LACROSSE SPORTS MEDICINE
Taking Care of America’s Fastest Growing Game

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GOALS AND OBJECTIVES

• Appreciate priority health and safety issues facing the game of lacrosse

• Understand the role of US Lacrosse, the national governing body for men's, women's, and youth lacrosse promoting in health and safety.

• Understand the public health approach to research which has been utilized by the US Lacrosse and MedStar Sports Medicine to investigate and prioritize lacrosse medical conditions.

• Appreciate the significant differences in men's and women's lacrosse with regard to health and safety.

• Appreciate the position of lacrosse as America’s fastest growing team sports and some consequences and opportunities associated with this rapid growth.
LACROSSE SPORTS MEDICINE

- Growing body of sport specific knowledge

- Multidisciplinary

- Real world impact
MEDSTAR HEALTH / SPORTS MEDICINE

- Largest, Comprehensive Sports Medicine Program in Mid Atlantic
- Graduate Medical Education Research in Sports Medicine
- Teams and Organizational Partnerships
MEDSTAR: LACROSSE SPORTS MEDICINE
US LACROSSE: The national governing body for men's, women's, and youth lacrosse

Full Circle of Activity

Public Health Approach to Health and Safety
US LACROSSE

- Unified administrative body established in 1998
- Baltimore based, but national scope
  - 65 national chapters
  - 450,000 members
  - Exponential growth
- Current 18 million campaign for new national headquarters
  - 1 million toward health and safety programs
  - 1 million toward expanding play opportunities
- Proactive in health and safety
- Mission: Positive games experience
SPORTING SUCCESS IN AMERICA

- Focus on the Top of the Participation Pyramid
- Multiple Secondary Gain Issues
- Victory at Others Expense
- Professional Play the Picture of Success
US LACROSSE: SPORTING SUCCESS

- Positive Games Experience for the Base of the Pyramid
- Honoring the Game
- Playing the Sport to Learn Life’s Lessons
- Health and Safety a Priority
- Can this Model Succeed?
BACKGROUND

• Oldest and fastest growing team sport in America

• Unique men’s, women’s and youth games

• Played by all age groups

• Combination of speed, stick, ball, and contact make for a unique set of injury mechanisms, types, and preventive efforts
MEN'S LACROSSE
Youth: The number of youth boys playing lacrosse has risen 65.5 percent since 2006.
High School: Over the last five years, 497 high schools have added varsity boys' lacrosse teams.
College: More than 20,000 men played college lacrosse in 2011, the first time total participation in the category topped that number.

WOMEN'S LACROSSE
Youth: The number of youth boys playing lacrosse has risen 60.0 percent since 2006.
High School: The 2011 National Federation of State High School Associations (NFHS) participation report had lacrosse ranked 10th in total participants in girls' sports, the first time lacrosse was in the Top 10.
College: Eight new Division I women's programs will begin in 2013, pushing the total number of Division I programs to 100.
EARLY MODERN GAME

- 1800’s: French Pioneers
- 1856: Montreal Lacrosse Club
- 1867: George Beers: Rules Standardization
- 1877: New York University First U.S, College Team
- 1930s: 12 > 10 Players, Reduced Field Size, Protective Equipment, 60 minute games 4 quarters
EARLY MODERN GAME

- 1904 – First Olympic play in St. Louis Games (‘08, ‘28, ‘32 & ‘48)
MODERN GAME

- Protective head gear first required in men’s lacrosse in 1948
- NOCSAE manufacturing standard for men’s lacrosse helmets 1986
MODERN GAME
EARLY MODERN GAME

- 1890s: St. Leonard’s School in Scotland
- 1926: Bryn Mawr School in Baltimore
- 1931: U.S. Women’s Lacrosse Association
- Rules: Maintained Lower Contact, Less Structure than Men’s Game
MODERN GAME
US LACROSSE
Sports Science and Safety Committee

• 16 Member Multidisciplinary Committee
• Formed 1999: A priority for US Lacrosse
  • Primary Care
  • Surgical Subspecialties
  • Epidemiologists
  • Health Policy
  • Allied Health

• Committee Liaisons
  • NCAA
  • NFHS
  • NATA
  • Rules Committees
  • Insurance and Risk Management

• Other Affiliations
  • MedStar Research
  • AOSSM / STOP
“To utilize and grow the body of lacrosse health and safety knowledge to objectively advise US Lacrosse and the lacrosse community on factors to enhance the safety and quality of experience in the sport at all levels of play”

