



# Headgear in Women's Lacrosse: Effective Concussion Prevention or Increased Risk of Aggressive Play and Related Injuries ?

## Introduction

The combination of data about sports-related head injury and the advancing neuroscientific understanding of traumatic brain injury (TBI) has catapulted sports safety into the center stage of public and governmental debate. In the United States, 1.6 to 3.8 million incidences of TBIs resulting from sports and recreation are reported each year, and studies suggest this number is on the rise.<sup>1</sup> Although much of the public discussion focuses on professional football, head injuries occur in many sports in both men's and women's divisions. For example, at the high school and collegiate levels, studies show that most reported concussions incurred by female athletes result from playing soccer, lacrosse, and basketball.<sup>2</sup>

Concussions have the potential to fundamentally alter brain function and structure, impairing essential cognitive functions such as memory.<sup>3</sup> Unfortunately, there is little evidence about the impact of concussions on youth athletes, nor about the effectiveness of different helmet designs.<sup>4</sup> Accordingly, head injuries in women's lacrosse,<sup>5</sup> especially at the pre-collegiate levels, needs further discussion, research, and potentially, governmental oversight.

## Mixed Evidence of Women's Lacrosse Dangers

The scientific literature elucidates the nature and causes of concussions in women's lacrosse, but it is inconclusive on the comparative risks of men's and women's lacrosse. Some studies show that women's lacrosse may produce as many, if not more, head injuries than men's lacrosse.<sup>6</sup> A 2007 epidemiological study comparing the mechanisms and rates of injury in men's and women's

<sup>1</sup> Institute of Medicine (IOM) and National Research Council (NRC), *Sports-related concussions in youth: Improving the science, changing the culture*, <http://www.ncbi.nlm.nih.gov/books/NBK169016/pdf/TOC.pdf> (last visited: January 17, 2017).

<sup>2</sup> *Id.*

<sup>3</sup> *Id.* at 8.

<sup>4</sup> *Id.* at 6-7, 10.

<sup>5</sup> For the purposes of this brief, the term "women's lacrosse" encompasses women's and girls' lacrosse at all age levels.

<sup>6</sup> IOM., *supra* note 1, at 38 ("Recent NCAA data, however, show equivalent or higher rates of reported concussion in women's lacrosse than in men's.").

lacrosse found that at the high school and college levels, women have more head, face, and eye injuries than men.<sup>7</sup> The study found that concussion was the most prevalent injury for both sexes, predominantly resulting from bodily contact in men and from stick or ball contact in women.<sup>8</sup> Another study found in 2012 that head injuries in high school women's lacrosse resulted from stick contact and from bodily contact, and noted that it is unknown whether requiring use of a protective helmet, in combination with existing eyewear or a face shield attached to the helmet, would help reduce head injuries in women's lacrosse.<sup>9</sup>

In contrast, a 2011 study surveying eleven years of data on concussions in high school sports found that women's lacrosse produces fewer concussions than the men's sport.<sup>10</sup> Despite this lower comparative rate, the study showed that concussions in high school women's lacrosse increased approximately four-fold from 1998 to 2008.<sup>11</sup> Interestingly, this study found that in men's sports, the highest rates of concussion occurred in sports that require helmets.<sup>12</sup>

An ongoing study, funded by US Lacrosse<sup>13</sup> and the National Operating Committee on Standards for Athletic Equipment (NOCSAE),<sup>14</sup> specifically seeks to ascertain the mechanisms of head injury in women's lacrosse.<sup>15</sup> Using accelerometers, the researchers will determine the mechanical effects of head impacts from lacrosse sticks swung at various speeds.<sup>16</sup> This will lay the groundwork for further studies on the causes of concussion as well as for the efficacy of headgear in preventing head injury.<sup>17</sup>

## State Activity Highlights the Issue

In 2013, Maryland Delegates Stein and Cardin sponsored a bill requiring the use of protective headgear in women's lacrosse youth programs.<sup>18</sup> The bill aimed to mandate that programs under the purview of both the State Department of Education and recreational leagues require players to wear headgear while practicing and competing.<sup>19</sup> Although the sponsors withdrew the bill, it did

<sup>7</sup> Andrew E. Lincoln et al., *Head, Face, and Eye Injuries in Scholastic and Collegiate Lacrosse: A 4-Year Prospective Study*, 35 Am. J Sports Med. 207, 213 (2007).

<sup>8</sup> *Id.*

<sup>9</sup> Shane V. Caswell et al., *Video Incident Analysis of Head Injuries in High School Girls' Lacrosse*, 40 Am. J Sports Med. 756, 761 (2012).

