# IOWA STATE UNIVERSITY

College of Human Sciences

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## Differences in Concussion Reporting for Adolescents in Ireland and the United States of America

#### Abstract

Concussions are a common injury found in contact sports like hurling and soccer. Reporting of concussions are very important for the health and safety of the players. However, various countries have different rates of concussions. The Irish model of youth sports participation differs for the United States of America model. Throughout this project, three different aspects of the Irish sport of hurling and U.S soccer are analyzed to see if they contribute to differences in concussion reporting. These aspects include concussion protocol, importance of the game, and overall education of athletes. The objectives of this research poster are to (1) explore the rates of participation in the sports of hurling and soccer, (2) discover how each country, Ireland and the USA, approaches the diagnosis of concussions, and (3) compare the differences in the concussion reporting between the two countries.

The findings of this project are that there is no difference in the concussion protocol between Ireland and the United States of America that would account for difference in reporting. However, education about concussions had the greatest effect on the reporting behavior in both countries.

#### Introduction

Two summers ago, I had the opportunity to study abroad in Ireland. During my time there I learned about the Irish model of sport and how their sport system compares to ours in the United States of American (USA). This inspired me to dig deeper into how Ireland and the USA are different on a major injury, concussions. During my time in high school while playing soccer, concussions were a far too common of an injury, and since I knew I wanted to become a physical therapist, I took a special interest. Through this project, I was able to combine various interests of mine to research how different aspects of sport systems impact rates of concussion injuries.

#### Methods

During this research process the following methods were used to obtain the data: 1.) Analyzed past research articles focusing on the topics on concussions in the adolescent population using PubMed, Google Scholar, and Interlibrary Loan. 2.) Consulted professionals in the field of sports medicine on concussion protocols and reporting rates.



Initial impact of concussion (coup) Image 1

Secondary impact (contrecoup)





#### Image 2

#### Results

#### **Participation Rates:**

Ireland

At the time this research project was completed there were no statistics to be found through any resources about participation rates for the Irish sport of hurling in adolescents.

#### United States of America<sup>1</sup>:

Age Range	Percentage of Players
Under 10	37%
10-14	48%
15-17	12%
18-19	3%

Total Number of Adolescent Soccer Players in the USA in 2013/14: 3,055,148

#### **Concussion Rates:**

Ireland<sup>3</sup>: According to the paper Sports-Related Concussion in Adolescent Gaelic Games Players, as of December 2019, there has been no prospective study done on male and female adolescent Gaelic Games players. However, according to a study done on elite male Gaelic Game hurling players, 0.8% of injuries were diagnosed with concussions while 2.4% of injuries had to deal with the head.

USA<sup>4</sup>: Incidence rate of concussions in soccer had been found to be 0.28 (boys) and 0.45 (girls) for 1000 athletic exposure. In addition, it was also found that concussions were more likely to happen in games than during practices.

#### **Concussion Protocol for Ireland and USA<sup>2</sup>:**

SCAT 5 Concussion Assessment

Immediate or On-Field Assessment

Step 1:	Look for Red Flags like double vision, severe headache and vomiting
Step 2:	Check for observable signs like lying motionless, vacant look, and dis
Step 3:	Memory Assessment with Maddock questions
Step 4:	Examination with Glasgow Coma Scale (GCS)
Office	or Off-Field Assessment

Step 1:	Collection of the Athlete's Background
Step 2:	Symptom Evaluation including scale from none to severe
Step 3:	Cognitive Screening assessing orientation, immediate memory, and co
Step 4:	Neurological Screening and Balance Exam
Step 5:	Delayed Recall
Step 6:	Decision



sorientation

oncentration

#### Results cont.

**Adolescents:** Ireland<sup>3</sup>:

- that it was not serious.
- $USA^5$ :

#### Conclusions

Concussions are a serious sports injury that all athletes should be aware of. However, many different aspects can contribute to whether a player reports their injury to a coach or medical professional. Through this research project it can be seen how important education can be in the recognition and reporting of concussions. If players are unaware of what symptoms are apart of a concussion diagnosis, they will not report the concussion. This is seen in both the United States of America and in Ireland. In addition. if an adolescent is educated about how important it is to report concussions, no matter the setting (practice or game), statistics for reporting during an important event may go up. Through education, the percentage of young athletes reporting the concussions would go up and encourage healthy and safe sports.

#### Resources

1.) US Youth Soccer Statistics Infographic - Rapids Youth Soccer Club. (2019, June 19). Retrieved from http://rapidsyouthsoccer.org/us-youth-soccer-player-statistics/

2.) Sport concussion assessment tool - 5th edition. (2017). British Journal of Sports *Medicine* [*PDF file*]. *doi:* 10.1136/bjsports-2017-097506scat5

3.) O'Connor, S., Moran, K., Burke, C., & Whyte, E. (2019). Sports-Related Concussion in Adolescent Gaelic Games Players. Sports Health: A Multidisciplinary Approach, 11(6), 498–506. doi: 10.1177/1941738119875978

4.) Watson, A., & Mjaanes, J. M. (2019). Soccer Injuries in Children and Adolescents. Pediatrics, 144(5). doi: 10.1542/peds.2019-2759

5.) Sarmiento, K., Donnell, Z., & Hoffman, R. (2017). A Scoping Review to Address the Culture of Concussion in Youth and High School Sports. Journal of School Health, 87(10), 790–804. doi: 10.1111/josh.12552

Images from: 1.) https://frederickpt.com/2016/09/19/concussions-the-athletes-return-to-function-2/ 2.) https://www.bbc.com/news/world-us-canada-50395910 3.) http://www.thunderbirdhse.com/stem/can-heading-soccer-ball-dangerous-womenmen/

## Honors Project December 7, 2020

#### **Statistics of Concussion Reporting Among Ireland and USA**

• 89.4% of adolescent Gaelic players said they would report a concussion during a training session but only 53.1% would report during a championship game. •  $\frac{4}{7}$  of adolescent players that were surveyed reported being unsure if they had a concussion. While 56% of players did not report their concussion due to the belief

• 72.9% of youth athletes said they would report concussion symptoms to a coach or trainer during a game. However, if it is a championship game it dropped to 51.7%. • Participants in a study who received concussion education were likely to report concussion symptoms 72% of the time. This is in comparison to 36% of the time if the athlete had no education