

# RFU Community Rugby Injury Surveillance Project

————— **CRISP** —————

## 2011-2012 Season Report



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## 1. EXECUTIVE SUMMARY

### *Key messages*

- The overall injury rate in community rugby during season 2011-2012 is stable compared with previous seasons.
- The **injury rate within community rugby is higher at higher playing levels**, particularly at National League level compared with levels 5-9 in community rugby.
- Time-loss injury rates in community rugby are lower than those reported for Premiership rugby and schools and youth.

### *Medical attendances made during match play*

- There was an **average of 4.7 pitch attendances during match play** with more at the higher playing levels.
- On average, the player being attended to was **removed from play for one in every five injuries**. The chance of being removed was greatest for lower limb injuries (1 in every 4 injuries) and lowest for head injuries (1 in every 8 injuries).
- Head injuries accounted for 24% of all medical attendances.
- The most common type of injury for a medical attendance was bruising/impact (26% of all injuries) with one in every 7 players removed.
- There was a trend towards more attendances for forwards compared with backs.

### *Time-loss injuries of eight days or greater absence*

- On average, **injured players miss 6.5 matches** and this time-loss is consistent across all community playing levels.
- Combining knowledge of how many injuries occur and how long players are absent for, an average of **three players per club will be unavailable for match play each week throughout the season**.
- Knee injuries account for the highest proportion of time-loss injuries (19%), followed by the shoulder (16%), head (12%) and ankle (11%).
- **Contact events accounted for 76% of all injuries**. The tackle was the most common injury event accounting for 52% of all injuries (29% through being tackled; 23% through tackling). This finding which was consistent throughout Groups A, B and C and throughout previous years of the Project.

## **2. 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 via annual injury surveillance reports, 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 is also possible that within RFU 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 1<sup>st</sup> XV matches in RFU playing levels 3-9.

The Project has now been in existence for three seasons, during which time the number of clubs involved each season has increased. As such, the number of injuries accumulated over this time provides greater certainty of the injury patterns which occur and we are confident that we have established a sample that provides robust information each year.

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.

## 2.1 *Methods and definitions*

This report provides a summary of the Community Rugby Injury Surveillance Project (CRISP) data for the 2011-2012 season. Comparisons are also made with seasons 2009-2010 and 2010-2011.

For the purposes of comparisons between different levels of community rugby, playing levels were grouped as follows:

Group	Levels	Number of clubs (2011-2012)
A	3,4	14
B	5,6	32
C	7,8,9	30

All clubs participated in this Project voluntarily having responded to advertisement material. Only injuries sustained during match play were reported with medical personnel at each club submitting the following information for each 1<sup>st</sup> team match:

### ***Match report information***

For every match, details of all pitch medical attendances were recorded. These results are summarised in Section 2 of this report. Injuries for these attendances are not diagnosed with the same specificity as those in the time-loss injury section.

### ***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 the report.

## Definitions

### ***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:

$$\text{Injury Incidence} = \left( \frac{\text{Number of Injuries}}{\text{Number of matches} \times \text{number of players (15)} \times \text{match duration (1.33 hours)}} \right) \times 1000$$

### ***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. The standard definitions of a ‘moderate’ injury (lasting between 8 and 28 days), ‘severe’ injury (lasting greater than 28 days) and a career ending injury are used. For time-loss injuries in this study, a minimum of one match will have been missed.

### ***Recurrent injury***

A recurrent injury is one of the same site and same type as the original injury and occurs after the player has made a full return to match play following the original injury.

### ***Statistical significance***

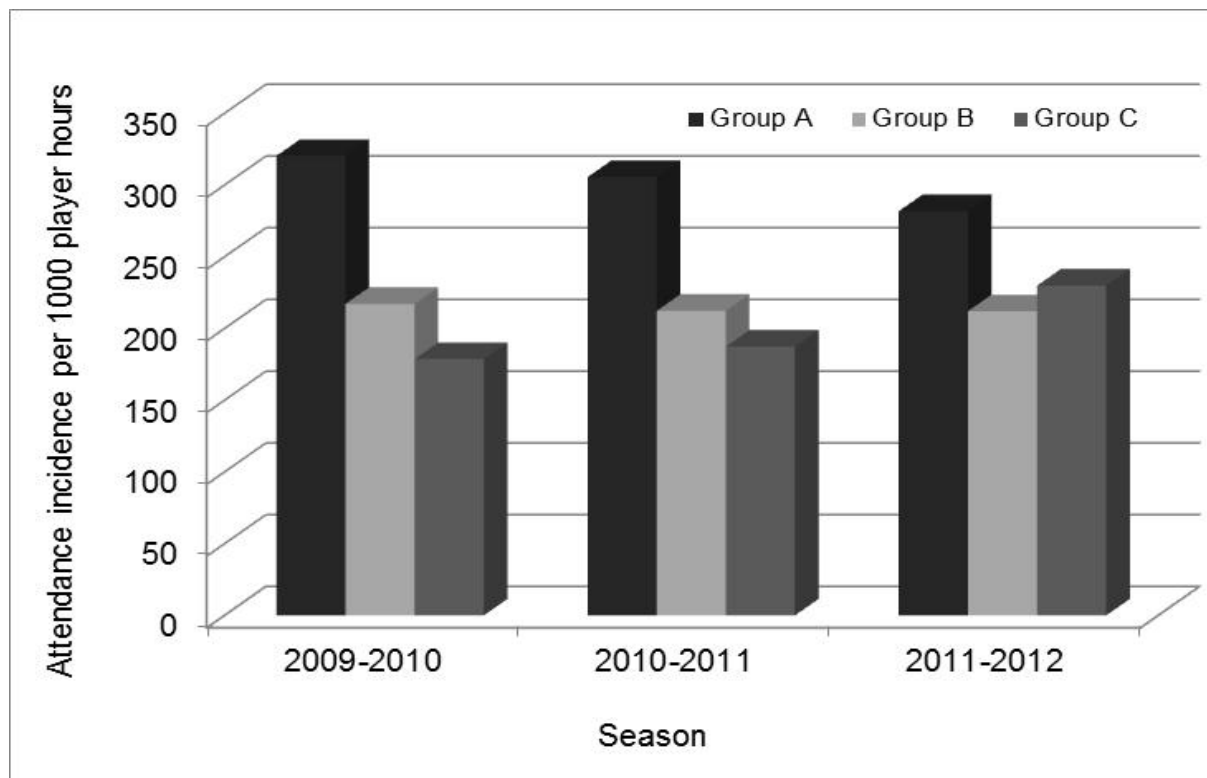
In this report, a result is deemed to be significant if the probability that the result has happened by chance is less than 5%. The use of 95% confidence intervals (CI) provides an estimate of reliability of the value (i.e. small intervals means a very reliable estimate).

All methods and definitions used in this study comply with those outlined in the IRB consensus statement for injury definitions and data collection procedures for studies of injuries in rugby union.

### 3. MATCH REPORT INFORMATION

This section will provide information on medical attendances made during match play.

**Figure 3.1.** Comparison of pitch attendances for each playing group by season.



The results in Table 3.1 demonstrate that there is little change in the rate of pitch attendances for each playing group over the last three seasons. This information is also reflected in Table 3.1 which presents the information as the average number of pitch attendances per match.

**Table 3.1.** Mean number of pitch attendances by medical support per match for all clubs and each playing group over three seasons.

Mean attendances/match	All clubs	A	B	C
2009-2010	4.5	6.5	4.3	3.5
2010-2011	4.5	5.8	4.2	3.9
2011-2012	4.7	5.6	4.2	4.6

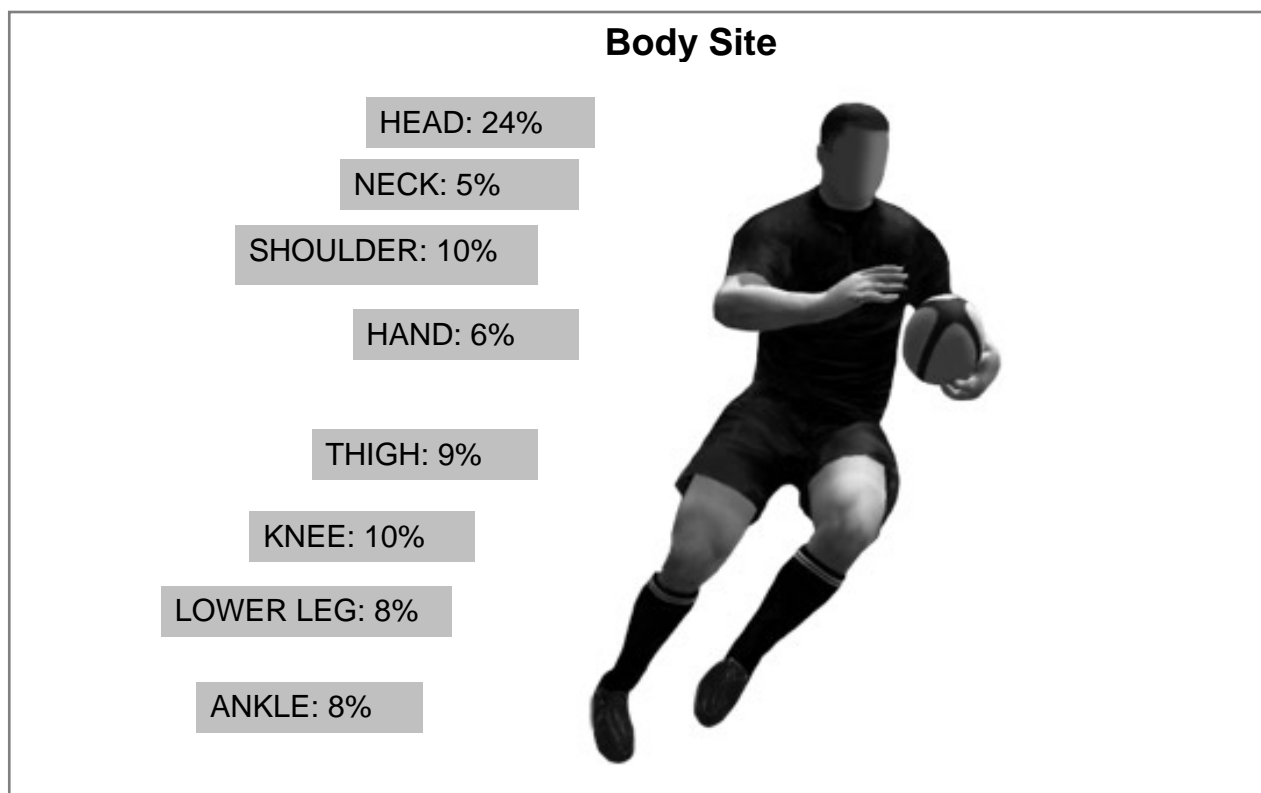
### Overall chance of removal from play

For all clubs combined, the injured player was removed from play for one in every five medical attendances. This chance of removal from play was similar across all playing levels.

