Implications of Concussion in Sport

Joint Committee on Health and Children

October 2014
Executive Summary

Concussion is a brain injury caused by trauma that is transmitted to the brain, either directly or indirectly, and results in impairment of brain function. Concussion is a hidden injury and so misunderstood by players’ coaches, parents and volunteers.

At present there are no concussion specialist services in Ireland that a person can be referred to following a severe concussion, should they be in need further assessment and monitoring. Headaches, dizziness, sleep problems and psychological symptoms such as depressed mood, irritability, and anxiety, along with cognitive problems involving memory, concentration and thinking are all common symptoms of post-concussion syndrome that require specialised expertise.

Acquired Brain Injury Ireland (ABI Ireland, see Appendix 1) is asking the Department of Health and Children to address the issue of concussion in sport through the following:

1. Make Concussion a public health issue and modify the risk factors associated through primary prevention of health promotion and secondary prevention of appropriate management. By making concussion a public health issue there will be a reduction in long term implications of brain injury and financial savings for the health sector in the long term.

2. Increase concussion awareness and education across all sports bodies through stakeholder engagement. This engagement will require cross departmental commitment from a number of departments to bring about change in behaviour and attitudes.

3. Government needs to recognise concussion in terms of policy. We recommend this issue sits within the Department of Health’s ‘Healthy Ireland’ Strategy, with the Health and Well-being Division in the HSE playing a key role.

4. A concussion care pathway specialist service should be available in the public health system to anyone who needs it.

1. Concussion in Sport – A Public Health Issue

Concussion is the public health issue of our time. It is not just a problem for the National Football League (NFL) it is a much greater global issue that is spread across a number of sports and age groups. Campaigning about concussion is never to stop people from playing sports; it is a call for a change in concussion education and guidelines, and an increased awareness among young players, coaches and parents. No concussion is the same and so each one must be treated individually and cared for specifically.

-Chris Nowinski, Co-Founder of Sports Legacy Institute, Boston

Concussion is the most common form of brain injury, and must be taken seriously. A concussion can be caused by a direct blow to the head, but can also occur when the player takes a hard knock to another part of the body, resulting in a rapid movement of the head, causing a disturbance of brain function.
The abnormality in concussion does not present itself in terms of a blood clot or bruising to the brain, making it difficult to diagnose. The role of a healthcare professional is essential to diagnose, monitor and guide a player who has suffered a concussion and looking to return to the field of play.

Poor knowledge of concussion recognition and management by players, coaches, parents and even clinicians has played a large role in the miss-management of concussion to date. This became evident and a harsh reality when 14 year old schoolboy Ben Robinson died from second impact syndrome after continuing to play with a concussion in a rugby match in 2011. Ben played roughly a full half of rugby with signs of concussion resulting in him developing second impact syndrome due to the first concussion not having time to heal. Second impact syndrome causes rapid and severe brain swelling resulting in a severe brain injury and often death as in Ben’s case.

Less than 10% of concussions are actual knock-outs, leaving 90% of concussions to be detected by the coach or reported by the player - This statistic proves the absolute necessity for increased education for coaches and parents to give them the tools to recognise the signs and symptoms of a concussed player; and get these players off the pitch.

2. Acquired Brain Injury Ireland – Concussion Awareness and Education Campaigning

Launch of Campaign – October 2010
Brain injury specialists Acquired Brain Injury Ireland (ABI Ireland) identified a gap in relation to the lack of understanding about mild brain injuries, such as concussion, and its long term impacts. As a growing epidemic of concern ABI Ireland launched a Concussion Awareness Campaign in October 2010, at the Aviva Stadium with Leinster rugby player Isaac Boss, as a part of an education and prevention strategy. Since then ABI Ireland has worked in collaboration with a range of stakeholders to develop and deliver our awareness and education programme to bring about change in relation to effective concussion management across all sports bodies. The campaign was developed on a pro-sport ethos encouraging participation at all levels while iterating the message that player welfare must come first and concussion management is about education.

“42% of GAA players who sustained a concussion reported they played on and didn’t remember the rest of the game”

2012 Research carried out by ABI Ireland and the Gaelic Players Association

From grassroots to professional level ABI Ireland believe the awareness and education level surrounding the issue of concussion was and still is at an unacceptable level.

