

# Community Rugby Injury Surveillance and Prevention Project

*Men's (playing levels 3-9) and Women's (playing levels 2-5)  
1<sup>st</sup> team injuries in England*

## Season Report 2021-2022

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The authors would like to thank the coaches and sports injury staff at all participating teams in the  
Community Rugby Injury Surveillance and Prevention Project for 2021-22.



# RFU INJURY SURVEILLANCE PROJECTS

Professional Rugby Injury Surveillance Project (PRISP)  
Gallagher Premiership and England Senior Men

Women's Rugby Injury Surveillance Project (WRISP)  
Allianz Premier 15s and Red Roses

Championship Rugby Injury Surveillance Project  
Greene King Championship

BUCS Super Rugby Injury Surveillance Project  
Elite men's University Rugby

**Community Rugby Injury Surveillance and Prevention (CRISP) Project**  
Adult men's (levels 3-9) and women's (levels 2-5) community rugby

Youth Rugby Injury Surveillance Project (YRISP)  
Schoolboy rugby in under-13, under-15 and under-18 age groups

# KEY FINDINGS

## COMMUNITY MATCH INJURIES

### MEN'S 1<sup>ST</sup> TEAMS – LEVELS 3-9

Overall match injury incidence rate:  
**29.2 per 1000 player match-hours**

**Overall: 1 injury every 1.7 team games or**  
Levels 3/4: 1 injury every 1.5 team games;  
5/6: 1 every 1.9 team games;  
7/8/9: 1 every 1.7 team games

Mean severity per injury:  
**51 days missed (6.7 matches)**

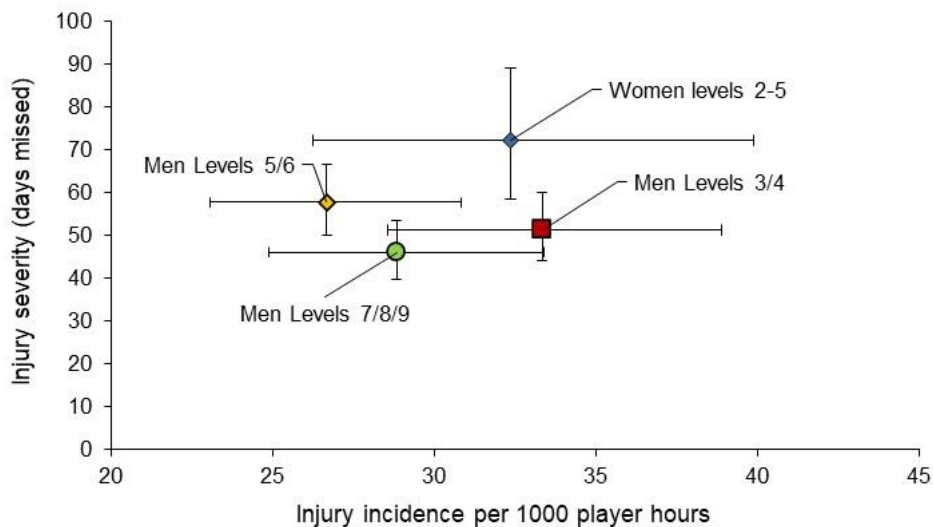
### WOMEN'S 1<sup>ST</sup> TEAMS – LEVELS 2-5

Overall match injury incidence rate:  
**32.4 per 1000 player match-hours**  
or

**Overall: 1 injury every 1.5 team games**

Mean severity per injury:  
**72.1 days missed (9.9 matches)**

On the graph below, how common an injury is (incidence) increases from left to right and how many days are lost per injury (severity) increases from bottom to top. If the lines that extend from each point (representing a playing level) do not overlap with those for other points, then there is a difference between levels.



Injury event:  
**59% in the tackle**

Most common injury diagnosis  
**Concussion (17% of all injuries)**

Injuries accounting for most days lost  
**Knee ligament/joint injuries (19% of all days lost)**  
**Shoulder ligament/joint injuries (13% of all days lost)**  
**Concussion (9% of all days lost)**

Injury event:  
**70% in the tackle**

Most common injury diagnosis  
**Concussion (22% of all injuries)**

Injury location accounting for most days lost  
**Knee (38% of all days lost)**  
**Head/face (15% of all days lost)**  
**Shoulder (14% of all days lost)**

## EXECUTIVE SUMMARY

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- ❖ Season 2021-22 represents the twelfth season for the Community rugby injury surveillance and prevention (CRISP) project for men's community 1<sup>st</sup> teams across playing levels 3-9 in England and is the first season to include women's community teams at levels 2-5.
- ❖ Only injuries causing the player to be absent for more than seven days are reported.
- ❖ Due to Covid-19, no league community rugby was played in season 2020-21 and therefore 2021-22 provides a unique insight into the injury risk for players having returned to the game after a season-long absence from match play.
- ❖ For 2021-22, 44 men's teams and 12 women's team reported data.

## OVERALL FINDINGS

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- ❖ The overall rate of injuries causing a player to miss more than seven days from training and match play in men's community rugby in 2021-22 was 29.2 injuries per 1000 player match hours and 32.4 for women.
- ❖ On average, a men's team can expect approximately one injury every 1.7 team games played, while a women's team can expect one injury every 1.5 team games.
- ❖ On average, between 2 to 3 players per team will be unavailable for match play each week throughout the season due to injury.
- ❖ The men's injury rates are approximately half that of men's professional rugby and similar to under 18 schoolboy rugby, while the women's injury rates are similar to that of women's premier 15s.

### Concussion – Most common injury diagnosis

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- ❖ The incidence of reported men's concussion during season 2021-22 was 4.9 per 1000 player match hours (17% of all injuries), and 7.0 concussions per 1000 player match hours (22% of all injuries) for women.
- ❖ A men's team can expect one concussion every 10 games, while for a women's team, there is one every 7 games.
- ❖ For men, 68% of all concussions were sustained in the tackle with 33% to the ball carrier and 35% to the tackler. For women, 58% of concussions were sustained in the tackle (32% to the ball carrier and 26% to the tackler).

### The Tackle – Most common injury event

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- ❖ The tackle was associated with 59% of all injuries for men and 70% for women.
- ❖ When the player was tackling, the most commonly injured site was the upper limb for men (49% of all injuries) and the head/neck for women (46% of all injuries)
- ❖ The most commonly injured site to the ball carrier was the lower limb for both men (39% of all injuries) and women (55% of all injuries).

### Injury burden (number of injuries x time lost per injury)

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- ❖ The injury burden in the 2021-22 men's game was higher than in 2019-20, owing largely to a higher average number of days lost per injury but also a higher number of injuries.
- ❖ Knee injuries accounted for the highest number of total number of days lost to injury for both the men (22% of all days lost) and women (38% of all days lost).

## **Artificial Grass Pitches (AGPs) - Injuries**

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- ❖ When injuries sustained on artificial and natural grass pitches were compared in the same teams, there was no statistical difference in the incidence (Grass: 22.0 vs AGP: 25.7 injuries per 1000 player match hours) or severity (Grass: 41 vs AGP 49 days missed per injury).

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# INTRODUCTION

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The men's community rugby playing population in England represents the largest adult playing population in the world. It is important that injuries are monitored through a surveillance programme which can determine the risk and type of injuries. The Community Rugby Injury Surveillance and Prevention (CRISP) Project has run continuously with adult men teams since the 2009-10 season to help players, coaches and policy-makers understand the risk of injury in the game and guide injury reduction strategies. Season 2021-22 saw an important step forward with the introduction of women's community teams across playing levels 2-5 into the CRISP project. Each season all eligible teams competing in English playing levels 3-9 for men (over 850 teams) and 2-5 (over 350 teams) for women, are invited to take part through direct emails to team staff or advertisement material distributed through coaching courses, newsletters and social media. Recruitment largely takes place during the pre-season period in preparation for the coming season and new teams are always welcome. Any interested teams can contact the research team at: [rfu-crisp@bath.ac.uk](mailto:rfu-crisp@bath.ac.uk).

The methods used in the Community rugby injury surveillance project are aligned with those used in injury surveillance projects for the men's Premiership (PRISP), the women's elite game (WRISP), the men's Championship, University Super Rugby and Schools Rugby (YRISP) so that where possible, data is comparable. However, it should be noted that all other studies apart from CRISP use an injury definition of greater than 24 hours time-loss, whereas CRISP records only injuries of greater than 7 days time-loss in recognition of the fact that there is often less available medical resource across the community adult game. Previous season reports for CRISP and associated injury surveillance project can be found on: [RugbySafe Research Toolkit](#)

The information generated by the CRISP Project provides has been used to inform a number of injury management and prevention strategies and provides a comparison of injury risk compared with other levels of the game and now, for the first time, between men's and women's community rugby. It also informs the risk assessment used to determine the level of first aid/immediate care provision required as set out in RFU Regulation 9 (Player Safety) and accompanying guidelines as well as providing information on the injury risk of playing on artificial grass pitches. With data over multiple seasons, it is possible to detect changes in injury patterns over time, either in response to law changes, education programmes or the evolution of the game. Information is used in a number of educational resources within the RFU's RugbySafe player welfare and wellbeing programme. This project has demonstrated that a rugby specific warm-up programme could reduce targeted injuries in match play. This study culminated in the Activate warm-up programme which is now freely accessible. Further details are available at: [RugbySafe Activate Toolkit](#)

# DEFINITIONS

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All methods and definitions used in this study comply with those outlined in the consensus statement for injury definitions and data collection procedures for studies of injuries in rugby union (Fuller et al 2007).

## ***Time-loss injury***

A time-loss injury was defined as 'any injury that causes a player to be absent from training and match play for greater than seven days'. For example, if a player was injured during a match on Saturday and he was not fit to participate in the following Saturday's match, the incident would be classed as a time-loss injury and reported.

## ***Days absent from rugby (Injury severity)***

In this study, the severity of the injury is recorded in terms of the amount of time that the player is absent from match play (number of matches/days missed). For time-loss injuries in this study, a minimum of one match will have been missed. A player was deemed to have regained full fitness when he was 'able to take a part in training activities (typically planned for that day) and was available for match selection.' Severity is subdivided into the following categories: 8-28 days, 29-84 days and greater than 84 days.

## ***Injury incidence***

The likelihood of sustaining an injury during match play or training is reported as the injury incidence. Time-loss injury data is presented as the number of injuries per 1000 player-hours of match exposure. This is a standardised method of presenting injury information so that data can be compared between different groups with a different number of matches. It is calculated by:

Injury incidence =

$$\text{number of Injuries} / \left( (\text{number of matches} \times \text{number of players (15)} \times \text{match duration (1.33 hours)}) / 1000 \right)$$

## ***Confidence interval (CI)***

The confidence interval shows, with 95% certainty, the likely range of the true value for a given statistic.

## ***Burden***

The burden of injury is a measure which takes into account both the frequency and severity of injuries. Burden is measured as the number of days absence per 1,000 player-hours of exposure.

## ***Statistical significance***

A result is considered to be statistically significant if the probability that it has arisen by chance is less than 5% or 1 in 20. In this report, statistical analysis has been performed for the match incidence and days absence.



# MATCH INJURY INFORMATION

## Men - Overall injury incidence and severity

In the 2021-22 season, 522 match injuries were reported over 895 matches. This resulted in an overall match time-loss injury incidence of 29.2 injuries per 1000 player match hours. Table 1 provides further information on the incidence and average number of days absence per injury for different playing levels. On average, there is approximately one injury for every two team games.

Figure 1 shows injury incidence over multiple seasons and the expected natural variation from season-to-season. There has been a consistent increase in injury incidence since season 2016-17 with the incidence in 2021-22 exceeding the upper limit of natural variation. The average number of days missed from rugby is within the limits of normal variation (Figure 2) and injury burden (days absence per 1000 hours) is higher than previous seasons (Figure 3). Table 2 shows that for most injuries, the player returns within 8-28 days.

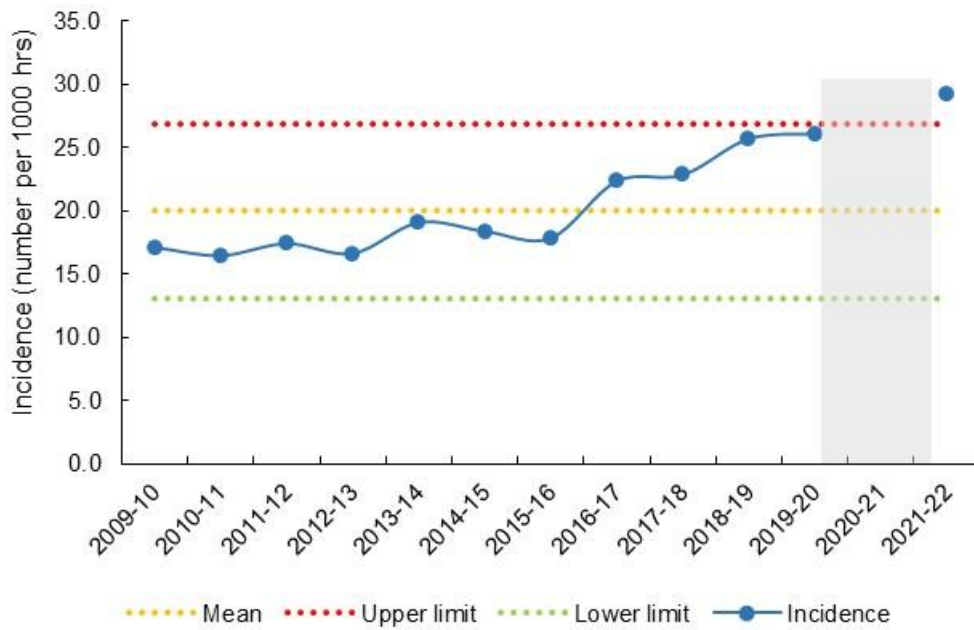
It should be noted that no competitive rugby union was played in season 2020-21 due to Covid-19 and therefore the prolonged absence from match play may have adversely affected players' readiness for match play both in terms of physical attributes and technical ability.

