The Center for Sport Science at US Lacrosse serves as a national hub for the study and improvement of health in lacrosse. Created in 2016, the Center is devoted to research, education, collaboration, policy development, and best practices guidelines that benefit the safety and wellness of lacrosse players, with a particular focus on youth players. The Center for Sport Science seeks to expand and elevate the safety initiatives that US Lacrosse has been committed to since its creation in 1998, with nearly $1 million in health-related research funding since that time to improve the well-being of lacrosse participants at all levels of play.

Dr. Bruce Griffin serves as the director for the Center, with members of US Lacrosse’s Sports Science and Safety Committee serving in an advisory role.

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Dr. Bruce Griffin serves as the director for the Center, with members of US Lacrosse’s Sports Science and Safety Committee serving in an advisory role.
RESEARCHERS:
Primary Investigator: Cameron R. ‘Dale’ Bass, PhD, Duke University; Director, Injury Biomechanics Laboratory (IBL); Co-Investigator: Jason F. Luck, PhD, Duke University; Co-Investigator: Jason P. Mihalik, PhD, CAT(C), ATC, University of North Carolina at Chapel Hill

PURPOSE:
Biomechanically validate existing head impact measurement devices wearable in both helmeted (male) and non-helmeted (female) lacrosse environments and establish their range of validity and reliability under wide-ranging impact conditions.

WHY WE DID THIS RESEARCH:
Mild traumatic brain injury (mTBI) – concussions – and potentially subconcussive head impacts are a significant issue for athletes of all ages and skill levels. Little is known about the dynamic severity of the head impacts that athletes, especially in non-helmeted sports and depending on gender, experience during play. Researchers have attempted to study the forces and accelerations associated with athletic related head impacts. The measuring devices permeating the marketplace are incapable of being firmly affixed to the head, potentially limiting how accurately they measure head impact. This limits the utility of these devices for increasing our understanding of the causes of head injury and furthering prevention and protection research. With these limitations in mind it is paramount that investigations focused on quantifying the performance of these systems are undertaken.

WHAT IS KNOWN ABOUT THIS TOPIC:
Every year, millions of people suffer a traumatic brain injury (TBI), often sport-related, with the vast majority affecting youth and adolescents. Failure to properly diagnose and manage concussion can have catastrophic consequences, as evidenced in some cases of severe brain injury or death after a second injury is sustained before symptoms from the initial injury are fully resolved. There is increased discussion that sub-injurious or subconcussive head impacts that do not result in an identifiable brain injury at the time of impact may lead to future neurological issues.

Given this critical problem, the ability to accurately measure the physical impact during possible concussive impacts, especially acceleration measurements of the head, is a crucial step in understanding head injury. There are a number of devices that claim to measure head impact for various sports. Unfortunately, there are no generally applicable validation studies that evaluate the accuracy of the measurements from these new devices, especially when worn by people. Biomechanically, the best measurement would be ‘strongly coupled’ to the human head in the same sense the upper front teeth are ‘strongly coupled’ to the head. Current devices that use acceleration measurements taken in helmets sitting on hair, attached to skin, or in mouthpieces, are more loosely coupled and may have limitations in measuring head kinematics.

One of the most commonly used research platforms is the Head Impact Telemetry system (HITs). Since the development of the HITs, multiple companies have developed devices to record acceleration and frequency of head impacts. These companies have used innovative methods for affixing the devices to the athletes’ heads or headgear, through headbands, skullcaps, adhesives, or using ear molds to fit the device into the bony canal of the ear. These methods of coupling the various devices to the head generates further opportunities to collect head impact biomechanics from non-helmeted but high concussion risk sports such as lacrosse, soccer, and basketball. A common conclusion to these studies was that the ability of the sensors to successfully measure head kinematics was dependent on loading direction and without a priori knowledge of these relationships appreciable errors in linear and rotational acceleration existed. While these
studies are critical initial steps in evaluating these sensors it is important to acknowledge that a HIII head is not a human head and as such the coupling seen in this testing environment is likely not what would be seen with a more biofidelic head surrogate.

**WHAT THIS STUDY DID:**
Drop test experiments, using four different head impact measurement systems and compared to reference measurements, were performed onto several impact locations (head/helmet regions) using a surrogate model to simulate the human head. Drops were performed with and without helmets and across a range of drop heights. On-field in vivo assessments of the impact measurement systems were conducted under two methodologies. First, participants wearing the impact measurement systems and a reference measurement system conducted non-contact agility focused drills to assess in vivo linear and rotational acceleration measurements at low-levels. Second, a sub-sample of the impact measurements systems evaluated in the laboratory and at low levels in the field were deployed for full practice and/or game environments and documented with video to compare the linear and rotational acceleration measured by the devices over a range of on-field playing conditions.