In 2010 ABI Ireland carried out research with a grassroots local GAA Senior football club in Co Sligo to understand the average level of knowledge within a senior football team. The results came back to prove players between the ages of 18-30 knew very little about
concussion as a sports injury and so inevitably didn’t take it seriously. These players were not aware of the signs and symptoms of concussion and so did not connect a hard knock on the pitch to how they were feeling afterwards. Here is what some of these players said –

“I didn’t know I had been concussed until I was back in class at college and had to go out to get sick... It was then I realised something was wrong”

-Damien, age 22

“Most coaches are believers of ‘play on it’s only a few minutes left, you’ll be grand’”

-Donnchadh, age 25

**ABI Ireland Driving Concussion Awareness and Education**

ABI Ireland has constantly engaged in a wide variety of brain injury awareness campaigns. Over the past few years a concentrated focus has been placed on raising awareness and education of Concussion in Sport; working in partnerships with key stakeholders to distribute the prevention message. These include:

1. Education Poster campaign
2. Securing Campaign ambassadors
3. Online Video campaign
4. Research – GAA players
5. Concussion Cards for Coaches and Players
7. Concussion Workshop/Talks
8. Concussion App for smartphones

2011

- **Poster Campaign (see appendix 2 for sample)**

ABI Ireland approached the GAA to join forces to carry out a concussion awareness and education poster campaign to every GAA club throughout the country. This poster campaign was distributed to over 2000 GAA clubs throughout the country reaching a mass sporting audience nationwide. The aim of this campaign was to target all ages and levels of players, especially those playing at grassroots local club level where there is more than often no team doctor and clinicians in attendance.

- **Ambassadors**

Rugby - Former rugby players Bernard Jackman and John Fogarty retired from rugby in October 2010 due to injury; post-concussion syndrome being the main one. Jackman, Fogarty and Munster rugby player Denis Leamy (currently retired) joined ABI Ireland as ambassadors to raise awareness of the injury through their own experiences.

GAA - Dublin football players Michael Darragh Macauley, Rory O’ Carroll and Paul Griffin (currently retired) became ambassadors for the organisation and the concussion awareness and education campaign in July 2011
2012

- **Online Video Campaign**

  ABI Ireland received funding through the Coca-Cola Thank You fund to produce two online Concussion Education Videos. 4 inter-county GAA players from each province were approached to feature in these videos; ensuring they would have all Ireland attraction. These included –
  a) Ulster – Ciaran McKeever (Armagh football player)
  b) Leinster – Michael Darragh Macauley (Dublin football player)
  c) Munster – Noel McGrath (Tipperary hurling player)
  d) Connacht – Conor Mortimer (Mayo football player)

  [Online videos can be viewed here –](http://bit.ly/1ucMndV)
  It’s Not Always a Knock Out

- **Research**

  150 GAA players were surveyed by ABI Ireland and the Gaelic Players Association (GPA) to measure concussion hits in GAA and current concussion management. This research was released at the launch of the concussion video campaign. The research concluded –
  a) 54% of those surveyed said **YES** they have been concussed while playing
  b) 44% of those who said Yes, admitted they have been concussed more than once, with between 2-5 times being the common figure
  c) 58% continued to play with a concussion, while 42% admitted to returning to play before symptom free
  d) 73% reported that they were assessed by a medical practitioner
  e) Most players reported suffering a number of symptoms at once, after being concussed. Dizziness, Headaches, Blurry Vision and Confusion reported as the most common symptoms
  f) 42% of those who suffered a concussion reported that they didn’t remember the rest of the game
  g) 56% returned to play between 1-7 days, 17% between 7-14 days and 27% between 1 hour – 1 day

- **Concussion Cards – Players /Coaches (see appendix 3 (a) (b) for sample)**

  ABI Ireland designed and developed wallet size concussion information cards especially for players and coaches with simply outlined relevant information about concussion and effective concussion management. These cards have been sponsored by a number of colleges and clubs across the country to fund their
dissemination throughout; however they are currently in need of an official sponsor to meet the demand requested.

- **Launch – The Concussion awareness and education video campaign**

  ABI Ireland launched the online video campaign and concussion cards at a media launch in Croke Park Stadium in July 2012. ABI Ireland Ambassador Mark McGovern, former Fermanagh footballer and ABI survivor joined Dublin footballers Michael Darragh Macauley and Paul Griffin, to talk about his experience of life with a brain injury and the importance of increased concussion education among all sports players.