**Table 1.** Match injury incidence and severity for time-loss injuries over different playing levels.

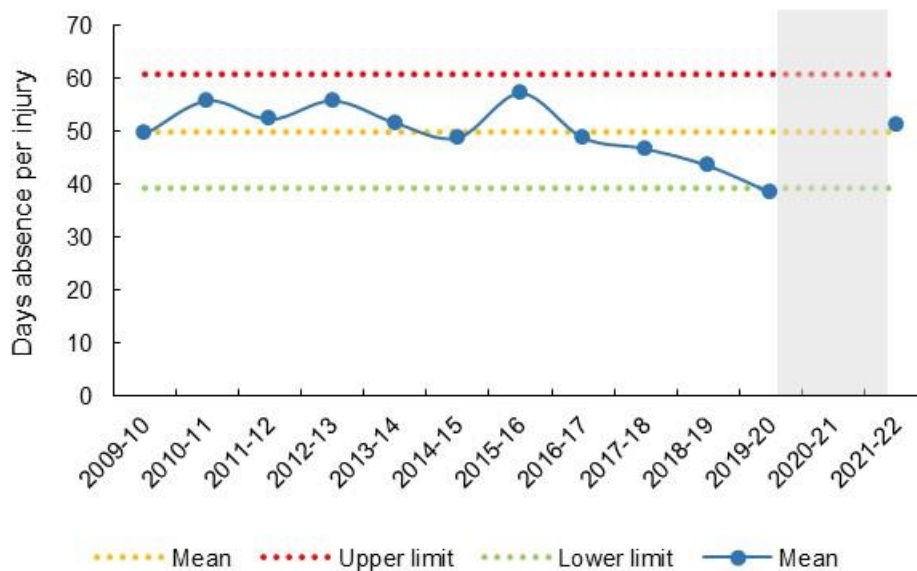
| Playing level | Injuries | Match hours | Incidence | Average days absence | Average matches per injury |
|---------------|----------|-------------|-----------|----------------------|----------------------------|
| Levels 3/4    | 162      | 4860        | 33.3      | 51                   | 1.5                        |
| Levels 5/6    | 183      | 6900        | 26.5      | 58                   | 1.9                        |
| Levels 7/8/9  | 177      | 6140        | 28.8      | 45                   | 1.7                        |
| Overall       | 522      | 17900       | 29.2      | 51                   | 1.7                        |

**Table 2.** Match injury incidence for each severity classification.

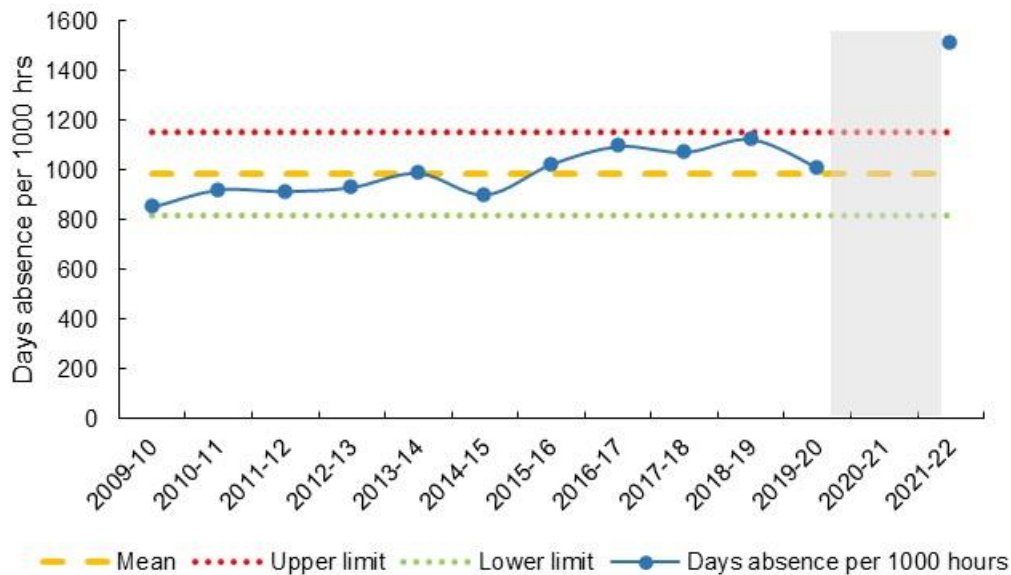
| Days missed | Incidence | Percentage of all injuries |
|-------------|-----------|----------------------------|
| 8-28 days   | 13.0      | 44                         |
| 29-84 days  | 7.7       | 26                         |
| >84 days    | 3.6       | 13                         |
| Unknown     | 4.9       | 17                         |



**Figure 1.** Injury incidence for over 12 seasons. 2 standard deviations (2SD) above and below the mean incidence denote the range within which a natural variation in the data is expected. There was no competitive rugby in 2020-21 due to Covid-19, denoted by shaded area.



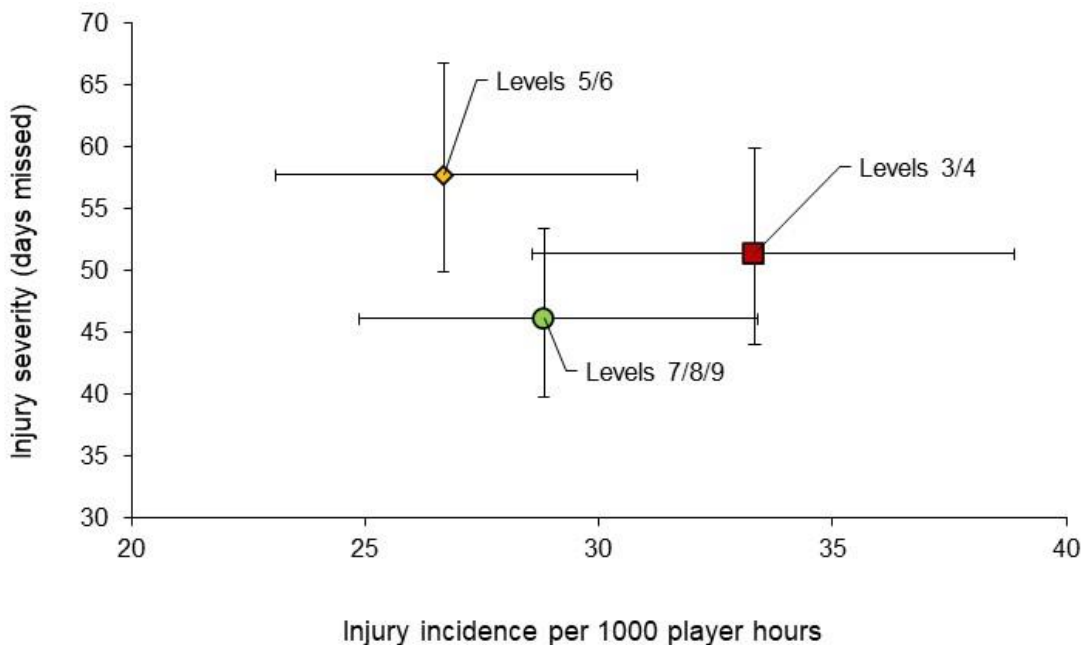
**Figure 2.** Mean days absence per injury for over 12 seasons. 2 standard deviations (2SD) above and below the mean incidence denote the range within which a natural variation in the data is expected. There was no competitive rugby in 2020-21 due to Covid-19, denoted by shaded area.



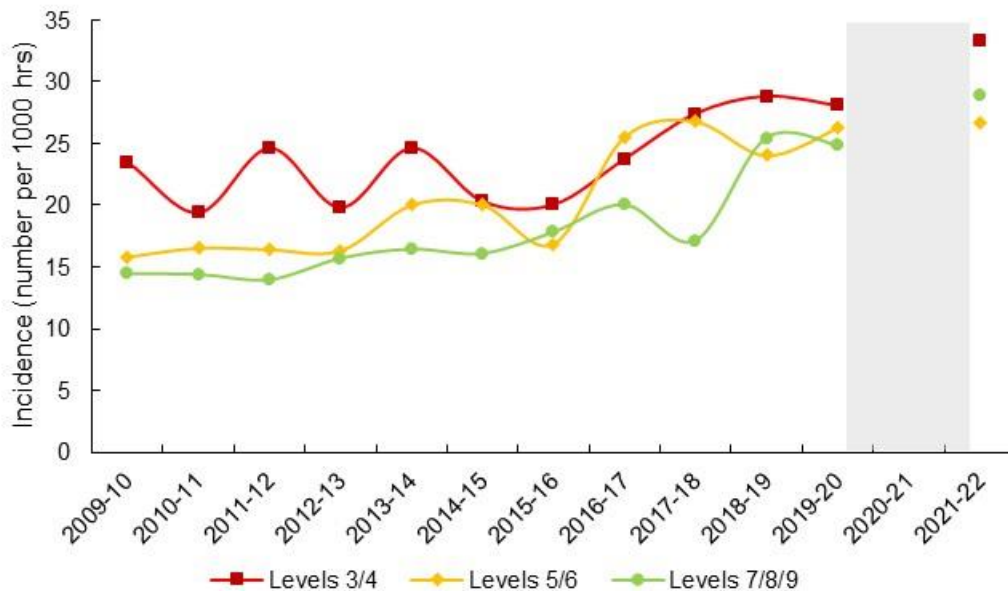
**Figure 3.** Injury burden over 12 seasons. 2 standard deviations (2SD) above and below the mean incidence denote the range within which a natural variation in the data is expected. There was no competitive rugby in 2020-21 due to Covid-19, denoted by shaded area.

### Injury incidence and severity at different playing levels

The injury incidence and severity for each playing level grouping in season 2021-22 is shown in Figure 4. There were not any significant differences in injury incidence nor severity between group levels. The trend at different playing levels over 12 seasons is shown in Figure 5 and demonstrates a general trend for an increase in incidence in recent seasons across each playing level.



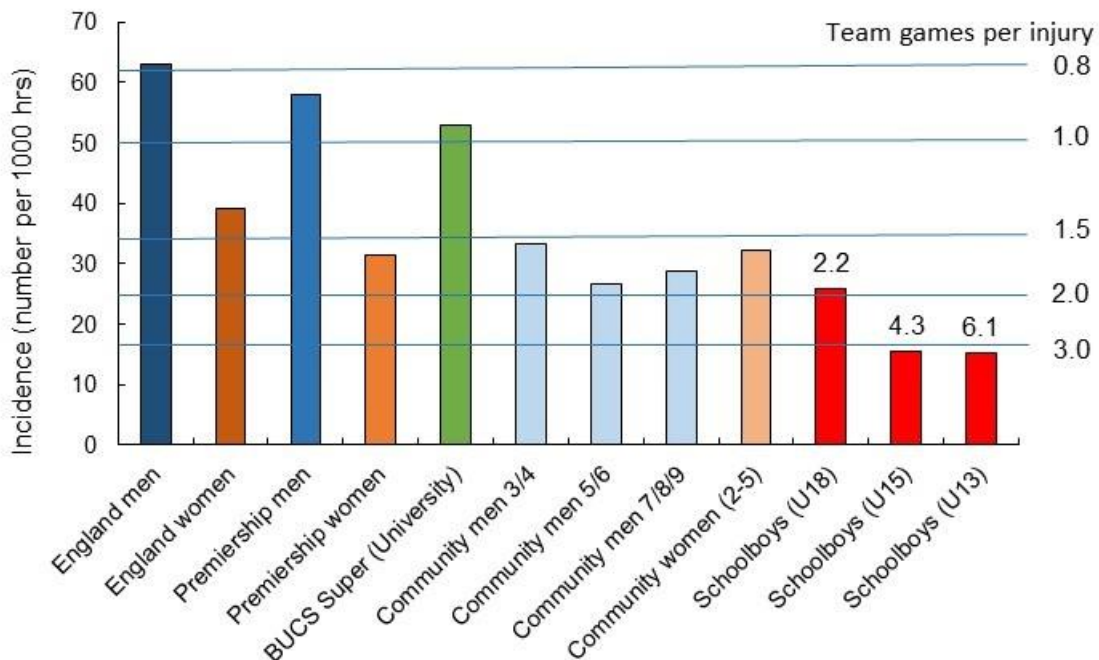
**Figure 4.** Injury incidence and severity for each playing level for season 2021-22.



**Figure 5.** Injury incidence over multiple seasons by different playing levels. There was no competitive rugby in 2020-21 due to Covid-19, denoted by shaded area.

### Likelihood of match injury when playing compared with other playing levels

The data collection methods used in this project are standardised across other related projects at other levels of the English game. This allows a comparison of all injuries of greater than 7 days time-loss. Figure 6 demonstrates a general trend of increasing incidence of injury as the level of player increases across age groups and playing levels.

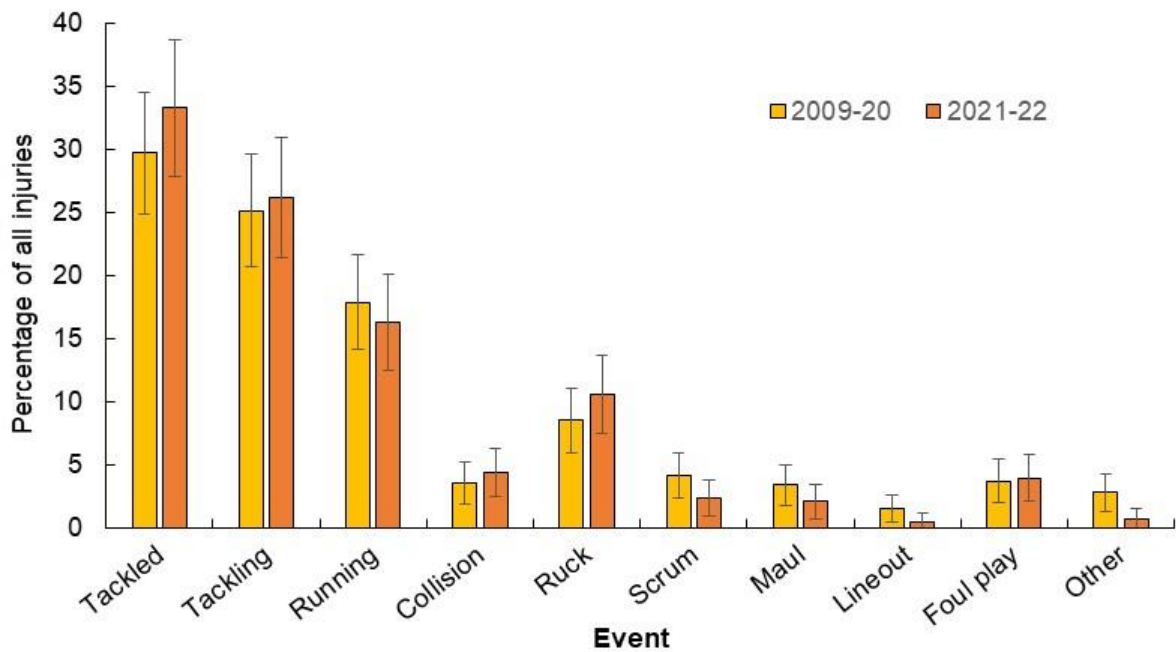


**Figure 6.** A comparison of greater than 7-day time-loss injury rates for different levels of community rugby with professional, university level and schools rugby.