**WHAT THE STUDY FOUND/RESULTS:**
This study is currently underway with both laboratory based helmeted (men’s lacrosse) and non-helmeted (women’s lacrosse) investigations and complementary on-the-field sensor assessments that are planned to be completed in the spring of 2017.

**WHY THIS MATTERS:**
Understanding the performance of existing measurement systems under various impact scenarios is tantamount for accurate measurement and investigation of head impact exposure in a cohort of athletes, designing gear to protect athletes, or evaluating the benefits of changes in play.

**HOW THESE FINDINGS CAN BE USED:**
Understanding how all of the proposed devices perform under identical laboratory conditions is the first step in introducing these devices to all sports and age levels. The use of valid and reliable head impact measurement devices has global implications. These devices have the potential to identify athletes, especially youth and adolescent athletes, who display risky behavior on the field. Coaches and sports medicine clinicians can then intervene when risky behavior is identified, making the sport safer for the young participant. Furthermore, with increased knowledge of head impact biomechanics, these devices have the potential to be used as a tool in diagnosing head injury or concussion. Using these devices in concert with other assessments, on-field medical staff can be alerted when high-risk impacts occur, in order to provide medical attention and diagnoses more quickly and with more information.
RESEARCHERS:
Shane Caswell, PhD, ATC, George Mason University; Andrew Lincoln, ScD, MS, MedStar Sports Medicine; Lisa Hepburn, PhD, MPH, MedStar Sports Medicine; Nelson Cortes, PhD, George Mason University

PURPOSE:
To describe game related head impacts that occur during boys’ and girls’ high school and youth lacrosse by mechanism, player position, and game situation.

WHY WE DID THIS RESEARCH:
Decreasing head impacts has been proposed as a strategy for reducing the risk of head injury, however, no studies have characterized head impacts among boys’ or girls’ high school or youth lacrosse.

WHAT IS KNOWN ABOUT THIS TOPIC:
Rising popularity of high school and youth lacrosse combined with anecdotal reports of increasingly aggressive game play have contributed to growing concerns not only about concussions, but also repetitive subconcussive head impacts. Some research suggests that repetitive subconcussive impacts may result in changes to the brain and contribute to the development of neurodegenerative pathologies such as chronic traumatic encephalopathy (CTE).

WHAT THIS STUDY DID:
We placed head impact monitoring systems on boys’ or girls’ high school and youth lacrosse teams while recording video of game play. To date we have tracked head impacts for three entire seasons (2014 to 2016) of game play in boys’ and girls’ high school varsity lacrosse. In 2016 we added two youth lacrosse teams (U13 level) to the study. Head impact sensors are highly sensitive devices and little is known about their accuracy. To ensure that we were reporting on real impacts and not noise, all game impacts recorded by the sensors were reviewed and confirmed as either true or false using video that was carefully time synchronized with the sensors. All impacts measured by the sensors were reviewed by the research team. A true impact met the following criteria: a) linear acceleration ≥ 20g, b) player was identified on the field, and c) the impact mechanism could be clearly identified.

WHAT THE STUDY FOUND/RESULTS:
To date we have analyzed two complete seasons of boys’ and girls’ varsity lacrosse game play. We are presently conducting our analysis of 2016 game play from both the high school and youth levels of play. We have examined data from 48 males and 35 female participants during the 2014 and 2015 lacrosse seasons.

Boys’ Varsity Lacrosse: In two seasons of game play (19 games), 1060 impacts (2014=542, 2015=518) were recorded by the sensors. Of these, 690 (65%) impacts were confirmed as “true impacts” using video. On average, 36.3 verified impacts ≥20g occurred per game, corresponding with an average exposure of 11.5 impacts ≥20g per player-season. The three most frequent impact mechanisms were player, stick, and ball contact. The three most frequent body locations impacted were head, torso and shoulder. Midfielders received the most impacts, followed by attackmen, defensemen and goalies. Most impacts occurred in the offensive half of the field. The most frequent player activities at impact were delivering a body check, followed by chasing a loose ball and advancing with the ball. In most cases, the struck athlete received impact from the side or front and did not anticipate the impact.

