

EVALUATION OF
SCOTTISH RUGBY'S

LOWERED TACKLE HEIGHT

LAW CHANGE IN ADULT SCOTTISH
COMMUNITY RUGBY



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INTRODUCTION

The tackle has the highest risk for head collisions, and causes the most concussions in rugby union. As such, law variation prevention strategies aiming to reduce head contact have been introduced.

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Scottish Rugby opted in to a new law variation, introduced by World Rugby, lowering the maximum legal height of the tackle from the line of the shoulder to the base of the sternum. The trial was made compulsory across all amateur playing levels, and investigated whether lowering the tackle height was an effective approach in 1) changing players' tackling behaviour and 2) reducing head contact risk in Scottish women's and men's community rugby.

These studies aimed to evaluate the impact of the lowered tackle height (LTH) in men's and women's Scottish community rugby, using video analysis to assess differences in tackling behaviour, head-contact risk between the pre-LTH season (2022-23) and LTH season (2023-24).

The women's study analysed

**34 games and
11,332
tackle events**

incorporating prospective injury and concussion surveillance data.

The men's study analysed

**60 games and
18,702
tackle events.**

WOMEN'S

SCOTTISH COMMUNITY RUGBY LOWERED TACKLE HEIGHT EVALUATION

This is the first study evaluating a lowered tackle height (LTH) and its effect on tackle characteristics, head-contact and injury in Scottish community women's rugby.

During the LTH season tacklers entered the tackle with a lower body position, with upright tackles reducing by 21% and bent at waist tackles increasing by 34%.

The rate of tackler contacts to the ball carriers' red zone (head, neck and upper torso) decreased by 19%, green zone contacts (lower torso or arms) increased 4% and amber zone (hip, upper/lower leg and knee) contacts increased by 49% during the LTH season.

The tacklers initial contact point on the ball-carriers head/neck and upper-torso significantly decreased (head by 64%, upper-torso by 19%).

Head-to-head and head-to-shoulder proximity to the opponent were reduced for the tackler (by 29% and 27%, respectively) and the ball carrier (by 33% and 32%, respectively).

Head-to-shoulder contact for the tackler reduced by 35% and ball-carrier by 48%.

Although this was not significant, tackler concussion rates decreased [IR:2.83 to 0.52/1000 player match hours; RR:0.18 (95%CI 0.004-1.52)].

Tacklers' contact points on ball-carrier during LTH seasons

RED ZONE CONTACT
DECREASED BY

19% ↓↓↓

GREEN ZONE CONTACT
INCREASED BY

4% ↑↑↑

AMBER ZONE CONTACT
INCREASED BY

49% ↑↑↑



154 TACKLER AND 158 BALL-CARRIER

HEAD-TO-HEAD AND HEAD-TO-SHOULDER
CONTACTS MAY HAVE BEEN PREVENTED.



BENT AT WAIST TACKLES
INCREASED BY

34%

UPRIGHT TACKLES
DECREASED BY

21%

Adult women's study unintended consequences

There were significant reductions in the number of tacklers and total tackle actions, but no significant changes in the frequency of other match events (e.g. number of offloads) between pre and LTH seasons.

There were no significant increases in tacklers head contact to the ball-carriers hip or knee.

Although this was not significant, ball-carrier concussion rates increased [IR:1.89 to 4.70/1000 player match hours; RR:2.49 (95%CI 0.69-11.06)]. The study indicates there may be differences in the impact of the LTH trial between the tackler and the ball-carrier, however overall concussion injury numbers were very low and so these findings should be interpreted with caution.

Despite this, across a typical 8-team league season, it is estimated that approximately 154 tackler and 158 ball-carrier head-to-head and head-to-shoulder contacts may have been prevented.

Tacklers' initial point of contact on the ball carrier

HEAD/NECK
DECREASED BY

64%

UPPER-TORSO
DECREASED BY

19%



MEN'S

SCOTTISH COMMUNITY RUGBY LOWERED TACKLE HEIGHT EVALUATION

This is the first study in Scottish men's community rugby to evaluate the differences in player behaviour and head contact risk after lowering the maximum legal height of the tackle from the shoulder to the base of the sternum.

During the LTH season, tacklers were less likely to contact the ball carrier (BC) in an upright position (decrease by 24%) and the rate of bent at waist tackling increased during the LTH season by 22%.

The rate of tackler contacts to the ball carriers' green zone (lower torso or arms) increased by 8% and amber zone (hip, upper/lower leg and knee) by 21%.

While overall tackler head contact to the ball carrier (any region) increased, head-to-head and head-to-shoulder contacts with the ball carrier decreased by 45% and 29% respectively. Ball carrier head contact to the tacklers shoulder also decreased by 32%.