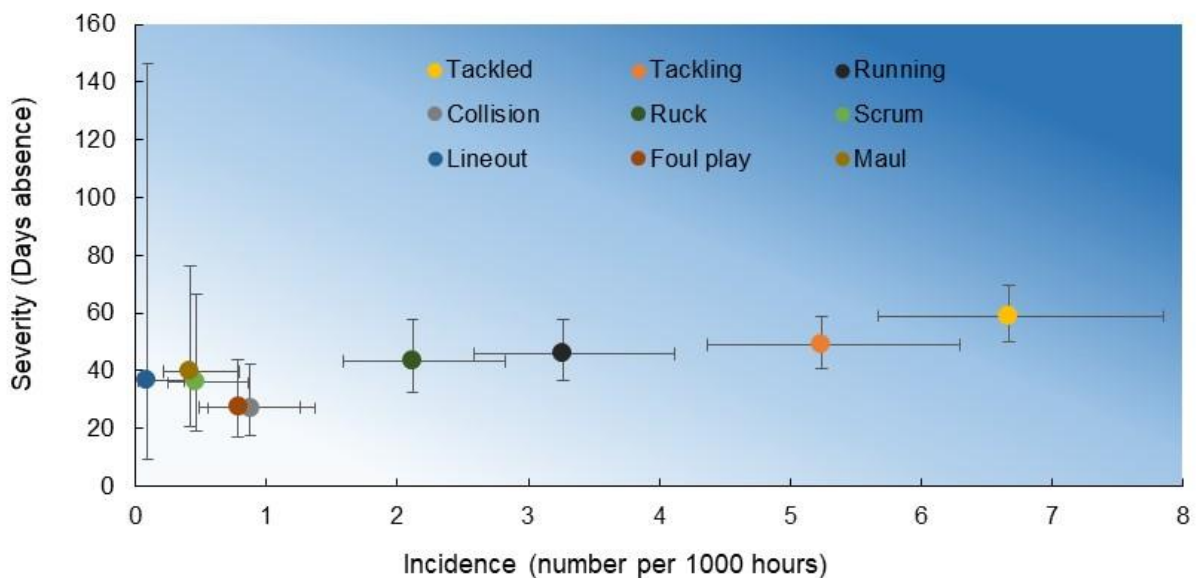
*Data sources: Data from all playing levels are derived from respective season reports for the 2021-22 season. 'Team games per injury' are based on adult matches of 80min. Games for Schoolboy U18, U15 and U13 are normally 70, 60 and 50 min, respectively and therefore the games per injury will differ, as denoted by values above respective bars.*

## Men - Injury event

The events associated with injury are shown in Figure 7. The tackle was the most common event associated with injury, accounting for 59% of match injuries. This finding is common across other injury surveillance studies and previous seasons of the CRISP project (Figure 7). Within the tackle, there was a higher percentage of injuries to the tackled player (ball carrier, 33%) compared with the tackling player (26%). The most commonly injured region for the tackling player was the upper limb (49% of all tackle injuries), followed by the head/neck (35%). For the ball carrier the lower limb was the most commonly injured region (39%) (see Supplementary data, Figure S1 for more information). Figure 8 provides information which combines both the incidence and the average severity (days absence) for each injury event. This shows that the tackle was associated with most injuries, but the mean days absence per injury was similar to most other injury events.



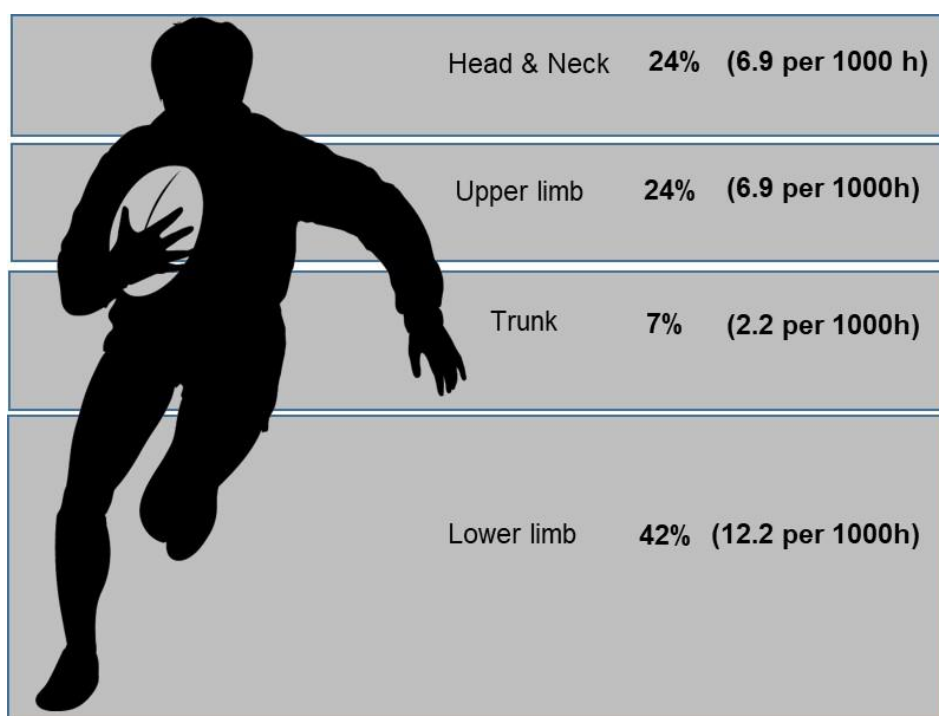
**Figure 7.** The percentage of injuries for specific match events for all playing levels combined for the average over seasons 2009-20 and 2021-22.



**Figure 8.** Injury event by incidence and severity for all playing levels combined in season 2021-22. Darker shaded areas denote a higher burden (total days lost).

## Men - Injury location

The most commonly injured body region was the lower limb (Figure 9), accounting for 42% of all injuries. Table 3 shows more information on the incidence and burden for specific body locations. Of note is the high burden of knee and shoulder injuries which is a common finding in previous seasons.



**Figure 9.** The distribution of match injuries by body region by percentage and incidence.

**Table 3.** Incidence, mean severity and burden by body location (ranked within regions from highest to lowest burden). For incidence, mean severity and burden, values are colour coded (red: highest value; green: lowest value).

| Body region | Location of injury | Number of injuries | Incidence | Mean severity | Burden |
|-------------|--------------------|--------------------|-----------|---------------|--------|
| Head/neck   | Head/face          | 111                | 6.2       | 30.1          | 187    |
|             | Neck               | 13                 | 0.7       | 32.5          | 24     |
| Upper limb  | Shoulder           | 74                 | 4.1       | 70.4          | 291    |
|             | Hand               | 28                 | 1.6       | 92.2          | 144    |
|             | Elbow              | 9                  | 0.5       | 101.3         | 51     |
|             | Forearm            | 4                  | 0.2       | 107.0         | 24     |
|             | Wrist              | 7                  | 0.4       | 49.0          | 19     |
|             | Upper arm          | 1                  | 0.1       | 13.0          | 1      |
|             | Trunk              | Chest              | 19        | 1.1           | 42.7   |
| Upper back  |                    | 15                 | 0.8       | 36.9          | 31     |
| Lower back  |                    | 2                  | 0.1       | 35.0          | 4      |
| Stomach     |                    | 3                  | 0.2       | 21.0          | 4      |
| Lower limb  | Knee               | 72                 | 4.0       | 80.3          | 323    |
|             | Ankle              | 57                 | 3.2       | 38.8          | 124    |
|             | Thigh              | 49                 | 2.7       | 40.8          | 112    |
|             | Groin              | 17                 | 0.9       | 36.2          | 34     |
|             | Lower leg          | 14                 | 0.8       | 39.3          | 31     |
|             | Foot               | 10                 | 0.6       | 49.0          | 27     |

Incidence (number of injuries per 1000 player match hours), Severity (mean days lost per injury), Burden (Total days lost per 1000 player match hours).



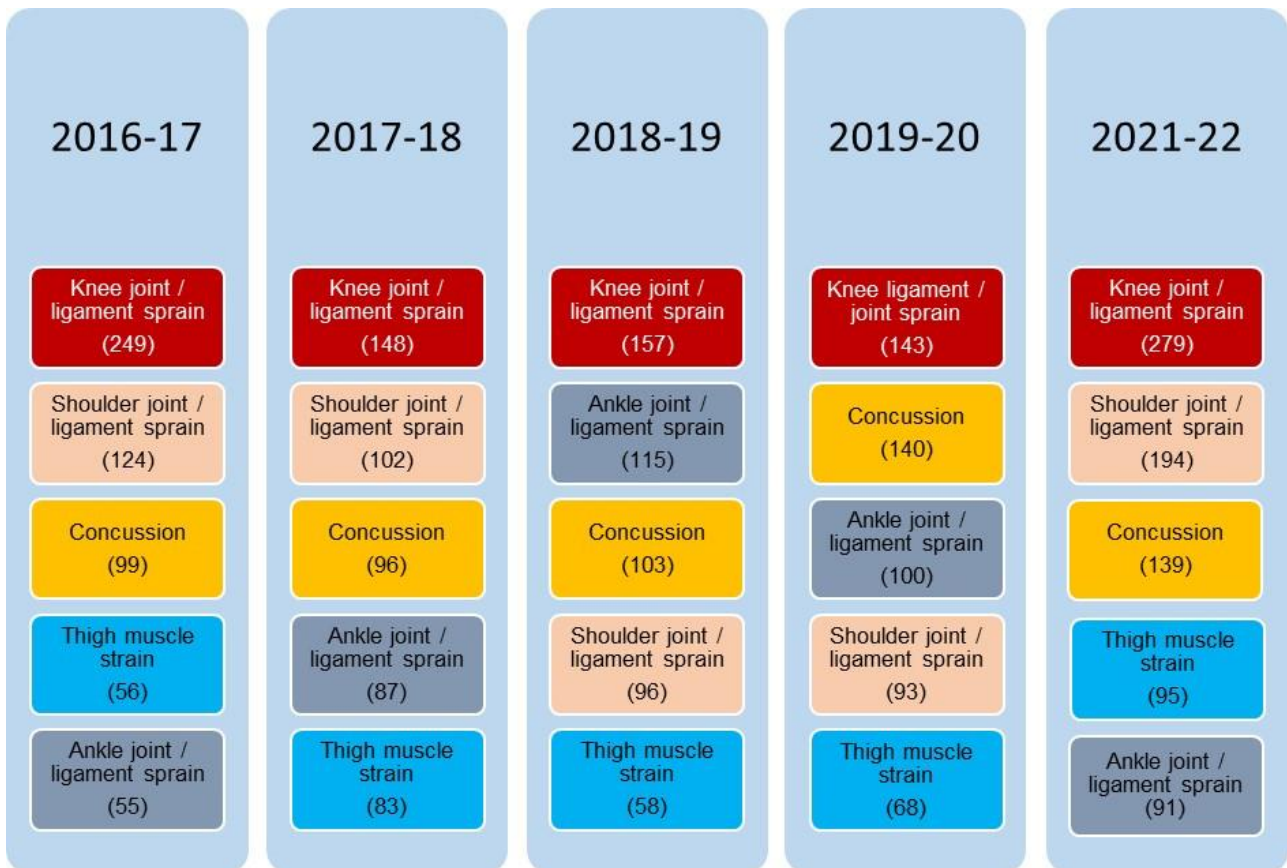
## Men - Injury diagnoses

The top five most common injury diagnoses (determined by the site and general injury type) for all playing levels combined over last five seasons have remained similar, with concussion being the most common across all five seasons (Figure 10).

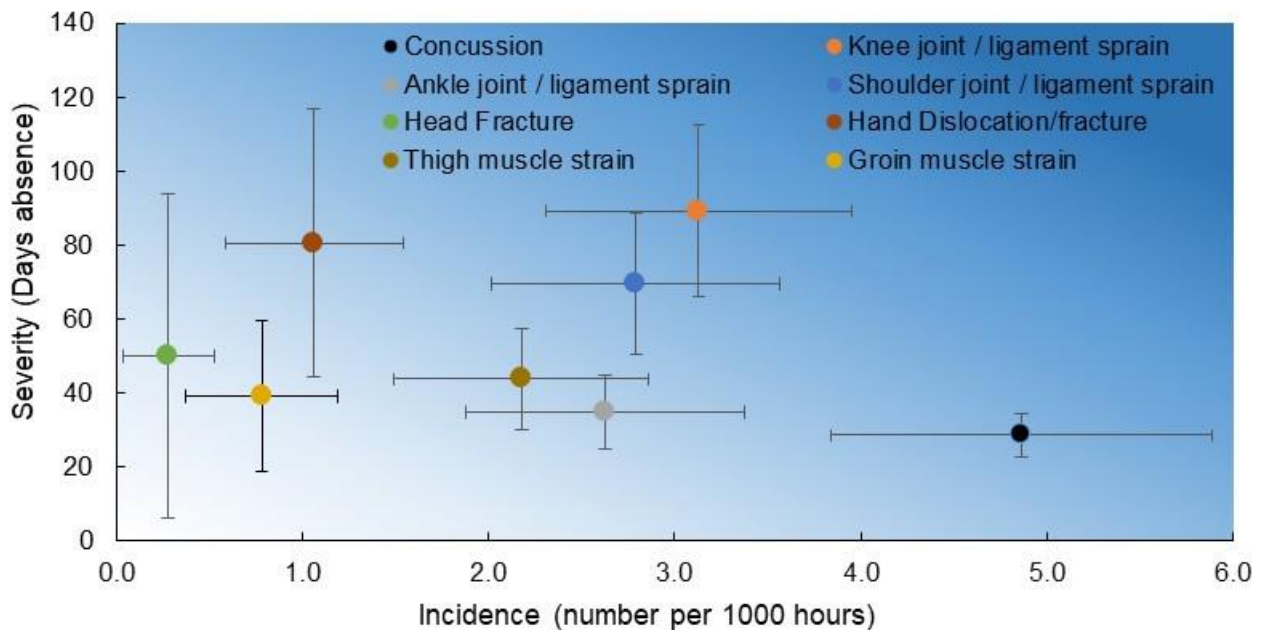
The top five injuries defined by the total amount of time that the injury keeps players out of match play and training (injury burden) are shown in Figure 11. Knee/joint ligament injuries consistently account for the most days absence (19% of all days absence) which is mainly as result of a higher average injury severity (average of 89 days per injury) compared with most other injuries. This is demonstrated in Figure 12, which also shows that the high injury burden of concussion (also accounting for 9% of all days absence) is largely due to a much higher incidence rather than severity compared with other injuries.