Girls’ Varsity Lacrosse: In two seasons of game play (28 games), 180 impacts were measured by the sensors. Of these, 58 (32%) impacts were confirmed as “true impacts” using video. The impact rate (IR) for all game related verified impacts was equivalent to 2.1 impacts per game. Of these, 28 (48.3%) impacts
were confirmed to strike the head. Overall, midfielders sustained the most impacts, followed by defenders, attackers and goalies. The most common impact mechanisms were contact with stick (43.1%) and player (29.3%), followed by ball (12.1%) and ground (12.1%). 100% of ball impacts occurred to goalies. Most impacts occurred to field players within the attack area (55.2%) or the midfield (31.0%) regions of the field. Only 2 (3.4%) impacts resulted in a penalty.

**WHY THIS MATTERS:**
Collectively, the findings demonstrate the benefit of using video to cross-verify head impacts recorded by sensors in boys’ and girls’ lacrosse. We found a high number of false positive head impacts when verified on video.

Boys’ Varsity Lacrosse: Many of the head impacts resulted from unanticipated bodily collisions striking the side of the helmet. Verification of impact mechanisms using video is critical to collection of sensor data.

Girls’ Varsity Lacrosse: Our findings suggest that a typical girls’ high school varsity lacrosse player suffers less than two game related head impacts ≥20g per season and that the majority of these impacts result from stick contact.

Although caution is warranted when comparing our findings with prior research that did not verify impacts using video analysis, our findings suggest that game play exposure to head impacts in girls’ high school lacrosse is similar to girls’ high school soccer but less than women’s collegiate lacrosse. Similarly, our findings indicate the peak linear accelerations experienced by girls’ high school lacrosse players in this study were comparable to those reported in girls’ high school soccer but greater than those reported in women’s collegiate lacrosse.

**HOW THESE FINDINGS CAN BE USED TO IMPROVE PLAYER PERFORMANCE AND SAFETY:**
- Sensors are valuable research tools to determine the frequency and magnitude of impacts
- Video is useful to determine the mechanism and nature of game play in which impacts most commonly occur
- Combined sensor and video create a powerful tool to better understand how often, how hard and in what ways players are being hit during the game
- Our findings show that sensors have high number of false positives and need to be confirmed with a secondary source of information, such as video
- In the two years of data analyzed, only one concussion has occurred during game play
- Boys have more impacts than girls and at higher magnitudes
- Girls had surprisingly small number of impacts and of lower magnitudes than boys
- Boys and girls have different types and intensity of impacts; #1 for boys is player contact while #1 for girls is stick contact
- Ball impacts are a small percentage of impacts in both the boys and girls game and occur to goalies, not field players
- Boys have many unanticipated impacts
- In both boys’ and girls’ lacrosse, midfielder players suffer the most impacts. This is most likely due to their playing on both offense and defense
RESEARCHERS:
Lisa Hepburn PhD, MPH, Andrew Lincoln ScD, MS; MedStar Sports Medicine Research, Baltimore, Md.

PURPOSE:
To collect and analyze lacrosse injury data.

WHY WE DID THIS RESEARCH:
Understanding what types of injuries occur and how they happen among lacrosse players is the key to creating new rules and programs that will be effective in making the game safer. By collecting data on lacrosse injuries on a regular basis it is possible to identify trends in the types of injuries that occur and to evaluate the effectiveness of new programs designed to reduce the risk of injuries.

WHAT IS KNOWN ABOUT THIS TOPIC:
Not much is known about the frequency and types of injuries that occur to youth lacrosse players. Most research on lacrosse injuries have looked at injury data from collegiate and high school lacrosse players. These studies have identified different mechanisms of injury for boys and girls players. Boys’ lacrosse players are more frequently injured as a result of body to body contact. In contrast, the most common mechanism of injury among girls’ lacrosse players is contact with a stick or ball. Very little information is known about lacrosse injuries that occur at the international level of play.

WHAT THIS STUDY DID:
This study is part of an ongoing effort to collect and analyze lacrosse injury data from multiple sources. For the past two years, US Lacrosse has recruited youth lacrosse tournament providers to record all injuries that occur during a tournament, using a detailed injury reporting form. The forms are then sent to US Lacrosse where they are recorded and analyzed. Over 200 tournament injury reports have been recorded to date.