- Review available Lacrosse specific literature
- Survey of stakeholders
- Initial assessment of priority health and safety issues
- Build research foundation and develop appropriate partnerships
- Conduct and facilitate research
- Comprehensive, Public Health Approach with Real World Applications
The MedStar Advanced Model for Sports Medicine Research

Step 1: Injury & Disease Surveillance
Problem Identification
Establish Extent of Injury Problem (Data Collection)

Step 2: Risk Factor Identification
Establish Etiology and Mechanisms of Sports Injury

Step 3: Develop Intervention / Potential Solutions
Develop, Introduce & Revise Preventive Measures

Step 4: Assess Effectiveness
in controlled environment

Step 5: Implementation, Feedback and Assessment
Full Scale Implementation & Effectiveness

Feedback
Injury & Disease Surveillance

Problem Identification
Establish Extent of Injury Problem
(Data Collection)

- Critical Pre-Cursor to all other steps
- Challenges:
  - Standardized Sports Injury and Exposure definition
  - Statistical Methods to assess spatial and temporal trends in injury incidence

Basic, Descriptive Epidemiology,
the “Who, What, Where, When and How“
## Sports Injury Surveillance Systems

<table>
<thead>
<tr>
<th>System</th>
<th>Administrator</th>
<th>Pros</th>
<th>Cons</th>
<th>Example study</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCAA Injury Surveillance System (ISS)</td>
<td>Datalys Center</td>
<td>• Web-based&lt;br&gt;• High capture rate&lt;br&gt;• National sample</td>
<td>• Variability in data coding(?)&lt;br&gt;• Limited # of participating colleges</td>
<td>Validity of Soccer Injury Data in NCAA (2011)</td>
</tr>
<tr>
<td>Injury Treatment &amp; Tracking System (ITTS)</td>
<td>Fairfax County (VA) Public Schools</td>
<td>• Daily electronic capture of 25 high schools &amp; 27 sports&lt;br&gt;• Includes time-loss and no time loss injuries</td>
<td>• Representative of a single geographic area/school district</td>
<td>Trends in concussion incidence in high school sports (2011)</td>
</tr>
<tr>
<td>Reporting Information Online (RIO)</td>
<td>Nationwide Children’s Hospital</td>
<td>• Web-based&lt;br&gt;• 100 participating high schools with AT&lt;br&gt;• National sample of 12 sports</td>
<td>• Variability in data coding(?)</td>
<td>Sex Differences in Concussion Symptoms of High School Athletes (2011)</td>
</tr>
<tr>
<td>National Center for Catastrophic Sport Injury Research</td>
<td>University of North Carolina at Chapel Hill</td>
<td>• Death and permanent disability sports injury data that involve brain and/or spinal cord injuries</td>
<td>• Based on reports of catastrophic/fatal injuries</td>
<td>Catastrophic Football Injuries Annual Report (2011)</td>
</tr>
</tbody>
</table>
INJURY RATES: NCAA MENS AND WOMENS LACROSSE

• Men's: Upper 1/3
  • < ½ Football
  • 2 x > Women
  • Game 3.5 x Greater than Practice

• Women's: Lower 1/2
  • < ½ Soccer
  • Game 2.5 x Greater than Practice

Figure illustrates the average injury rates for 25 sports from 2004-05 to 2008-09 unless otherwise noted below.
* Available data from 2005-06 to 2008-09
** Available data from 2006-07 to 2008-09

If a sport is not included, it is because there was not enough data collected to report that sport.
Epidemiology of Lacrosse Injuries in High School–Aged Girls and Boys

A 3-Year Prospective Study

Richard Y. Hinton, † MD, MPH, Andrew E. Lincoln, ‡ ScD, MS, Jon L. Almquist, § ATC, Wiemi A. Douoguih, † MD, and Krishn M. Sharma, † MD
From the †Department of Orthopaedic Surgery, The Union Memorial Hospital, Baltimore, Maryland, ‡Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, and §Fairfax County Public Schools, Athletic Training Program, Fairfax, Virginia