Tacklers' contact points on ball-carrier during LTH seasons

RED ZONE CONTACT
DECREASED BY

19% ↓↓↓

GREEN ZONE CONTACT
INCREASED BY

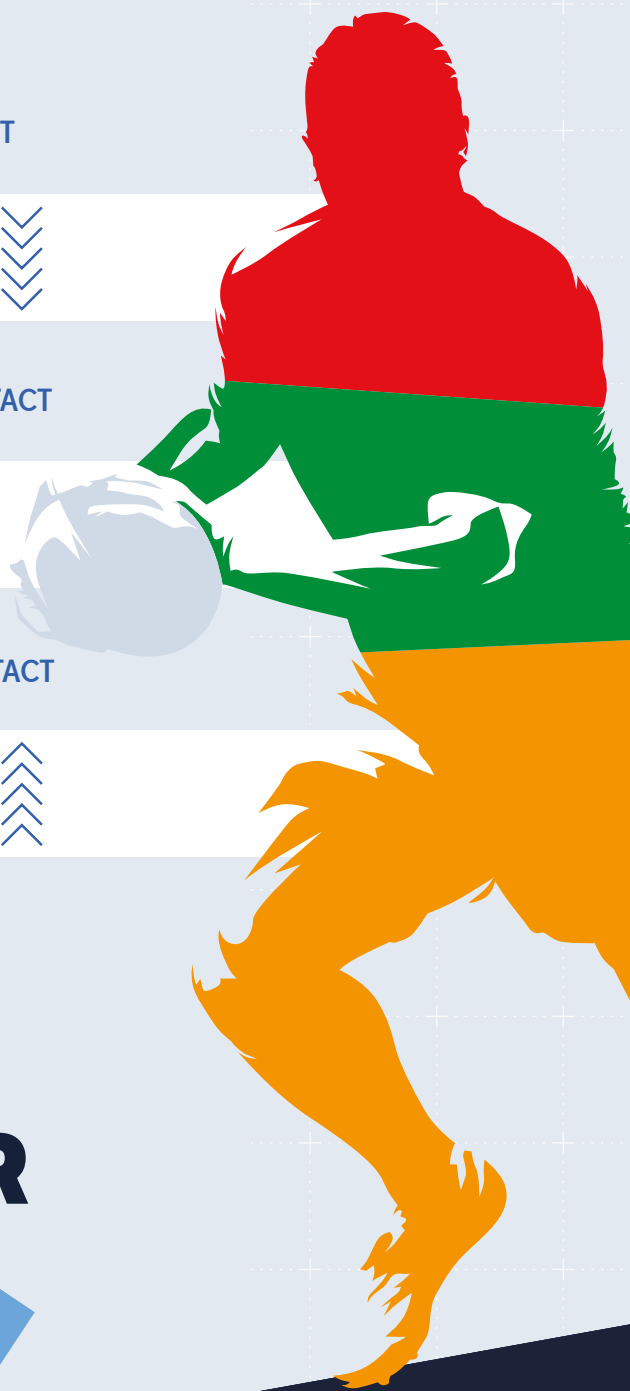
8% ↑↑↑

AMBER ZONE CONTACT
INCREASED BY

21% ↑↑↑

**254 TACKLER AND
319 BALL-CARRIER**

HEAD-TO-HEAD AND HEAD-TO-SHOULDER
CONTACTS MAY HAVE BEEN PREVENTED.



Adult men’s study unintended consequences

There were no significant changes in the frequency of match events between pre and LTH seasons.

