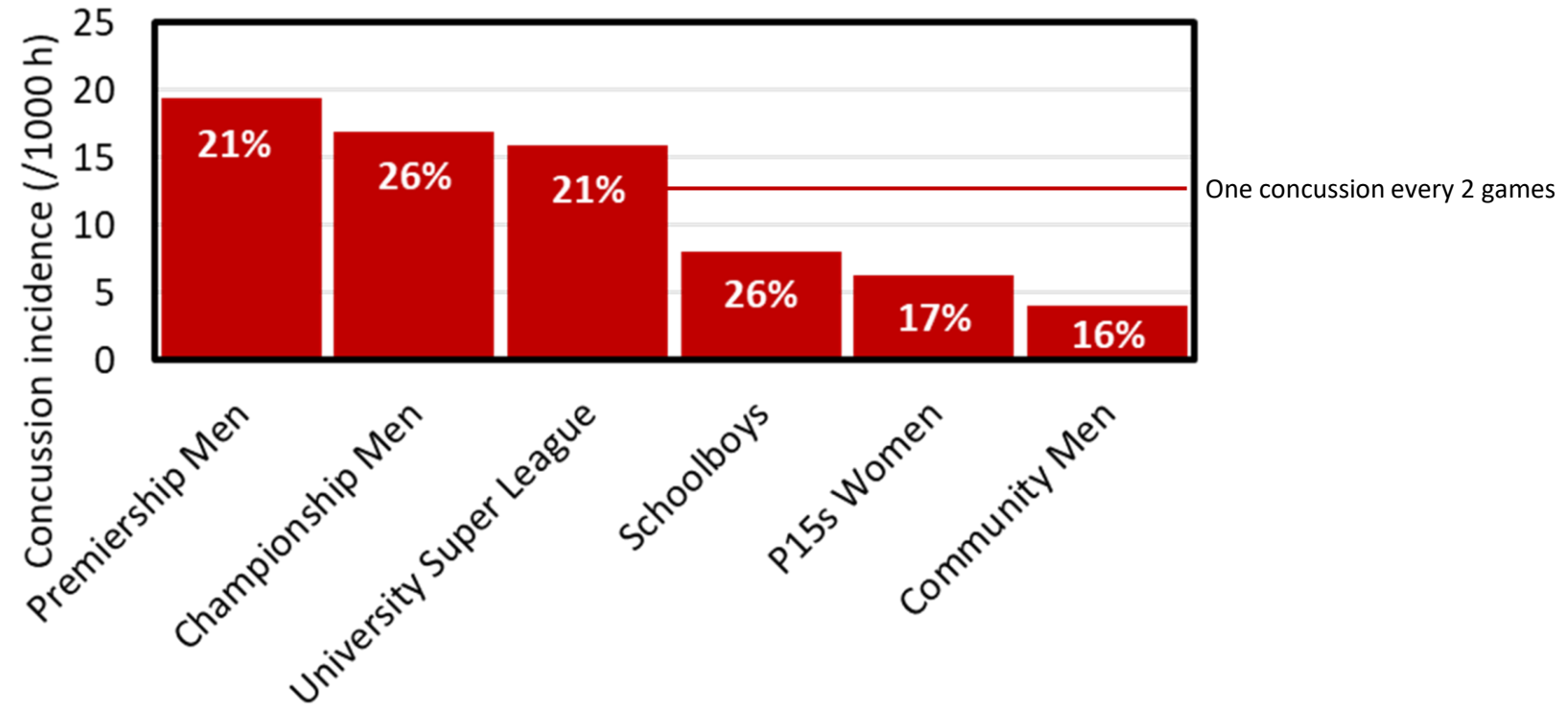


Lowering of the tackle height

What does the science tell us?