2013

- **ABI Ireland hosted first European Brain Injury and Sport Conference at the Aviva Stadium**

  In December 2013 ABI Ireland provided a platform for a concussion discussion by hosting the first European Brain Injury and Sport Conference at the Aviva Stadium in Dublin. Expert speakers from the US, UK, Scotland and Europe come together to discuss the growing concern surrounding concussion and head injuries in sport. Opened by Leo Varadkar TD; Minister for Transport, Tourism and Sport and chaired by sports broadcasters Ger Gilroy and George Hook the conference provided a platform for discussion about concussion and the urgent necessity for increased protocols and guidelines.

  Key messages from all the experts at the conference related to the following:
  a) Need for an increase in education on concussion
  b) Call for a united voice in relation to guidelines on return to play
  c) Medical clearance for players who have been concussed before they return to play

  (See appendix 4 for list of conference speakers and topics)
  (See appendix 5 (a) (b) for press coverage of event)

2014

- **GAA – Concussion Workshop/Awareness Talks**

  ABI Ireland is frequently contacted by different sports clubs (rugby, GAA, show jumping) to carry out talks about concussion in their schools and clubs. This year ABI Ireland assisted the GAA medical committee educate their GAA coaching mentors on the issue of concussion by carrying out a Concussion workshop in Croke Park. The presentation prepared and delivered by ABI Ireland is used on an online GAA training system for coaches to learn about effective concussion management.
**Concussion Education App - Downloadable for Smartphones**

ABI Ireland secured funding from Covidien through their CSR programme to develop a downloadable Concussion Education App for Smartphones. This app is currently in development in consultation with an expert group and aims to be launched and ready to download in November 2014. Information included within this app consists of the following –

a. Concussion Tests  
i. Side-line quick check for coaches  
ii. Complete Concussion Test for coaches/parents  
iii. SCAT3 for clinician use only  
b. Signs and Symptoms listed  
c. Return to Play Guidelines  
d. Rest guide  
e. Frequently Asked Questions including an in-depth definition of concussion

**3. ABI Ireland Recommendations on Responding to Concussion in Sport**

Concussion is proving itself to be a global public health issue in need of a collaborative approach, across a number of different bodies to bring about change in the way concussion is managed.

1. Collaborative Concussion Campaigning  
2. Policies and Protocols (following a concussion)  
3. National Concussion Care Pathway Implementation

**1. Collaborative Concussion Campaign**

A sustained national collaborative concussion campaign is required to bring together all involved bodies to outline best practice education, messaging and protocols that must be implemented along with the distribution of a broad based public awareness campaign. ABI Ireland is prepared to take a leadership role in assisting the Department of Health and Children prepare and design all educational materials to be disseminated. This work can be framed in relation to the roll-out of the Department of Health’s ‘Healthy Ireland’ Strategy. Concussion should be framed as a public health issue that can be prevented (due to the modified risk factors) and when it occurs that it can be managed effectively to ensure a successful outcome (secondary prevention).
2. Education Awareness Policies and Protocols for schools and sporting bodies

The Department of Health leading an interdepartmental process should require that sports bodies and schools must have in place a range of policies and protocols to deal with concussion. These include:

- Specific education for Coaches, teachers, parents and players is essential to self-monitor and manage the injury. Assessment programmes such as the Return to Play Guide (and Return to Learn) must be abided by all sports bodies and schools throughout the country.

- All schools and clubs to adopt and implement a concussion management policy, which can be requested on inspection. This policy would be accompanied by educational material and information in compliance with the overall policy.

- Implement manageable assessment protocols to effectively manage concussion. Mandatory calls for removing a youth athlete who appears to have suffered a concussion from practice/play at the time of suspected concussion must be implemented.

- Work towards develop baseline testing – Pre-season should include baseline testing for all sports players to have a cognitive record on file to use as a comparison through the concussion recovery process. Cost effective and easy to use baseline testing is essential.