The second source of data for this project comes from the athletic trainers working in Fairfax County, Virginia public high schools. All 25 high schools in Fairfax County have boys and girls varsity and junior varsity lacrosse. The athletic trainers at each high school use an electronic injury reporting system to record every injury. Through a partnership with US Lacrosse, Fairfax County provides the data related to lacrosse injuries to the research team for analysis.

The third source of data comes from a growing partnership between US Lacrosse and the Federation of International Lacrosse (FIL). Team medical staff for every team that participated in the FIL U-19 Men’s championships during the summer of 2016 filled out injury report forms for every game injury they treated. These forms were sent to USL to be recorded and analyzed.
**WHAT THE STUDY FOUND/RESULTS:**

**FCPS LACROSSE INJURY DATA: 2014-15**

<table>
<thead>
<tr>
<th>INJURED BODY PART</th>
<th>FREQUENCY, N (%)</th>
<th>BOYS</th>
<th>GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BOYS</td>
<td>GIRLS</td>
</tr>
<tr>
<td>Hip/Thigh/Upper Leg</td>
<td>54 (13.3)</td>
<td>57 (15.8)</td>
<td></td>
</tr>
<tr>
<td>Knee</td>
<td>43 (10.6)</td>
<td>64 (17.7)</td>
<td></td>
</tr>
<tr>
<td>Lower Leg</td>
<td>22 (5.4)</td>
<td>32 (8.9)</td>
<td></td>
</tr>
<tr>
<td>Ankle</td>
<td>56 (13.8)</td>
<td>54 (15.0)</td>
<td></td>
</tr>
<tr>
<td>Foot</td>
<td>20 (4.9)</td>
<td>18 (5.0)</td>
<td></td>
</tr>
<tr>
<td>Head/face</td>
<td>51 (12.5)</td>
<td>57 (15.8)</td>
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</tr>
<tr>
<td>Neck</td>
<td>6 (1.5)</td>
<td>3 (0.8)</td>
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</tr>
<tr>
<td>Trunk</td>
<td>39 (9.6)</td>
<td>18 (5.0)</td>
<td></td>
</tr>
<tr>
<td>Shoulder</td>
<td>33 (8.1)</td>
<td>8 (2.2)</td>
<td></td>
</tr>
<tr>
<td>Arm/Elbow</td>
<td>16 (3.9)</td>
<td>4 (1.1)</td>
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<tr>
<td>Wrist/hand</td>
<td>48 (11.8)</td>
<td>16 (4.4)</td>
<td></td>
</tr>
<tr>
<td>Upper, lower limb not otherwise specified</td>
<td>19 (5)</td>
<td>30 (8.3)</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>407</strong></td>
<td><strong>361</strong></td>
<td></td>
</tr>
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**WHY THIS MATTERS:**
Reliable and valid data on injuries provide the evidence for US Lacrosse to create rule changes and policies to make the game safer. Collecting injury data also allows USL to be able to evaluate the effectiveness of new rules or policies. Establishing a system to collect injury data from all age and gender groups allows for USL and researchers to identify changes in injury patterns over time.

**HOW THESE FINDINGS CAN BE USED TO IMPROVE PLAYER PERFORMANCE AND SAFETY:**
Information on what types of injuries commonly occur and understanding when the injuries are more likely to happen informs all parts of the game. This information can be used to help educate coaches and officials on ways to make the game safer. It can help parents understand risks of the sport. It can help USL improve player safety by creating new rules or supporting new technologies that protect players.

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**BOYS LACROSSE TOURNAMENT INJURIES 2014**

**All Injury Reports**  
*n=233 ( % )*

<table>
<thead>
<tr>
<th><strong>Player Position</strong></th>
<th><strong>Location on field</strong></th>
<th><strong>Game Play at Time of Injury</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Attack</td>
<td>Attack/goal area</td>
<td>Settled</td>
</tr>
<tr>
<td>Defense</td>
<td>Middle third</td>
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<tr>
<td>Midfield</td>
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<td>Face off</td>
</tr>
<tr>
<td>Goalie</td>
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<tr>
<td>Missing</td>
<td></td>
<td>Shot on goal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
</tr>
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<table>
<thead>
<tr>
<th>Infraction Called</th>
<th>Location on field</th>
<th>Game Play at Time of Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Attack/goal area</td>
<td>Settled</td>
</tr>
<tr>
<td>No</td>
<td>Middle third</td>
<td>Loose ball</td>
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<td>Face off</td>
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<tr>
<td></td>
<td></td>
<td>Transition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shot on goal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
</tr>
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<table>
<thead>
<tr>
<th>Game Segment</th>
<th>Location on field</th>
<th>Game Play at Time of Injury</th>
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<tbody>
<tr>
<td>1st Half</td>
<td>Attack/goal area</td>
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<tr>
<td>2nd Half</td>
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<td>Other</td>
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<td>Face off</td>
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<tr>
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<td>Transition</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shot on goal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
</tr>
<tr>
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<tr>
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<th>Location on field</th>
<th>Game Play at Time of Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Attack/goal area</td>
<td>Settled</td>
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<tr>
<td>No</td>
<td>Middle third</td>
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**USLACROSSE.ORG | 9**
RESEARCHERS:
Lisa Hepburn PhD, MPH; Andrew Lincoln ScD, MS; Richard Ginsberg PhD; 1) MedStar Sports Medicine Research, Baltimore, MD 2: Massachusetts General Hospital, Boston, MA

