

# **An examination of try scoring in rugby union: a review of international rugby statistics.**

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## **Abstract**

*The purpose of this study was to review some of the key statistics collected by the International Rugby Board (IRB) in their review of the game (2003) and to compare these findings in relation to previous statistical analysis studies. Primary objectives of Rugby Union were identified using the IRB statement of intent. Statistics collected by the IRB for these objectives were then compared to parallel research in other sports regarding recommendations for effective play.*

*The IRB statistics for Rugby Union would appear to replicate previously discovered characteristics of football (Reep and Benjamin, 1968), and would seem to favour a 'long ball' style of play in order to maximise scoring success. This paper highlights the IRB findings and illustrates the possible benefits of comparison and cross referencing with previous research in other sports.*

**Keywords:** Try, rugby union, statistics.

## **1 Introduction**

A team's performance is based upon a multitude of areas from individual player skill to overall team tactics (Hughes & Franks, 1997). When coaching teams this needs to be prioritised into areas that can be worked upon with a view to improving performance.

Franks, Goodman and Miller (1983) suggest that an important element to consider is the primary objectives of the game in question. They suggest that the focus of coaching interventions should be based on these objectives. Franks *et al.* (1983) state that the most effective way of improving performance in relation to these game objectives is to examine past matches, keeping a record of the circumstances and antecedents that led to a positive outcome. They suggest that by doing so it should be possible to form a predictive model of the situations most likely to lead to the fulfilment of the game objective thereby allowing technical and tactical training to be focused on these key situations.

The vast amount of data that needs to be collected can often prove to be a prohibitive issue, but the validity of any findings is dependent on the quantity and source of information. The more data used the stronger any conclusion, and the more sources that the data are drawn from the more applicable the findings are to differing situations. Yet for data to be relevant they must also be both recent and appropriate (Thomas & Nelson, 2002).

The IRB (2003) state that the objective of Rugby Union is to score as many points as possible by scoring tries and avoiding conceding penalties. IRB statistics show that of the 120 international matches played by the worlds top 10 teams since 1999, teams

scoring fewer tries than the opposition won only 16. This would indicate that scoring points with tries is the most effective method of achieving the primary objective of Rugby Union, and to win games. Whilst providing a useful starting point a rugby try is made up of a large amount of variables and it is important to focus on those that will be the most useful to the team coaches.

Previous game analysis articles which can be drawn on for comparison, include those from other team sports such as football. These have highlighted the need to be very specific about what is being examined (Hughes & Franks, 1997). Reep and Benjamin (1968) reported that the majority of goals in football resulted from three passes or less and were scored from 5 yards or closer. More recently the Garganta, Maia and Basto (1997) study of the top 5 European clubs revealed that goals involved 3 or less passes, with over 50% of goal-scoring possessions less than 10 seconds in duration, with possession gained in the offensive 1/3 of the pitch.

While these studies do not directly translate to rugby, they have been central to the evolution of football tactics and highlight possible areas of progressive examination when looking at patterns of attack leading to tries in rugby. These areas include where possession is gained on the pitch and how many passes precede a try.

Another potential area of examination, related to passing yet unique to rugby, is the number of rucks and mauls (2<sup>nd</sup> phases) preceding a try. Additionally Jinshan, Xiakone, Yakamaka & Matsumoto (1993) proposed that another important aspect related to scoring in team games, such as football and rugby, was the timing of the score. This factor allows a coach to plan the timing of attacks during a game when they are most likely to succeed, for example making an offensive action at the very end of the first half when the other team is most tired.

## **2 Method**

Based upon these previous studies four key variables recorded by the IRB may be potentially important in relation to the scoring of tries in Rugby Union. These variables were defined by the IRB (2003) as follows:

Variable 1- The position on the field of play that possession is obtained. This was recorded by dividing the pitch into 4 sections; within the 22m line, between the 22 and 10m line, between the 10m and halfway line, and within the scoring teams own half.

