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“Tackling” rugby safety through a collective approach

Sharief Hendricks^{1,2}, Carolyn Emery^{3,4,5,6,7,8,9}, Ben Jones^{1,2,10,11,12}, James Brown^{1,2,13} Kathryn Dane¹⁴, Stephen W. West^{3,15,16}, Keith Stokes^{15,16,17}, Richie Gray¹⁷, Ross Tucker^{13,18}.

1. University of Cape Town, Division of Physiological Sciences and Health through Physical Activity, Lifestyle and Sport Research Centre, Department of Human Biology, Faculty of Health Sciences.
2. Carnegie Applied Rugby Research (CARR) Centre, Carnegie School of Sport, Leeds Beckett University, Leeds, United Kingdom
3. Sport Injury Prevention Research Centre, Faculty of Kinesiology, University of Calgary, Calgary, Canada.
4. Integrated Concussion Research Program, University of Calgary, Calgary, Alberta, Canada
5. Alberta Children’s Hospital Research Institute, University of Calgary, Calgary, Alberta, Canada
6. Hotchkiss Brain Institute, University of Calgary, Calgary, Alberta, Canada
7. O’Brien Institute for Public Health, University of Calgary, Calgary, Alberta, Canada
- 6Departments of Pediatrics, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada
8. Community Health Sciences, Cumming School of Medicine, University of Calgary, Calgary, Alberta, Canada
9. McCaig Institute for Bone and Joint Health, University of Calgary, Calgary, Alberta, Canada
10. Premiership Rugby, London, United Kingdom
11. England Performance Unit, Rugby Football League, Manchester, United Kingdom
12. Leeds Rhinos Rugby League club, Leeds, United Kingdom
13. Institute of Sport and Exercise Medicine, Department of Exercise, Sport and Lifestyle Medicine, Faculty of Medicine and Health Sciences, Stellenbosch University
14. Discipline of Physiotherapy, School of Medicine, Trinity College Dublin, Dublin, Ireland
15. Centre for Health, and Injury & Illness Prevention in Sport, University of Bath, United Kingdom
16. UK Collaborating Centre on Injury and Illness Prevention in Sport (UKCCIIS), University of Bath, United Kingdom
17. GSI Performance Scottish Borders, United Kingdom
18. World Rugby, 8-10 Pembroke St., Dublin, Ireland

Commitment to seeking an evidence-informed approach

When it comes to player welfare, Rugby Union governing bodies have committed to seeking and funding an evidence-informed approach. This involves using research to make informed decisions about policy, laws, and injury prevention programs. Over the last decade a growing body of research has informed player safety, for example, modifications to scrum laws to reduce catastrophic head and neck injuries.¹ However major gaps remain, including tackle research focusing on the women's game.²

A socio-ecological perspective

It is well-understood that player welfare, specifically injury prevention, is a complex issue. To effectively address these complexities and make a long-term impact requires a dynamic socio-ecological approach.³ An athlete operates within a socio-ecological structure (individual, interpersonal, organisational, community) that is influenced by a web of inter-related factors and actors, both of which change over time and/or when a factor/actor is modified. (Figure 1). Typically, injury prevention research will identify player level factors that influence injury risk (risk factors), and aim to modify these factors through behaviour change interventions. However, the socio-ecological view emphasizes understanding contextual factors influencing implementation of such modifications. For example, if the behaviour intervention is a training programme, how much time is available to implement the training programme? Or, is the training programme appropriate for all sexes?