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. In addition, it is also likely that this person may be responsible for deciding whether a player should continue to play in the match

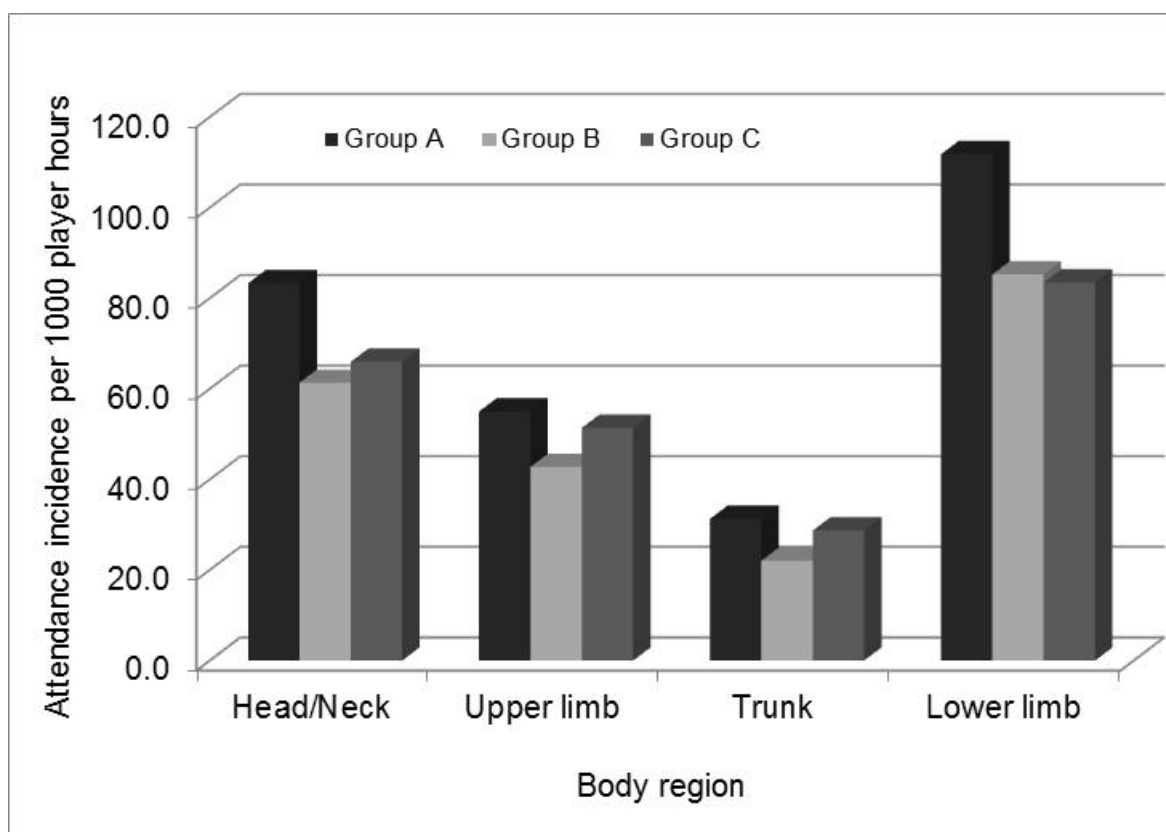
Further information on injury management, including training courses can found in Section 7 of this report.

### 3.1. Medical attendances for body site



**Figure 3.2.** The most common injury sites for pitch medical attendances for 2011-2012.





**Figure 3.3.** Comparison of pitch attendances for each playing group by body region.

#### *Attendances for head injuries*

The head was the most attended to specific body site (Figure 3.2), across all groups which is consistent with the findings from Season 2010-2011. For all pitch attendances, 9% were for head impacts, and 2% 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 concussion diagnosis and management can be found in Section 7 of this report.

It should also be noted that while 9% of all pitch medical attendances were for head lacerations (including nose bleeds), medical staff should also be vigilant when dealing with these injuries, to assess whether players are also showing signs of concussion or other trauma.

For 1 in every 8 attendances for head injuries the player was removed permanently and in 1 out of every 7 attendances, the player was removed temporarily to the 'blood bin'.

*Removal from play***Table 3.2.** The chance of the player being removed from play by body region.

	Head/neck	Upper Limb	Trunk	Lower limb
Chance of removal (1:X attendances)	8	5	5	4

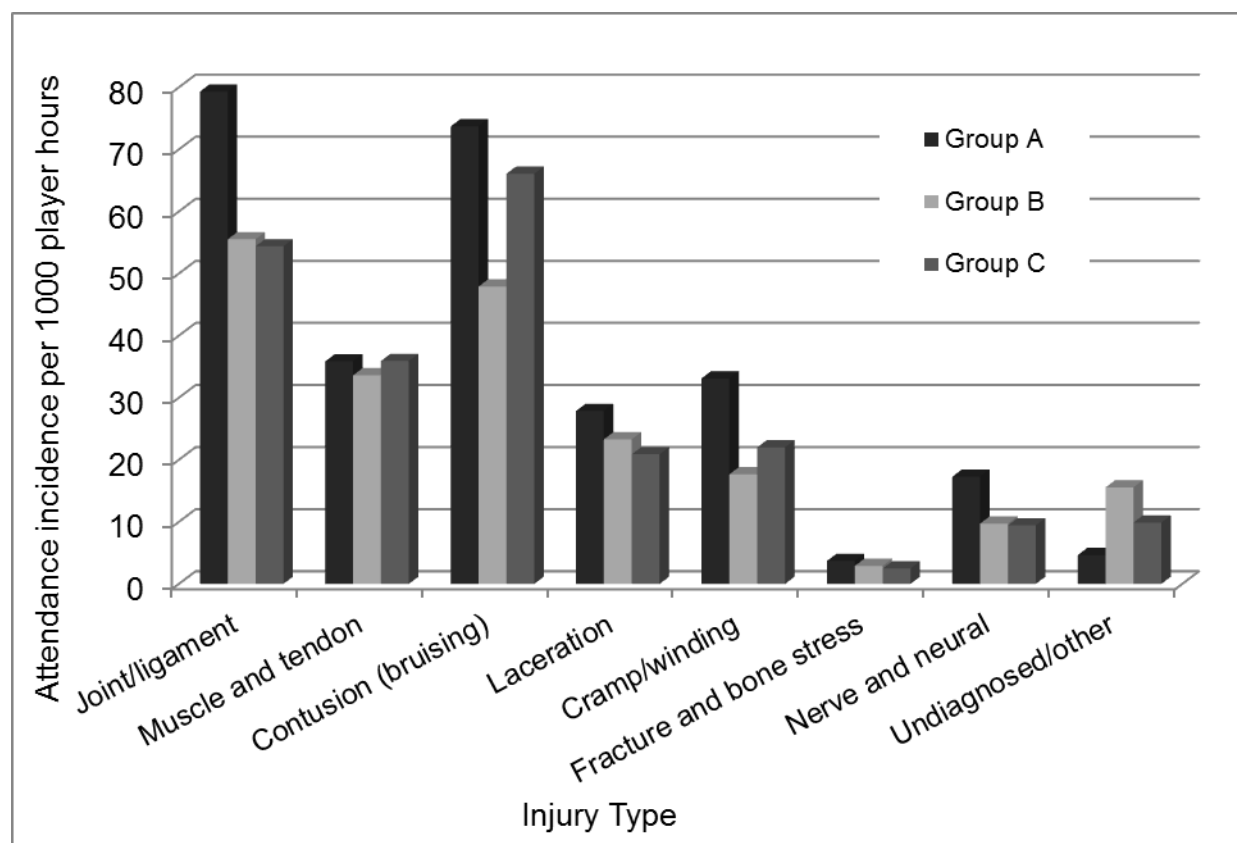
While most attendances were for head injuries, Table 3.2 shows that there was a greater chance that the player was removed following an injury to the lower limb. The increased chance of removal for lower limb injuries from play reflects the finding that for time-loss injuries, knee injuries result in the greatest severity (matches absence). It should also be noted that as a collective body region, the lower limbs account for the most pitch attendances (Figure 3.2).