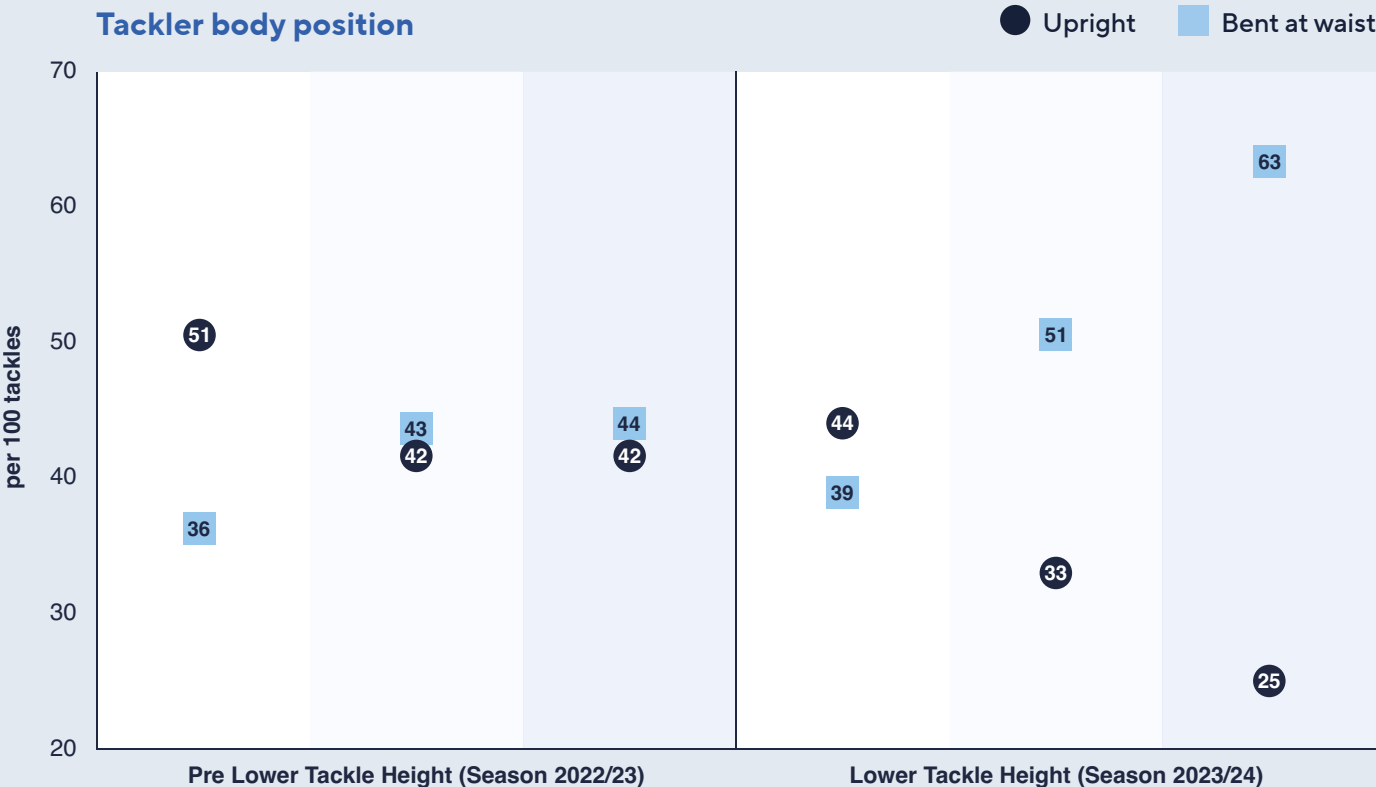
Tackler head contacts to the ball carriers upper leg increased by 39% but there were no significant increases in tackler head-to-knee or head-to-hip contacts.

Seasonal changes

An important finding of the present study is that as the LTH law variation season progressed, tackling behaviour increasingly aligned with the aim of the law variation, whereby the frequency of bent at waist tackling

increased, with the greatest change occurring in the final third of the LTH season. Similarly, BC behaviour evolved over the course of the LTH season, with a progressive increase in the likelihood that a BC would enter the contact event in a bent at waist position, with the results indicating the greatest difference in this behaviour occurring in the final third of the LTH season.

While the present men’s study does not report sport related concussion (SRC) directly, and not all head contacts are likely to lead to an SRC, over the course of a 10-team 93-game Scottish men’s premiership season, it is estimated that 254 tackler and 319 BC head-to-head and head-to-shoulder contacts may have been prevented.



SUMMARY

Lowering the maximum legal height of the tackle from the shoulder to the base of the sternum in women's and men's adult community rugby proved effective in altering tackling behaviour.

Across both women's and men's studies, the rate of bent at waist tackling increased, resulting in less frequent contact being made to the BC's upper torso and head. This difference in behaviour resulted in less head-to-head and head-to-shoulder contact for the tackler and BC. Conversely, there were no significant increases in tackler head contact to the ball carriers hip or knee.

In the men's study, ball carrier behaviour did change slightly in response to the tackler and this should be monitored to ensure

both the tackler and BC bending into the tackle does not result in head contact risk increasing again.

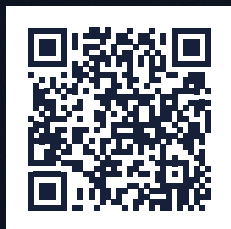
Routinely collecting injury surveillance data across community rugby in Scotland will help provide objective information on the benefits of this and future policy changes, in reducing injury and concussion risk in Scottish community rugby union.

The authors would like to thank Scottish Rugby and World Rugby for funding this study. Many thanks also to the individuals at Scottish Rugby and the community rugby clubs for providing match video footage, and to the women's rugby clubs for sharing their injury and concussion data.



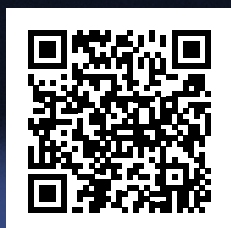
Access the full studies by
scanning the QR codes below:

MEN'S



H. Gornal et al (2025). Lowered tackle height law variation in Scottish men's community rugby: a video analysis evaluation of 18,702 tackles across two seasons.

WOMEN'S



H. Walton et al (2025). Lowering the maximum legal tackle height in Scottish community women's rugby: an injury surveillance and video analysis study across two seasons



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