- Fairfax Co. Virginia: 2 ATCs in Each Public High School
- Data Entry Part of Job Description: High Quality, Real Time
- SIMS Injury System: Prospective, Computerized Injury Tracking System, 1997 – 99 (On Going)
- 25 High School: Boys and Girls Lacrosse
- Boys (combined seasons)
  - 2476 Athletes
  - 136,180 Athletic Exposures
- Girls (combined seasons)
  - 1711 Athletes
  - 85,555 Athletic Exposures
# Scholastic Lacrosse Injuries: Boys

<table>
<thead>
<tr>
<th>Rank Order</th>
<th>Body Part</th>
<th>Nature of Injury</th>
<th>Number of Cases</th>
<th>Incidence Rate(^a)</th>
<th>Median Days Lost</th>
<th>Total Days Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ankle</td>
<td>Ligament sprain</td>
<td>82</td>
<td>0.39</td>
<td>4.0</td>
<td>557</td>
</tr>
<tr>
<td>2</td>
<td>Head/face</td>
<td>Concussion</td>
<td>61</td>
<td>0.29</td>
<td>6.0</td>
<td>520</td>
</tr>
<tr>
<td>3</td>
<td>Knee</td>
<td>Ligament sprain</td>
<td>34</td>
<td>0.16</td>
<td>29.0</td>
<td>1880</td>
</tr>
<tr>
<td>4</td>
<td>Upper leg</td>
<td>Muscle-tendon strain</td>
<td>26</td>
<td>0.12</td>
<td>7.0</td>
<td>357</td>
</tr>
<tr>
<td>5</td>
<td>Head/face</td>
<td>Contusion</td>
<td>21</td>
<td>0.10</td>
<td>1.0</td>
<td>52</td>
</tr>
<tr>
<td>5</td>
<td>Wrist/hand</td>
<td>Fracture</td>
<td>21</td>
<td>0.10</td>
<td>19.5</td>
<td>379</td>
</tr>
<tr>
<td>7</td>
<td>Wrist/hand</td>
<td>Ligament sprain</td>
<td>20</td>
<td>0.09</td>
<td>3.0</td>
<td>127</td>
</tr>
<tr>
<td>8</td>
<td>Upper leg</td>
<td>Contusion</td>
<td>18</td>
<td>0.08</td>
<td>3.0</td>
<td>75</td>
</tr>
<tr>
<td>8</td>
<td>Back</td>
<td>Muscle-tendon strain</td>
<td>18</td>
<td>0.08</td>
<td>5.0</td>
<td>120</td>
</tr>
<tr>
<td>8</td>
<td>Knee</td>
<td>Inflammation</td>
<td>18</td>
<td>0.08</td>
<td>6.5</td>
<td>316</td>
</tr>
</tbody>
</table>
# SCHOLASTIC LACROSSE INJURIES: GIRLS

<table>
<thead>
<tr>
<th></th>
<th>Location</th>
<th>Injury Type</th>
<th>Total Incidents</th>
<th>Incidence</th>
<th>Mean Age</th>
<th>SD</th>
<th>Total Cycles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ankle</td>
<td>Ligament sprain</td>
<td>79</td>
<td>0.54</td>
<td>7.0</td>
<td>972</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Knee</td>
<td>Inflammation</td>
<td>30</td>
<td>0.21</td>
<td>2.5</td>
<td>619</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Head/face</td>
<td>Contusion</td>
<td>23</td>
<td>0.16</td>
<td>1.0</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Knee</td>
<td>Ligament sprain</td>
<td>21</td>
<td>0.14</td>
<td>16.0</td>
<td>581</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Head/face</td>
<td>Concussion</td>
<td>14</td>
<td>0.10</td>
<td>4.0</td>
<td>83</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Wrist/hand</td>
<td>Contusion</td>
<td>13</td>
<td>0.09</td>
<td>2.0</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Hips</td>
<td>Muscle-tendon strain</td>
<td>13</td>
<td>0.09</td>
<td>7.0</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Upper leg</td>
<td>Muscle-tendon strain</td>
<td>12</td>
<td>0.08</td>
<td>2.5</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Wrist/hand</td>
<td>Fracture</td>
<td>11</td>
<td>0.08</td>
<td>31.0</td>
<td>439</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Back</td>
<td>Muscle-tendon strain</td>
<td>9</td>
<td>0.06</td>
<td>2.0</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>
Head, Face, and Eye Injuries in Scholastic and Collegiate Lacrosse: A 4 Year Prospective Study:

