aware of the different risks to injury at the upper and lower extremity in lacrosse athletes. It is important to understand these specific injury patterns in the context of event preparedness to ensure that proper medical personnel (trained in joint reduction, etc) and equipment (immobilizers, etc) are available on-site.

Each game consisted of four 20-minute running quarters. Only 2 to 3 minutes separated quarters 1 and 2 and quarters 3 and 4, which was just enough for the teams to switch sides, with a 10-minute break at halftime. We found a statistically significant increase in injury rate from the earlier segment of a game half (the first and third quarters) to the latter segment of a game half (the second and fourth quarters), with injuries nearly doubling in the latter segment of each. In the first and third quarters, players are coming off of an extended break such that the injury increase may be the result of increasing fatigue as the game progresses. It is widely accepted that fatigue has an effect on kinematics in endurance athletes, including parameters such as movement pattern, loading, and landing. Previous literature investigating competition segment has shown that there may be an association between fatigue and increased rate of injury. A study by Anderson et al<sup>2</sup> on anterior cruciate ligament (ACL) injuries in lacrosse, basketball, and soccer found that injury incidence was greater before halftime in the early part of a regular season but was greater after halftime later in the season. Conversely, Doyle et al<sup>7</sup> found no difference between the first half and second half ACL, groin, and hamstring injuries. These studies distinguished only between first half and second half injuries, highlighting the need for more precise reporting of timing of injury in gameplay, as we have done here. Consistent with our findings, de Noronha et al,<sup>5</sup> in a systematic review of soccer players, concluded that ankle injuries were more likely to occur in the second half or in the latter minutes of the first half.<sup>5</sup> The high intensity and long duration of lacrosse and similar sports such as basketball, soccer, and rugby may exacerbate fatigue-related changes in kinematics and put an athlete at increased risk of injury. At this point, this explanation may be speculative; thus, further investigation is required, including more precise reporting of timing of injury and perhaps minutes played by the athlete to more accurately determine fatigue.

Regarding contact injuries in a collision sport like lacrosse, as athletes become increasingly fatigued, they may be less disciplined with their hits to other players, causing more serious harm, or they may be less stable in their positioning and therefore less likely to protect themselves from opponents. Any combination of these elements may make the second and fourth quarters more dangerous for athletes. If this is the case, officials may be inclined to make stricter calls during latter game segments to ensure the safety of the athletes. These patterns may guide half-time protocols, substitution patterns, or sideline recovery during competition.

In addition to within-game fatigue, long-term exertion may play a role. Tournament play is unique, with athletes playing many games in a very short amount of time. Solis-Mencia et al<sup>18</sup> studied rugby international championships and found that injury rate was higher when players had fewer days of rest between matches. While we did not track injuries by day of tournament, future research should observe injury rates over the course of tournament play to explore the impact of long-term fatigue. Given the large number of noncontact injuries, it is recommended that

injury prevention strategies be implemented for all teams, specifically targeting the lower extremity.

It is important to highlight the serious injuries that took place in the tournament and required further care at the hospital. The injury profile of this tournament indicates that the medical staff on-site should receive training in joint reduction and concussion diagnosis. World Lacrosse has developed its own concussion evaluation protocol, including the use of Sport Concussion Assessment Tool 5, and is working to expand the awareness of the serious consequences of concussion.<sup>22</sup>

### Limitations

Although the 2018 Men's World Lacrosse Championship was an international level of play, a diverse group of athletes ranging from amateurs to professionals participated. This discrepancy in skill and conditioning among world teams may pose a risk to the athletes on less experienced teams. However, there was no significant correlation between the teams' experience and injury rate observed in this study.

The major limitations to the current data set are attributable to recall bias and reporting bias. Injury forms were completed by the medical staff of each team at the completion of each game, and it is possible that, for example, an injury from earlier in the game was inaccurately documented or specific parameters were omitted. Additionally, due to the busy nature of a tournament environment, it is possible that certain injuries went unreported altogether. Lack of follow-up data, specific diagnoses, or other specifically desired parameters led to exclusion in the premade injury reporting form.

Due to the severe heat, games played at certain times of the day may have had altered time schedules. For example, extended or additional water breaks may have been added depending on the Wet Bulb Globe Temperature. This variability was not documented in our injury reporting, and thus, we could not determine how it might have affected the timing of injuries.