### 3.2. Medical attendances by injury type

**Table 3.3.** The top 7 injury types for pitch medical attendances and chance of being removed from play 2011-2012.

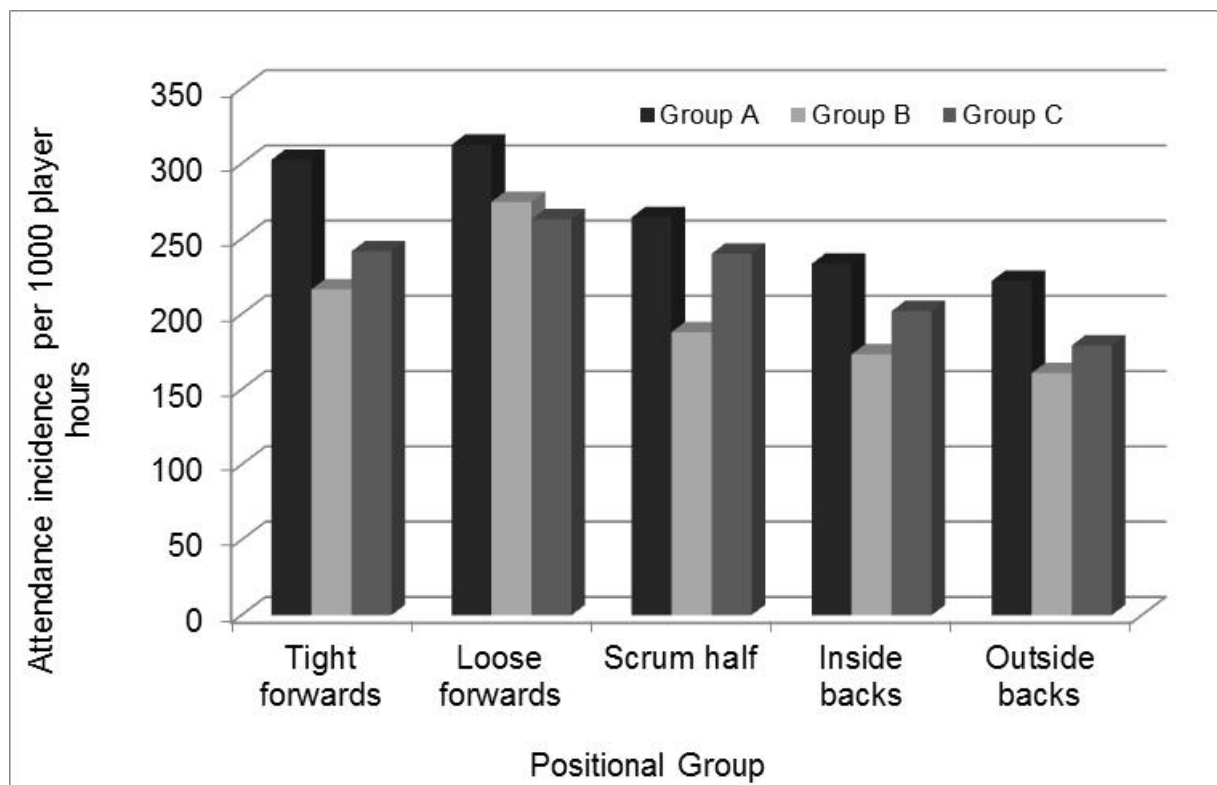
Injury type	Percentage of total attendances	Chance of removal (1:X attendances)
Contusion (Bruising)	26	7
Ligament/joint	25	4
Muscle tear/strain	13	3
Laceration <sup>§</sup>	10	19
Cramp/winding	10	9
Nerve/neural*	5	3

<sup>§</sup>Laceration includes nose bleeds; \*Nerve/neural injuries include concussions.



**Figure 3.4.** Incidence of pitch attendances for each playing group by injury type.

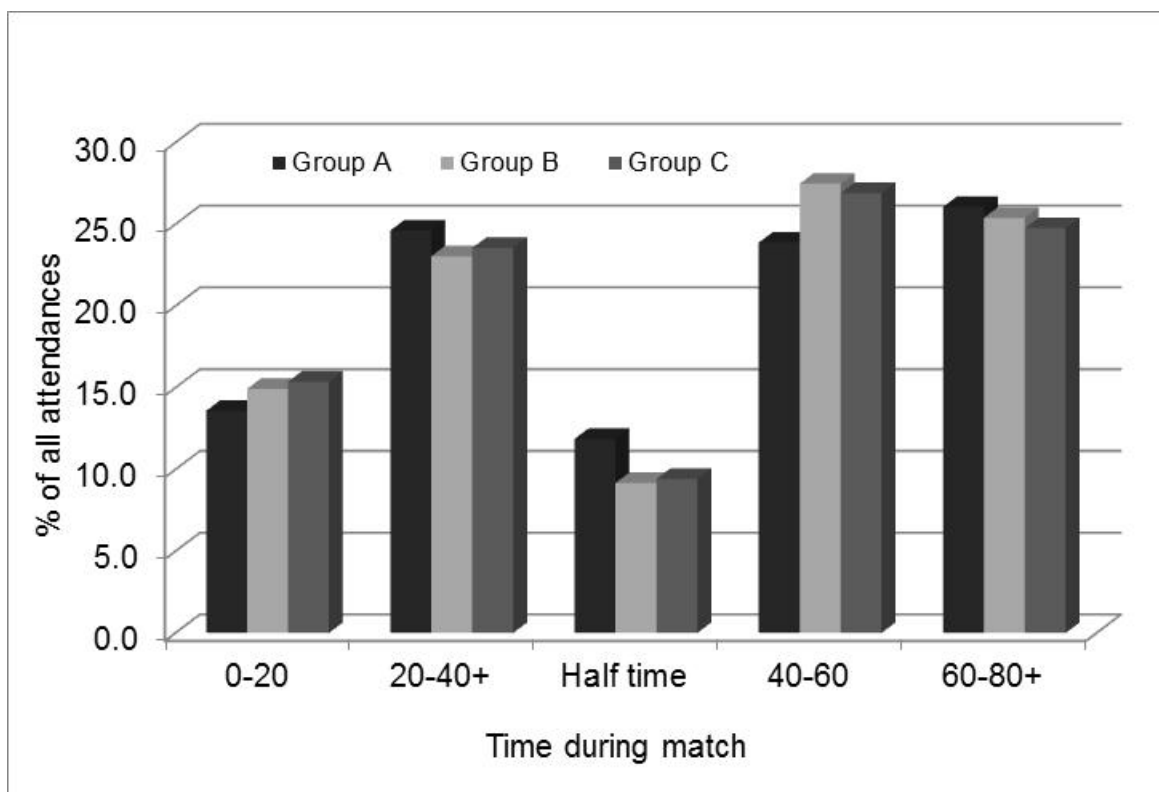
### 3.3. Medical attendances by playing position



**Figure 3.5.** Incidence of pitch attendances for each playing 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.

Figure 3.5 shows that attendances were higher in Group A matches across all positional groups. There was a trend for more attendances to both forwards groups compared with the backs. It could be speculated that this finding reflects the greater involvement of forwards in contact events such as tackles, rucks, mauls and scrums during which injuries are more likely to be sustained.

### 3.4. Medical attendances by time during the match



**Figure 3.6.** The distribution over match quarters for the percentage of all pitch attendances for each group.

Figure 3.6 shows that more pitch attendances were made in the second half of the match. This pattern was consistent throughout all playing groups and was also found for seasons 2009-2010 and 2010-2011.

### 3.5. Comparing results over seasons

The patterns of pitch attendances have shown little change compared with seasons 2009-2010 and 2010-2011. Small changes are often the result of natural variation over seasons. These consistent findings are the result of approximately 21,000 pitch attendances being reported over the three seasons.

Pitch medical attendances are not reported in Premiership rugby and therefore comparisons cannot be made with this level of rugby.

## 4. TIME-LOSS INJURY INFORMATION

This section contains information relating to time-loss injuries which are defined in this study as those with a severity of 8 days or greater absence from match play. The data provided in this section is treated separately to that described in Section 3.

### 4.1. Time-loss injuries – Summary

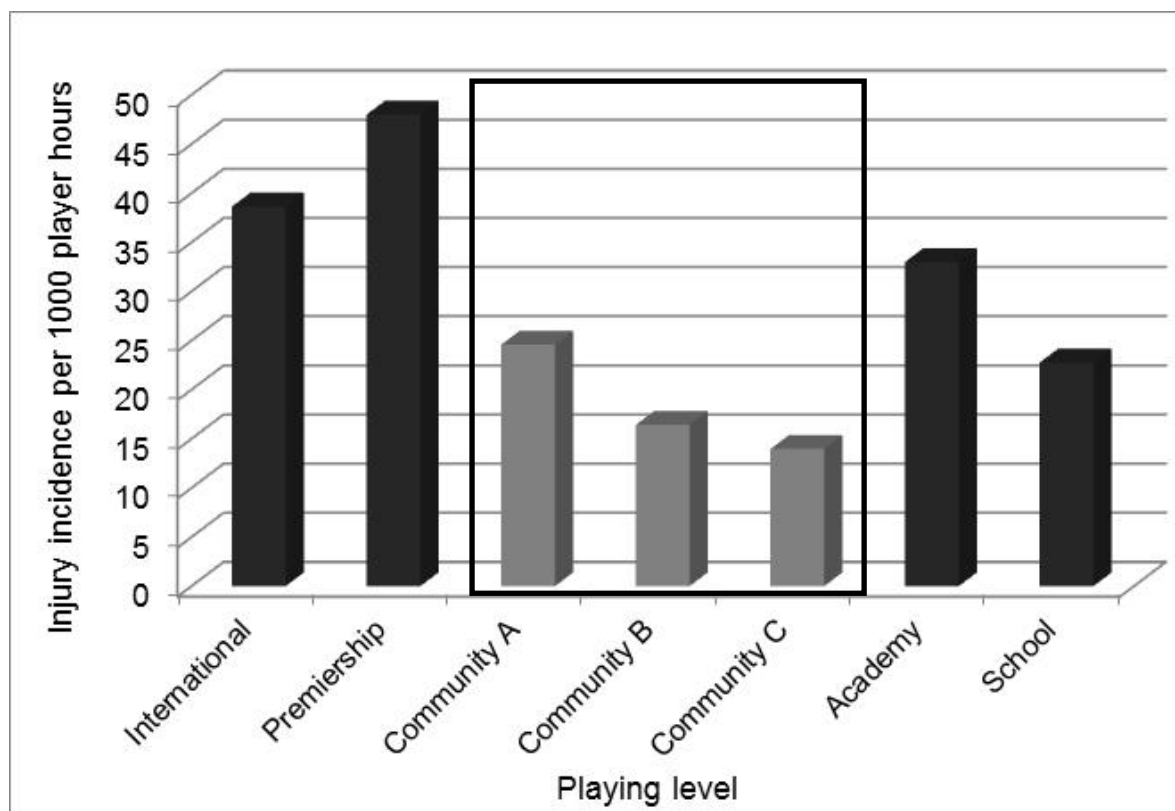
For the 2011-2012 season, 1855 matches were under surveillance in which 645 time-loss injuries were reported. The injury incidence is compared with previous seasons in Table 4.1, and shows no significant difference over time. For 2011-2012, the injury rate in Group A is significantly greater than Groups B and C. This finding is consistent with seasons 2009-2010 and 2010-2011.