PURPOSE:
To learn more about how much time youth lacrosse players spend practicing and playing lacrosse and what type of sport-related activities they participate in. We also wanted to learn more about their involvement with other sports.

WHY WE DID THIS RESEARCH:
The youth sports landscape continues to change with trends toward higher levels of competition and single sport specialization at younger ages. For youth lacrosse players, this includes more opportunities to join travel or club teams, to play in weekend tournaments and to play lacrosse year-round. In some circumstances there is pressure at young ages for young athletes to choose one sport over another to allow complete focus on a single sport. While these opportunities provide many children with the chance to engage frequently in a sport they enjoy, medical professionals are concerned about how this increase in workload and scheduling as well as specialization is associated with the growing incidence in sports-related overuse injuries and sport drop-out.

WHAT IS KNOWN ABOUT THIS TOPIC:
Most of the research related to sport participation and overuse injuries or burnout has utilized high school populations or been undertaken with other sports such as tennis or baseball. No research has focused specifically on lacrosse players.

WHAT THIS STUDY DID:
We created an online survey for parents of youth lacrosse players to answer about their child’s participation in lacrosse and other sports. We asked parents to answer the questions regarding their oldest child under age 16 who played lacrosse. US Lacrosse parent members were recruited via email to fill out the survey in October – November, 2015. Approximately 1,600 parents from 47 states answered the survey.

WHAT THE STUDY FOUND:
Parents reported that the majority of youth lacrosse players played other sports besides lacrosse yet many of the young lacrosse players played on multiple teams in one season and took less than the recommended 2-3 months off per year from lacrosse.

68% of youth lacrosse players participated in private coaching or training within the past 12 months
82% played at least one other organized sport
67% played on a club or a travel team
31% played on more than one lacrosse team in a single season
PERCENT OF YOUTH LACROSSE PLAYERS WHO PLAY OTHER SPORTS

<table>
<thead>
<tr>
<th></th>
<th>U9</th>
<th>U11</th>
<th>U13</th>
<th>U15</th>
</tr>
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<tbody>
<tr>
<td>Girls</td>
<td>82</td>
<td>81</td>
<td>83</td>
<td>73</td>
</tr>
<tr>
<td>Boys</td>
<td>91</td>
<td>91</td>
<td>83</td>
<td>76</td>
</tr>
</tbody>
</table>

WHY THIS MATTERS:
The American Academy of Pediatrics (AAP) recommends that youth sports participation be moderated to reduce the risk of injury among youth athletes. While there are no lacrosse specific recommendations, the general sport recommendations include to avoid single sport specialization until adolescence, to take time off from a particular sport for at least 2-3 months per year, to play on only one team per sport in a given season and to take time off each week from all sports for rest and recovery.

HOW THESE FINDINGS CAN BE USED BY TO IMPROVE PLAYER PERFORMANCE AND SAFETY:
Parents and coaches look to US Lacrosse for leadership on issues such as sport participation guidelines. This research is the first step in helping US Lacrosse understand more about the experience of the current youth lacrosse player and can help inform policy decisions or sport-specific recommendations related to sport involvement.
TITLE OF THE STUDY:
THE EFFECT OF CUMULATIVE IMPACTS ON VESTIBULAR OCULAR REFLEX

RESEARCHERS:
Theresa Miyashita, Eleni Diakogeorgiou, Kaitlyn Marrie

PURPOSE:
To examine the influence of linear acceleration (g), GADD Severity Index (GSI), Head Injury Criteria (HIC), and total number of head impacts on vestibular function (VOR) over the course of one competitive season.