At future tournaments, it may be helpful to have a designated researcher or staff member who can document details of each injury in real time and provide follow-ups for those athletes who did not immediately return to play after being injured. A more detailed history of the injury may include specific timing within the game, the minutes played by that particular player, the day of the tournament, and more. While this study was able to compare injury rate with a number of studies at the youth and collegiate levels, reporting overall injury rates in terms of 1000 player-hours would allow for comparison with other studies of international sports. Further, it would be beneficial to compare injury rates with women's lacrosse, in which helmets are not mandatory and contact is much more restricted, but there are currently insufficient data from the women's game.

### CONCLUSION

Lacrosse has a unique injury profile, as it includes both overhead and collision activity as well as multidirectional,

cutting movements. Understanding common injury patterns may help with treatment and prevention. Fatigue may play a role in injury rate, and future research of within game and within tournament fatigue should explore this relationship.

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APPENDIX



# FIL INJURY FORM

## 2018 Men's World Championship



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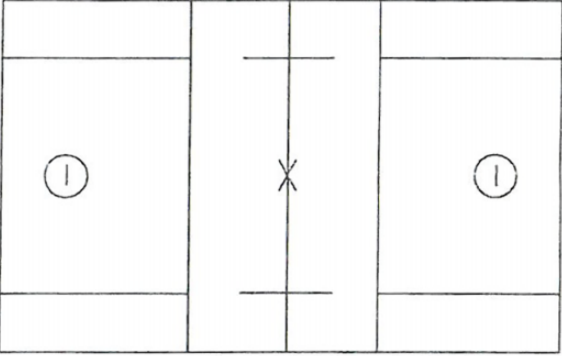
**1) Player Information**  
 Team/Country: \_\_\_\_\_ Opponent: \_\_\_\_\_ Date of Injury: \_\_\_\_\_ July 2018  
 Form Completed By: \_\_\_\_\_ Role on Team: \_\_\_\_\_

**NO INJURIES REPORTED IN THIS GAME**

|  |   |  |
|--|---|--|
| <p style="text-align: center;"><b>Position</b></p> <input type="checkbox"/> Attack <input type="checkbox"/> Defense<br><input type="checkbox"/> Midfield <input type="checkbox"/> Goalie | <p style="text-align: center;"><b>Mouth Guard in Use?</b></p> <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> Unknown | <p style="text-align: center;"><b>Medical Alerts / Injury History:</b></p> <hr/> <hr/> <hr/> <hr/> |
|--|---|--|

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**2) Episode Information**

|   |  |  |
|---|--|--|
| <p style="text-align: center;"><b>Weather / Surface</b><br/><i>(Check all that apply)</i></p> <input type="checkbox"/> Field # _____<br><input type="checkbox"/> Dry<br><input type="checkbox"/> Raining<br><input type="checkbox"/> Grass, good condition<br><input type="checkbox"/> Grass, poor condition<br><input type="checkbox"/> Turf (artificial)  | <p style="text-align: center;"><b>Infraction at Time of Injury</b></p> <input type="checkbox"/> Penalty<br><input type="checkbox"/> No Penalty<br><input type="checkbox"/> Unknown   | <p style="text-align: center;"><b>Location (Mark with X):</b></p> <div style="text-align: center;">  </div> |
| <p style="text-align: center;"><b>Game Segment</b></p> <input type="checkbox"/> Conditioning<br><input type="checkbox"/> Practice<br><input type="checkbox"/> Scrimmage<br><input type="checkbox"/> Pre-Game Warmup<br><input type="checkbox"/> 1 <sup>st</sup> Quarter<br><input type="checkbox"/> 2 <sup>nd</sup> Quarter<br><input type="checkbox"/> 3 <sup>rd</sup> Quarter<br><input type="checkbox"/> 4 <sup>th</sup> Quarter | <p style="text-align: center;"><b>Game Play at Time of Injury</b></p> <input type="checkbox"/> Settled play<br><input type="checkbox"/> Loose Ball<br><input type="checkbox"/> Face-Off<br><input type="checkbox"/> Transition<br><input type="checkbox"/> Other _____ |  |