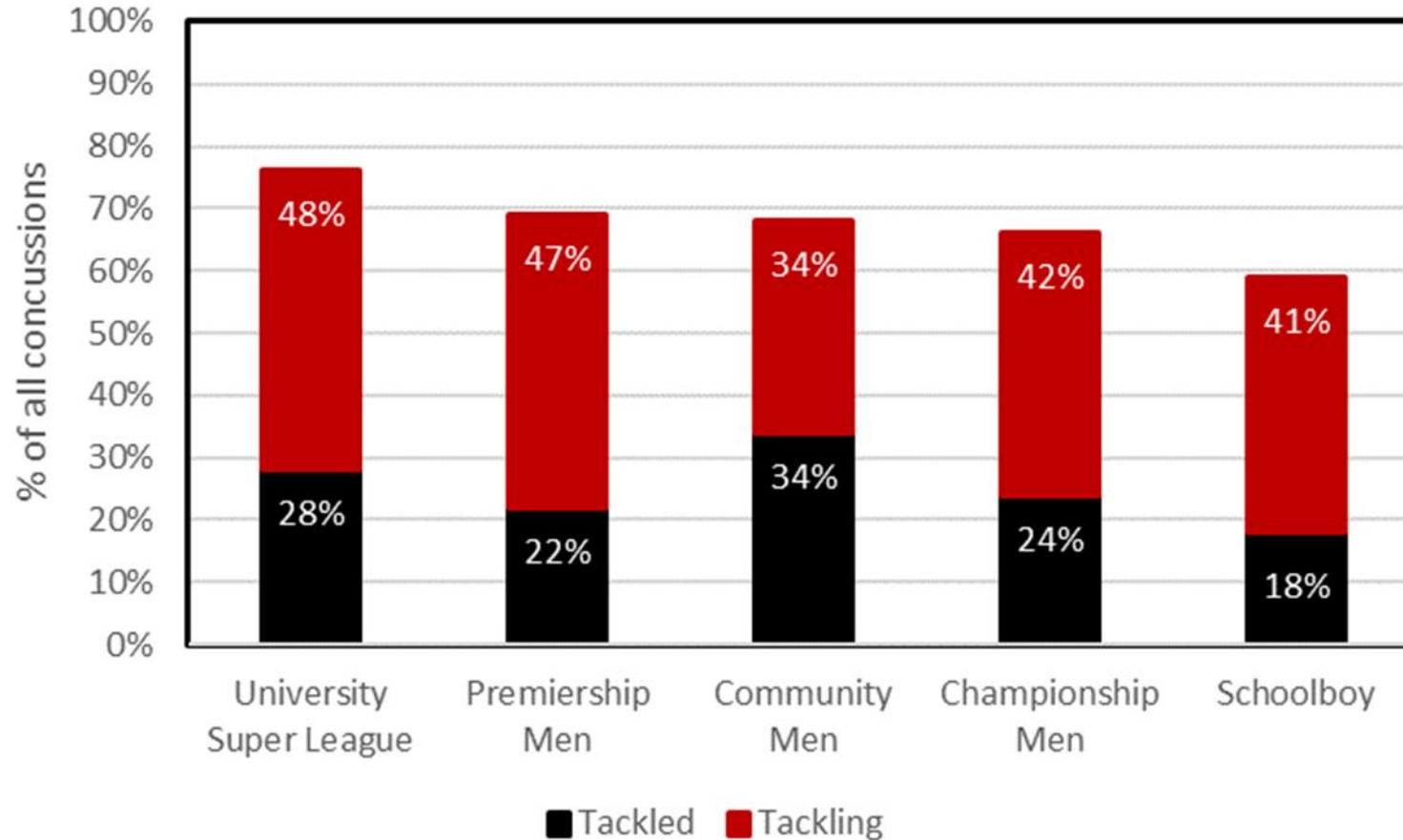
What are we looking to achieve?



Incidence (/1000h) of reported **Concussion** and the proportion (%) of all injuries that were reported concussions at different levels of rugby union in England 2017-2020

A reduction in head injury and concussion risk

Why are we considering the tackle?



