RFU Community Rugby Injury Surveillance Project

2010-2011

Season Report

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1. INTRODUCTION

There is growing understanding of the nature of match injuries which occur in rugby union. However, the research conducted to date in the English game has focussed on injuries which have occurred at International and Premiership levels. While detailed information is available for Premiership rugby, it may not be appropriate to assume that these injury patterns reflect those in the Community game. Some of the different player and match characteristics which exist between Premiership and Community levels may influence injury type and frequency. However, it should also be considered that even within levels 3-9 there will be a range of playing abilities and possibly scope for differing injury patterns.

In order to provide information specific to the Community game, a programme of injury surveillance has been established which caters for this range of playing levels. The Community Rugby Injury Surveillance Project is run by a team at the University of Bath and funded by the RFU Injured Players Foundation on behalf of Community Rugby as part of a commitment by the RFU to reduce injuries within rugby. The Project involves the collection and analysis of information on injuries which occur during 1st XV matches in RFU playing levels 3-9.

The purpose of this research project is to firstly identify injury patterns within community rugby to understand more about such factors as the number of injuries occurring, the type of injuries, and how they happen. This information can help to inform possible intervention strategies for particularly common or severe injuries and to provide guidance on strategies for medical provision within clubs.
1.1 Methods

This report provides a summary of the Community Rugby Injury Surveillance Project data for the 2010-2011 season. For the purposes of comparisons between different levels of community rugby, playing levels were grouped as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>RFU levels</th>
<th>Number of clubs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3,4</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>5,6</td>
<td>26</td>
</tr>
<tr>
<td>C</td>
<td>7,8,9</td>
<td>26</td>
</tr>
</tbody>
</table>

All clubs participated in this Project voluntarily. Only injuries sustained during match play were reported with medical personnel at each club submitting the following information for each 1st team match:

**Match report information**

For every match, brief details of all pitch medical attendances were recorded. These results are summarised in Section 2 of this report.

**Time-loss injury information**

A time-loss injury was defined as one which caused the injured player to miss at least one match (eight days or greater absence from playing). This injury information is presented in Section 3 of this report. The injury severity was reported as ‘moderate’ (lasting between 8 and 28 days), ‘severe’ (lasting greater than 28 days) or career ending injury. Any injury was recurrent if it was one of the same site and same type as the original injury and occurred after the player had made a full return to match play following the original injury.

**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:

\[
\text{Injury Incidence} = \left( \frac{\text{Number of Injuries}}{\text{Number of matches} \times \text{number of players} \times (15) \times \text{match duration} \times (1.33 \text{ hours})} \right) \times 1000
\]
2. MATCH REPORT INFORMATION - SUMMARY

- This section provides information on medical attendances made during match play.

Table 2.1. Mean number of pitch attendances by medical support per match for all clubs and each playing group.

<table>
<thead>
<tr>
<th>Mean attendances/match</th>
<th>All clubs</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4.5</td>
<td>5.8</td>
<td>4.2</td>
<td>3.9</td>
</tr>
</tbody>
</table>

Chance of removal from play

- For one in every five medical attendances, the injured player was removed from play. This chance of removal from play was similar across all Groups A, B and C.
- This information indicates the importance of having at least one medically trained person (to at least first aid level) dedicated to each match, given that there will be a number of occasions that a player will require some level of medical treatment and possibly be withdrawn from match play.
- More information about RFU Guidance on First Aid and First Aid Training can be found in Section 4 of this report.
- More pitch attendances were made in the second half of the match. This pattern was consistent throughout all playing groups.
2.1. **Medical attendances for body site**

![Bar chart showing medical attendances for body site by group](image)

**Figure 2.1.** Percentage of pitch attendances for each playing group by body region.

*Attendances for head injuries*

- The head was the most attended to specific body site (24% of all attendances), during match play. For all pitch attendances, 6% were for head impacts and 3% were for nerve/neural diagnoses (including concussions). This highlights the need for pitch side medical staff to be able to recognise possible symptoms of concussion. More information about resources for concussion diagnosis and management can be found in Section 4 of this report.