**Table 4.1.** Match injury incidence and severity for time-loss injuries.

Year	Total number of player match hours	Total number of match injuries	Injuries per 1000 player hours (95% CI)	Injuries per club per match	Number of matches for one injury	Average severity (matches missed)
2009-2010	22540	385	17.1 (15.4-18.8)	0.3	2.9	6.1
2010-2011	32820	539	16.4 (15.0-17.8)	0.3	3.0	7.0
2011-2012	37100	645	17.4 (16.0-18.7)	0.3	2.9	6.5
<b>2011-2012 Groups</b>						
Group A	8420	207	24.6 (21.2-27.9)	0.4	2.0	6.6
Group B	15280	251	16.4 (14.4-18.5)	0.3	3.0	6.8
Group C	13400	187	14.0 (12.0-16.0)	0.3	3.6	6.4

Table 4.1 demonstrates small variations in the overall injury rate over the four seasons. However, these differences can be accounted for through natural variation from season to season.

Figure 4.1 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. It is important to note that while there are some differences within different levels of community rugby, the overall injury rate is considerably lower than that of International and Premiership rugby.



**Figure 4.1.** Comparison of injury rates at different playing levels for all match time-loss injuries with a severity of greater than 8 days absence.

#### *Data sources*

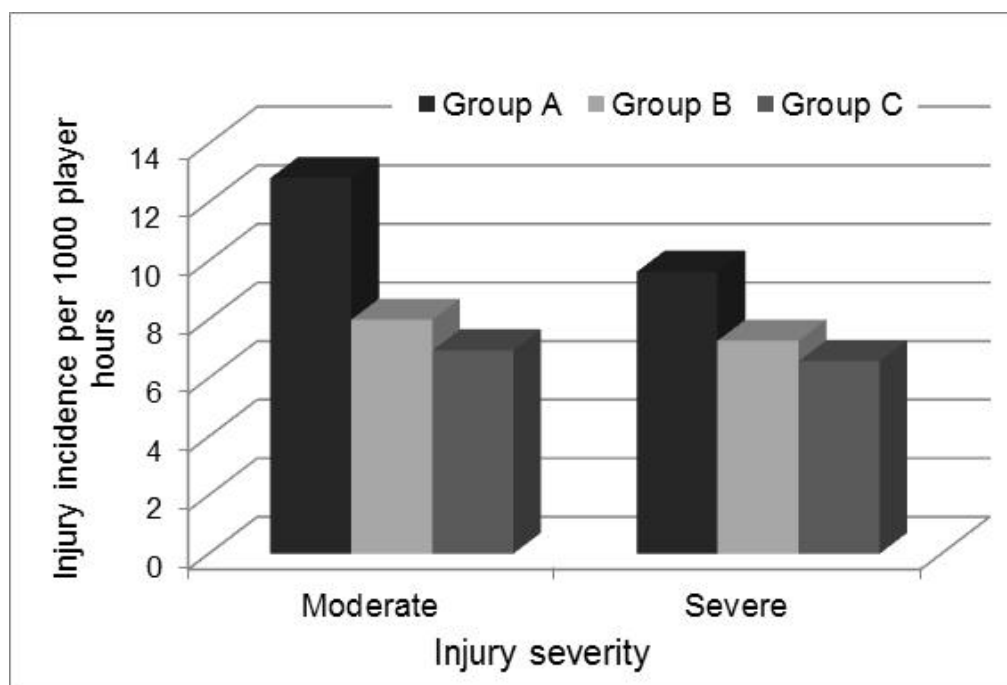
Community levels A, B and C are taken from the 2011-2012 findings of the current report. International data has been extracted from a previous publication (Fuller C.W. et al, Br. J. Sports Med. 2008, 42: 452-459) and Premiership data is taken from the England Rugby Premiership injury and training audit 2010-2011 Season Report. Information on academies and Schools derives from the Game wide report on injury risk in English youth rugby over seasons 2006-2007 and 2007-2008 (published by the University of Bath/RFU, April 2011).

## 4.2. Time-loss injuries - Severity

**Table 4.2.** Mean number of matches missed per time-loss injury during the 2011-2012 season.

	All	Group A	Group B	Group C
Mean number of matches missed	6.5	6.4	6.8	6.4

Given that overall, there is one time-loss injury for every 2.9 matches and the mean number of matches missed is 6.5, on average a club is likely to have at least 2 players unavailable for selection due to injury every week throughout the season. For the higher injury rate in Group A clubs (one injury for every 2.0 matches with 6.4 matches missed) and the higher severity rate in Group B clubs (one injury for every 3.0 matches with 6.8 matches missed) there will be an average of three players each week unavailable for selection due to injury. However, there will be occasions when more than three players are unavailable for selection within a club.



**Figure 4.2.** Group comparison for injury severity for 2011-2012 season. Moderate (8-28 days absence), Severe (> 28 days absence).



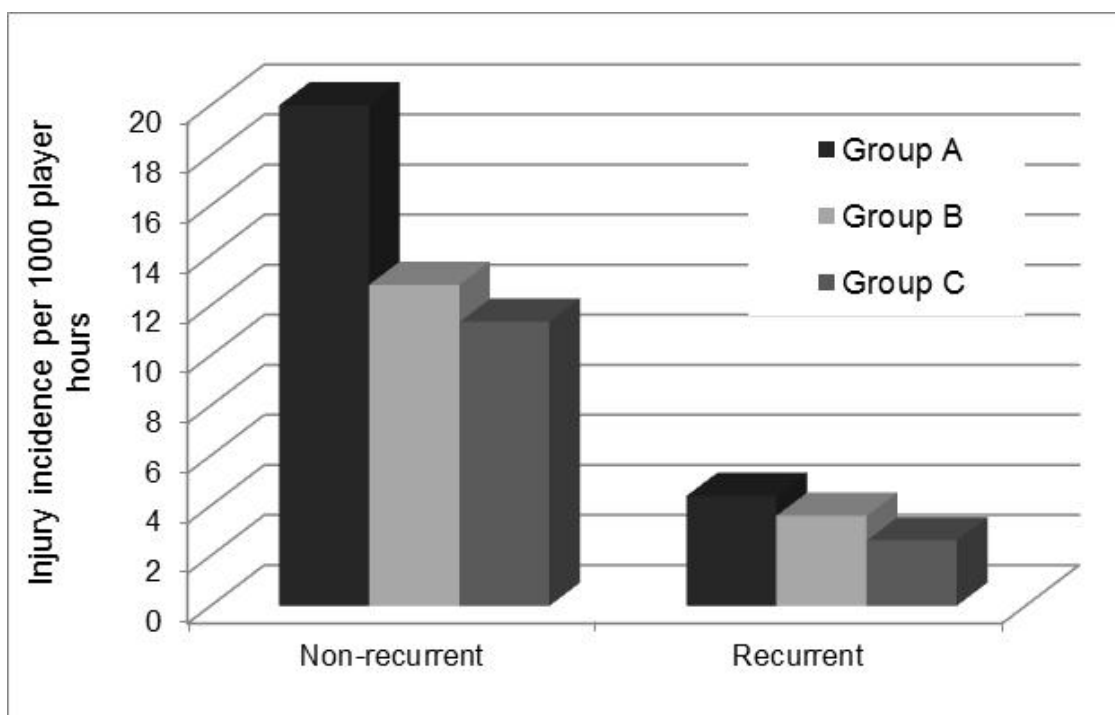
Figure 4.2 shows that the higher injury rate in Group A clubs compared with Groups B and C is due mainly to the higher injury rate in moderate injuries, while statistically, there was no difference between groups for the injury rate in severe injuries.

**Further injury severity information for time-loss injuries:**

- ❑ For all clubs combined, 53% of time-loss injuries were classed as moderate (lasting between 8-28 days) and 47% were severe (lasting greater than 28 days).
- ❑ No catastrophic injuries (including serious spinal cord injuries, traumatic brain injury or fatalities) were reported during the season for the clubs involved in this study.
- ❑ 24 (4%) injuries required an ambulance (14 for forwards; 10 for backs). Therefore an ambulance was used for one in every 77 matches.
- ❑ 188 (29%) injuries were referred to a hospital. This equates to a player being referred to hospital with an injury, 1 in every 10 matches.
- ❑ 87 (13%) injuries required surgery.

### 4.3. Time-loss injuries – Recurrences

Overall, recurrent (repeat) injuries accounted for 20% of all time-loss injuries.



**Figure 4.3.** Comparison between groups for non-recurrent and recurrent time-loss injuries. There were significantly more non-recurrent injuries in Group A compared with groups B and C and more recurrent injuries in Group A compared with C.