Note -Adult female community Injury surveillance started in 21-22 and has not reported yet and age-group female injury surveillance started in 22-23

Proportion (%) of all concussion that were sustained in the tackle at the different levels of rugby union in England to the tackler and ball carrier

60-75% of concussions occur in the tackle

What is the approach that has been used?

- **Evaluation of risk factors**

- Video analysis of HIA & concussion tackle risk 2016 –
- Smart mouthguard studies 2022-

Define the problem

Identify risk and potential protective factors

Develop and evaluate reduction strategies

Assure effective implementation

- **Rugby Head acceleration event and concussion risk**
- Injury surveillance & smart mouthguard studies

- Formulation of RFU position
- Agree approach for roll out

- **Evaluate strategies**

- Championship cup arm-pit height evaluation 18-19
- Stellenbosch arm-pit height evaluation 2019
- FFR waist-height evaluation 2019 -
- RFU age-group arm-pit height 2021-2

Video analysis of Tackles (2016 – present)

Downloaded from <http://bjsm.bmj.com/> on January 12, 2018 - Published by group.bmj.com
BJSM Online First, published on October 11, 2017 as 10.1136/bjsports-2017-097912
Original article

Tackling concussion in professional rugby union: a case-control study of tackle-based risk factors and recommendations for primary prevention

Matthew J Cross,^{1,2} Ross Tucker,³ Martin Raftery,³ Ben Hester,³ Sean Williams,² Keith A Stokes,² Craig Ranson,^{4,5} Prav Mathema,⁵ Simon Kemp¹

Downloaded from <http://bjsm.bmj.com/> on June 30, 2017 - Published by group.bmj.com
Online First, published on June 29, 2017 as 10.1136/bjsports-2017-097883
Original article

A video analysis of head injuries satisfying the criteria for a head injury assessment in professional Rugby Union: a prospective cohort study

Ross Tucker,¹ Martin Raftery,¹ Gordon Ward Fuller,² Ben Hester,¹ Simon Kemp,³ Matthew J Cross^{3,4}

**Higher contact on the ball carrier and closer head proximity of players in relation to one another
→ increase in head injury & concussion risk**

Subsequent evaluations on U20s, Elite Women and two more recent cohorts of adult men have all generated the same findings

Develop & evaluate real-world reduction strategies

Original research

Does reducing the height of the tackle through law change in elite men's rugby union (The Championship, England) reduce the incidence of concussion? A controlled study in 126 games

Keith A Stokes^{1,2}, Duncan Locke^{2,3}, Simon Roberts¹, Lewis Henderson², Ross Tucker⁴, Dean Ryan⁵, Simon Kemp²

By J Sports Med: first published as 10.11

Arm-pit height
No formal coaching of tackle technique

Compensatory player behaviour change
No change in overall concussion risk

Tackling sport-related concussion: effectiveness of lowering the maximum legal height of the tackle in amateur male rugby – a cross-sectional analytical study

Riaan van Tonder^{1,2}, Lindsay Starling³, Sean Surmon⁴, Pierre Viviers^{1,5}, Wilbur Kraak⁶, Pieter-Henk Boer⁷, Esme Jordaan^{8,9}, Sharief Hendricks^{10,11}, Keith A Stokes^{3,12}, Wayne Derman^{1,2}, James Craig Brown^{1,2}

Arm-pit height
No formal coaching of tackle technique

Player behaviour change
Trend to reduction in concussion & injury risk
No change in overall concussion risk



Waist height
No forward projection of BC at contact
No simultaneous assist tackle
Formal coaching of tackle technique

Decline in penalties for illegal tackles
Reduction in suspected concussions
Positive changes in shape of the game

Arm-pit tackle height in English age-group game 21-22

No significant change in concussion risk (Y-RISP)

Why we think the navel is the optimal height

Community Men

Levels 5-9, 2690 tackles from 10 games

4% (10 PER MATCH)

HEAD AND NECK

13% (35 PER MATCH)

SHOULDER AND ARMPIT

52% (141 PER MATCH)