**Figure 10.** Top five injury diagnoses in rank order for **incidence** for all playing levels combined over seasons 2016-17 to 2021-22. Numbers within brackets denote incidences (injuries per 1000 player match hours).



**Figure 11.** Top five injury diagnoses in rank order of **burden** for all playing levels combined over seasons 2016-17 to 2021-22. Numbers within brackets denote burden (number of days missed per 1000 player match hours).



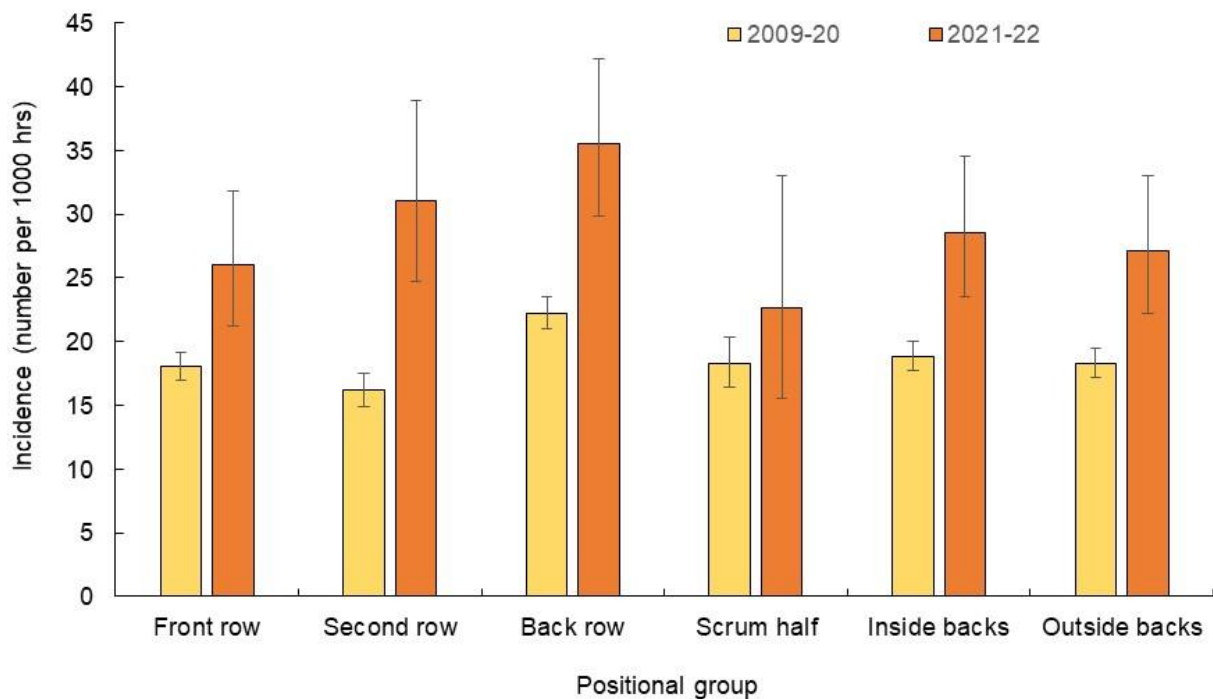
**Figure 12.** Injury diagnoses by incidence and severity for all playing levels combined in season 2021-22. Darker shaded areas denote a higher burden (total days lost).



## Men - Playing position

When injuries for all playing level groups were combined, the incidence of time-loss injuries in forwards was 30.8 injuries per 1000 player hours compared with 27.1 injuries per 1000 player hours for backs. The mean number of days missed for an injury to a forward was 50 (6.5 matches missed), and 53 (7.0 matches missed) for a back.

Figure 13 shows that the injury incidence for positional groups for season 2021-22 follows a similar pattern to combined data from previous seasons. The higher incidence for all positional groups in season 2021-22, reflects the higher overall incidence for the current season compared with the historical mean.



**Figure 13.** Comparison between positional groups for injury incidence in season 2021-22 compared with the average for all previous seasons: 2009-2020.

*Forwards: Front row: loose head and tight head props, hooker, Second row: left and right locks; Back row: open side and blind side flankers, No. 8; Backs: Inside backs: outside half, inside centre, outside centre; outside backs: left and right wings, full back.*

## Men - Concussion

### Concussion incidence and severity

Overall concussion incidence was 4.9 per 1000 player match hours, equating to 1 concussion in every 10 team games (i.e., 2 per team per season for a team playing 20 games and 3 per season for a team playing 30 games), and accounted for 17% of all time-loss injuries. The mean number of days missed per concussion was 28.5 (3.1 matches missed) and the median was 21 days (Table 4).

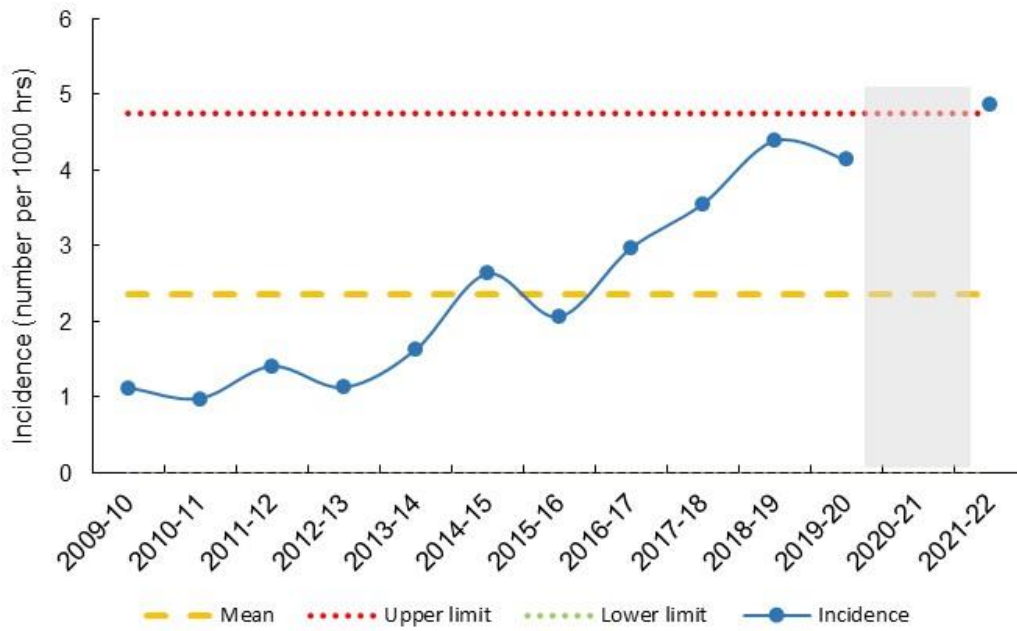
**Table 4.** Match injury incidence and severity for concussion by men's playing levels.

| Playing Level | Number of matches | Number of concussions | Concussions per 1000 hours (95% CI) | Number of team games for one concussion | Mean severity (days missed) | Median severity (days missed) |
|---------------|-------------------|-----------------------|-------------------------------------|---|-----------------------------|-------------------------------|
| Level 3/4     | 243               | 21                    | 4.3 (2.5-6.2)                       | 11.6                                    | 27.4                        | 21                            |
| Level 5/6     | 345               | 37                    | 5.4 (3.6-7.1)                       | 9.3                                     | 30.4                        | 21                            |
| Level 7/8/9   | 307               | 29                    | 4.7 (3.0-6.4)                       | 10.6                                    | 26.9                        | 21                            |
| All Levels    | 895               | 87                    | 4.9 (3.8-5.9)                       | 10.3                                    | 28.5                        | 21                            |

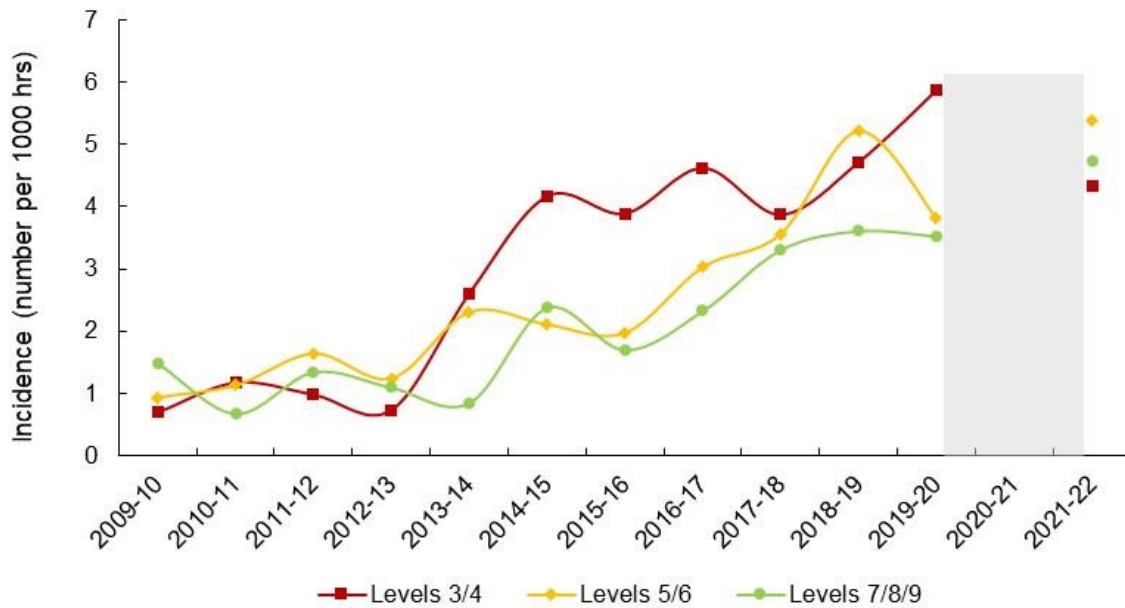
### Concussion trends over time

There has been a consistent increase in reported concussion incidence since 2013-14 (Figure 14) and in 2021-22 concussion incidence continued this pattern. It is not possible to provide a specific reason for the increase over time, but potential explanations may include a greater awareness in community medical staff, coaches and players through changes in guidance or public campaigns (Headcase) and increased media activity. There may also be a greater real risk in match play, but data regarding match characteristics is needed to determine this.

The longitudinal concussion trends for different playing levels are shown in Figure 15. While there is an overall trend towards a higher incidence for National league clubs (Levels 3/4) over multiple seasons, in season 2021-22, the incidence for levels 5/6 and 7/8/9 were similar to levels 3/4. Overall, adult community concussion incidence is normally at least one third of the incidence seen in the professional game.



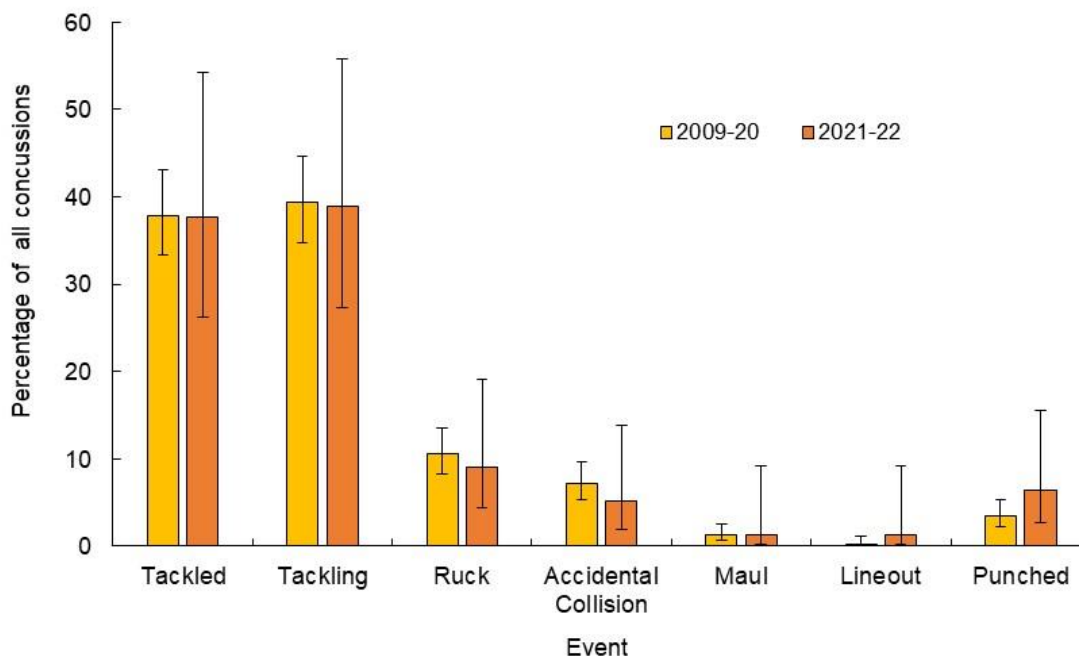
**Figure 14.** Incidence of reported concussions over 12 seasons for all playing levels combined, including the mean incidence over this period with upper and lower limits of two standard deviations. There was no competitive rugby in 2020-21 due to Covid-19, denoted by shaded area.



**Figure 15.** Incidence of reported concussions over 12 seasons for each playing level. There was no competitive rugby in 2020-21 due to Covid-19, denoted by shaded area.