Reducing concussion risk during the tackle

Reducing concussion risk during the tackle, at all levels, is a top priority for rugby stakeholders and governing bodies. Video analyses examining head impacts and resulting concussions have identified that elements of players' tackling technique are major risk factors. For both effective and safe tackling, the optimal techniques are to maintain a low body position or dip from an upright to low body position to contact the ball-carrier at their centre of gravity (mid-torso area). Tackles causing head injuries differ, with upright tackler body positions and head-to-head and head-to-shoulder contact found to be over-represented in injurious tackles.⁴

In view of the concussion risk associated with direct head contacts caused in part by an upright body position,⁴ World Rugby (WR) has applied a regulatory approach to change players' tackling behaviour through more strict and consistent refereeing of high tackles.⁵ WR and national governing bodies have also trialled lowering the height of a legal tackle from the shoulder to the armpit in an effort to 'nudge' players to make contact with the ball-carrier mid-torso.^{6,7} France, New Zealand and England have also announced they will implement lowering the legal tackle height in community rugby. These tackle law changes are related to the maximum height of a legal tackle for officiating purposes, and reinforce the optimal techniques recommended for a safe and effective tackle i.e. contacting the ball-carrier at their centre of gravity. Therefore, the change in the maximum height for a legal tackle strengthens our current coaching of proper tackling technique.

Changing laws and policies is a 'passive' measure on the passive-active injury prevention and intervention continuum.⁸ In general, passive measures have a broader impact as they relate to the whole sport. In contrast, active measures require players, or any party directly responsible for player's safety, to deliberately be involved in protecting the player. Being actively involved also enhances the individual's ability to perform the desired behaviour change, i.e. self-efficacy, which is a key determinant of behaviour change.⁹ Integrating passive and active behaviour change measures is thought to be most effective in sustainable injury prevention.⁸

Upskilling to play with the laws

To gain self-efficacy in reducing concussion risk in tackles, players must have the ability to repeatedly meet the recognized safety requirement of contacting the ball-carrier at the mid-torso, a skill that requires physical, technical, tactical and psychological proficiency and capacity. A large body of literature describes how to optimize training for skill learning, maintenance, transfer and capacity building. This literature has only recently been applied to tackle training.¹⁰ The interpersonal actor in the socio-ecological view of preventing injury prevention in team sports is the coach, the target of behaviour change for national injury prevention programmes such as BokSmart.¹¹ While research on the specific elements of how to best test, design, provide feedback and evaluate the tackle during training is emerging, we need to acknowledge the complexities of coaching, and recognize that the main outcome measure of a player's tackle ability is performance. Thus, any measure (active or passive) to reduce concussion risk must consider the impact on the player's tackle performance, and accept that any safety measure that impairs performance is unlikely to be implemented.

Collective approach

Further, we must appreciate that research alone may be unable to meet the urgent timeframes for optimising tackle safety through skill training. Also, the effectiveness and sustainability of a safe tackle-skill programme may be reliant on elements of coaching ("the art of coaching") that cannot necessarily be assessed using a traditional research design. In rugby, and specifically for tackle safety, the need for engagement, collaboration and collective action between stakeholders at all socio-ecological levels has never been greater – this includes players, coaches, parents, clubs, administrators, governing bodies, media and match officials (Figure 1). The necessary next step in this collective action towards improving tackle safety is to bring these stakeholders, along with researchers and clinicians, together to create a specialist tackle working group. The mandate of this working group would be to identify the most important focus areas and research questions to inform best practice and policy, and then manage and oversee the research process. A key part of this mandate will be to ensure that all research is effectively translated and disseminated to the wider rugby community.

In conclusion, reducing concussion risk during the tackle is complex and requires a dynamic socio-ecological perspective to integrate active and passive measures to change player behaviour. The behaviour change required to safely and effectively contest the tackle is a skill, and multi-stakeholder engagement, collaboration and collective action between players,

coaches, parents, clubs, administrators, governing bodies, media and match officials is needed to effectively reduce the risk of concussion in the tackle.

Twitter: @Sharief_H @CarolynAEmery @jamesbrown06 @westy1609 @23BenJones @KathrynDane2 @drkeithstokes @RichieGrayGSI @ScienceofSport

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Figure 1: The collective approach of the different actors in the socio-ecological view for injury prevention in sport along the passive-active intervention continuum.

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