- AOSSM Keystone, CO July 16, 2005: NCAA Research Award
- Most Comprehensive View of Head, Face, and Eye Injuries in Lacrosse Injuries
- Prospective, Multiyear, Well Defined, Quality Data Entry
- Information on Injury Type, Location, Severity, Mechanism and Risk Factors based on Gender, Player Activity, Game Activity, Position Specific to Head, Face, and Eye Injuries
- Scholastic and Collegiate Players: Fairfax Co., Va and NCAA Data
GENDER SPECIFIC INJURY RATES

- Overall Head/Face/Eye Injury Rates Significantly Higher for Women vs. Men
  - Scholastic
    - RR 1.42, 95% CI 1.09 – 1.86
  - Collegiate
    - RR 1.61, 95% CI 1.32 – 1.97
GENDER SPECIFIC INJURY
Injury Type and Percentage

- **Men: Scholastic**
  - Concussion 73%
  - Contusion 12%
  - Fracture 4%

- **Men: Collegiate**
  - Concussion 83%
  - Contusion 12%
  - Fracture %

- **Women: Scholastic**
  - Concussion 40%
  - Contusion 33%
  - Fracture 14%

- **Women: Collegiate**
  - Concussion 43%
  - Contusion 23%
  - Fracture 17%
CONCUSSION
Mechanism, Number, Incidence Rate

• Men, Scholastic
  • Body to Body: 33, 0.11
  • Stick to Body: 14, 0.05
  • Body to Ground: 6, 0.02

• Men, Collegiate
  • Body to Body: 101, 0.27
  • Ball to Body: 11, 0.03
  • Stick to Body: 8, 0.02

• Women, Scholastic
  • Stick to Body: 22, 0.11
  • Body to Body: 6, 0.03
  • Body to Ground: 5, 0.02

• Women, Collegiate
  • Stick to Body: 55, 0.12
  • Ball to Body: 45, 0.10
  • Body to Body: 20, 0.04
Figure 2. Concussions and player activity in collegiate lacrosse, NCAA, 2000-2003

Frequency (n) for different activities:
- Shot: Women - 31, Men - 23, Total - 54
- Pass: Women - 33, Men - 7, Total - 40
- Ball Handling: Women - 42, Men - 37, Total - 79
- Loose Ball: Women - 0, Men - 16, Total - 16
- Other: Women - 7, Men - 11, Total - 18

Legend:
- Women
- Men
Video Incident Analysis of Head Injuries in High School Girls’ Lacrosse

Shane V. Caswell,*† PhD, VATL, ATC, Andrew E. Lincoln,‡ ScD, Jon L. Almquist,§ VATL, ATC, Reginald E. Dunn,‡ BA, and Richard Y. Hinton,‖ MD, MPH, PT

Investigation performed at Sports Medicine Assessment, Research and Testing Laboratory, George Mason University, Manassas, Virginia

American Journal of Sports Medicine, 2012 40: 756 - 62
Video Incident Analysis of Concussions in Boys’ High School Lacrosse

American Journal of Sports Medicine, 2013, 41: 756 - 61

Andrew E. Lincoln, ScD, Shane V. Caswell, PhD, ATC, Jon L. Almquist, VATL, ATC, Reginald E. Dunn, MS, and Richard Y. Hinton, MD, MPH, PT

Investigation performed at MedStar Sports Medicine Research Center, Baltimore, Maryland
### Injury Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th></th>
<th>Girls</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level of play</strong></td>
<td></td>
<td>----------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Varsity</td>
<td>22 (65%)</td>
<td>14 (100%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Junior varsity</td>
<td>12 (35%)</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Concussion mechanism</strong></td>
<td></td>
<td>----------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Body check</td>
<td>32 (94%)</td>
<td>1 (7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stick (unintentional)</td>
<td>0</td>
<td>5 (36%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stick (intentional)</td>
<td>0</td>
<td>3 (21%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collision (unintentional)</td>
<td>2 (6%)</td>
<td>3 (21%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ball</td>
<td>0</td>
<td>1 (7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undetermined</td>
<td>0</td>
<td>1 (7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Penalty called</strong></td>
<td></td>
<td>----------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>Yes</td>
<td>8 (24%)</td>
<td>2 (14%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25 (73%)</td>
<td>10 (71%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>1 (3%)</td>
<td>2 (14%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PUBLIC HEALTH APPROACH: STEP 3 / 4