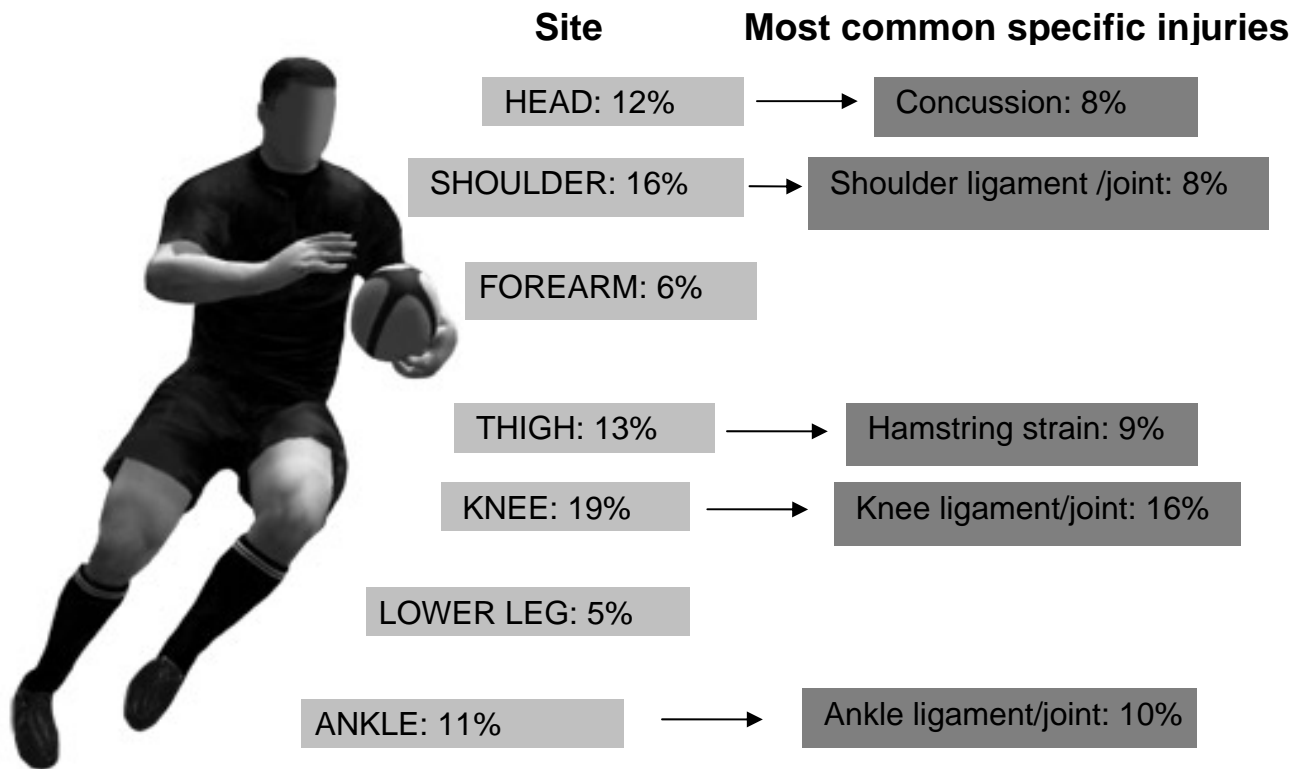
**Severity:** For recurrent injuries, 61% were moderate (8-28 days absence) and 39% were severe (greater than 28 days absence) with a mean of 6.0 matches missed. Therefore, recurrent injuries are less severe than non-recurrent injuries where a mean of 6.7 matches are missed. This contradicts season 2010-2011, where 65% of recurrent injuries were severe and 35% were moderate.

**Body site:** 65% of recurrent injuries were in the lower limb (thigh: 20%; knee: 20%; ankle: 17%) compared with 53% of all injuries being in the lower limb. The shoulder accounted for 20% of recurrent injuries.

**Injury type:** 25% of recurrent injuries were muscular, while 44% were ligament/joint injuries.

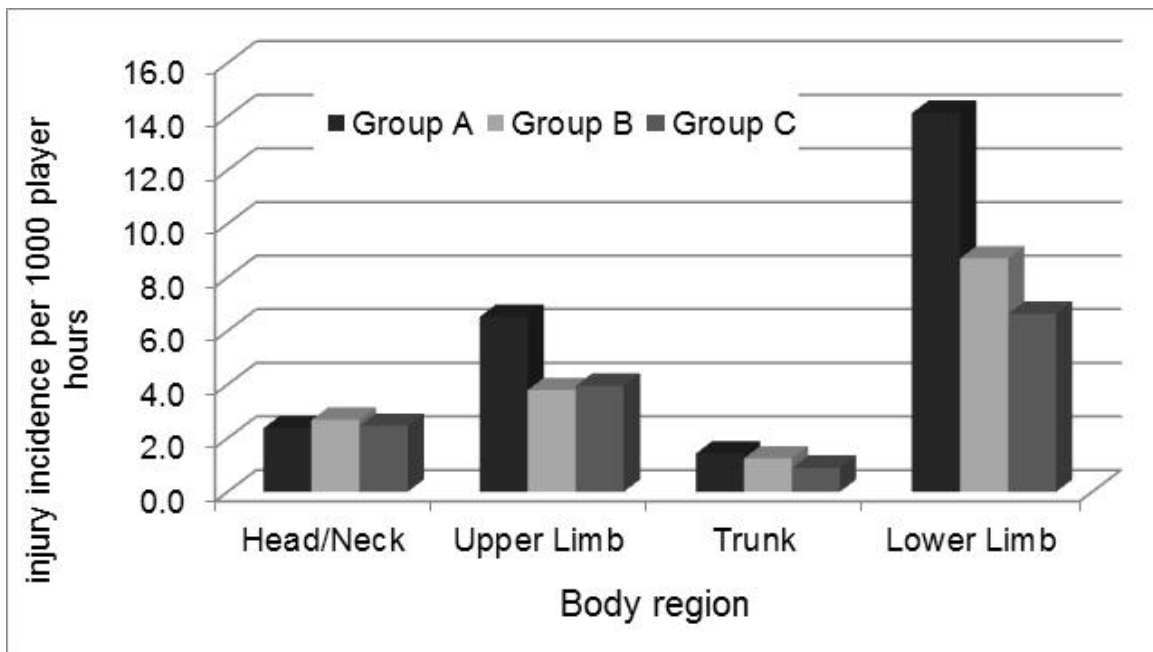
#### 4.4. Time-loss Injuries – Body site

Figure 4.4 shows that the most commonly injured body site is the knee, followed by the shoulder, thigh, head and ankle.



**Figure 4.4.** The most common injury sites and specific injuries for all time-loss injuries in 2011-2012.

Figure 4.4 demonstrates that collectively, the lower limb accounts for the most injuries while also showing that the higher injury rate in Group A compared with B and C clubs is largely due to a higher rate in lower and upper limb injuries.



**Figure 4.5.** Group comparison for injuries according to body region for all time-loss injuries in 2011-2012.

Table 4.6 Demonstrates that over successive seasons there is no significant change in patterns of the injuries by body region for all clubs combined.

**Table 4.6.** Season comparison for injuries according to body region for all time-loss injuries. Injuries are expressed per 1000 player hours.

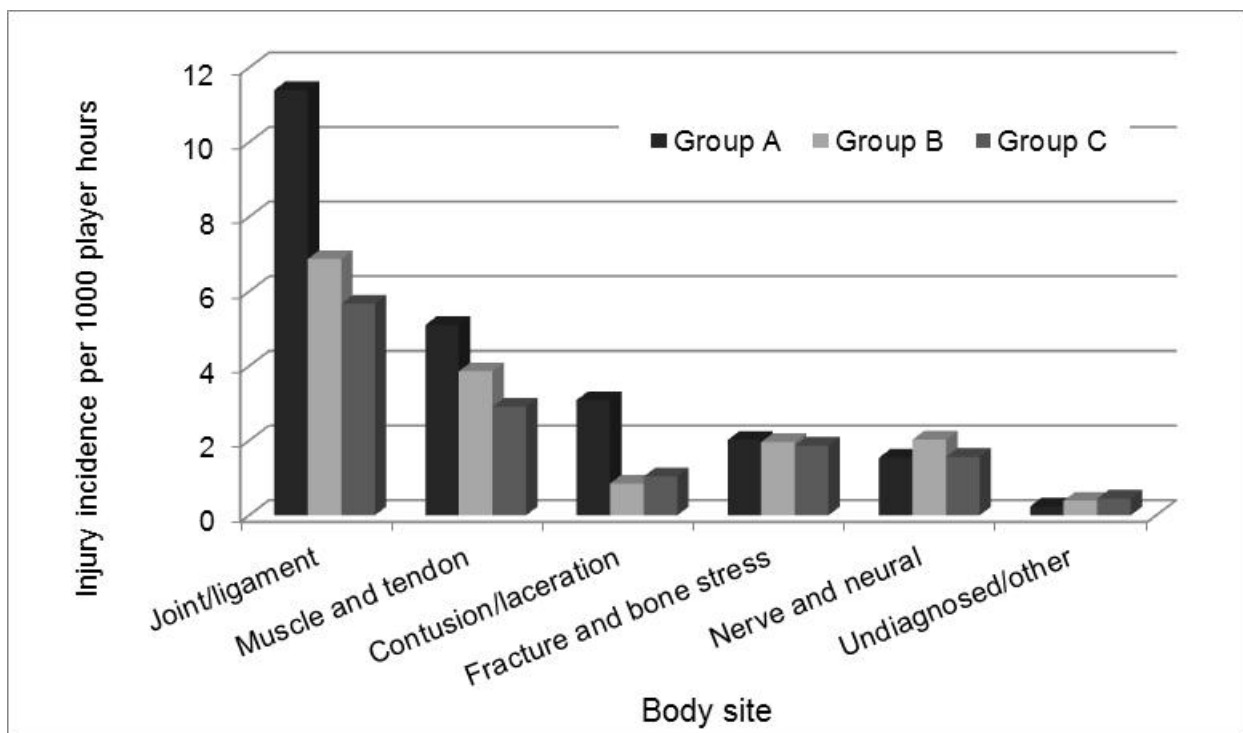
	Head/Neck	Upper Limb	Trunk	Lower Limb
<b>2009-2010</b>	2.7	3.7	1.4	9.2
<b>2010-2011</b>	2.8	4.5	1.2	7.7
<b>2011-2012</b>	2.5	4.5	1.2	9.2

#### 4.5. Time-loss Injuries - Type

**Table 4.7.** Top six types of time-loss injuries for 2011-2012.

Rank	Injury type	% of all Injuries
1	Ligament	25
2	Muscle tear/strain	18
3	Fracture	11
4	Jar/joint	10
5	Nerve/neural* (Concussion)	10 (8)
6	Contusion/haematoma	7

\*Nerve injuries include concussions.



