



Concussion in Schoolboy's Rugby



Introduction

Rugby Union has one of the highest rates of concussion of all full-contact sports. A study, that was carried out by Ulster University in 2016, found that one in every five injuries in schoolboy's rugby was a head injury (in Northern Ireland). Furthermore, in 2017, World Rugby rejected the proposal of the nation's most senior medics to ban tackling at school level. Our team, all being rugby enthusiasts, wanted to take a closer look at the statistics of concussion in schoolboy's rugby in Ireland today.

The questions that we, as a group, are asking are: "Are there young players that are more likely than others to be concussed while playing rugby?" and "What factors make these players more liable to get a concussion?"

Experimentation Methods

In order to achieve our aim of answering these questions mentioned in the introduction, we decided to carry out a survey among secondary school rugby players. The survey consisted of the following six questions:

1. How many times have you been concussed while playing rugby in secondary school?
2. Do you wear head protection (i.e. a scrumcap) while playing rugby in secondary school?
3. What is your usual position?
4. For how many years have you played rugby in secondary school?
5. Do you currently play any sports other than rugby?
6. If answered 'YES' to Question 5, please state which other sports you play.

We made the survey on SurveyMonkey, ensuring that we weren't biased in our questioning, and shared it via WhatsApp to various team group-chats, the youngest age-group being under-15s and the eldest being under-19s. We received 67 sufficient respondents in total. This number of players could construct four full rugby teams, so we were content with this amount, even though it might not seem like a valid population for the survey. The survey took, on average, just sub-one minute to complete.

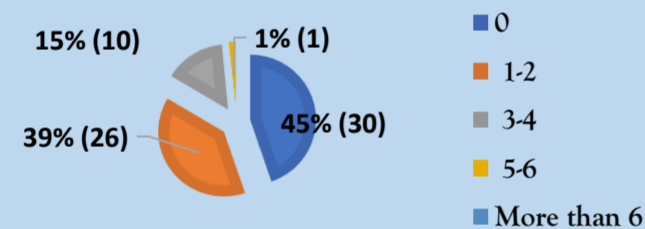
From researching several other studies revolving around this topic, we expected to see certain results from our own survey such as:

- Wearing head protection will not lessen the probability of that player getting a concussion.
- Forwards (numbers 1-8) are more likely to get a concussion while playing rugby than backs (numbers 9-15) are.

Results & Observations

Q1: How many times have you been concussed while playing rugby in secondary school?

We considered this question to be the most important of the six questions, as its results would be compared with the results of each following question. As visible from the pie-chart below, 45% of the players that completed the survey have never received a concussion whilst playing rugby in school, 26 from or 67 players have only been concussed once or twice and not a single person had gotten more than 6 concussions at school level.



Q2: Do you wear head protection (i.e. a scrumcap) while playing rugby in secondary school?

Similar to our hypothesis, these results fail to convince us that wearing head protection while playing rugby will decrease the likelihood of a player getting a concussion. Exactly 50% of the surveyed players who wear head protection at all have remained concussion-free, leaving the other 50% of them having received at least one concussion in their playing careers. Therefore, it is impossible to say that it is more likely to avoid concussion while wearing head protection in schoolboy's rugby.

No. of Concussions	Yes	No	Occasionally
0	50% (5)	43% (23)	50% (2)
1-2	50% (5)	38% (20)	25% (1)
3-4	0% (0)	17% (9)	25% (1)
5-6	0% (0)	2% (1)	0% (0)

Q3: What is your usual position?

As displayed by the table below, in joint first place for least likely position to get concussed in schoolboy's rugby is the front row (numbers 1-3) and the back row (numbers 6-8), with the half-back position (number 9 or 10) coming in at close second. By choosing to play in the back row, this survey's results show us that that player is almost 12% more likely to get concussed at least once while playing at school level. We found that the safest position to be in (regarding head injuries) is the second row, where 67% of its members have never been concussed playing rugby at school level. The contact area of the sport primarily occurs with the forwards positions, rather than the backs, as well as the forwards generally being the heavier and stronger boys on the pitch, so it does not surprise us to see a high rate of concussions in those positions.