Variable 2- The number of passes preceding a successful try. This was recorded by counting how many times the ball passes from one player in the offensive team to another without touching the ground

Variable 3- The number of 2<sup>nd</sup> phases preceding a successful try. A second phase was recorded every time the offensive player was successfully tackled but the offensive team retained possession through either a ruck or a maul.

Variable 4- The point in time a try is scored during the game. This was indicated by recording at which point in the game the offensive team gained possession in relation to 8 five-minute increments making up each half or in additional time.

Relevant statistics from the IRB 2003 annual report were examined in relation to the four variables. This included statistics for all matches played by the IRB top national

teams in competitive matches in 2003( $n=32$ ), including a total of 152 tries from games played by the Six Nations, Tri Nations, and Argentina (IRB, 2003). Data from previous annual reports were not examined in an effort to increase the validity of any conclusions in relation to relevance for the current game.

Results were compared to parallel studies with similarities and contrasts being highlighted and discussed.

### 3 Results

I.R.B findings show the percentage of tries that were scored from possession gained in each of the observed sections of the field of play (Table.1 and Fig. 2). 75% of successful tries resulted when possession was gained within the opponents half of the field of play and that the majority of these (39%) came from within the 22m line.

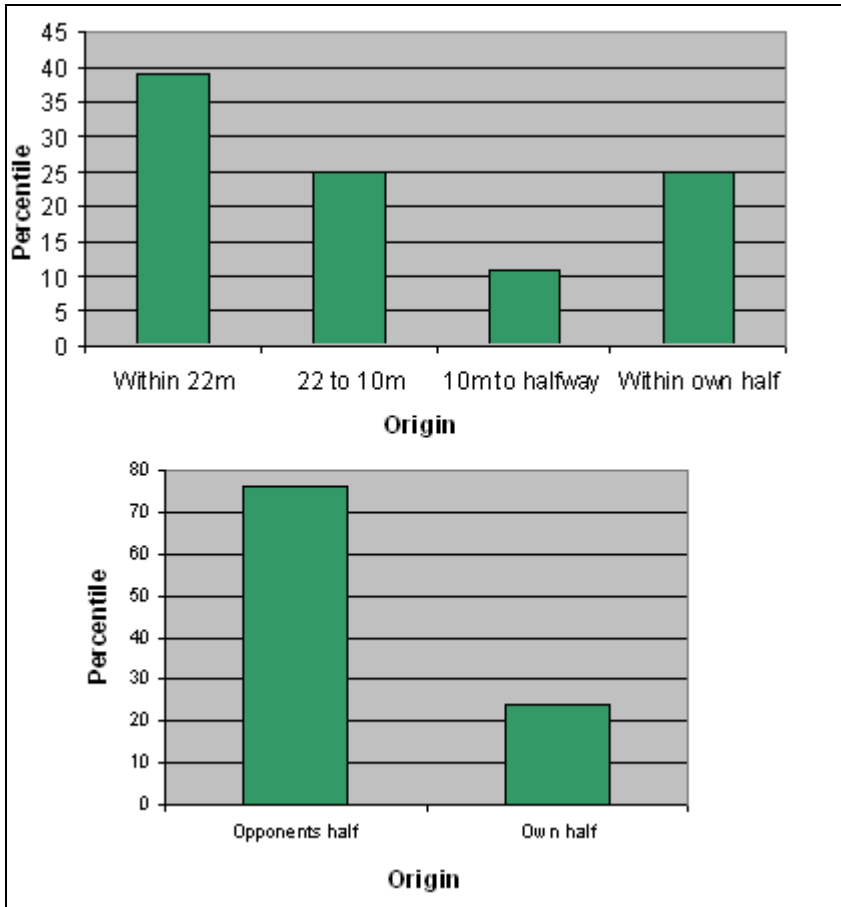
Table. 2 and Fig. 3 show the number of successful tries in relation to the amount of passes involved. 48% of successful tries were completed using 3 or less passes with the success rate showing a definite drop off with 4-5 passes or more.

A significant Pearson correlation ( $-0.621, p<0.05$ ) was found between the number of passes and the number of successful tries. While this cannot be used to imply cause and effect it does lend weight to the argument that the greater the amount of passes involved in a play the less likely a try will be scored.