<sup>10</sup> Andrew E. Lincoln et al., *Trends in Concussion Incidence in High School Sports: A Prospective 11-Year Study*, 39 Am. J Sports Med. 958, 962 (2011). (Suggesting that this disparity results from "the fundamental difference between the games in terms of rules, protective equipment, and level of contact permitted").

<sup>11</sup> *Id.* at 961, figure 2.D.

<sup>12</sup> *Id.* at 962 (Explaining that helmets lack conclusive evidence of efficacy in "high-impact" sports, such as men's lacrosse and football, which produce highest concussion rates; by contrast, concussions in women's lacrosse result primarily from "surface or ball contact," not player impact).

<sup>13</sup> US Lacrosse, the national governing body of lacrosse, provides standardized structures for many aspects of the sport, including training for youth players, coaches, and officials, as well as funding for safety research.

<sup>14</sup> The NOCSAE studies and develops standard safety parameters for athletic equipment for such sports as football, baseball, and lacrosse.

<sup>15</sup> Paul Ohanian, *US Lacrosse Joins NOCSAE is [sic] Funding Girls' Lacrosse Head Injuries Research*, US Lacrosse (Feb. 24, 2012), <http://www.uslacrossechapters.org/mainportal/UtilityNav/AboutTheSport/HealthSafety/USLResearch/GirlsHeadInjuries.aspx>; *Head Accelerations from Various Stick Checks in Girls Lacrosse: A Surrogate Impact and Pilot Field Study*, Nat'l Operating Comm. On Standards for Athletic Equipment (2012), <http://nocsae.org/research/research-grants-and-contracts/head-accelerations-from-various-stick-checks-in-girls-lacrosse-a-surrogate-impact-and-pilot-field-study/>.

<sup>16</sup> Paul Ohanian, *US Lacrosse Joins NOCSAE is [sic] Funding Girls' Lacrosse Head Injuries Research*, US Lacrosse (Feb. 24, 2012), <http://www.uslacrossechapters.org/mainportal/UtilityNav/AboutTheSport/HealthSafety/USLResearch/GirlsHeadInjuries.aspx>.

<sup>17</sup> *Id.*

<sup>18</sup> H.B. 1123, 2013 Leg., 433d. Sess. (Md. 2013), <http://mgaleg.maryland.gov/2013RS/bills/hb/hb1123f.pdf>.

<sup>19</sup> *Id.*

draw local and national attention to the role of safety regulations in women's lacrosse.<sup>20</sup> Maryland is not the first state to consider regulating this issue. In 2010, the New York State Public High School Athletic Association considered recommending the requirement of helmets in women's lacrosse.<sup>21</sup> The Director of US Lacrosse's Women's Division advised against the recommendation, presenting New York officials with arguments for a more nuanced approach to safety in women's lacrosse, such as educating referees, coaches and parents about player safety.<sup>22</sup> Ultimately, the Association's Safety & Research Committee voted against the recommendation.<sup>23</sup> Nonetheless, as in Maryland, the consideration both highlighted the regulatory concern and drew public attention to the topic.

## Local Activity with Impact

In response to a New Jersey statute requiring school districts to enact policies addressing sports-related concussions,<sup>24</sup> the Princeton Regional Schools Board of Education opted to require female lacrosse players to wear headgear.<sup>25</sup> The policy then underwent state-level review, and the New Jersey State Interscholastic Athletic Association approved it on the condition that the district requires only the use of soft headgear.<sup>26</sup> In 2013, the policy mandated headgear only for sixth graders, and if it proves effective in mitigating head injuries, it will encompass one additional grade per year through the middle and high school levels.<sup>27</sup> Affected Princeton players will still wear headgear when playing out of district, but out of district teams need not use headgear when playing in Princeton.<sup>28</sup> Princeton's athletic director stated that the district is not satisfied with current soft helmets, and that he is keeping an eye on current studies of headgear that could ultimately lead to a soft helmet specifically designed to address the causes of head injury in women's lacrosse.<sup>29</sup>

Most recently, headgear requirements for female high school players in Florida have sparked criticism from US Lacrosse and the public. Beginning in the 2015 season, a soft headband-like protective apparatus must be worn during girls' games and practices.<sup>30</sup>

<sup>20</sup> See, e.g., John Keilman, *Concussion Fears may Add Helmets to Girls Lacrosse*, Chicago Tribune News (May 10, 2013), [http://articles.chicagotribune.com/2013-05-10/news/ct-met-girls-lacrosse-helmets-20130510\\_1\\_girls-lacrosse-u-s-lacrosse-helmets](http://articles.chicagotribune.com/2013-05-10/news/ct-met-girls-lacrosse-helmets-20130510_1_girls-lacrosse-u-s-lacrosse-helmets).