TORSO

17% (45 PER MATCH)

UPPER LEG

3% (8 PER MATCH)

LOWER LEG

11% (29 PER MATCH)

UNKNOWN

U-18 Schools

3481 tackles from 16 games

5% (11 PER MATCH)

HEAD AND NECK

15% (33 PER MATCH)

SHOULDER AND ARMPIT

44% (96 PER MATCH)

TORSO

19% (41 PER MATCH)

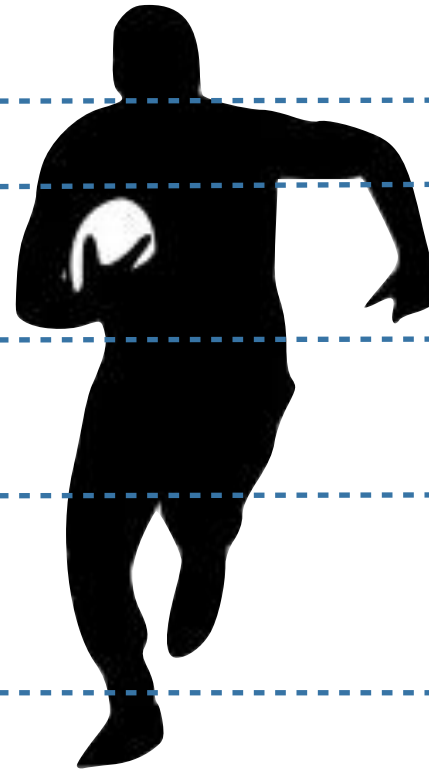
UPPER LEG

3% (7 PER MATCH)

LOWER LEG

UNKNOWN

14% (31 PER MATCH)



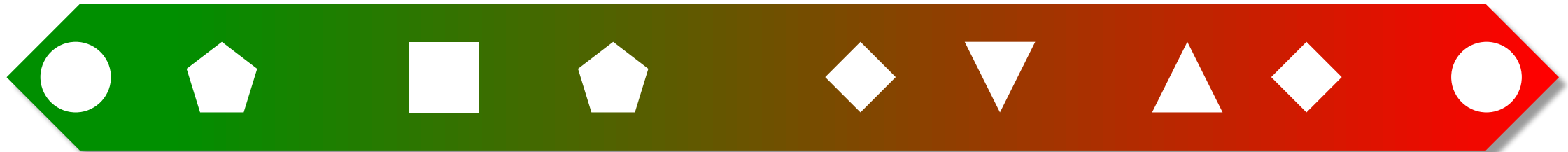
Current point of tackler contact on the ball carrier (the tackler's head will be higher than this)

Won't this increase the head injury risk for the tackler?

Risk of head Injury for the tackler by contact point on the ball carrier
(comprising 760 HIAs)

Low

High



Torso	Upper leg	Lower leg	Hip	Shoulder	Arm	Knee	Elbow	Head
0.9	0.9	1.8	2.0	3.4	4.0	6.2	6.4	11.8/1000
1 in 1125	1 in 1083	1 in 573	1 in 491	1 in 299	1 in 252	1 in 161	1 in 157	1 in 85

Head to head contact is the highest risk for the tackler compared to all other body parts

As a consequence we can expect the head injury risk to reduce for the tackler

Why do we need to consider late dipping by the ball carrier?



To enable a bent tackler to safely tackle a bent ball carrier head-on

To provide the tackler with a safe and effective tackle choice

Encouraging evasion by the ball carrier has been shown to reduce head injury risk

What effect do we anticipate these changes will have ?

We believe that this proposed reduction in tackle height will reduce head injury and concussion risk

We need to be prepared to be patient

We will continue to monitor Concussion risk, HAE exposure (selected populations), game shape....and make changes if these are needed

Thank you

Acknowledging World Rugby (Prof Eanna Falvey, Dr Martin Raftery and Prof Ross Tucker) and all of the other individuals whose work has shaped the collective understanding of the science