- 10% of all attendances were for head lacerations (including nose bleeds).

- While most attendances were for head injuries, there was a greater chance that the player was removed from play following an injury to the trunk or lower limb (1 in 4 chance of being removed).
2.2. Medical attendances by injury type

![Percentage of pitch attendances by injury type](image)

**Figure 2.2.** Percentage of pitch attendances for each playing group by injury type. Laceration includes nose bleeds; Nerve/neural injuries include concussions.

2.3 Medical attendances by playing position

- There was a trend for more attendances to both forwards groups compared with the backs (Figure 2.3).

![Attendance incidence per 1000 player hours](image)

**Figure 2.3.** Incidence of pitch attendances for each group by positional groups. Tight forwards: loose head and tight head props, hooker, left and right locks; Loose forwards: open side and blind side flankers, No. 8; Inside backs: outside half, inside centre, outside centre; Outside backs: left and right wings, full back.
3. Time-Loss Injury Information - Summary

- Section 3 contains information relating to time-loss injuries, defined in this study as those with a severity of 8 days or greater absence from match play.
- For the 1641 matches under surveillance, 539 time-loss injuries were reported.
- The injury rate in Group A is significantly greater than Group C (Table 3.1).

Table 3.1. Match injury incidence and severity for time-loss injuries.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total number of player match hours</th>
<th>Total number of match injuries</th>
<th>Injuries per 1000 player hours (95% CI)</th>
<th>Number of matches for one injury</th>
<th>Mean severity (matches missed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>32820</td>
<td>539</td>
<td>16.4 (15.0-17.8)</td>
<td>3.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Group A</td>
<td>7700</td>
<td>149</td>
<td>19.4 (16.2-22.5)</td>
<td>2.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Group B</td>
<td>13300</td>
<td>220</td>
<td>16.5 (14.4-18.7)</td>
<td>3.0</td>
<td>7.4</td>
</tr>
<tr>
<td>Group C</td>
<td>11820</td>
<td>170</td>
<td>14.4 (12.2-16.5)</td>
<td>3.5</td>
<td>6.6</td>
</tr>
</tbody>
</table>
Figure 3.1 shows the injury rate from the community rugby injury surveillance project compared with data for injuries of 8 days or greater time-loss derived from other studies of different playing levels. While there are some differences within different levels of community rugby, the overall injury rate is lower than that of International and Premiership rugby.

Data sources
Community levels A, B and C are taken from the 2010-11 findings of the current report. International data has been extracted from a previous publication (Fuller C.W. et al, Br. J. Sports Med. 2008, 42: 452-459) and Premiership data is taken from the England Rugby Premiership injury and training audit 2009-10 Season Report. Information on academies and Schools derives from the Game wide report on injury risk in English youth rugby over seasons 2006/07-2007/08 (published by the University of Bath/RFU, April 2011).
3.1  **Time-loss injuries - Severity**

**Table 3.2. Mean number of matches missed per time-loss injury**

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean number of matches missed</td>
<td>7.0</td>
<td>6.6</td>
<td>7.4</td>
<td>6.6</td>
</tr>
</tbody>
</table>

- There is one time-loss injury for every three matches and the mean number of matches missed is 7.0, therefore a club may have at least 2 players unavailable for selection due to injury every week throughout the season.
- For all clubs combined, 47% of time-loss injuries were classed as moderate and 53% were severe.
- There was a higher rate of moderate injuries in Group A clubs compared with Groups B and C but there was no difference between clubs for the rate of severe injuries.
- The player was removed from play for 78% of all injuries.
- A penalty was awarded in relation to the injury event for 3% of all injuries.
- 7% of injuries required an ambulance. Therefore an ambulance was used for one in every 45 matches.
- 36% of injuries were referred to a hospital, equating to 1 in every 9 matches.
- 14% injuries required surgery.
- No catastrophic injuries were reported during the season.