<sup>21</sup> Geoff Shannon, *Looking at New York's Vote on Helmets in Women's Lacrosse*, Inside Lacrosse (Dec. 1, 2010), <http://www.insidelacrosse.com/news/2010/12/01/looking-new-yorks-vote-helmets-womens-lacrosse>.

<sup>22</sup> Steve Stenersen & Ann Kitt Carpenetti, *Men's Lacrosse Helmets in Girl's [sic] Lacrosse: Concerns About Player Safety and Game Integrity*, US Lacrosse Presentation to NYSPHSAA Section VIII (Nov. 16, 2010), available at <http://www.uslacrosse.org/sites/default/files/public/documents/coaches/headgear-presentation.ppt>.

<sup>23</sup> Geoff Shannon, *Breaking: New York Votes Down Girls' Lacrosse Helmet Motion 7-2*, Inside Lacrosse (Dec. 2, 2010), <http://www.insidelacrosse.com/news/2010/12/02/breaking-new-york-votes-down-girls-lacrosse-helmet-motion-7-2>.

<sup>24</sup> N.J. Stat. Ann. § 18A:40-41.1 *et seq.*

<sup>25</sup> Princeton Pub. Sch. Bd. of Educ., Attachments for August 27, 2013 Board Meeting 1-2 (2013), available at [http://www.princetonk12.org/Board/Board\\_Agendas/8-27-13%20Attachments.pdf?Templates=RWD=96](http://www.princetonk12.org/Board/Board_Agendas/8-27-13%20Attachments.pdf?Templates=RWD=96)

<sup>26</sup> Telephone Interview with John Miranda, Athletic Dir., Princeton Pub. Sch. (Feb. 6, 2014).

<sup>27</sup> Princeton Pub. Sch. Bd. of Educ., *supra* note 25, at 1-2; Telephone Interview, *supra* note 26.

<sup>28</sup> Telephone Interview, *supra* note 26.

<sup>29</sup> *Id.*

<sup>30</sup> Bill Pennington, *Headgear Rule for Girls' Lacrosse Ignites Outcry*, The NY Times, March 30, 2015, [http://www.nytimes.com/2015/03/31/sports/in-girls-lacrosse-a-move-in-the-name-of-safety-sparks-debate.html?\\_r=](http://www.nytimes.com/2015/03/31/sports/in-girls-lacrosse-a-move-in-the-name-of-safety-sparks-debate.html?_r=).

According to national reporting, Florida officials instated the requirement as a measure to protect against concussions, although the headgear models recommended by the Florida High School Athletic Association are approved for use in soccer but not lacrosse.<sup>31</sup>

Two “experiments” with helmet use in women’s lacrosse have produced mixed results. The Massachusetts Interscholastic Athletic Association, from 1986 until 1996, required that all women’s lacrosse players at public high schools wear ice hockey helmets. This was eventually discarded because research found that a more aggressive style of play resulted from the helmet requirement.<sup>32</sup> US Lacrosse’s comments on the now defunct Massachusetts requirement are revealing. According to US Lacrosse, the helmet rule was overturned due to “concern over increased injuries caused by a more aggressive style of play,” and “the threat of litigation from parents whose daughters were not being recruited by colleges as a result of the helmet mandate.”<sup>33</sup> These observations illustrate several issues that school districts could encounter should they enact a helmet requirement.

In contrast, Bullis School (Potomac, Maryland) required all of their varsity and junior-varsity women’s lacrosse players to wear rugby helmets beginning in the 2012 season. This decision came on the heels of seven concussions incurred by women’s lacrosse players at the school in 2011. The early results are promising: in 2012, the school reported only three concussions suffered by its players.<sup>34</sup> Buoyed by these promising results, the requirement has remained in effect through the 2015 lacrosse season.

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<sup>31</sup> *Id.*

<sup>32</sup> Shannon, *supra* note 21.

<sup>33</sup> Stenerson & Carpenetti, *supra* note 22, at 18.

<sup>34</sup> Paul Krome, *The Headgear Conundrum in Women’s Lacrosse*, Lacrosse Magazine, (Aug. 14, 2012), [http://www.laxmagazine.com/high\\_school/girls/2011-12/news/081412\\_the\\_headgear\\_conundrum\\_in\\_womens\\_and\\_girls\\_lacrosse](http://www.laxmagazine.com/high_school/girls/2011-12/news/081412_the_headgear_conundrum_in_womens_and_girls_lacrosse).