**Figure 4.6.** Group comparison for injuries according to injury type for all time-loss injuries in 2011-2012.

**Table 4.8.** Top five most common specific injury diagnoses with severity (average number of matches absence).

Rank	Injury diagnosis	% of all Injuries	Severity
1	Knee ligament/joint/cartilage	16	10.1
2	Ankle ligament/joint	10	4.2
3	Hamstring strain	9	5.1
4	Concussion	8	2.5
5	Shoulder ligament/joint	8	5.3

**Concussion**

Concussion is one of the main injury diagnoses in community rugby, accounting for 8% of all time-loss injuries (7% in 2010-2011). Given that there are potentially serious implications associated with this type of injury it is important that diagnosis and recovery guidelines are adhered to. The IRB have produced clear guidelines on how suspected concussion should be managed. More details on concussion guidance, including links to the IRB regulations, can be accessed via the RFU web pages:

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

**Hamstring strains**

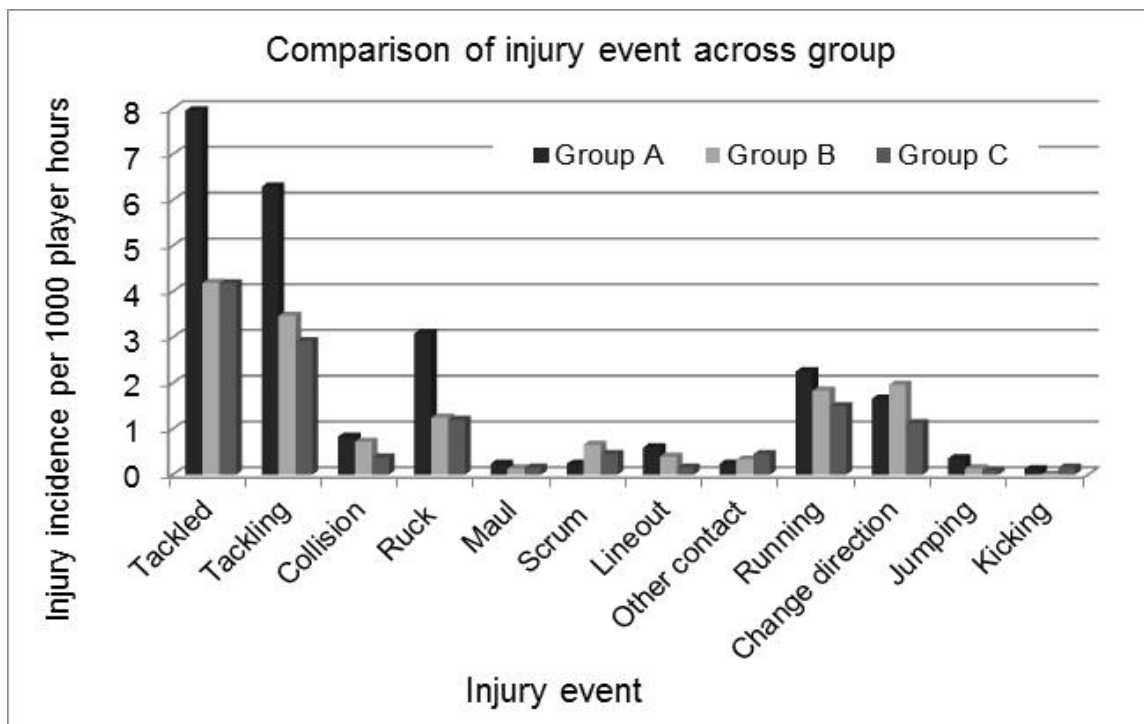
Hamstring strains account for 9% of all injuries and are the most common diagnosis of all non-contact injuries. Given that this type of injury may be more preventable than those involving contact (where the player has less control over external factors), possible prevention strategies for this type of injury have been outlined in Section 7 of this report.

**Knee and ankle ligament/joint injuries**

These injuries combined account for 26% of all time-loss injuries and also the greatest severity of all injuries. In addition, many of these injuries are sustained as a result of being tackled. Findings from the Premiership 2010-2011 audit also show that the risk of injury is highest for the Knee (ACL injuries) and the ankle. Section 7 provides links to lower limb injury prevention exercises which are designed to strengthen the muscles around these joints.

#### 4.6. Time-loss injuries – Event

For the 2011-2012 season, 76% of all time-loss injuries were sustained during contact events. This finding has been consistent over each year of the Project and in the different group levels.



**Figure 4.7.** Comparison between groups of injury incidence for specific match events.

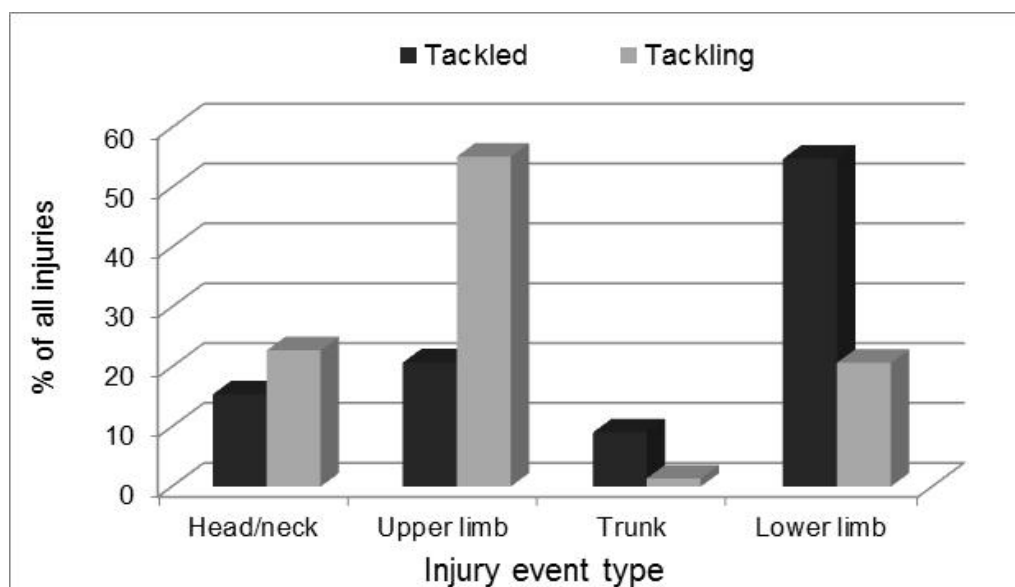
##### The tackle

- The tackle (both being tackled and tackling) was the most common injury event accounting for 52% of all injuries (29% through being tackled; 23% through tackling), a finding which was consistent throughout Groups A, B and C and throughout previous years of the Project
- 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%). Figure 4.8 shows that while the upper limb sites were more susceptible to injury when the player was injured while tackling, the tackled player sustained more injuries to the lower limb.
- The most common types of injury sustained in the tackle were ligaments/joint/cartilage (41%), fractures (12%), nerve-neural (13%), dislocations (8%), bruising (10%), muscle strains (7%).
- 72% of all concussion injuries were sustained in the tackle.

- The overall severity of injuries in the tackle was an absence of 7.2 matches compared with a mean severity of 6.4 matches missed for all injuries. There was no difference in the severity of the injury whether being tackled or tackling.

### **Tackled and tackling**

Figure 4.8 demonstrates that when the injury was sustained to the ball carrier in the tackle (Tackled), most injuries occur in the lower limb while for the tackler (Tackling), the majority of injuries are in the upper limb. Table 4.9 below shows in more detail the top three types of injury for the Tackled and Tackling player.



**Figure 4.8.** Percentage distribution by body regions for time-loss injuries sustained when being tackled and when tackling.

**Table 4.9.** The top three most common injuries sustained while being tackled and while tackling.

Rank	Tackled	%	Tackling	%
1	Knee ligament/joint/cartilage	21	Shoulder ligament/joint	17
2	Concussion	11	Concussion	12
3	Ankle ligament/joint	10	Hand fractures	8



These findings demonstrate that the tackle is an important area when addressing injury prevention measures. Section 7 of this report ('Guidance and resources') provides some information focussed on the tackle and how it can be coached to become safer.

### **The Scrum**

Despite relatively few injuries occurring during the scrum, this is an important event in the game given that there is the potential for very serious injuries to occur. Previous research from New Zealand\* has demonstrated that injury reductions are possible in targeted regions (e.g. neck/spine) attributed to an improvement in player behaviours and techniques during the scrum.

\*Gianotti, S.M., Quarrie, K.L., Hume, P.A. (2009). *Evaluation of RugbySmart: A rugby union community injury prevention programme. Journal of Science and Medicine in Sport, 12:371-375.*

- 3% of all acute time-loss injuries occurred in the scrum
- The severity was a mean of 5.6 matches absence (less than the overall absence for all injuries).
- Of the 18 injuries, 14 occurred to front row player (loose head prop: 9 injuries, hooker: 3 injuries and tight head prop: 2 injuries).
- There was a range of types of injury sustained in the scrum distributed between the shoulder (3 injuries), head (2 injuries) neck (1 injury), chest (1 injury), lower back (2 injuries), groin (2 injuries), thigh (2 injuries) and lower leg (3 injuries).
- The most common injury diagnoses were muscle tears and strains (6 injuries) and jar/joint (4 injuries).

### **Running**

- For non-contact events, running was found to be the most common injury event (10% of all injuries).
- Hamstring injuries accounted for 58% of all running injuries and 8% of all injuries.
- In contrast to all injuries combined where the injury rate is highest in the final match quarter, the injury rate for hamstring injuries was highest in the first quarter (34% of all injuries and decreasing to 25, 21 and 20% in match quarters 2, 3 and 4, respectively. A similar pattern was also reported in the 2010-2011 Season report.