3. Implement National Concussion Care pathway

At present there are no concussion specialist services in Ireland that a person can be referred to following a severe concussion should they be in need further assessment and monitoring. Headaches, dizziness, sleep problems and psychological symptoms such as depressed mood, irritability, and anxiety, along with cognitive problems involving memory, concentration and thinking are all common symptoms of post-concussion syndrome that require specialised expertise. A concussion care pathway service should be available nationally to anyone in need of mild brain injury rehabilitation following a concussion. This service would guide a player or child back to play/work/school with the supports they need to fully rehabilitate back to full functioning capability.

In addition introduce epidemiological information forms to A&E to record any concussions reported. This form can record any head/brain injury history, mechanism, symptom duration and treatment – This form is currently being implemented at Boston Children’s Hospital.
a) Difference in Adults and Children

When considering the concussion care pathway it is important to remember to acknowledge the difference in adults and children when it comes to concussion. Children are not just small versions of adults. They are physiologically different, and this is perhaps most evident with traumatic brain injuries. In addition the academic and social pressures of school make the demands on the student athlete unique and intense. Return to learn guidelines must be implemented in schools for parents and teachers to know how to best manage a child recovering from a concussion. The therapeutic goal during concussion recovery is to find an appropriate level of cognitive exertion that does not exacerbate symptoms or cause the re-emergence of previously resolved symptoms. In an effort to achieve this goal it is advised that an interdisciplinary team work together to provide multiple perspectives on the student/athlete. An interdisciplinary team consist of a member from the family, school physical team, school academic team and rehabilitation team. These teams work closely together to watch and care for the student/athlete during his/her recovery from concussion.

Final Comments

In all cases of suspected concussion it is recommended that the player is referred to a medical or healthcare professional for diagnosis and guidance. Concussion management strategies must be based on an individual, objective assessment of clinical and cognitive recovery post-injury. Every brain is unique, so every brain injury will be different resulting in an individual recovery timeframe specific to the person injured. Cognitive and Physical rest is the cornerstone of concussion treatment, and so complete rest for a minimum of 24 hours is recommended following a hit to the head. A call for a cultural change in relation to concussion management will only come about through reducing the ‘Research to Practice Gap’; currently presenting an inconsistency in practice. If all sports bodies continue to provide little or no concussion information and education to its members, we will continue to have varied levels of understanding and miss-management of the injury indefinitely. This cannot continue.
Appendix 1

Background Information on ABI Ireland and ABI

Key Facts and Figures on ABI in Ireland

- Concussion is a brain injury
- Causes of brain injury are diverse; some of these include a road traffic accident, stroke, brain tumour, trip/fall, an assault and a brain aneurysm.
- Each year it is estimated that 13,000 people in Ireland acquire a brain injury
- There are approximately 130,000 people with an ABI in Ireland today living with ABI
- ABI is one of the leading causes of disability and can have life-long consequences for people with the condition, their carers and families
- ABI can vary in its severity and impact on the person personality and behaviour
- ABI can be caused by among others assaults, accidents, brain haemorrhage, strokes and tumours
- ABI has significant personal, societal and economic implications.

Living with ABI

ABI causes damage to your brain that may result in behavioural and physical changes which can affect memory, speech and language, mobility, sight, understanding of situations and decision-making. It may also affect concentration and ability to cope under pressure. Having an ABI is life-changing and requires massive adjustments on the part of the individual and their families to alter their life plans and to re-build and accommodate a new way of living.

About Our Organisation – ABI Ireland

ABI Ireland is a national organisation providing a range of flexible and tailor-made neuro-rehabilitation services and supports to people with an ABI in communities across Ireland. It also works to create awareness of the people living with an ABI, provide information and support to families and engages in awareness raising, campaigning, research and advocacy.

Contact Details

ABI Ireland welcomes the opportunity to give an oral presentation to the Joint Committee on Health and Children; further information available from Karen O’ Boyle, Communications Manager, ABI Ireland National Office, 43 Northumberland Ave., Dun Laoghaire, Co. Dublin. T: 01 280 4164 E: koboyle@abiireland.ie www.abiireland.ie
The following appendices are attached in separate PDFs:

Appendix 2: Poster Campaign
Appendix 3(a): ABI Ireland Concussion Card (Coach)
Appendix 3 (b): ABI Ireland Concussion Card (Player)
Appendix 4: Concussion Conference Agenda
Appendix 5(a): Press Coverage Irish Times
Appendix 5(b): Press Coverage Sunday Independent