3.2  **Time-loss injuries – Recurrences**

- Recurrent (repeat) injuries accounted for 15% of all time-loss injuries.
- Compared with non-recurrent injuries, players were absent for more matches (8.7) when they sustained a recurrent injury and even more if the player was still under treatment (11.5 matches).
- 61% of recurrent injuries were in the lower limb.
- There were significantly more recurrent injuries in Group A compared with groups B and C but no difference between groups for non-recurrent injuries.
3.3. **Time-loss Injuries – Body site**

- Figure 3.2 show the distribution of time-loss injuries according to body region.
- The most commonly injured specific sites were:
  - Head (13% of all injuries)
  - Upper limb: shoulder (14% of all injuries)
  - Lower limb: knee (15%); ankle (12%) and thigh (11% of all injuries)

![Figure 3.2. Group comparison for injuries according to body region for all time-loss injuries.](image)

3.4. **Time-loss Injuries – Injury type**

![Figure 3.3. Group comparison for injury type. *Nerve injuries include concussions. Of all nerve/neural injuries, 76% were concussions.](image)
Table 3.3. Top five specific injury diagnoses and severity (mean matches missed).

<table>
<thead>
<tr>
<th>Rank</th>
<th>Injury diagnosis</th>
<th>% of all Injuries</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Knee ligament/joint/cartilage</td>
<td>12</td>
<td>13.6</td>
</tr>
<tr>
<td>2</td>
<td>Ankle ligament/joint</td>
<td>10</td>
<td>5.8</td>
</tr>
<tr>
<td>3</td>
<td>Hamstring strain</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>4</td>
<td>Concussion</td>
<td>6</td>
<td>2.3</td>
</tr>
<tr>
<td>5</td>
<td>Shoulder ligament/joint</td>
<td>5</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Concussion, Hamstring strains and Knee and ankle ligament/joint injuries, accounted for the majority of all injuries. Section 4 provides further guidance towards resources designed to reduce and manage these types of injury.
3.5 **Time-loss injuries – Event**

- For time-loss injuries, 80% were incurred during contact events (Figure 3.4).

![Comparison of injury event across group](image)

**Figure 3.4.** Comparison between groups of injury incidence for specific match events.

**The tackle**

- The tackle (both being tackled and tackling) accounted for 55% of all injuries.
- The shoulder was the body site most commonly injured in the tackle (20% of all tackle injuries), followed by the knee (17%), head (14%) and ankle (11%).
- The six most common tackle injuries were: knee ligament/joint/cartilage (13%), ankle ligament/joint (11%), shoulder ligament/joint (10%), concussion (10%), hand and wrist fractures (7%) and shoulder dislocation (5%).
- 78% of all concussion injuries were incurred in the tackle.

**The scrum**

- 4% of all injuries were incurred in the scrum.
- Of the 20 scrum injuries, 18 occurred to front row players (loose head prop: 8 injuries, hooker: 1 injury and tight head prop: 9 injuries).
- The most common scrum injuries were in the neck (4 injuries), chest (4 injuries), lower back (4 injuries) and lower leg (3 injuries). The most common injury diagnoses were muscle tears and strain (6 injuries) and jar/joint (6 injuries).
Running

- For non-contact events, running was found to be the most common event (8% of all injuries).
- In contrast to all injuries where the injury rate increases over each match quarter, the injury rate for running injuries was highest in the first quarter (38% of all injuries and decreases over each subsequent quarter.
- Hamstring injuries accounted for 58% of all running injuries and 8% of all injuries.
- Section 4.2 provides information on the coaching and technical resources for the scrum and tackle and 4.1 provides guidance on hamstring injury prevention strategies.

3.6. Time-loss injuries – Playing position

- For all groups combined, there were no positional differences in terms of the number of time-loss injuries incurred but there was a trend for higher injury rates in backs positional groups in Group A compared with Groups B and C (Figure 3.5).