## Match events associated with concussion

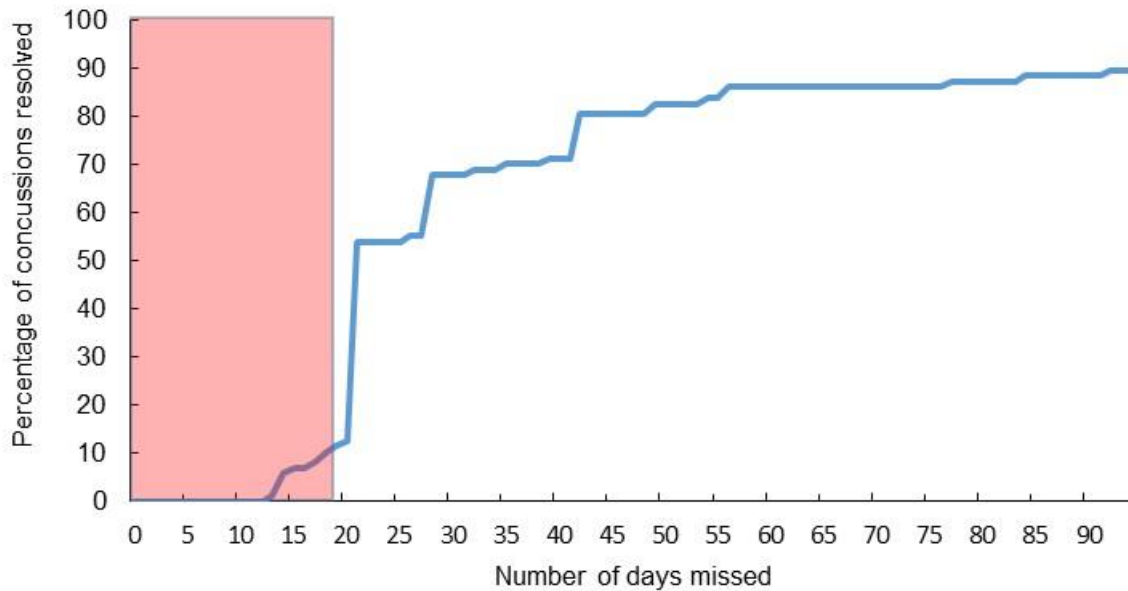
In 2021-22, the tackle was reported as the injury event for 77% of all concussions with 38% of all concussions to the ball carrier and 39% to the tackling player (Figure 16). This is a common finding across previous seasons and other levels of play.



**Figure 16.** Percentage of reported concussions by match event for season 2021-22 compared with the average across all previous seasons (2009-2020).

## Concussion and Return to Play

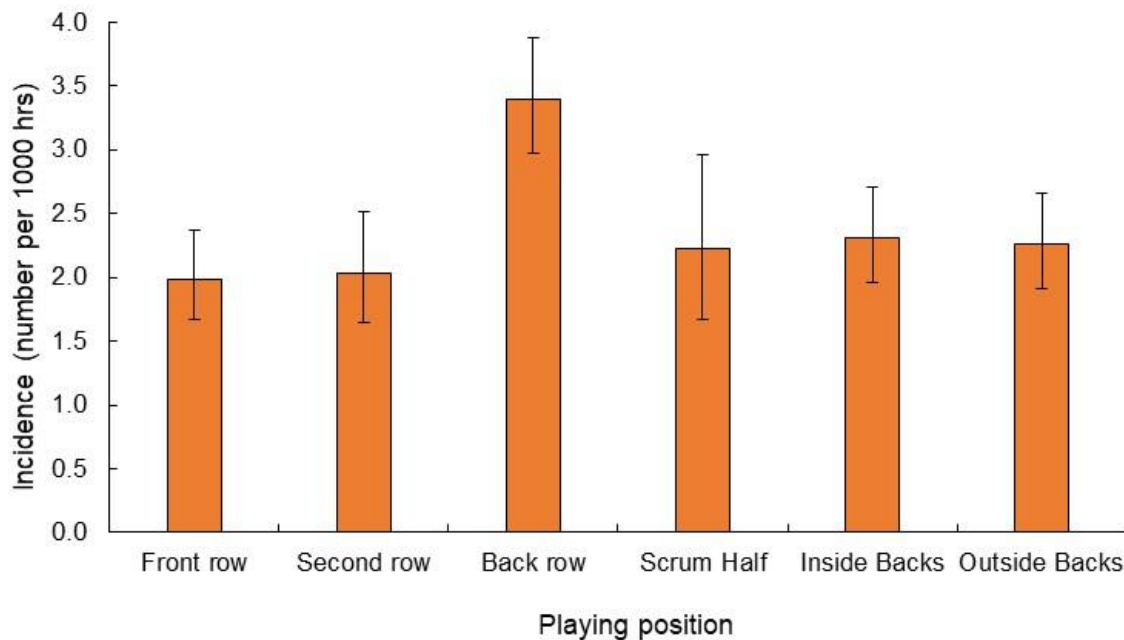
There was an average of 29 days (3.1 matches) missed per concussion. Figure 17 shows the accumulated percentage of concussions which were resolved by the number of days missed. An RFU Regulation introduced in March 2014 permits the concussed player to return at the earliest after 19 days (denoted by the red area in the figure). This would result in concussed players missing a minimum of 2 matches (assuming there is one match each week). Figure 17 shows that in most concussions this was the case, but in 9 cases (10% of all), the concussed player returned to play following an absence of 18 days or less, which suggests that some players returned to match play prematurely or that their injury was subsequently reviewed and not deemed to be a concussion.



**Figure 17.** Percentage of concussion injuries resolved for number of days missed for season 2021-22. A return to play date was not available for all concussions and therefore the percentage of concussions resolved is less than 100%.

### Concussion and playing position

Figure 18 presents the average concussion incidence by playing positional groups for combined data from all seasons of the CRISP project (2009-10 to 2021-22). This figure shows a significantly higher incidence for back row players compared with all other positional groups. It is difficult to ascertain the exact reason for this, but it is likely that the positional requirements involving a high number of tackles and ball carries is a contributory factor.



**Figure 18.** Comparison between positional groups for concussion incidence over seasons 2009-22  
*Forwards: Front row: loose head and tight head props, hooker, Second row: left and right locks; Back row: open side and blind side flankers, No. 8; Backs: Inside backs: outside half, inside centre, outside centre; outside backs: left and right wings, full back.*

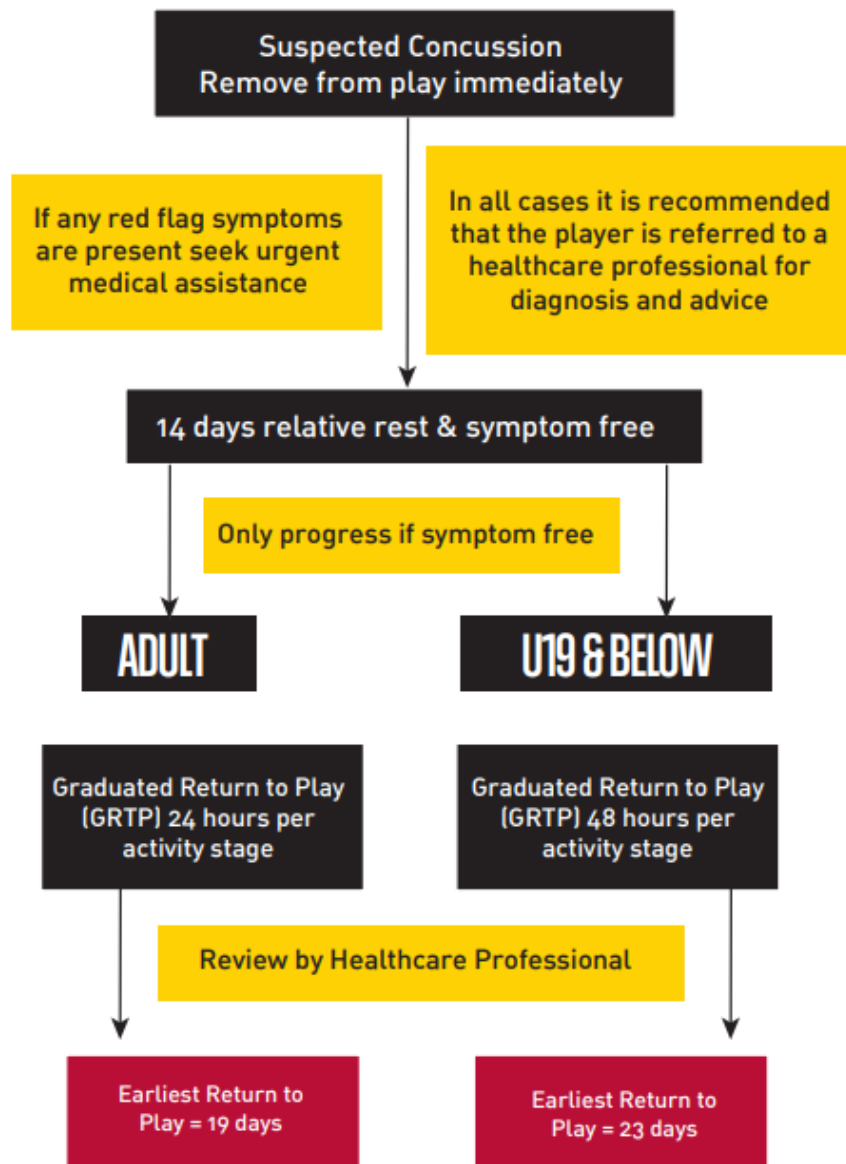
## Recognising concussion

In community rugby, all teams should adhere to the principle of recognising the signs and symptoms of concussion and subsequently removing the player from play immediately. This player should not then return to the field during that match. More detailed information can be found on:

[RugbySafe HEADCASE Toolkit](#)

## Return to play guidelines

In the 2021-22 season, the routine return to play pathway for adult players (aged 19 years or older) who did not have access to the enhanced care setting (which is normally only available in professional rugby) is shown in Figure 19. Updated guidelines, anticipated to be released in May 2023 on the pathways for concussed adult players returning to play will be available in the RFU's [RugbySafe HEADCASE Toolkit](#).



**Figure 19.** 2021-22 Season's return to play pathway for concussed adult players not in an enhanced care setting.

## **Catastrophic and serious injury**

No catastrophic injuries were reported by any participating clubs over the 2021-22 season but it is important to note that only a sample of community clubs participate and that catastrophic injuries are relatively rare.

Support available for catastrophic injuries and the research taking place can be found on the [RFU Injured Players Foundation \(IPF\) website](#).

Regardless of participation in CRISP, the reporting of the following injuries to the RFU is mandatory for all clubs and schools based on the definition of:

- An injury which results in the player being admitted to a hospital (this does not include those that attend an Accident or Emergency Department and are allowed home from there).
- Deaths which occur during or within six hours of a game finishing.

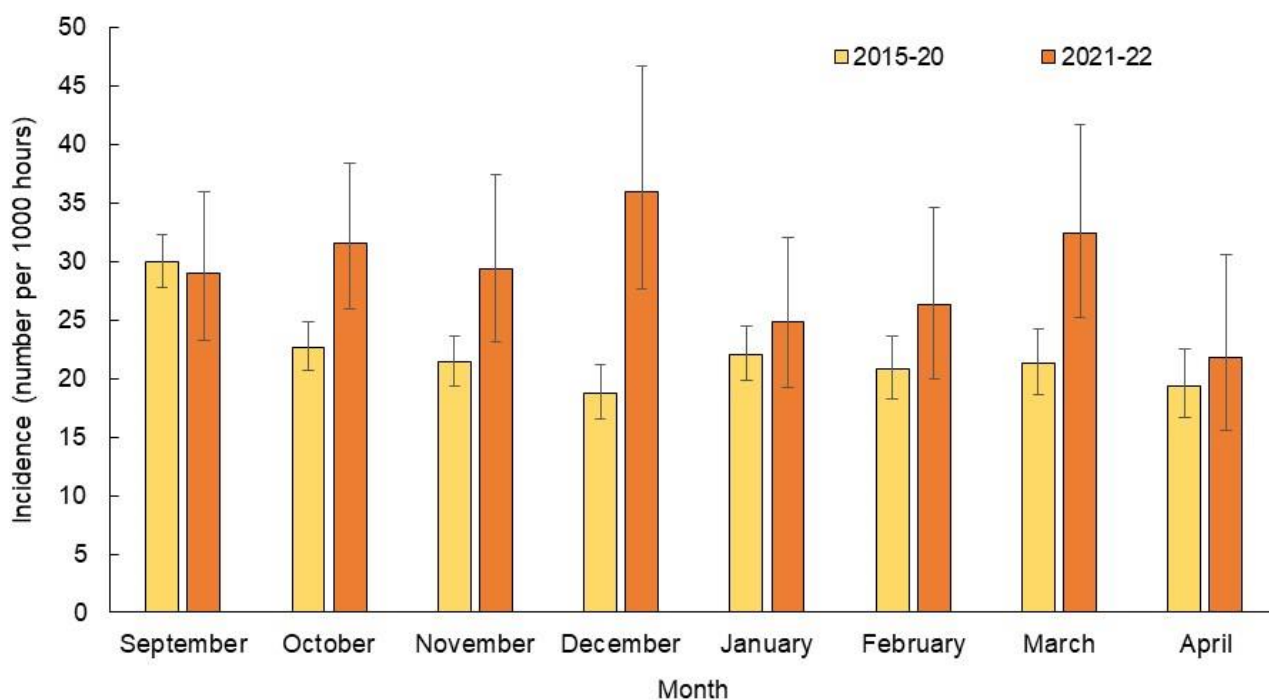
More information on injury report can be found on: [RugbySafe Injury Reporting Toolkit](#)

## Men – Timing of injuries

### Season month and incidence

The incidence of injuries by season months for the 2021-22 and combined seasons 2015-20 are shown in Figure 20. Historically, incidence has tended to be higher earlier in the season but this was not the case during 2021-22. In 2021-22, the incidence in September was similar to that in 2015-20, but in 2021-22 incidence remained relatively high in October, November and December, whereas in previous years incidence was lower in these months.

It is possible that reasons for a high early season incidence, such as harder pitches and players more susceptible to injury being injured earlier, are balanced by the fact that all players returning for 2021-22 had not played competitive rugby since March 2020 and therefore possibly detrained physically and technically.



**Figure 20.** Incidence of time-loss injuries over each month of the 2021-22 rugby season, with equivalent data combined for 2015-20 for comparison.

*Note: Due to very small numbers of matches and injuries reported during August and May, injury incidences for these months have been excluded.*



## Men – Pitch Surface: Artificial Grass Pitches

Season 2021-22 is the third season whereby all clubs with a Rugby365 artificial grass pitch (AGP) have been incorporated into the CRISP project so that a comparison can be made with injuries sustained on grass pitches. This now includes 28 clubs in England. In this analysis, data from AGP clubs when playing on AGP (normally home games but also some away fixtures on an opponent's AGP pitch) was compared with their games played on Grass (normally away matches).