Table 1. Origin of possession.

<b>Possession gained at</b>	<b>Number of Tries</b>	<b>Percentile</b>
Within 22m	60	39
22m – 10m	38	25
10m to halfway	17	11
Within own half	37	25
<b>Total</b>	<b>152</b>	
Opponents half	115	75
Own half	37	25
<b>Total</b>	<b>152</b>	

International Rugby Board (2003)



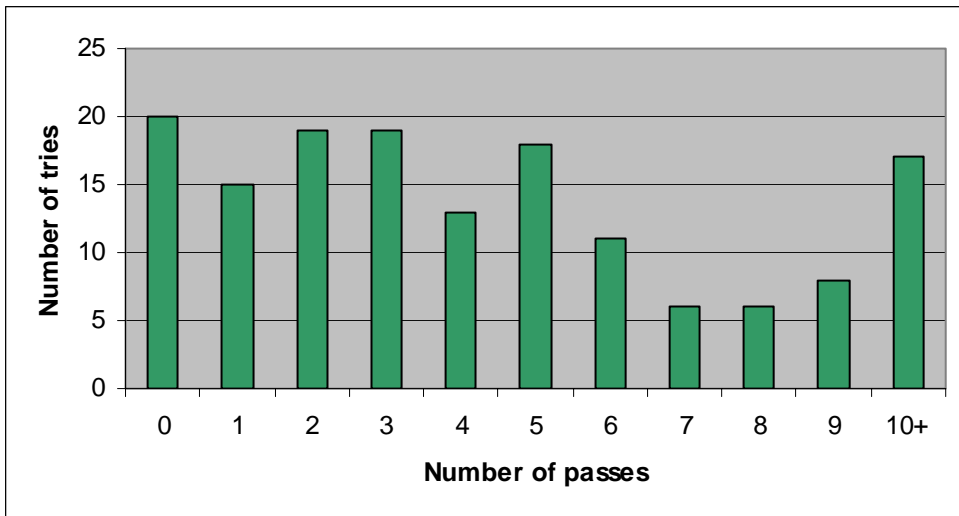
International Rugby Board (2003)

Fig. 1. Graph of the origin of possession.

Table 2. Number of passes in a successful try.

Number of passes	Number of successful tries
0	20
1	15
2	19
3	19
4	13
5	18
6	11
7	6
8	6
9	8
10+	17

International Rugby Board (2003)



International Rugby Board (2003)

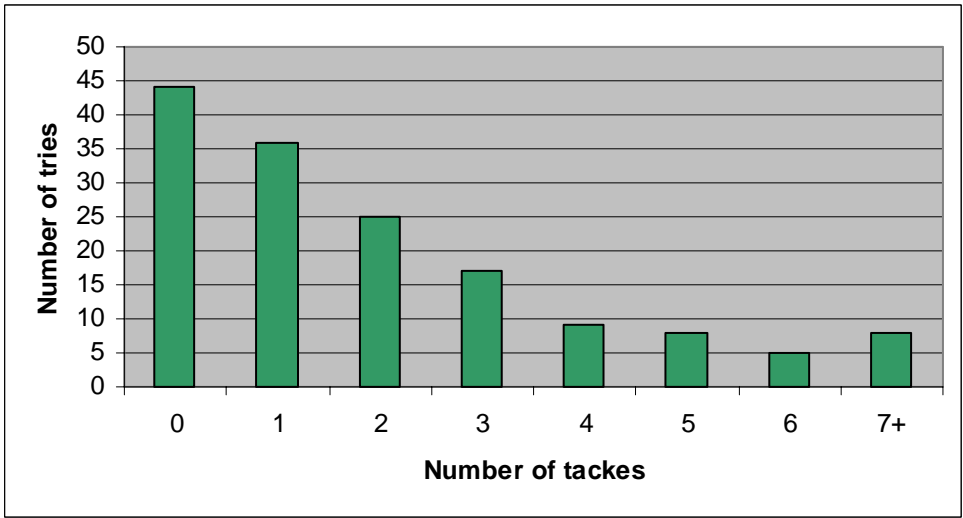
Fig. 2. Graph of the number of passes in a successful try.