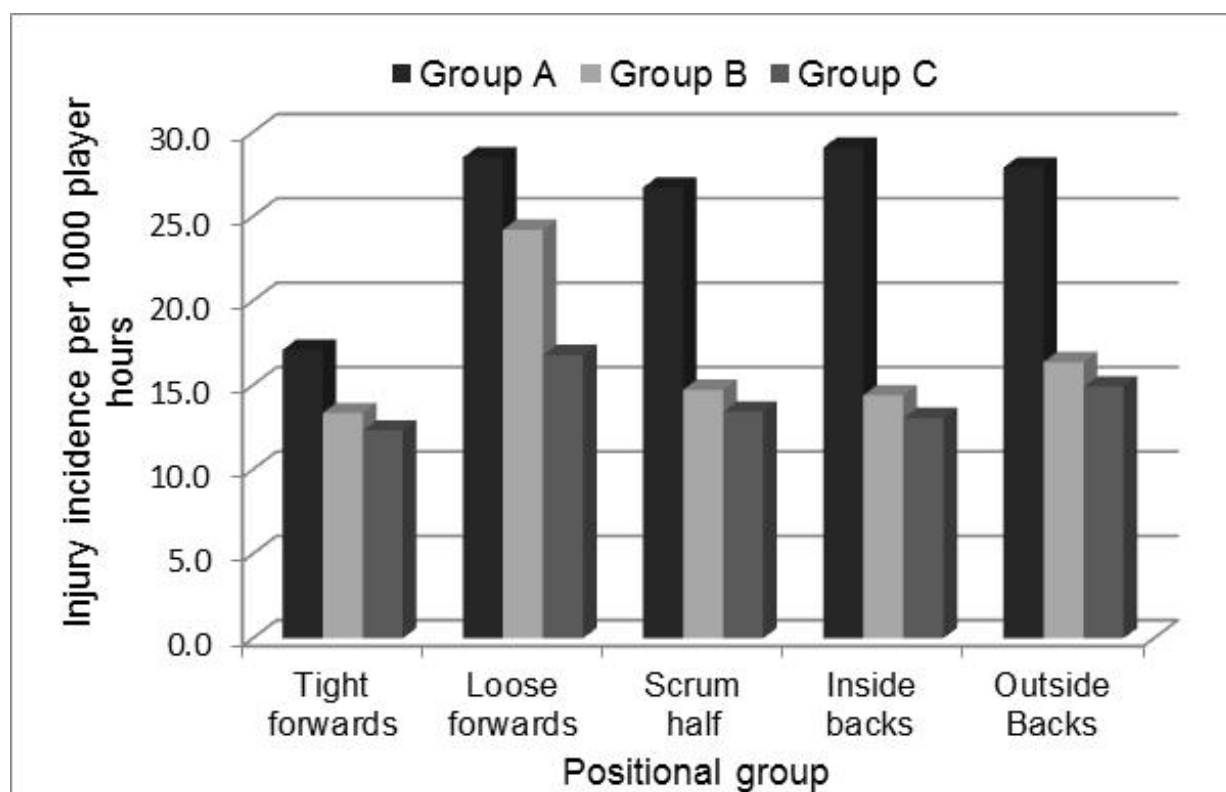
Section 7 contains more information on hamstring injury prevention strategies.

#### 4.7. Time-loss injuries – Playing position

When the injuries for all groups were combined, there were no differences between forwards and backs in terms of the number of time-loss injuries sustained. In terms of playing group, there were more injuries to backs compared with forwards in Group A but these differences were not present in Group B and C.

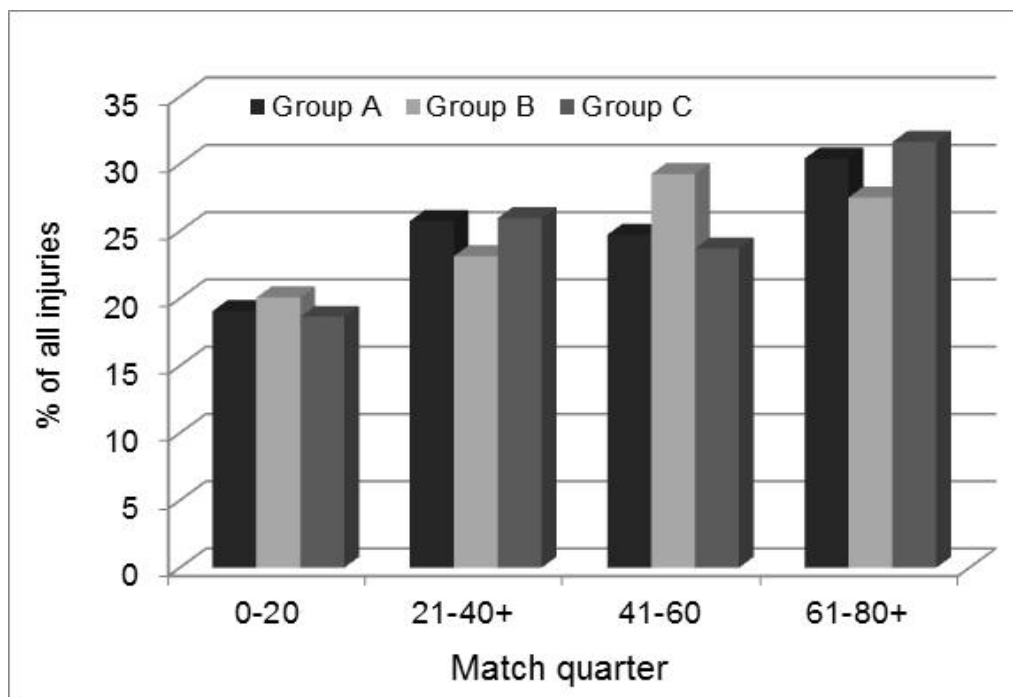
When forward and backs were split down into more specific positional groups there was:

- A higher injury rate for loose forwards compared with tight forwards and inside backs.
- A higher injury rate for outside backs compared with tight forwards.



**Figure 4.9.** 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.

#### 4.8. Time-loss injuries - Timing of the injury

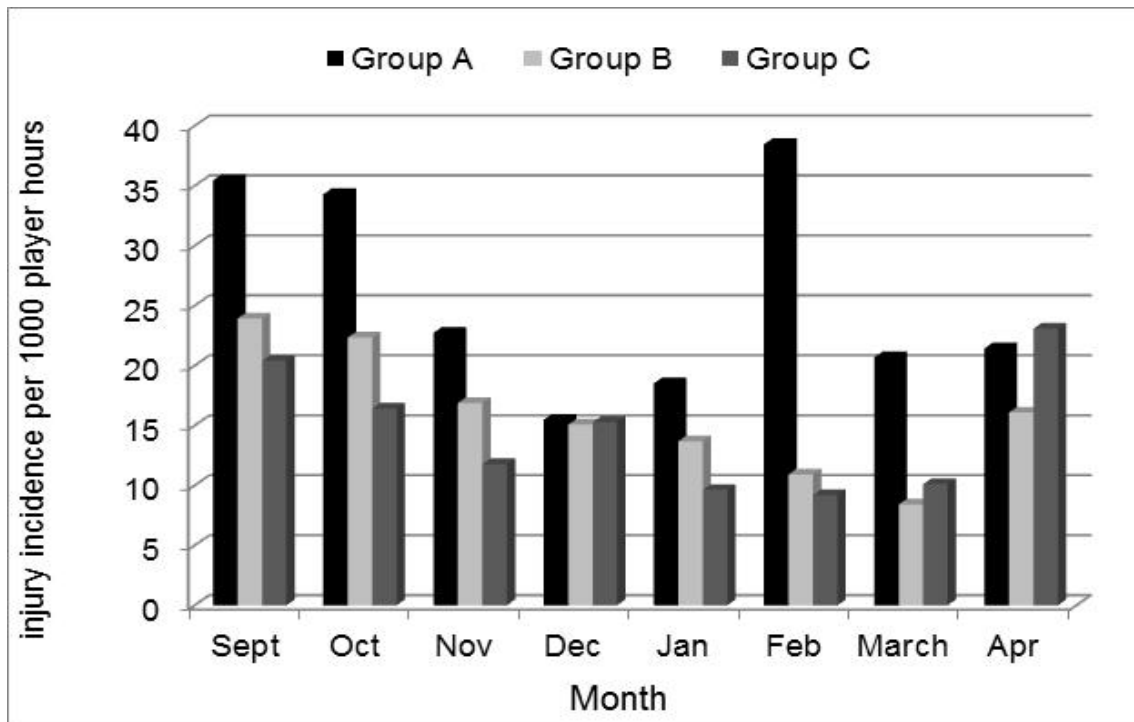


**Figure 4.10.** Comparison between playing groups for the percentage of time-loss injuries in each match quarter.

**Table 4.10.** Comparison between seasons for the percentage of time-loss injuries in each match quarter for all playing groups combined.

	0-20	20-40+	40-60	60-80+
<b>2009-2010</b>	<b>18</b>	<b>26</b>	<b>26</b>	<b>30</b>
<b>2010-2011</b>	<b>19</b>	<b>24</b>	<b>27</b>	<b>29</b>
<b>2011-2012</b>	<b>19</b>	<b>25</b>	<b>26</b>	<b>30</b>

Figure 4.10 Demonstrates that more injuries occur in the latter match quarters. This is a consistent finding across Groups A, B and C. In addition Table 4.10 shows that this pattern is consistent over the last three seasons when the data for all playing groups are combined.



**Figure 4.11.** Comparison between groups for injury incidence in each month of the season. Due to the limited number of matches played in May, this month has been excluded from the graph.

Figure 4.11 shows a trend towards a higher injury incidence during the first quarter of the season and then a slight rise in the last quarter. This pattern is consistent with seasons 2009-2010 and 2010-2011.

