

Concussion and chronic traumatic encephalopathy: International Rugby Board's response

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THE MEDIA IMPACT

Concussion and the potential threat of associated chronic traumatic encephalopathy (CTE) have attracted unprecedented media attention. The public debate regarding the link between CTE and head injuries in sport is emotive as well as distracting. This media focus has been positive in that it has raised public awareness of concussion but the same media focus could have negative consequences by

- ▶ Reducing sports participation and undermining the health benefits of exercise;
- ▶ Forcing sports to adopt hastily developed and evidence deficient risk management strategies.

Dr Patricios and Dr Kemp have called for leadership from Rugby in this area and have also called for collision sports to unite and provide a unified, unemotive and consistent message regarding possible neurocognitive effects associated with concussion in sport.

The International Rugby Board (IRB) supports this call for collision sport unity and outlines below an overview of our risk management strategy related to concussion.

WHAT IS THE RISK?

The risk of long-term neurodegenerative illness following head injury is unknown.¹ This uncertainty is the fuel that fires the public debate. The lack of concrete

evidence allows both sides to publically claim a position that is neither supported nor refuted by science.

What we do know is that a single moderate-to-severe traumatic brain injury (TBI) can lead not only to acute neurological deficits but also to long-term neurodegenerative issues, in 40–50% of patients.² We also know that *repetitive* head injuries in boxers and recently within other sports have been linked with long-term neurological sequelae.^{3 4}

What we do not know is

Is there a link between concussion (mild TBI) and neurodegenerative disease?

At what level of repetitive head injury do these long-term neurological sequelae become evident?

Also unknown—what is the impact of individual susceptibility, mental illness, alcohol or substance misuse in the development of neurodegenerative complications following head injury?¹

The IRB accepts that a risk is associated with head injury and concussion even if this risk is unquantifiable and unknown. As a responsible governing body the IRB will not delay action until irrefutable evidence is available but rather act prudently when evidence has been collected to an acceptable level. As such the IRB have developed a risk management strategy based on the current available evidence.

DEVELOPING CONSTRUCTIVE INTERVENTIONS

The IRB has a history of adopting an evidence-based risk management approach

to assess and manage safety issues within their sport, an example being a change in scrum engagement Laws in 2007.⁵ Recognising that the science around concussion is still evolving and evidence around concussion is incomplete, the IRB has based their risk management strategy on two recommendations proposed by McKee and Cantu. These strong proponents of the link between concussion and CTE suggest that the risk of CTE can be reduced by decreasing the number of concussions or mild traumatic brain injuries. They highlight that decreasing the number of concussions in sport can be accomplished by

- A. Limiting exposure to head trauma;
- B. Adhering to strict 'return to play' guidelines.⁶

LIMITING EXPOSURE TO HEAD INJURIES

Head contact in Rugby Union has been illegal since the inception of the game in the mid-1800s. Despite illegal contact being enshrined in the Laws of the Game, head injuries persist. The IRB acknowledges that limiting head trauma in Rugby is a key risk management strategy.

To confirm that exposure to head injury within the game has been limited as far as is practical, the IRB commissioned an independent game safety review. The goal of this review was to confirm that not only had Laws and Regulations been developed to minimise head contact events within Rugby but that these Laws and Regulations had been implemented and were being monitored and actioned. The monitoring and actioning of developed procedures is the critical component in obtaining positive outcomes from safety initiatives.

This safety review was able to confirm that Laws and Regulations had been developed, Match Officials had received directives related to prevention of head contact and that a significant component

of the performance assessment of Match Officials was linked to player safety and prevention of illegal head contact.

Preventing head contact events in Rugby through Law development is one method for reducing head injuries. Raising key stakeholder awareness by highlighting the negative outcomes associated with illegal head contact is also important. The IRB and its member Unions have and will develop for different groups such as administrators, referees, coaches, parents and players targeted awareness programmes.

EFFECTIVE MANAGEMENT OF CONCUSSION

McKee and Cantu's second pillar for reducing the unknown incidence of CTE is effective management of concussion by adhering to strict 'return to play' guidelines.⁶

The first step in effective management of concussion is recognition. The IRB acknowledges the importance of concussion recognition and is focused on increasing the awareness of recognising concussion at the Community and Aged Grade Rugby levels. In keeping with Zurich,¹ the IRB supports 'Recognize and Remove' awareness campaigns targeting administrators, referees, coaches, parents and players.

At the elite level of the game the IRB have altered the Laws of the game to improve concussion recognition. The introduction of the Pitchside Suspected Concussion Assessment (PSCA) allows medical staff to assess head injuries where the diagnosis of concussion is unclear in a quiet off-field environment as opposed to an 'on the run and on the field' assessment that previously existed.

In parallel with this 'Recognize and Remove' awareness programme the IRB will also be stressing that athletes must not return to play while symptomatic. Linking return to play while symptomatic with poor performance as well as distinct health risks are and will be key features of this message.

The IRB supports the strict adherence to return to play protocols as suggested by Zurich.¹ These return to play protocols have been embedded within the IRB Medical Regulation 10 making adherence to these return to play protocols mandatory for all injured players.

The IRB has extended the traditional return to play guidelines in an attempt to provide greater protection for our younger athletes. This increased protection is being achieved by introducing age-specific return to play protocols. It is frequently stated that young athletes with concussion should be treated more conservatively,^{1 7} yet defining conservative has not been undertaken by the majority of sports. The IRB has developed and will be shortly releasing age specific return to play protocols in an attempt to improve protection of our young athletes.

A final component of the IRB risk management strategy is head injury education of medical and healthcare professionals. The IRB has developed an online educational module for these groups aimed at improving their awareness and knowledge regarding appropriate concussion management.⁸

COLLISION SPORT CONSOLIDATION

It is probable that many collision sports have developed similar concussion risk management strategies. However, with each sport's tendency to operate within a 'silo', knowledge sharing in this risk management and also other operational areas is not usual practice.

The Concussion in Sport Group have provided medical education and raised concussion awareness through the four Concussion Consensus Conferences and Statements. It is widely accepted that they have achieved their 2001 goal of improving the safety and health of all athletes who suffer a concussive injury.⁹ Dr Patricios and Dr Kemp's call for a unified collision sports approach to management and prevention of concussion is a call for unification in the implementation and operational aspects of concussion

management and prevention. Unification and consistency in these operational areas would complement the activities undertaken by the Concussion in Sport Group at their four yearly Consensus meetings.

The IRB fully supports this 'call to consolidate' and believes that a unified consistent collision sport approach would contribute considerably to improved management and prevention of concussion. Further the 2 issues highlighted for addressing by Dr Patricios and Dr Kemp could be used as the centre piece of a strategic plan for this proposed coordinated collision sport cooperative.

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