WHY WE DID THIS RESEARCH:
Little is known about the cumulative effect of subconcussive impacts, and even less information on men’s lacrosse players specifically. The vestibular system is impacted in a majority of concussion injuries, and investigating if there is an associated deficit to head impacts will allow for the development of a rehabilitation program to curb noted deficits.

WHAT IS KNOWN ABOUT THIS TOPIC:
Little is known about the cumulative effect of head impacts in men’s lacrosse players. The research on this topic in other sports (football and ice hockey in particular) has yielded conflicting results.

WHAT THIS STUDY DID:
Assessed players’ VOR pre and post season. Over the course of the competitive season, all players’ helmets were outfitted with sensors to track head impacts. Change in VOR scores were then correlated to head impact data collected.

WHAT THE STUDY FOUND/RESULTS:
The ability of a player to see clearly while in motion decreased over the course of the competitive season. This skill is very important in lacrosse players who need to accurately determine the location of other players, the location of the ball, etc. while in motion.

WHY THIS MATTERS:
Cumulative subconcussive impacts may negatively affect vestibular ocular reflex scores, resulting in decreased visual performance. This decrease in performance may predispose the athlete to a greater number of more severe head impacts.

HOW THESE FINDINGS CAN BE USED TO IMPROVE PLAYER PERFORMANCE AND SAFETY:
The ability to address or minimize vestibular system dysfunctions will allow for the creation of a safer playing environment.
RESEARCHERS:
Justin Cooper, PT; Carissa Colangelo ATC; Lisa Hepburn PhD, MPH; Andrew Lincoln ScD, MS; MedStar Sports Medicine

PURPOSE:
To create a lacrosse specific warm up program to be used by male and female lacrosse athletes prior to practice to reduce their risk for lower extremity injuries and increase strength and performance.

WHY WE DID THIS RESEARCH:
Lower extremity injuries which include knee and ankle sprains and ligament tears are one of the most common injuries among both male and female lacrosse players yet scientific evidence has shown that the risk of these injuries can be reduced through correct training. US Lacrosse wanted to create a lacrosse-specific warm up program that could be used by coaches, players and parents throughout the lacrosse community to address this problem.

WHAT IS KNOWN ABOUT THIS TOPIC:
Injuries to the anterior cruciate ligament (ACL) are devastating and costly. At best, athletes are away from sport for six months, and in many cases, the rehabilitation is much longer and athletes do not return to the same level of play as they had achieved before the injury. There is also evidence of long-term health effects, including a higher risk of arthritis in the affected knee. Researchers have shown that exercises that strengthen specific hip, leg and core muscles can reduce the risk of an athlete having an ACL injury. In addition, exercises such as these have been shown to improve overall leg strength which can improve speed and agility.

WHAT THIS STUDY DID:
Sports medicine professionals developed a lacrosse-specific warm up program that could be taught by coaches or parents and was safe for all ages. It emphasizes core strength, balance, and proper landing techniques, including a dynamic warm-up, proceeded by 1 of 3 phases. It was first tested in Baltimore area high schools. The program was then developed into an online-course for the US Lacrosse website. The program includes narrated videos as well as printable materials. It is available to US Lacrosse members. This study has been evaluating the implementation of this program and is currently developing a longer term evaluation of the program’s effectiveness in reducing injury risk.

WHAT THE STUDY FOUND/RESULTS:
Over 200 people have taken the online course since it was launched in January 2016. The users report that they believe this program will reduce their athlete’s risk of lower extremity injuries and that the course adequately prepares them to teach the LaxPrep program to their athletes. Continued research will follow up with coaches who have taken the program to investigate how they are using the program with their athletes as well as identify barriers to implementation. Feedback from program users will be incorporated into additional support materials.

WHY THIS MATTERS:
US Lacrosse has invested in the LaxPrep program to provide a valuable service to their membership to reduce injury risk. The program is designed for use by any interested adult and can be safely used by all ages of athletes. Reducing the risk of these knee and ankle injuries means more kids can stay in the game and enjoy the sport’s benefits.
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The ability of the Center for Sport Science to fund new research and safety initiatives is driven by the generous support of our donors and members. Please consider making a tax-deductible gift to help us further elevate and improve game safety and to enrich lives through lacrosse.
MISSION
As the sport’s national governing body, US Lacrosse provides national leadership, structure and resources to fuel the sport’s growth and enrich the experience of participants.

VISION
We envision a future that offers everyone the lifelong opportunity to enjoy the sport of lacrosse.