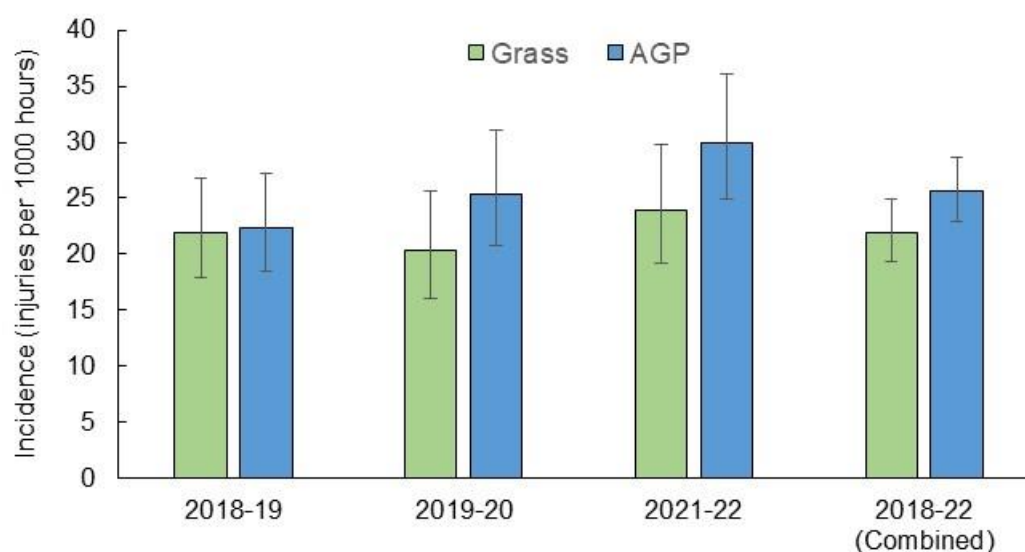
Based on the data collected over the last three seasons, there does not appear to be any difference in the injury incidence, type and how they are sustained during match play but the overall average days absence per injury is higher on AGPs (Table 5).

### Pitch surface: Incidence and severity

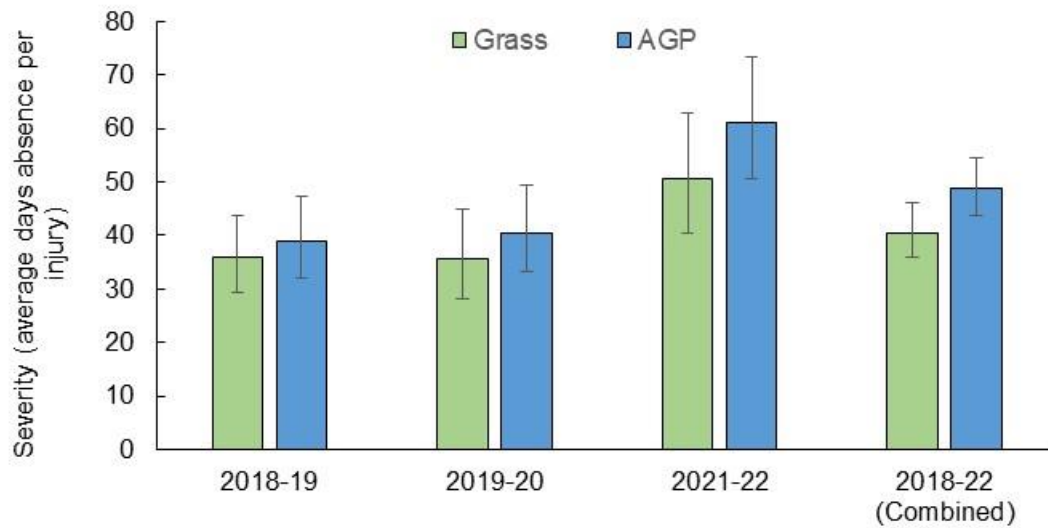
Table 5 and Figures 21 and 22 show that there is a slightly higher injury incidence and severity on artificial pitches compared with natural grass but these are not statistically different.

**Table 5.** Match injury incidence and severity for time-loss injuries for AGP and Grass pitches.

| Surface                         | Surface | Injuries   | Match hours  | Incidence   | Average days absence | Average matches per injury |
|---------------------------------|---------|------------|--------------|-------------|----------------------|----------------------------|
| Grass                           | 2018-19 | 95         | 4340         | 21.9        | 36                   | 2.3                        |
|                                 | 2019-20 | 71         | 3500         | 20.3        | 36                   | 2.5                        |
|                                 | 2021-22 | 79         | 3300         | 23.9        | 51                   | 2.1                        |
| <b>Grass all years combined</b> |         | <b>245</b> | <b>11140</b> | <b>22.0</b> | <b>41</b>            | <b>2.3</b>                 |
| AGP                             | 2018-19 | 103        | 4600         | 22.4        | 39                   | 2.2                        |
|                                 | 2019-20 | 95         | 3740         | 25.4        | 41                   | 2.0                        |
|                                 | 2021-22 | 111        | 3700         | 30.0        | 61                   | 1.7                        |
| <b>AGP all years combined</b>   |         | <b>309</b> | <b>12040</b> | <b>25.7</b> | <b>49</b>            | <b>1.9</b>                 |



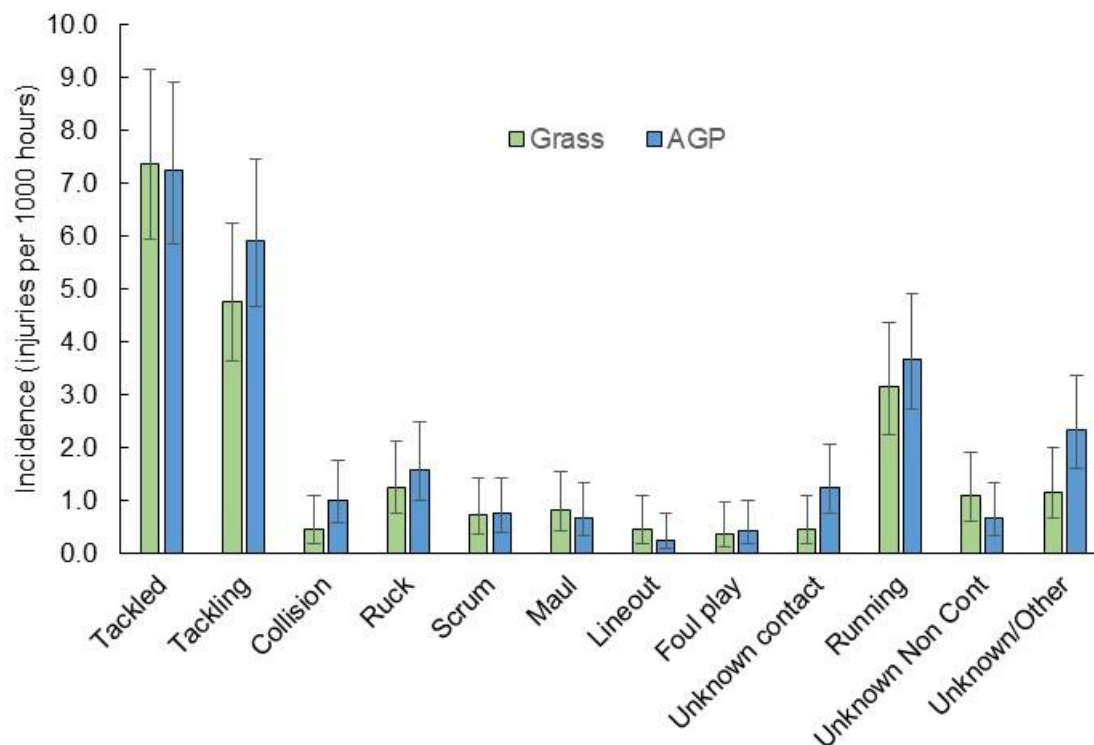
**Figure 21.** Comparison between pitch surface types for injury incidence.



**Figure 22.** Comparison between pitch surface types for injury severity (average days missed per injury).

### Pitch surface: Injury event

The injury incidences by match event over the three seasons are shown in Figure 23. This indicates that there are no differences between the two surface types.



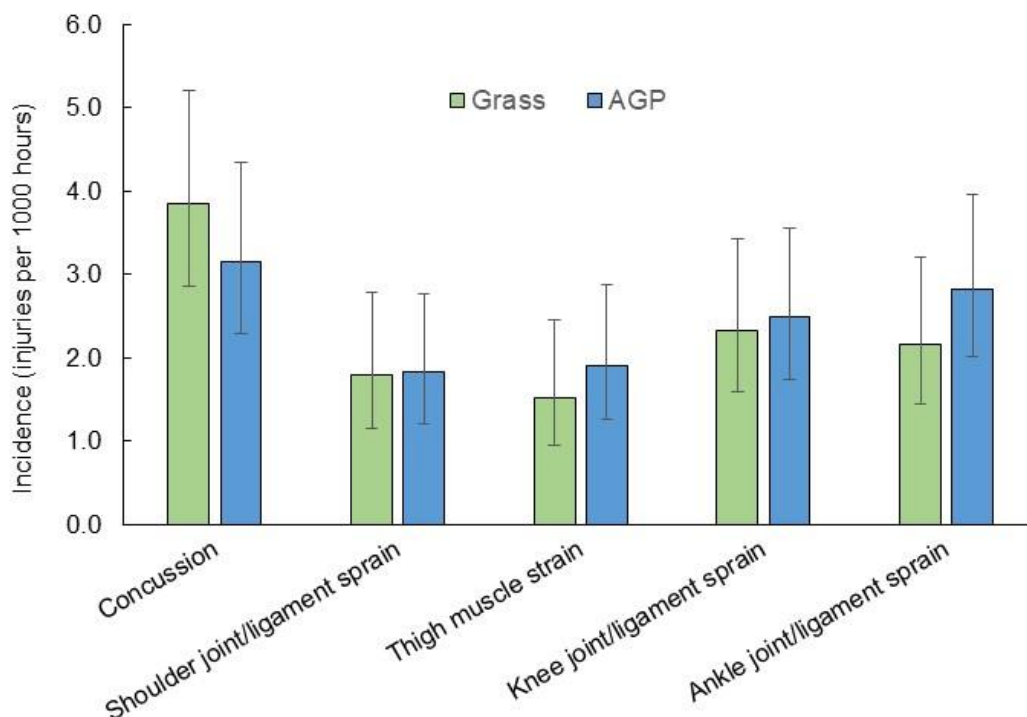
**Figure 23.** Comparison between pitch surface types for match event associated with injury for seasons 2018-19, 2019-20 and 2021-22 combined.

## Pitch surface: Injury locations and diagnoses

The data in Figures 24 and 25 for all three seasons combined, suggests that there is no difference between pitch surfaces in terms of the location of injury on the body or for the most common injury types.

| Grass |                  |             | AGP |                  |
|-------|------------------|-------------|-----|------------------|
| 27%   | (5.8 per 1000 h) | Head & Neck | 22% | (5.6 per 1000 h) |
| 22%   | (4.8 per 1000h)  | Upper limb  | 27% | (6.6 per 1000h)  |
| 7%    | (1.4 per 1000h)  | Trunk       | 6%  | (1.4 per 1000h)  |
| 45%   | (9.8 per 1000h)  | Lower limb  | 45% | (11.2 per 1000h) |

**Figure 24.** Comparison between pitch surface types for top five most common injury diagnoses for seasons 2018-19, 2019-20 and 2021-22 combined.



**Figure 25.** Comparison between pitch surface types for top five most common injury diagnoses for seasons 2018-19, 2019-20 and 2021-22 combined.

## Men – Match analysis

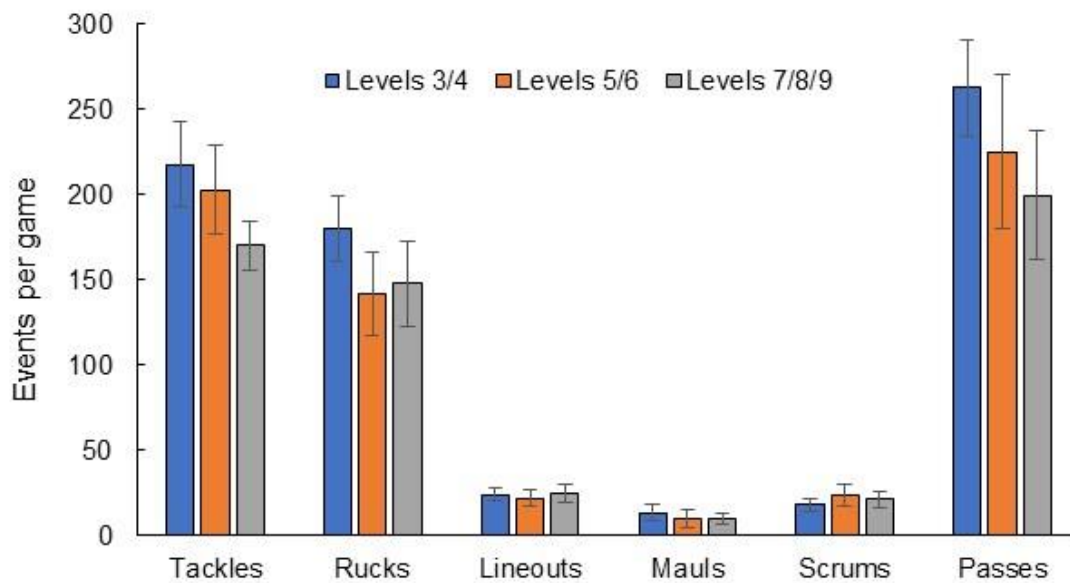
During the 2021-22 season, men's community level match play footage was analysed for match events and tackles. This analysis was not linked to specific injuries report in CRISP but provided a description of these game events. A total of 28 matches were analysed for the number of the number of different match events and a sample of 1959 tackles were analysed to understand more about player behaviours in this specific event.

### Match event analysis

Table 6 show the average number of match events for all men's community playing levels combined and Figure 26 shows that there were generally more tackles, rucks and passes as the level of play increased.