Figure 3.5. Comparison between groups for injury incidence according to positional groups. Tight forwards: loose head and tight head props, hooker, left and right locks; Loose forwards: open side and blind side flankers, No. 8; Inside backs: outside half, inside centre, outside centre; Outside backs: left and right wings, full back.
3.7 *Time-loss injuries - Timing of the injury*

- There was a trend for a higher injury rate in the second half of the match (Figure 3.6) and a higher injury rate during the first quarter of the season (Figure 3.7).

![Figure 3.6. Comparison between playing groups for injury incidence in each match quarter.](image-url)
4. GUIDANCE AND RESOURCES

This section of the report includes some guidance towards injury prevention strategies based on the findings presented in Sections 2 and 3. These have been approached in terms of how the chance of injury may be minimised through physical preparation (4.1), coaching (4.2) and after the injury has been sustained, how injury management strategies can facilitate recovery (4.3).

4.1 Injury prevention - Physical preparation

General information on player health, including links to fitness information, is available via the RFU website:


Lower limb injury prevention exercises

In this study, knee and ankle injuries combined account for 63% of all lower limb time-loss injuries. More information injury prevention exercises for these high-risk sites (and those for the upper body) are available in the ‘Injury Prevention’ section within ‘Player Health’ on the RFU web pages:


Preventing hamstring injuries

Hamstring strains have been identified as a common injury in community rugby union accounting for 8% of all time-loss injuries. Furthermore, this is a predominantly non-contact injury and therefore possibly modifiable. A previous study has shown that Nordic hamstring exercises may be beneficial in preventing hamstring injuries (Brooks, et al., 2006. Incidence, Risk, and Prevention of Hamstring Muscle Injuries in Professional Rugby Union. American Journal of Sports Medicine, 34:1297-1306). This type of exercise can be easily integrated into a training programme due to minimal time and equipment requirements. More information on how to perform Nordic hamstring exercises can be found on:

http://www.bath.ac.uk/health/sportsandexercise/hamstring.html
4.2 **Injury prevention - Technique**

This report demonstrates that 80% of all time-loss injuries are sustained in contact events, most notably the tackle. While contact is an essential part of rugby union, correct technique in contact situations may help to minimise the potential for injury and therefore particular emphasis should be placed on how these are coached. The RFU provide extensive resources for coach development:

http://www.rfu.com/TakingPart/Coach

**The tackle and injury prevention**

The information in this report suggests that both tackling and being tackled is a particular injury risk. It is therefore suggested that there should be a focus on the tackle in training. Although this would increase the overall player exposure to the tackle, it should be noted that a previous study (Brooks et al., 2005. Epidemiology of injuries in English professional rugby union: part 2 training injuries. British Journal of Sports Medicine, 39:767-775) has found a significantly lower injury risk during training activities than during match play and therefore tackle training is unlikely to result in a significant increase in injuries.

There is a growing body of educational resources dedicated to coaching the tackle from the perspective of both the tackler and the ball carrier. More information about the tackle and safe technique in contact can be found on:


**The Scrum Factory**

The RFU Coach and Player Development department has produced the Scrum Factory course which is designed to help coaches and players to understand individual and collective techniques, as well as position specific conditioning. Effective scrummaging requires teamwork, with each individual understanding their role in order to be effective. To achieve this, the coach must develop the individual before building the scrum as a unit. Further information on the Scrum Factory can be found on:

4.3 Injury management

Despite the implementation of injury prevention measures, there is still the potential for injuries ranging from mild to severe. Clinical governance describes the process of ensuring that the club ensures the highest quality care for the players. More information on implementing this process can be found on: http://www.rfu.com/ManagingRugby/FirstAid/ClinicalGovernance.aspx

Reporting injuries
Independent of participation in the community rugby injury surveillance project, any club playing within the RFU structure should report the following types of injury to the RFU sports injury administrator.

1. An individual who sustains an injury which results in their being admitted to a hospital. This does not include those taken to an Accident or Emergency Department and allowed home from there.
2. Deaths occurring during or within 6 hours of the game finishing.

