



**World Rugby & concussion
Keeping ahead of the game
Leading in sport**

THE SITUATION

There has been a great deal of attention and debate about concussions recently, much of it emotionally charged and often not backed by evidence. The fact is, concussion is the number one priority for player welfare in rugby today.

While other sports are affected by concussion, rugby receives perhaps a disproportionate amount of attention as its physical nature is highly-visible and is being proactive in highlighting and tackling the issue.

LEADERS IN SPORT

World Rugby has been at the forefront of the concussion agenda, and supported by some of the world's top independent subject experts, works tirelessly to educate and protect players at all levels of the game.

We are committed to dedicated research and education programmes to ensure that players at all levels are both playing safely and reporting injuries so that correct medical treatment can be provided and invest over £1 million per year in this area. We are leading the way in terms of concussion protocols, with other leading sports adopting our latest head injury management protocol, the Scottish government adopting World Rugby's public education guidance, while others (such as the NFL) are looking to learn from rugby about how to make tackling techniques safer and reduce injuries.

While there is a 59% increase in reported concussions in English professional rugby in 2013-14 compared to the previous season.¹ it is recognised that this increase is not necessarily due to an increased number of events but rather from additional reporting and a greater awareness by players, coaches and medics as a result of educational initiatives by World Rugby and other governing bodies. Players are more aware of what their symptoms mean, and are willing to declare them to club coaches, doctors and referees.¹

Another major contributor is the success of the Head Injury Assessment (HIA) protocol that operates in professional rugby and has proven to identify suspected concussion, while the strict *Recognise And Remove* policy means that more players than ever before are being permanently removed, when they would have otherwise remained on the field.

The modern game

One of the reasons often cited for the increase in injury rates among rugby players, including concussion, is the increased size and speed of the players in the modern game. The view being that larger forces travelling at higher speeds are going to create bigger impacts. However a ten year study of England Premiership rugby players showed that statistically significant changes in body shape were limited to fly halves (taller and heavier), props (taller and younger) and back row forwards (heavier), rather than an increase in body size across the board.²

The tackle in rugby is responsible for a lot of injuries in players – 55-60 % of injuries in adult rugby result from the tackle³ and research has identified that improved education and stricter implementation of tackling laws would help to reduce injuries, particularly of the head and neck, without radically changing the nature of the sport.^{4,5}

Concussion rates not linked to physicality

It is also important to understand the difference between reported concussion rates and the true rate and the current rate reported in the RFU studies reflects the true position born through better player honesty and stronger diagnosis. If concussion rates were linked to physicality, then you would also expect an increase in the most common rugby injuries (should instability, thigh hematoma and knee), but this is not the case. These injuries have also decreased marginally since 2002.

Long-term impact and recurrent concussion

One of the key concerns around concussion in rugby and wider society is the longer-term impact and the effect on the brain of recurrent concussions. Rugby has always operated a zero-tolerance policy towards deliberate hits to the head (unlike NFL and NHL). One of the top priorities in rugby education is knowing how to recognise potentially concussed players and get them off the pitch for medical assessment and prevention of additional impact.

An emotive issue

Concussion is different to other injuries in sport, in the fact it is difficult to identify and it also provokes a great deal of emotion. The attention that concussion has received recently has understandably led to questions around the safety of the sport, especially among youngsters, however data show no difference between reported injury rates in rugby, football, indoor football and rugby league at under 12 level.⁶

WORLD RUGBY'S APPROACH

Concussion is the single biggest priority for World Rugby, players and families. Far from being complacent, we are taking a very proactive approach and are determined to make rugby as safe as possible by better understanding, minimising and managing the risks associated with this growing sport. We have listened to the experts and developed our approach to concussion based on the latest evidence.

WR's collective responsibility – is to support and protect players at all levels of the game, a responsibility held by players, coaches, parents and referees:

Fellow players/coaches/parents/referees/club doctors: Responsibility:

- You **MUST** do your best to ensure that the player is removed from play in a safe manner, if you observe them displaying any of the visible clues or signs or symptoms of a suspected concussion.

- You MUST NOT allow a player to play rugby until they have completed the graduated return to play (GRTP) protocol if they are displaying signs or symptoms of a suspected concussion sustained while playing rugby or another sport.
- You MUST ensure that the player is in the care of a responsible adult and inform them of the player's suspected concussion.