**Develop Intervention/Potential Solutions**

- Develop, Introduce & Revise Preventive Measures

**Assess Effectiveness**

- in controlled environment

**Treatment Protocols**

- Policy Changes
- Rule Changes
- Coaching Techniques
- Training Techniques
- Safety Equipment

**Did the intervention achieve the intended objective?**

**Were there unintended consequences?**

**What is the overall effect on health & safety?**
TABLE 1


<table>
<thead>
<tr>
<th>Body Part</th>
<th>2000-2003</th>
<th>2004-2009</th>
<th>Rate Ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Rate (per 1000 AEs)</td>
<td>Frequency</td>
</tr>
<tr>
<td>Eye</td>
<td>22</td>
<td>0.10</td>
<td>5</td>
</tr>
<tr>
<td>Head/face</td>
<td>33</td>
<td>0.15</td>
<td>21</td>
</tr>
<tr>
<td>Concussion</td>
<td>38</td>
<td>0.18</td>
<td>86</td>
</tr>
<tr>
<td>All injuries</td>
<td>406</td>
<td>1.9</td>
<td>543</td>
</tr>
</tbody>
</table>

Figure 3. Head/face injuries by area of head and face, before and after introduction of mandated eyewear. Values inside the graph bars indicate number of injuries.
PUBLIC HEALTH APPROACH: Step 5

Implementation, Feedback and Assessment

Full Scale Implementation & Effectiveness

- Implementation Strategy
  - Governing Body Policy
  - Player, Coach and Governing Body Education
- Feedback and Assessment
  - Measure Rates of Adoption
  - Measure Rates of Injury – Step 1 methodology
REAL WORLD IMPACT

- Recent safety related rules changes
- Equipment changes and research
- AED access
- Youth specific rules changes
- Condition specific white papers
- National and regional educational events
- Inclusion of health and safety education as part of national standardized coaching and officials certification
- Health and safety requirements for US Lacrosse sanctioned events
LACROSSE:

HEALTH AND SAFETY PRIORITIES FOR THE GAME
Priority Health and Safety Issues

- Education and Games Integrity
- Lacrosse specific certification
  - Coaches
  - Officials
- Public Education
  - Individuals
  - Organizations
  - Mass Media
- Effectively growing the game
  - Participation Priorities
  - Honoring the game
  - Regulating growth
  - Secondary gain issues
Priority Health and Safety Issues

- Appreciation of Differences in Men’s and Women’s Lacrosse

- One Sport: Two Games

- History and Culture

- Rapid Expansion: Filling the Needs for Appropriate Coaching and Officiating
Priority Health and Safety Issues
Differences in Men’s and Women’s Lacrosse

• Games share
  • Full field, free flowing play
  • Speed, quick change of direction
  • Passing, shooting, stick work

• Men’s game
  • Purposeful collision sport

• Women’s game
  • Incidental contact

• Changes
  • Men’s game currently more specialized and questionably “over coached”
  • Women’s game more athletic and subtly becoming more aggressiveness
<table>
<thead>
<tr>
<th>EQUIPMENT</th>
<th>Shallow pocket rule allows for easier ball dislodgement</th>
<th>Deeper pocket rule requires more aggressive checking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Protective eyewear and mouth guards</td>
<td>Mouth guards required</td>
</tr>
<tr>
<td></td>
<td>Soft head gear and nose guards optional</td>
<td>Helmets meeting NOCSAE standard required</td>
</tr>
<tr>
<td></td>
<td>Lightly-padded, close-fitting gloves optional</td>
<td>Arm pads, shoulder pads and protective gloves required</td>
</tr>
<tr>
<td>Goalie:</td>
<td>helmets meeting NOCSAE standard, chest protectors, throat protectors, mouth guards, gloves required; shin guards optional</td>
<td>Goalie: helmets meeting NOCSAE standard, chest protectors, throat protectors, mouth guards, gloves required; cups recommended; shin guards optional</td>
</tr>
</tbody>
</table>
Priority Health and Safety Issues
Differences in Men’s and Women’s Lacrosse

- Game specific protective equipment
- Game specific injury prevention strategies
- Game specific injury patterns
- Perception of easy fix. “Pad the women up and let um play”

- Women equipped like men playing a game more similar to men’s lacrosse would significantly increase the game’s overall injury burden

- Examples
  - Overall injury
  - Concussions
  - Hand fractures
Priority Health and Safety Issues

- **Head / Face / Eye Protection and Concussions**
  - Overall low to moderate injury rates, but head injury make up ~ 1/3 of all injuries
  - Priority for men’s and women’s games
  - Current focus on sport related concussion
  - Multiple interventions possible
  - Multifactorial problem
A Case Against Helmets in Lacrosse

Helmets, except for goalkeepers, are banned in women’s lacrosse. “This to me is like, come on, you’re not serious,” Dr. Jack Ryan said. “This is 2011.”