**Table 6.** Number of events per match for men's community match play levels 3-9.

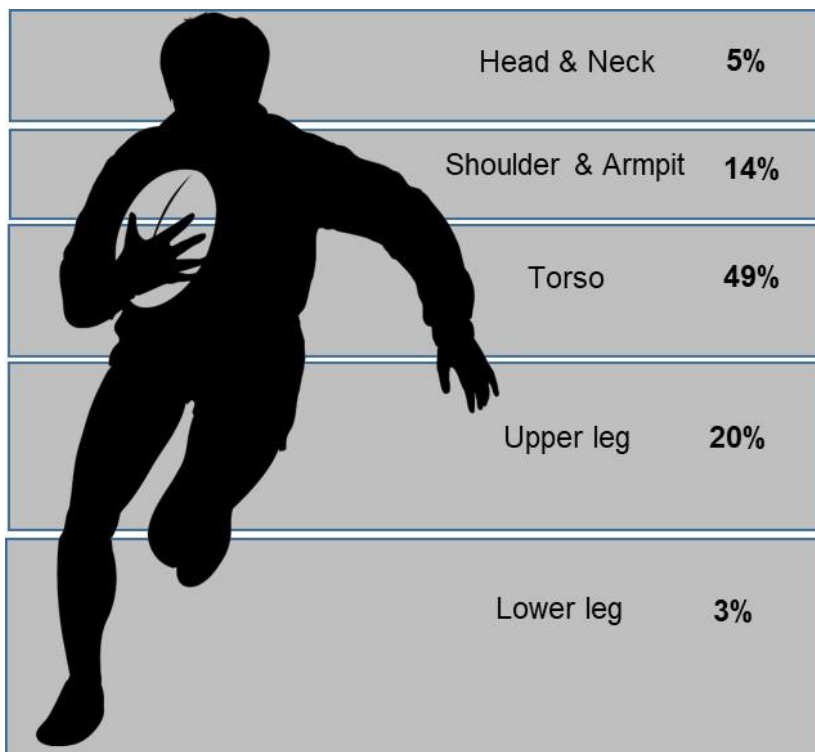
| Event        | Tackles | Rucks | Lineouts | Mauls | Scrums | Passes |
|--------------|---------|-------|----------|-------|--------|--------|
| Number/match | 201     | 154   | 24       | 11    | 21     | 226    |



**Figure 26.** Number of events per match at playing levels 3/4, 5/6 and 7/8/9.

## Tackle analysis

Figure 27 shows that in 19% of all tackles, the first point of contact made on the ball carrier was from the armpit to the head. The tackler's and ball carrier's body position at the time of the tackle were coded as upright, bent at the waist or diving. Of the 19% head to armpit height tackles, the tackler's body position at the point of making the tackle was upright for 16% and bent at the waist for 3%. For 13% of tackles above the armpit height, the tackler's and ball carrier's body positions were both upright. The principle of lowering the permitted tackle height on the ball carrier by the tackler more often assuming a bent position should result in fewer tackles whereby the tackler's head contacts the ball carrier's shoulder and head.



**Figure 27.** First point of contact made by the tackler on the ball carrier.

## Women – Overall findings

Season 2021-22 was the first season that women’s community teams have participated in the CRISP project and represents an important step forward in our understanding of the risk of injury in the different playing groups. Eligible leagues for the Women’s CRISP are playing levels 2-5 and for the purposes of analysis, all playing levels are combined for 2021-22.

### Overall injury incidence and severity

A total of 88 injuries were reported across 136 team games resulting in an injury incidence of 32.4 injuries per 1000 player match hours (Table 7). This is slightly higher but not statistically different compared with the overall men’s incidence of 29.2 and when compared with different playing levels in the men’s game, it is higher than levels 5-9 but lower than levels 3/4 (Figure 28).

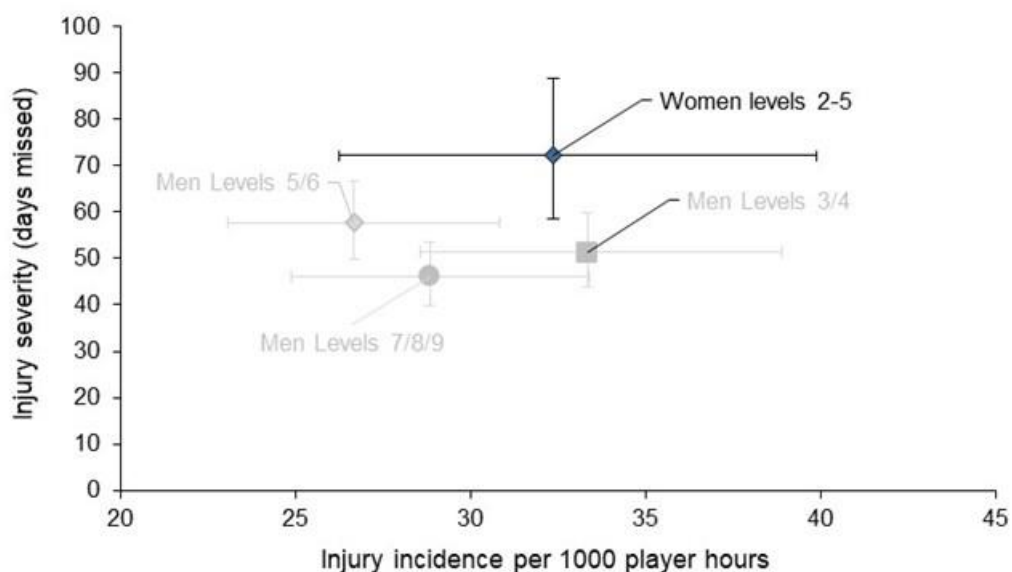
The women’s mean injury severity of 72.1 days lost per injury is higher than the men’s playing levels and Table 8 shows that most reported injuries took between 29-84 days to resolve.

**Table 7.** Match injury incidence and severity for time-loss injuries.

|              | Injuries | Match hours | Incidence | Average days absence | Average matches per injury |
|--------------|----------|-------------|-----------|----------------------|----------------------------|
| All injuries | 88       | 2720        | 32.4      | 72.1                 | 1.5                        |
| Concussion   | 19       | 2720        | 7.0       | 41.5                 | 7.2                        |

**Table 8.** Match injury incidence for each severity classification.

| Days missed | Incidence | Percentage of all injuries |
|-------------|-----------|----------------------------|
| 8-28 days   | 8.1       | 25.0                       |
| 29-84 days  | 12.5      | 38.6                       |
| >84 days    | 5.1       | 15.9                       |
| Unknown     | 6.6       | 20.5                       |

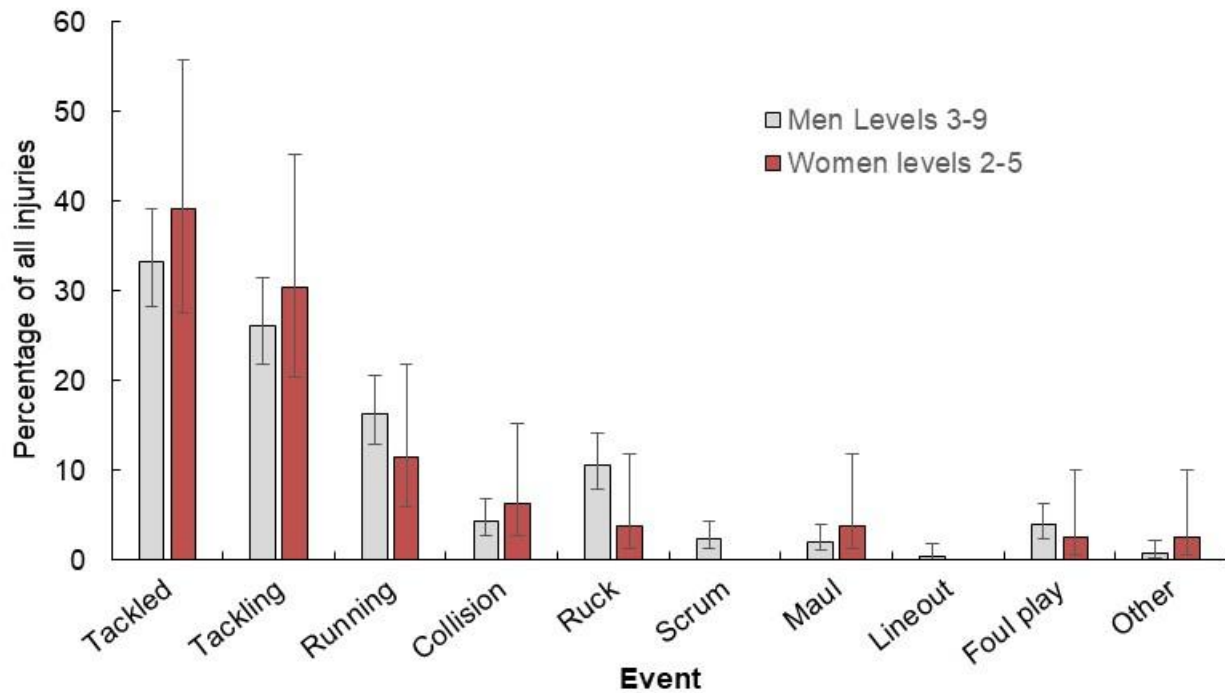


**Figure 28.** Injury incidence and severity for men’s and women’s playing levels.

## Women - Injury event

Overall, the tackle accounted for 70% of all injuries and was greater for both the ball carrier (tackled: 39%) and the tackling player (31%) (Figure 29).

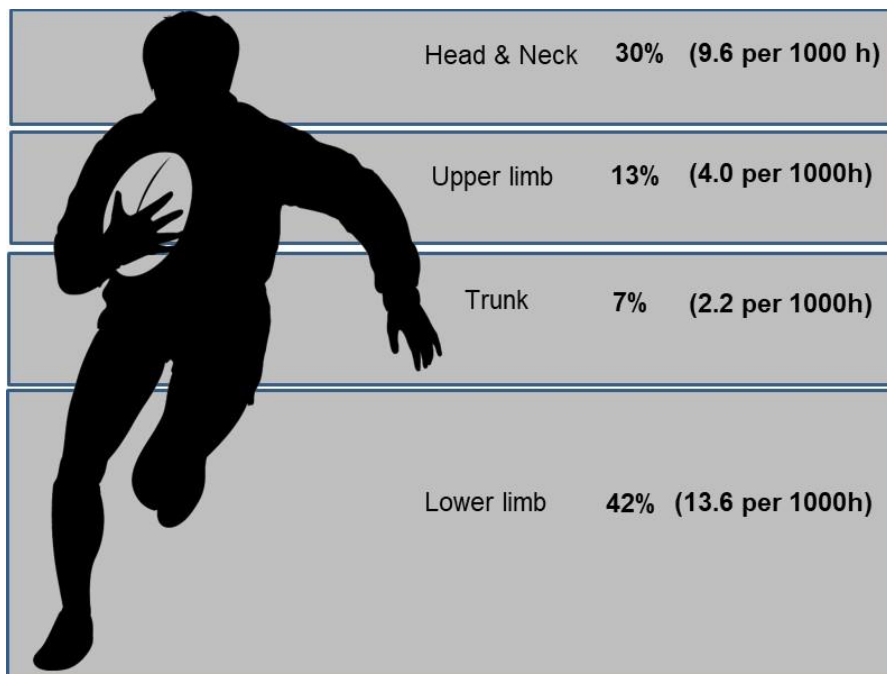
For concussions, 58% occurred in the tackle; 32% when tackling and 26% when being tackled.



**Figure 29.** The percentage of injuries for specific match events for all men's and women's playing levels over season 2021-22.

## Women - Injury location

The distribution of injuries by location are shown in Figure 30, for body regions and Table 9 for more specific body sites. Of note is the high proportion of injuries to the head, owing in part to a concussion incidence of 7.0 per 1000 player match hours. There was also a high burden of knee injuries due to both a high incidence and high mean severity.



**Figure 30.** The distribution of match injuries by body region by percentage and incidence over season 2021-22.

**Table 9.** Incidence, mean severity and burden by body location (ranked within regions from highest to lowest burden). For incidence, mean severity and burden, values are colour coded (red: highest value; green: lowest value).

| Body region | Location of injury | Number of injuries | Incidence | Mean severity | Burden |
|-------------|--------------------|--------------------|-----------|---------------|--------|
| Head/neck   | Head/face          | 25                 | 9.2       | 38.8          | 357    |
|             | Neck               | 1                  | 0.4       | UK            | UK     |
| Upper limb  | Shoulder           | 8                  | 2.9       | 107.6         | 316    |
|             | Hand               | 3                  | 1.1       | 58.3          | 64     |
| Trunk       | Chest              | 3                  | 1.1       | 58.0          | 64     |
|             | Lower back         | 1                  | 0.4       | 49.0          | 18     |
|             | Upper back         | 2                  | 0.7       | 21.0          | 15     |
| Lower limb  | Knee               | 17                 | 6.3       | 141.8         | 886    |
|             | Ankle              | 10                 | 3.7       | 58.9          | 216    |
|             | Lower leg          | 4                  | 1.5       | 91.3          | 134    |
|             | Thigh              | 4                  | 1.5       | 74.3          | 109    |
|             | Foot               | 1                  | 0.4       | 64.0          | 24     |
|             | Groin              | 1                  | 0.4       | 35.0          | 13     |

Incidence (number of injuries per 1000 player match hours), Severity (mean days lost per injury), Burden (Total days lost per 1000 player match hours). UK: Unknown.



## FUTURE DIRECTIONS FOR THE PROJECT

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The community rugby injury surveillance and prevention (CRISP) project has now been established for over a decade. This information provides an increasingly large number of injuries to further our confidence of injury patterns at this level of rugby. There will be a continued focus on collecting more injury data in the women's community game to further our understand of injuries in this part of the game.

The CRISP project provides the opportunity to compare injury trends over consecutive seasons, making it possible to examine the potential influence of law changes or the effects of any other methods of intervention on injury patterns. Season 2023-24 may see the introduction of a lowered tackle height in all levels of the game below professional rugby union in England. The purpose is to reduce the potential for head impacts between the tackler and ball carrier and increase player safety. The CRISP project provides a means of monitoring injury-related outcomes and therefore will be integral to understanding the impact of such an intervention in the game. Additionally, analysis of tackle characteristics across the adult community game will allow comparison of how players behave in tackle events both before and after the change in tackle height.

The results provided in this report are only relevant to the various levels of the men's and women's community games and it would not be appropriate to be generalise this to different playing levels and groups. Similar surveillance studies are running concurrently in English Professional rugby (PRISP), Women's elite game (WRISP), Championship rugby, University Super Rugby and Schoolboy rugby from U13-U18, using similar injury definitions and therefore providing data which can be compared across these different playing levels.