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**3) Source of Injury**

Contact/Impact  
 WITHOUT Contact (skip to section 4)

|  |   |
|--|---|
| <p style="text-align: center;"><b>Mechanism of Contact</b></p> <input type="checkbox"/> Contact with BALL<br><input type="checkbox"/> Contact with STICK<br><input type="checkbox"/> Contact with OTHER PLAYER'S HEAD<br><input type="checkbox"/> Contact with BODY PART other than head (specify)<br><input type="checkbox"/> Shoulder <input type="checkbox"/> Elbow<br><input type="checkbox"/> Knee <input type="checkbox"/> Arm / Hand<br><input type="checkbox"/> Foot <input type="checkbox"/> Undetermined<br><input type="checkbox"/> Other _____<br><br><input type="checkbox"/> Contact with GROUND<br><input type="checkbox"/> Contact with GOAL or EQUIPMENT<br><input type="checkbox"/> Other: _____ | <p style="text-align: center;"><b>Precipitatory Mechanism</b></p> <p><b>Incidental Contact:</b></p> <input type="checkbox"/> Push<br><input type="checkbox"/> Trip<br><input type="checkbox"/> Other<br><p><b>Intentional Contact:</b></p> <input type="checkbox"/> Push<br><input type="checkbox"/> Body-Check<br><input type="checkbox"/> Trip<br><input type="checkbox"/> Other<br><input type="checkbox"/> Stick Check<br><input type="checkbox"/> None<br><input type="checkbox"/> Other _____ |
|--|---|

Figure A1. FIL Injury Report Form. FIL, Federation of International Lacrosse.





# FIL INJURY REPORT FORM

## 2018 Men's World Championship



### 4) Player Activity

**Player Was On...**

Offense

Defense

Loose ball

Unknown

**General Movement**

Running Forward

Backpedaling

Change of Direction (Cutting/Dodging)

Jumping

Stationary (Not moving)

Other \_\_\_\_\_

**Sport-Specific Movement**

Shooting

Passing

Catching

Dodging

Advancing with ball

Setting Pick

### 5) Description of Injury

**Side?**  Right  Left  N/A

**Site of Injury**

|  |  |
|--|--|
| <p><b>Face:</b></p> <p><input type="checkbox"/> Eye/Orbit</p> <p><input type="checkbox"/> Oral/Mandible</p> <p><input type="checkbox"/> Nose</p> <p><input type="checkbox"/> Other _____</p> <p><b>Head:</b></p> <p><input type="checkbox"/> Back</p> <p><input type="checkbox"/> Top/Crown</p> <p><input type="checkbox"/> Ear</p> <p><input type="checkbox"/> Side/Temporal</p> <p><input type="checkbox"/> Neck</p> <p><input type="checkbox"/> Shoulder</p> <p><input type="checkbox"/> Chest</p> <p><input type="checkbox"/> Upper Arm</p> <p><input type="checkbox"/> Elbow</p> <p><input type="checkbox"/> Lower Arm</p> <p><input type="checkbox"/> Wrist</p> <p><input type="checkbox"/> Hand</p> | <p><b>Finger:</b></p> <p><input type="checkbox"/> Thumb</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> Abdomen</p> <p><input type="checkbox"/> Oblique/Side</p> <p><input type="checkbox"/> Back</p> <p><input type="checkbox"/> Pelvic Region</p> <p><input type="checkbox"/> Groin</p> <p><input type="checkbox"/> Gluteal Region</p> <p><input type="checkbox"/> Thigh</p> <p><input type="checkbox"/> Hamstring</p> <p><input type="checkbox"/> Knee</p> <p><input type="checkbox"/> Shin</p> <p><input type="checkbox"/> Calf</p> <p><input type="checkbox"/> Foot</p> <p><input type="checkbox"/> Ankle</p> <p><input type="checkbox"/> Toe</p> |
|--|--|

**Type of Injury**

Concussion\* (requires FIL Concussion Report Form)

Contusion/Bruising

Laceration

Abrasion

Fracture

Strained Muscle

Minor ligament injury (sprain)

Severe ligament injury (tear)

Illness

Other \_\_\_\_\_

**Injury Resolution**  
(check all that apply)

Return to play immediately

Walked off field unassisted

Assisted off field, walking

Assisted off field, carried

Referred for follow up care

Emergency Room

Family Physician

Sports Med/Orthopedics

Unknown

Other \_\_\_\_\_

**Immediate/Sideline Treatment of Injury**  
(check all that apply)

Rest

Ice

Compress

Elevate

Clean wound/cut

Bandage, Wrap, Cover

Apply support (tape, cast, brace)

N/A

Other \_\_\_\_\_

**Incident Description**

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