No. of Concussions	Front Row	Second Row	Back Row	Half-back	Centre	Back Three
0	23% (7)	13% (4)	17% (5)	17% (5)	13% (4)	17% (5)
1-2	23% (6)	4% (1)	35% (9)	19% (5)	8% (2)	12% (3)
3-4	30% (3)	10% (1)	0% (0)	30% (3)	20% (2)	10% (1)
5-6	0% (0)	0% (0)	0% (0)	0% (0)	100% (1)	0% (0)

Q4: For how many years have you played rugby in secondary school?

From the results of this question, we can say that the longer a player is playing rugby in secondary school, the higher the probability is that he will suffer concussion. The fact that the less experienced players in the 2-3 years bracket have gotten less concussions, on average, than the more experienced players, suggests that the contact element of schoolboy's rugby in a player's first three years is a lot less intense than that of a player who has been playing for 4 or more years.

No. of Concussions	0-1	2-3	4-5	6 or more
0	0% (0)	47% (14)	33% (10)	20% (6)
1-2	0% (0)	27% (7)	50% (13)	23% (6)
3-4	0% (0)	0% (0)	60% (6)	40% (4)
5-6	0% (0)	100% (1)	0% (0)	0% (0)

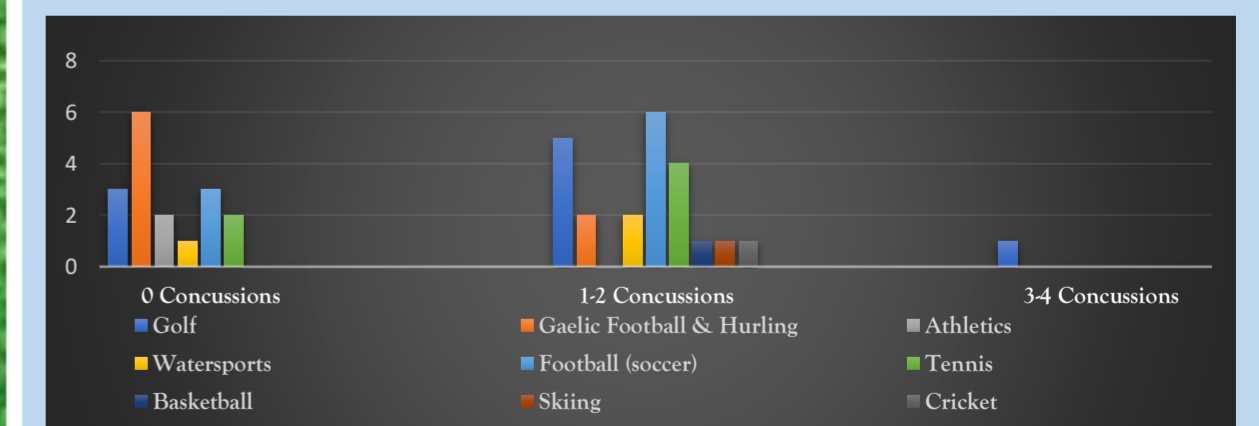
Q5: Do you currently play any sports other than rugby?

From the results of this question, we can see that there are 15 less occurrences of concussion injuries within the players that also play other sports along with rugby, than those that only play rugby at school. There is a lot of pressure among rugby-playing students regarding the balance between training and studies, however, from the results presented, it may be beneficial for schoolboy rugby players to play another sport other than rugby.

No. of Concussions	Yes	No
0	50% (15)	50% (15)
1-2	38% (10)	62% (16)
3-4	10% (1)	90% (9)
5-6	0% (0)	100% (1)

Q6: If answered 'YES' to Question 5, please state which other sports you play.

We found that, within the players who haven't ever been concussed in schoolboy's rugby, the most popular sport to play excluding rugby was gaelic games (football and hurling). We agreed that these two sports were the most similar to rugby, in terms of contact, suggesting that these certain players become more confident with the contact area of rugby through the physical aspect of gaelic football and hurling, thus, receiving no concussions while playing rugby at school.



Conclusion

To conclude our project, the aims that we set out to achieve at the beginning of the task were met. Some schoolboy rugby players are, in fact, more likely to suffer from a concussion in their time playing in school than others are, based on their position on the team, experience and whether they are playing any other sports other than rugby. Our hypothesis, influenced majorly by other studies, proved correct, with the scrumcap or any head protection not seeming to cause any decrease of its users' concussions.

Note

To improve the accuracy of our results, we would have liked to have had a greater number of respondents to our survey. If we were to do the project again, we would try our best to get professional players to answer a similar survey, and we could investigate whether it is more likely to get concussion at schoolboy level or at professional level.