Player: Responsibility:

- If you have symptoms of a suspected concussion you must STOP playing and INFORM medical and/or coaching staff immediately.
- Be honest with yourself and those looking after you.
- If you have symptoms of a suspected concussion sustained while playing rugby or another sport, you MUST NOT play rugby until you have completed the graduated return to play (GRTP) protocol.

Pitch side Head Injury Assessment (HIA) is an assessment tool that is used when no clear symptoms of concussion are visible, giving the team or independent medic further information to make an informed decision. Following ongoing research and monitoring of the use of the tool, World Rugby has strengthened the head injury assessing process by expanding two components of the pitch side concussion assessment (PSCA):

- The memory test strengthened and the balance test altered – to provide more comprehensive information to the team and independent doctors to inform their return to play decisions.
- In order to accommodate these expanded PSCA components and following a successful pilot trial, the time allowed to undertake the assessment has been increased from five to ten minutes.
- All players who have undertaken a PSCA, regardless of pass or fail, must complete a SCAT 3 assessment after the match/training.

Graduated Return to Play Protocol (GRTP) is a progressive exercise program that introduces an athlete back to sport step by step. It is only started once a player no longer has symptoms and has stopped taking any medication that could mask concussion symptoms e.g. headache treatments. The GRTP consists of six distinct stages:

1. Minimum rest
2. Light aerobic exercise
3. Sport specific exercise
4. Non-contact training drills
5. Full contact practice
6. Return to play

Each stage takes a minimum of 24 hours but can take much longer. Players will not return to play until medical professionals are satisfied it is safe for them to do so.

Rugby World Cup 10-point player welfare standards programme – The most extensive player welfare programme to operate in a rugby event, the the World Rugby Executive Committee has paved the way for a uniformed approach to the implementation of minimum standards across elite rugby events.

The ground-breaking 10-point player welfare standards, which World Rugby announced in November 2014 will debut at Rugby World Cup 2015, has been driven by the organisation's Medical Commission and will now also apply to World Rugby's portfolio of international competitions.

The standards feature six key measures for concussion prevention and management, including mandatory baseline concussion testing and education, use of technology to identify injuries and an untoward incident review system.

The 10-point player welfare standards for RWC 2015 are:

1. Prior to the tournament, each team doctor or the union's chief medical officer must confirm that all players are medically, mentally, dentally and physically fit to attend and to participate.
2. Each player must have completed the World Rugby cardiac screening questionnaire and have undergone a cardiac examination, including a mandatory electrocardiography (ECG) test. This assessment must be completed prior to the player's arrival at the tournament.
3. All team medical staff and match day medical staff must have completed the World Rugby education modules pertaining to concussion management, anti-doping and anti-corruption.
4. All team medical staff and match day doctors must have completed, as a minimum, World Rugby Level Two Immediate Care in Rugby (ICIR) accreditation or equivalent prior to the tournament.
5. Within a year prior to the tournament, all players and team management must have completed a concussion education session. As a minimum, this session will cover the essential information outlined in the head injury assessment protocol document.
6. Each player must complete a baseline concussion assessment using, as a minimum, the Sport Concussion Assessment Tool (SCAT) 3. It is recommended that teams also include neurocognitive computer assessments.
7. Teams must confirm that all players have completed a concussion risk stratification to support individual concussion management.
8. Teams must confirm that their medical staff, coaches and management will comply with the World Rugby permanent and temporary removal from field of play criteria for head impact events.
9. Teams must acknowledge that the tournament has an untoward incident review system for potential medical mismanagement and, specifically, for incidents where head injury protocols are not enforced. All team staff must acknowledge that they will participate, if requested, in any untoward incident review and that a charge of misconduct can be applied following such a review.
10. Teams must acknowledge that the match day doctor has the power to remove an injured player unilaterally from further participation.