# PROJECT METHODS

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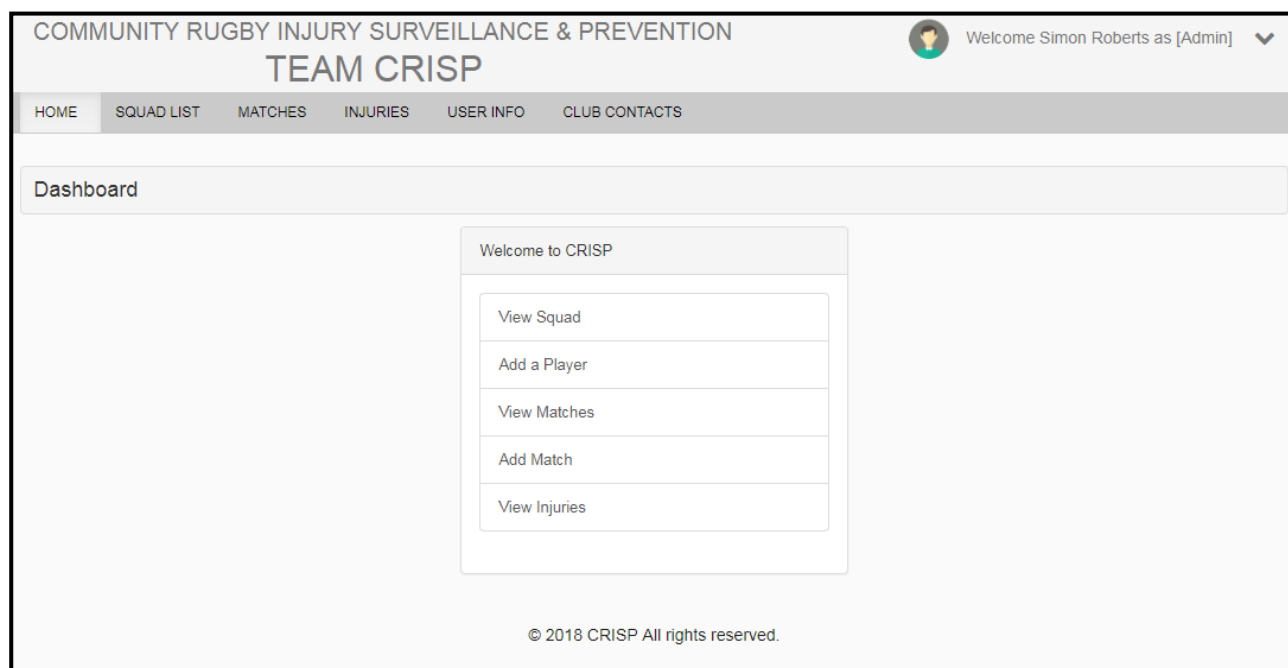
## Recruitment

All clubs participate in this project voluntarily by responding to invitation emails sent directly to all men's first teams participating in RFU leagues 3-9, or to advertisement material distributed through coaching courses, newsletters and social media. Each season, a number of teams continue participation from the previous season, with 41% of clubs who participated in season 2019-20 continuing participation in season 2021-22. The diverse geographical range of participating clubs for the 2021-22 season is shown in the map below. Coloured pins represent the locations of clubs in men's levels 3/4 (dark blue), levels 5/6 (green), level 7/8/9 (orange) and women's level 2-5 (light blue).



## Data collection

Participating clubs have the option to report injuries using either paper data collection forms or through the club's dedicated web page on the project's online data entry platform as shown below.



Each participating club assigns one or more primary contact (normally the team's sports therapist or physiotherapist) who is responsible for collating and reporting the following data:

- A first team squad list with brief information for each player
- Brief details for all first team matches – used to understand the injury risk per match
- Any time-loss injury sustained during first team match which caused the player to miss at least one match (eight days or greater absence from playing).
- Player consent for their injury data to be reported to the CRISP team, obtained in accordance with GDPR.

## PUBLICATIONS AND REPORTS

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The information collected by this Project has resulted in a number of Journal publications and conference communications. Previous CRISP Project season reports can be accessed at: [RugbySafe Research Toolkit](#)

### Journal publications

Attwood, M.J., Roberts, S.P., Stokes, K.A., England, M. and Trewartha, G. (2018). Association of the Functional Movement Screen™ with match-injury burden in men's community rugby union. *Journal of Sports Sciences*, 37(12): 1365-1374

Attwood, M.J., Roberts, S.P., Stokes, K.A., England, M. and Trewartha, G. (2017). Efficacy of a movement control injury prevention programme in adult men's community rugby union: a cluster randomised controlled trial. *British Journal of Sports Medicine*, 52(6), 368-374.

Roberts, S.P., Trewartha, G., England, M., Goodison, W. & Stokes, K.A. (2016). Concussion and head injuries in English community rugby union match play. *American Journal of Sports Medicine*, doi: 10.1177/0363546516668296.

Singh V.R., Trewartha, G., Roberts, S.P., England, M. & Stokes, K.A. (2016). Shoulder injuries in English community rugby union. *International Journal of Sports Medicine*, 37(08), 659-664.

Roberts, S.P., Trewartha, G., England, M. & Stokes, K.A. (2014). Incidence and nature of medical attention injuries in English community rugby union. *Orthopaedic Journal of Sports Medicine*, 2,(12), 2325967114562781, DOI: 10.1177/2325967114562781.

Roberts, S.P., Trewartha, G., England, M. & Stokes, K.A. (2014). Collapsed scrums and collision tackles: what is the injury risk? *British Journal of Sports Medicine*, 10 February 2014doi:10.1136/bjsports-2013-092988.

Roberts, S.P., Trewartha, G., England, M., Shaddick, G. & Stokes, K.A. (2013). Epidemiology of time-loss injuries in English community-level rugby union. *BMJ Open*, 2013. 3(11): p. e003998.

# ACKNOWLEDGEMENTS

---

Many thanks to the coaches and sports injury staff at all participating clubs in the Community Injury Surveillance Project for 2021-22.

**Men's Level 3/4:** Barnes, Blaydon, Chester, Cinderford, Henley Hawks, Loughborough Students, Rams Rugby, Redruth, Tynedale.

**Men's Level 5/6:** Buckingham, Burton, Chippenham, Firwood Waterloo, Harpenden, Hornets, Lymm, Lichfield, Lymm, Malvern, Old Haberdashers, Oxford Harlequins, Paviers, Penrith, Sandbach, Stockport, Sevenoaks, Stockport, Tottonians.

**Men's Level 7/8/9:** Aylesbury, Chelmsford, Chew Valley, Chiswick, Devizes, Didsbury TOC H, Eastleigh, Heathfield and Waldron, Hornsea, North Bristol, Reading, Scarborough, Southport, Whitley Bay Rockliffe.

**Women's Level 2-5:** Biggleswade Ladies, Chelmsford Ladies, Cheltenham Ladies, Cheshunt Ladies, Chew Valley Ladies, Didsbury Toc H Ladies, Hove Ladies, Lichfield Ladies, Novocastrians Ladies, Old Albanian Ladies, Southport Ladies, Wasps FC Ladies 2s.

## Community Injury Surveillance Project Team

- Prof Keith Stokes - Department for Health, University of Bath (Lead Investigator) and RFU Medical Research Lead
- Dr Simon Roberts - Department for Health, University of Bath (Research Fellow)
- Dr Carly McKay - Department for Health, University of Bath (Senior Lecturer)
- Dr Simon Kemp - RFU Medical Services Director
- Rachel Faull-Brown - RFU Player Welfare Manager

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## SUPPLEMENTARY DATA

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This section contains additional data to that of the main findings.

**Table S1.** Injury incidence and severity over 12 seasons in the men's game.

| Season  | Injuries   | Match hours | Incidence | Average days absence | Average matches per injury |
|---------|--|-------------|-----------|----------------------|----------------------------|
| 2009-10 | 385  | 22540       | 17.1      | 50                   | 2.9                        |
| 2010-11 | 539  | 32820       | 16.4      | 56                   | 3.0                        |
| 2011-12 | 645  | 37100       | 17.4      | 53                   | 2.9                        |
| 2012-13 | 399  | 24040       | 16.6      | 56                   | 3.0                        |
| 2013-14 | 613  | 32180       | 19.0      | 52                   | 2.6                        |
| 2014-15 | 496  | 27020       | 18.4      | 49                   | 2.7                        |
| 2015-16 | 502  | 28180       | 17.8      | 57                   | 2.8                        |
| 2016-17 | 595  | 26640       | 22.3      | 49                   | 2.2                        |
| 2017-18 | 495  | 21680       | 22.8      | 47                   | 2.2                        |
| 2018-19 | 638  | 24820       | 25.7      | 44                   | 1.9                        |
| 2019-20 | 567  | 21740       | 26.1      | 39                   | 1.9                        |
| 2020-21 | England community league rugby cancelled due to Covid-19 |             |           |                      |                            |
| 2021-22 | 522  | 17900       | 29.2      | 51                   | 1.7                        |

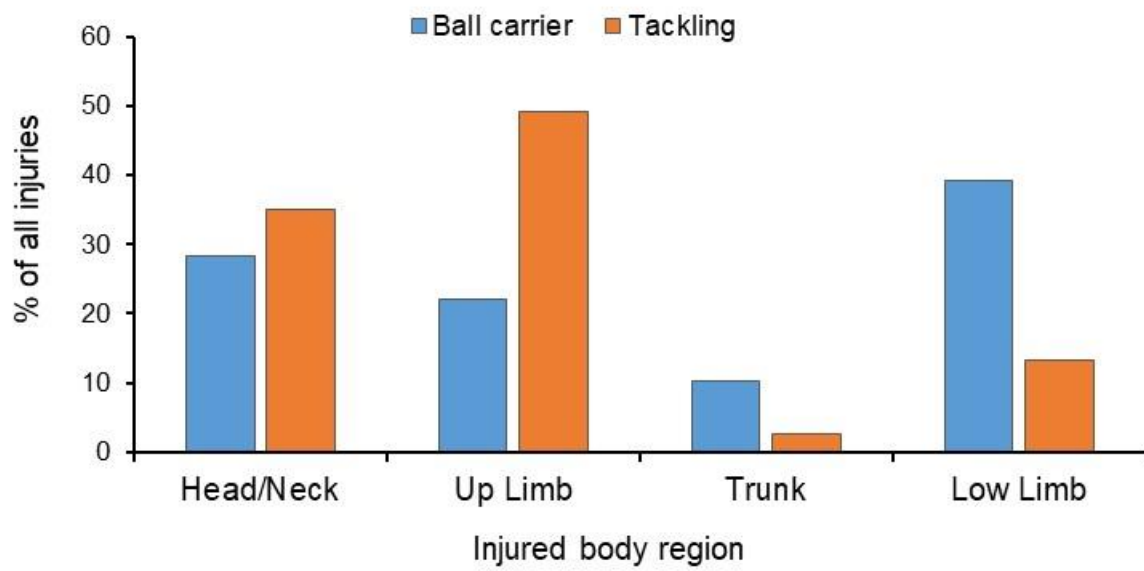
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**Table S2.** Percentage and incidence of injuries for body locations and region totals for different playing levels in the men's game.

| Body region             | Location of injury | Levels 3/4 |           | Levels 5/6 |           | Levels 7/8/9 |           |
|-------------------------|--------------------|------------|-----------|------------|-----------|--------------|-----------|
|                         |                    | Percentage | Incidence | Percentage | Incidence | Percentage   | Incidence |
| Head/neck               | Head               | 17.9       | 6.0       | 25.3       | 6.7       | 20.3         | 5.9       |
|                         | Neck               | 3.7        | 1.2       | 1.6        | 0.4       | 2.3          | 0.7       |
| Upper limb              | Shoulder           | 18.5       | 6.2       | 11.5       | 3.1       | 13.0         | 3.7       |
|                         | Up arm             | 0.6        | 0.2       | 0.0        | 0.0       | 0.0          | 0.0       |
|                         | Elbow              | 1.2        | 0.4       | 1.6        | 0.4       | 2.3          | 0.7       |
|                         | Forearm            | 1.2        | 0.4       | 0.5        | 0.1       | 0.6          | 0.2       |
|                         | Wrist              | 0.6        | 0.2       | 2.2        | 0.6       | 1.1          | 0.3       |
|                         | Hand               | 6.2        | 2.1       | 2.7        | 0.7       | 7.3          | 2.1       |
|                         | Trunk              | Upper bac  | 1.2       | 0.4        | 0.0       | 0.0          | 0.0       |
|                         | Lower bac          | 6.2        | 2.1       | 1.6        | 0.4       | 1.1          | 0.3       |
|                         | Chest              | 2.5        | 0.8       | 4.4        | 1.2       | 4.0          | 1.1       |
|                         | Stomach            | 1.2        | 0.4       | 0.0        | 0.0       | 0.6          | 0.2       |
| Lower limb              | Groin              | 0.0        | 0.0       | 4.9        | 1.3       | 4.5          | 1.3       |
|                         | Thigh              | 12.3       | 4.1       | 6.0        | 1.6       | 10.2         | 2.9       |
|                         | Knee               | 8.0        | 2.7       | 17.0       | 4.5       | 15.8         | 4.6       |
|                         | Low leg            | 1.9        | 0.6       | 3.8        | 1.0       | 2.3          | 0.7       |
|                         | Ankle              | 13.6       | 4.5       | 11.0       | 2.9       | 8.5          | 2.4       |
|                         | Foot               | 0.6        | 0.2       | 2.2        | 0.6       | 2.8          | 0.8       |
| <b>Head/neck total</b>  |                    | 21.6       | 7.2       | 26.9       | 7.1       | 22.6         | 6.5       |
| <b>Upper limb total</b> |                    | 28.4       | 9.5       | 18.7       | 5.0       | 24.3         | 7.0       |
| <b>Trunk total</b>      |                    | 11.1       | 3.7       | 6.0        | 1.6       | 5.6          | 1.6       |
| <b>Lower limb total</b> |                    | 36.4       | 12.1      | 45.1       | 12.0      | 44.1         | 12.7      |

**Table S3.** Percentage of injuries by quarter for all playing levels combined over each season in the men's game.

| Season      | Match Quarter  |        |       |        |
|-------------|--|--------|-------|--------|
|             | 0-20   | 20-40+ | 40-60 | 60-80+ |
| 2009-10     | 18   | 26     | 27    | 30     |
| 2010-11     | 19   | 24     | 28    | 29     |
| 2011-12     | 19   | 25     | 26    | 30     |
| 2012-13     | 17   | 26     | 29    | 27     |
| 2013-14     | 15   | 23     | 26    | 35     |
| 2014-15     | 18   | 26     | 29    | 28     |
| 2015-16     | 44   | 13     | 21    | 22     |
| 2016-17     | 17   | 22     | 28    | 33     |
| 2017-18     | 16   | 31     | 27    | 26     |
| 2018-19     | 17   | 27     | 29    | 27     |
| 2019-20     | 21   | 24     | 27    | 29     |
| 2020-21     | England community league rugby cancelled due to Covid-19 |        |       |        |
| 2021-22     | 22   | 27     | 25    | 26     |
| All seasons | 20   | 24     | 27    | 29     |



**Figure S1.** Percentage of injuries by body region sustained by the ball carrier and tackling player in the tackle event during men's community rugby.