The injury report form for the above can be accessed through: http://www.rfu.com/ManagingRugby/FirstAid/Injuries.aspx

Medical Provision
The RFU have produced guidelines which are designed to help clubs to consider the appropriate level of medical provision they should provide. A link to these guidelines can be found on: http://www.rfu.com/ManagingRugby/FirstAid.aspx

A list of equipment which should be included in a pitch side first aid kit can be found on: http://www.rfu.com/ManagingRugby/FirstAid/CoursesAndGuidelines/FirstAidEquipmentGuidelines.aspx
Courses
There is a range of first aid courses available for club staff. The RFU emergency first aid course is a recognised emergency first aid at work (EFAW) course with additional emphasis on aspects relating to rugby:
http://www.rfu.com/ManagingRugby/FirstAid/CoursesAndGuidelines/RFUSportsFirstAidCourse.aspx

The Pitch side Immediate Trauma Care Course (PSITCC) is a more advanced course aimed at the pitch side treatment of potentially catastrophic and life or limb threatening injuries. More information can be found on:
http://www.rfu.com/ManagingRugby/FirstAid/CoursesAndGuidelines/PSITCC.aspx

Injury rehabilitation

This report shows that recurrent injuries (mean of 8.7 matches missed) are more severe than non-recurrent injuries (mean of 6.6 matches missed). Furthermore, for the recurrent injuries sustained when the player was still under treatment from club medical staff, there was a mean of 11.5 matches missed. This shows the need for injured players to undergo a full rehabilitation.

Injured players should only return to play or full training after they have been assessed to ensure that they are ready to do so by a coach, doctor or therapist. The rehabilitation of the player should follow a graduated process and incorporate:

- The recovery of muscle strength
- Restoration of a full range of movement in the joint
- Recovery of co-ordination and balance
- The maintenance of fitness by alternative activities such as cycling and swimming
- Gradual introduction of rugby specific skills
- Contact drills followed by full contact
- Return to full training and match play once the above stages have been achieved.

More information on rehabilitation and returning to play can be found on the RFU website:
http://www.rfu.com/ManagingRugby/ClubDevelopment/Medical/RehabRecovery.aspx
Concussion

Suspected concussion injuries should be taken very seriously. As such, the iRB have recently revised guidelines for concussion diagnosis and management. While the diagnosis is still made by a medical practitioner, the new guidelines involve a graduated return to play protocol whereby through the re-introduction of training without the any further concussion symptoms, the player may return to match play after six days. However, the graduated return to play may only be implemented under the supervision of a medical practitioner. In the event that rehabilitation is not supervised by a medical practitioner, the injured player may not return to play until the 21st day after the injury event.

More information on concussion diagnosis and management – including links to the iRB concussion guidelines - is available on the RFU website:

http://www.rfu.com/ManagingRugby/FirstAid/Injuries/Concussion.aspx
ACKNOWLEDGEMENTS

Many thanks to the sports injury staff at all participating clubs in the Community Rugby Injury Surveillance Project for 2010/11.

Group A:
Cinderford, Clifton Fylde, Hinckley, Jersey, Kendal, Loughborough Students, Manchester, Newbury, Nuneaton, Redruth, Rosslyn Park, Shelford, Tynedale, Wharfedale.

Group B:
Basingstoke, Bishops Stortford, Bromsgrove, Burnage, Cheltenham, Chester, Civil Service, Cleve, Clevedon, Cobham, Dorking, Havant, Leigh, Lymm, Malvern, Morpeth, Newark, Northern, Old Laurentians, Peterborough, Redingensians, Rochdale, Sandbach, Wadebridge Camels, Walcot, Weston-Super-Mare.

Group C:

Community Rugby Injury Surveillance Team

Dr Simon Roberts - Research Officer, Department for Health, University of Bath
Dr Keith Stokes - Senior Lecturer, Department for Health, University of Bath
Dr Grant Trewartha - Senior Lecturer, Department for Health, University of Bath
Dr Mike England - RFU Community Rugby Medical Director
Dr Karen Hood - RFU Community Rugby Medical Manager

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