Recognise and Remove: What is it? – The World Rugby Recognise and Remove message is a widely promoted protocol throughout all levels of rugby. It incorporates the six R's below that should be adhered to by all those involved:

- **Recognise** – Learn the signs and symptoms of a concussion so you understand when an athlete might have a suspected concussion.
- **Remove** – If an athlete has a concussion or even a suspected concussion he or she must be removed from play immediately.
- **Refer** – Once removed from play, the player should be referred immediately to a qualified healthcare professional who is trained in evaluating and treating concussions.
- **Rest** – Players must rest from exercise until symptom-free and then start a Graduated Return to Play (G RTP). World Rugby recommends a more conservative return to play for children and adolescents.
- **Recover** – Full recovery from the concussion is required before return to play is authorised. This includes being symptom-free. Rest and specific treatment options are critical for the health of the injured participant.
- **Return** – In order for safe return to play in Rugby, the athlete must be symptom-free and cleared in writing by a qualified healthcare professional whom is trained in evaluating and treating concussions. The athlete completes the G RTP protocol.

Recognise and Remove: A bigger voice – In order to increase awareness of this important message, WR has:

- Developed and launched a **new Concussion App**, an easy tool for stakeholders to educate themselves about concussion. Available in 8 languages, the app provides medically approved information on everything from recognising symptoms of discussion to return play through interactive video content.
- Coined '**Recognise and Remove Day**' and to mark it, WR is inviting the global rugby family to unite, complete the interactive education quiz module (within the app), share their certificate on social media, whilst nominating a friend to do the same.
- Released a unique #RecogniseAndRemove **Video**, which features some of the biggest stars of men's and women's Rugby. It is central to a game-wide education programme aimed at informing the symptoms and dangers of concussion. Watch it here - <http://www.worldrugby.org/news/76746>
- Adopted a bottom up approach to education, prevention and management, collaborating with unions and a body of expert independent advisors to deliver policies and programmes to support the game.

Education materials and modules for all levels – World Rugby has developed a range of easy to follow online head injury and concussion educational resources suitable for all those involved whether they be players, medics or parents and for all levels of the game including for community and elite match day medical staff. There is an online test and once completed a certificate is provided. For more information and to view these modules, visit <http://playerwelfare.worldrugby.org/concussion>.

Correct tackling and education – in adult Rugby, 72% of all concussion injuries are sustained in the tackle⁷ and it is recognised that poor positioning in a tackle can be the cause of head injuries. As such, World Rugby provides comprehensive educational resources on correct tackling position and technique as part of the *Rugby Ready* programme, as well as coaching tips to ensure players at all levels are aware both of tackling laws and the consequences of dangerous tackles.

World Rugby research strategy and funding – Rugby is leading the way when it comes to world sport’s response to concussion with other sports adopting World Rugby’s protocols. World Rugby makes significant investments in research to advance the understanding of concussion in sport and measures that can be taken to minimise it. Research priorities are set by the World Rugby Medical Science and Research Group and currently priority topics are as follows:

- Education of different stakeholders
- Long term neurodegenerative and mental complications
- Surveillance
- Identifying the best diagnostic tool
- Evaluation of the head impact forces during match play and training for all

World Rugby Independent Concussion Advisory Group – This group comprises academic experts, healthcare professionals as well as past players and other stakeholders. Together they help to inform World Rugby’s approach to concussion in terms of research priorities and educational initiatives.

Workshop on International Concussion Collaboration – in June 2015 World Rugby sponsored the Workshop on International Concussion Collaboration. It was hosted by the University of Glasgow and brought together leading brain experts and representatives from sporting bodies to share knowledge and identify further areas of collaboration in the area of concussion. Participants included:

- Big 10/CIC-Ivy League Traumatic Brain Injury Research Collaboration and the universities of Cambridge, Bath, Manchester, Glasgow, Cardiff and Birmingham, Imperial and University College London and the Institute of Occupational Medicine
- Leading representatives from the NFL, the Football Association, Scottish Football Association, the Rugby Football League and national rugby unions

WHAT OTHERS SAY ABOUT WORLD RUGBY’S APPROACH

International Rugby Players Association CEO Rob Nichol: “Rugby is leading the way in concussion education, prevention, management and research in sport and the world’s top players are thankful for the expertise and leadership that World Rugby demonstrates in this hugely important area.”

World Rugby CMO Dr Martin Raftery: “Concussion education, prevention, management and research continues to be World Rugby’s number one priority and we work tirelessly with leading area experts, other sports and rugby stakeholders to drive forward protection of players at all levels. Our approach is evidence-based and as the science and knowledge has evolved, we have responded proactively.”

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