## 5. COMPARING ENGLISH COMMUNITY RUGBY INJURIES WITH OTHER COMPETITIONS

### 5.1. *Community rugby in other countries*

For community level rugby there are few studies from other countries with which the data from this Project can be directly compared. Difficulties in comparing injury rates are largely due to different definitions of an injury being used across different studies. However, a study from high level community rugby in New Zealand provided data which showed an incidence of 25 injuries/1000 player hours which is similar to this study (overall incidence of 17.4), particularly the incidence of 24.6 injuries/1000 player hours in Group A. For high level club competitions in New South Wales, Australia, a higher injury rate of 35 injuries/1000 player hours was reported with an incidence of 29 injuries/1000 player hours for lower level club rugby. This supports our findings in English community rugby that there is a higher injury rate at higher levels of play.

The main injury causing event in English community rugby is the tackle and this finding is consistent in all other community based injury surveillance studies. Most studies also show that more tackle injuries are to the ball carrying players with slightly fewer to the tackler, although, in New Zealand, it was reported that most injuries were sustained by the tackler.

There is no evidence that there is a greater injury incidence in either forwards or backs within the results of this report or in other community rugby injury studies. When positional groups are broken down further, this report shows a slightly higher incidence for loose forwards compared with tight forward and inside backs.

During match play, most pitch medical attendances were made for head injuries. The same finding was reported in a study of New Zealand community players.

## **5.2. Comparing injuries with the English Premiership**

It has been consistently shown that there are more injuries at higher levels of play with Figure 4.1 (Page 15) showing fewer injuries in community rugby compared with the Premiership. While the reason for this has not been established, it may be speculated that the greater number and intensity of contact events taking place in Premiership rugby may lead to a greater overall physical demands on the players. This may also explain the reason for the higher injury incidence in Group A compared with B and C in this Project.

However, even though there is a higher injury rate in Premiership rugby, there are still similarities with community rugby injury patterns. For example, at all levels, the tackle is the most prevalent cause of injury, followed by rucking. Running is the most common event for non-contact injuries. Hamstring strains are the most common running related injuries for both community and Premiership rugby.

In both community and Premiership rugby, knee ligament injuries are the most severe and account for the greatest duration of absence.

The incidence of concussion in Premiership rugby is 4.7 injuries/1000 player match hours compared with 1.4 injuries/1000 player match hours in community rugby. This finding partly reflects the overall higher incidence of injuries at the higher level and may be due to the greater number and force of impacts during match play in Premiership rugby.

## **6. THE PROGRESSION OF COMMUNITY RUGBY INJURY SURVEILLANCE**

The consistent findings of the community injury surveillance project over the last three seasons suggest that we can be confident that the results accurately reflect match injury patterns at this level of rugby. As such, these findings provide a basis on which to further our understanding of community level rugby union injuries and to investigate some aspects more closely.

### **6.1. Risk of contact events**

It is clear from this report that the majority of injuries are sustained in contact events and most notably the tackle. However, it should be considered that there are more tackles than any other contact event during match play and therefore the risk of injury per tackle may not be greater than other contact events. Therefore, there may be contact events which occur infrequently during a match but carry a high risk of injury. For example, in Premiership rugby, it was shown that there is a greater risk of injury for a collision (illegal tackle) and scrum than for a tackle. By calculating how many contact events, (such as tackles, rucks, mauls, scrums and lineouts) take place per match, we can determine the risk of injury per contact event. This will help identify which phases of the game need to be focussed upon for injury prevention.

### **6.2. Potential risk factors for Injury**

To understand more about which factors may be linked to the risk of injury, future work will aim to investigate if any particular lifestyle or training habits may affect the risk of injury in the community rugby playing population. Such results may help to further inform injury prevention strategies which can ultimately be disseminated back into the Community game.

### **6.3 Functional movement screening**

Previous studies in other contact sports have demonstrated a potential link between a player's ability to perform basic functional movement screening tests and their risk of injury. These tests have been designed to assess player's capabilities in movements which underpin those which are essential to an efficient and co-ordinated athletic performance. It has been suggested that team players who perform poorly in such tests may be at a higher injury risk. Future research into the community game will investigate whether this link can also be made in rugby union players at this level and from this examine whether improvements in the performance of basic functional movements is a route to reducing injury risk.

The crucial aspect of linking injury risk to players' training, lifestyle and functional movement competency, is that many of these factors are potentially modifiable. Therefore, in the event that any factor has been shown to increase the risk of injury, interventions to reduce this risk can be prescribed and publicised to the community rugby playing population.

English community rugby has the largest playing population of senior players of any playing nation. Therefore while the injury risk per player is not as high as that of elite level, the absolute number of injuries incurred each week across the country is greater. Therefore by investigating the injury patterns and other possible risks of injury, there is a great deal of potential for investigating areas which could be modified to reduce the risk of injury



## 7. GUIDANCE AND RESOURCES

This section of the report includes some guidance towards injury prevention strategies based on the findings presented in Sections 3 and 4. These have been approached in terms of how injury may be minimised through:

- **Physical preparation (7.1)**
- **Injury prevention (7.2)**
- **Injury management (7.3)**

### Useful online resources

General information on player health is available via the RFU website:

<http://www.rfu.com/TakingPart/PlayerHealth/>

The international Rugby Board (IRB) have also devised the 'Rugby Ready' programme which includes information on physical preparation and injury prevention measures:

<http://www.irbrugbyready.com>

### **Online RFU Coaching academy**

This new and exciting coaching resource is available to all coaches. The RFU Coaching Academy ([www.rfuca.com](http://www.rfuca.com)) contains a whole range of high quality materials to help coach learning and development. It includes the resources needed for RFU's main qualification courses, and a range of CPD . In addition, through this RFU partnership with Global Sports Coaching and its [www.rugbycoachingdrills.com](http://www.rugbycoachingdrills.com) website, coaches can gain access to the Rugby Coaching Drills website which contains a wealth of resources on coaching, aspects of player preparation for the game

## **7.1 Injury prevention - Physical preparation**

### **Lower limb injury prevention exercises**

Knee and ankle injuries combined account for 86% of all lower limb time-loss injuries. More information on preparation exercises devised for these high risk sites (and the neck, upper limb and trunk) is available in the 'Injury Prevention' section within 'Player Health' on the RFU web pages:

[www.rfu.com/TakingPart/PlayerHealth/InjuryPrevention.aspx](http://www.rfu.com/TakingPart/PlayerHealth/InjuryPrevention.aspx)

### **Preventing hamstring injuries**

Hamstring strains account for 8% of all time-loss injuries. Nordic hamstring exercises may be beneficial in preventing this type of injury injuries (Brooks *et al.*, 2006\*). This exercise can be easily integrated into a training programme with 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>

\*Brooks, J.M., Fuller, C.W., Kemp, S.P.T. and Reddin, D.B. (2006). *Incidence, Risk, and Prevention of Hamstring Muscle Injuries in Professional Rugby Union*. *American Journal of Sports Medicine*, 34:1297-1306.

## **7.2. Injury Prevention - Technique**

This report demonstrates that 76% 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.

The RFU provide extensive resources for coach development which reinforce development of technique.

<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\*) 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.

The tackle has also been identified as an injury risk factor in other rugby injury surveillance studies. As such, 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 IRB Rugby Ready website:

[www.irbrugbyready.com](http://www.irbrugbyready.com)

*\*Brooks, J.M., Fuller, C.W., Kemp, S.P.T. and Reddin, D.B. (2005). Epidemiology of injuries in English professional rugby union: part 2 training injuries. British Journal of Sports Medicine, 39:767-775.*

### **7.3. Injury management**

#### **Clinical governance**

This describes the process of ensuring that clubs ensure the highest quality of care for their players. More information on implementing this process can be found on:

<http://www.rfu.com/ManagingRugby/FirstAid/ClinicalGovernance.aspx>

#### **Reporting injuries to the RFU**

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 via:

<http://www.rfu.com/ManagingRugby/FirstAid/Injuries.aspx>

The RFU have produced guidelines which help clubs to consider their medical provision, including a list of equipment which should be included in a pitch side first aid kit:

<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 **Immediate Care In Sport** (ICIS, formerly PSITCC) is a more advanced course aimed at health care professionals and the pitch side treatment of potentially catastrophic and life or limb threatening injuries:

<http://www.rfu.com/ManagingRugby/FirstAid/CoursesAndGuidelines/PSITCC.aspx>

## Injury rehabilitation

This report shows that recurrent injuries account for 20% of all injuries. This shows that on occasions, players may not have undergone a full rehabilitation.

Injured players should only return to play or full training from a moderate/severe injury 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. Within the last two seasons, the IRB have revised guidelines for concussion diagnosis and management. While the diagnosis is still made by a medical practitioner, the new guidelines allow a graduated return to play protocol whereby through the re-introduction of training without any further concussion symptoms, the player may return to match play after six days. The graduated return to play may only be implemented under the supervision of a medical practitioner. If this is not possible the injured player may not return to play until the 21<sup>st</sup> day after the injury event. The definitive IRB concussion guidelines can be accessed via the following link: <http://www.irbplayerwelfare.com/?documentid=3>

Concussion information is now provided in all Level 1 and 2 coaching courses. More information on concussion is available on the RFU website:

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

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### **Group B:**

Avonmouth Old Boys, Beckenham, Bishops Stortford, Brixham, Burnage, Civil Service, Clevedon, Cobham, Collumpton, Dorking, Havant Hinckley, Kettering, Lichfield, Liverpool St. Helens, Leigh, Luton, Lymm, Morpeth, Newton Abbott, Old Patesians, Paignton, Manchester, Peterborough, Redingensians, Rochdale, Sandbach, Scunthorpe, Wadebridge Camels, Westcliff, Weston-Super-Mare, Witney

### **Group C:**

Andover, Aston Old Edwardians, Baildon, Barkers Butts, Burnley, Croydon, Didsbury TOC, Effingham and Leatherhead, Ellingham and Ringwood, Fareham Heathens, Finchley, Fleetwood, Fordingbridge, Frome, Ilkley, KCS Old Boys, Keighley, Keswick, Keynsham, Lutterworth, Newark, North Dorset, North Ribblesdale, Old Laurentians, Old Freemens, Old Walcountians, Romford and Gidea, St. Just, Trowbridge, Yatton, Winscombe,.

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