By ALAN SCHWARZ
Published: February 16, 2011
HEAD AND FACE PROTECTION: Why are hard helmets & traditional facemasks not required for women’s lacrosse?

While contact to the head is illegal in both men’s and women’s lacrosse, many of the other rules of the games are very different. Hard helmets / facemasks have not been required or deemed necessary in women’s lacrosse because:

- The nature of women’s lacrosse: an incidental contact sport
- The risk of head/face injury is on par with other sports
- Administrative controls (rules) and educational programs have been created for players, coaches, and officials to teach the nature of the game and reduce exposures
HEAD AND FACE PROTECTION:
Unique Women’s Lax Safety Rules to Minimize Injury Risk

• The “bubble” rule
• No pocket in the stick, making it easier to dislodge ball without player contact,
• Mandatory cards (penalties) for slashing, dangerous play and dangerous follow through
• Penalties for offensive shot taken in an uncontrolled way or without regard of an opposing field player,
• Penalties for defensive field player guarding goal with any part of the body which denies the attacker opportunity to shoot safely in free space
HEAD AND FACE PROTECTION: The Case Against Helmets

- Hematoma and skull / scalp injuries, of which hard helmets have been designed to prevent, are basically non-existent in this sport.
- Oral, nasal and facial injuries do not occur frequently based on injury surveillance data and are addressed to some extent by the eye guards.
- The existing rules, when enforced, minimize the risk of head and face injuries.
- Unintended consequences / change the game.
- Honor the tradition, uniqueness of the game.
HEAD AND FACE PROTECTIONS: The Case for Helmets

- Helmets (hard or soft) that support a face mask almost eliminate the risk of oral, nasal, facial injuries, and possible concussion severity, particularly from inadvertent stick and ball.

- With rapid growth in sport, there are not enough qualified officials or coaches that understand the foundation of the way the game is played to enforce existing rules.
Priority Health and Safety Issues

- **Youth Specific Rules and Safety Information**
  - National, standardized rules for boys and girls
  - Games administration incorporating developmental stages
  - Avoiding the professional model trickledown
  - Avoiding burnout and enhancing lacrosse experience
  - Respect for game and others
Priority Health and Safety Issues: Youth Specific Rules

- **Boys Rules Changes**
  - Graduated checking in the boys game
  - No long sticks in boys U-11 and under
  - Decrease from 5 to 3 yards distance allowed to advance before contact

- **Girls Rules Changes**
  - Any check to the head mandatory card
  - Team plays short handed from first card received
  - Field player no longer can step into goal if goalie out of goal area
Priority Health and Safety Issues

- **ACL Injuries and other Lower Extremity Injuries**

  - ACL injury most common cause of lost game and practice time

  - Greatest insurance payouts through US Lacrosse membership insurance plan

- Lacrosse specific return to play

- Nature of lacrosse play

- Ankle injuries highest frequency
Priority Health and Safety Issues

- **Commotio Cordis**
  - **Mechanism**
    - Blunt trauma upstroke T wave
  - **Lacrosse specific cases**
    - Adolescent males
    - ~ half goalies wearing chest protectors

- **Preventive efforts**
  - Education
  - AED access and utilization
  - Equipment changes
    - Chest protection
    - RIF type balls
  - Rules changes
    - Body blocking ball
    - Crowding in front of goal
Priority Health and Safety Issues

• **Lacrosse specific issues**
  
  • Men’s shoulder injuries
    • Shoulder pads
    • Body to body and stick to body contact
    • Contusions, Clavicle fractures, A/C
  
  • Hand and Wrist Fractures
    • Different patterns based on allowed checking and ball speed
    • Thumb IP Joint Fractures
    • Glove tip protection
Priority Health and Safety Issues

- Dental protection
  - Mandatory
  - Types

- Conditioning
  - Sport specific

- Men’s Collegiate Game
  - NCAA drug use survey data
THANK YOU
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