The I.R.B also found the number of successful tries in relation to the number of tackles (2<sup>nd</sup> phases) involved (Table. 3 and Fig. 4). A definite decrease in the number of tries in relation to an increase in the amount of tackles or 2<sup>nd</sup> phases can easily be seen. A highly significant Pearson correlation (-0.932,  $p < 0.01$ ) was found between the number of tackles and the number of successful tries. While this cannot be used to imply cause and effect it does lend weight to the argument that the greater the amount of tackles involved in a play the less likely a try will be scored.

Table 3. Number of tackles in a successful try.

Number of tackles	Number of successful tries
0	44
1	36
2	25
3	17
4	9
5	8
6	5
7+	8

International Rugby Board (2003)



International Rugby Board (2003)

Fig. 3. Graph of the number of tackles in a successful try.

Table 4. Timing of tries.

Time	First half tries	Second half tries
0 – 5	9	8
5 – 10	9	5
10 – 15	11	7
15 – 20	8	7
20 – 25	9	13
25 – 30	7	10
30 – 35	9	12
35 – 40	7	5
40+	2	14

International Rugby Board (2003)

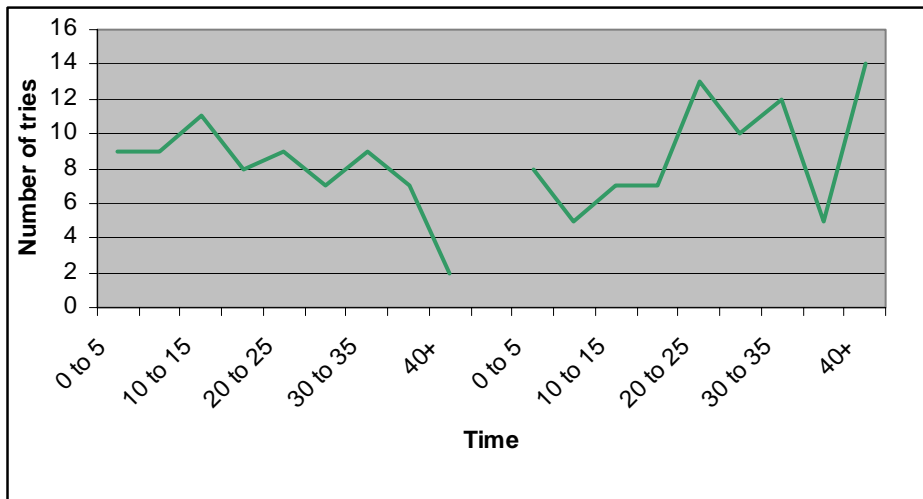


Fig. 4. Graph of timing of tries.

Table. 4 and Fig. 5 show the timing of when tries were scored. It shows that 71 tries were scored in the first half and 81 in the second. Visual analysis shows that while tries were spread fairly evenly through the first half the majority in the second half were scored from 20 minutes onwards, with the most being scored in additional time.

#### 4 Discussion

Results from Table.1 and Fig. 2 show that 75% of the tries examined came from possession gained within the opponents half and that 39% of tries came from possession gained within the 22m line. This is similar to the pattern shown in football where Garganta *et al.* (1997) found that a 50% of all goals came from possession gained within the opponents third of the field of play. Garganta *et al.* (1997) hypothesized that such findings were the result of a reduced opportunity for tackles and a reduced need to pass, increasing the chance of possession being lost.

Tables 2 and 3, and, Figures 3 and 4, show an inverse relationship between the numbers of passes and tackles, to successful tries. This supports the idea that passes and tackles increase the chance of an action failing to result in a score (Garganta *et al.*, 1997) and is possibly due in part to the reduced opportunity for tackles and the reduced need for passes when possession is gained further up the field of play (Garganta *et al.*, 1997; Reep & Benjamin, 1968).

The main recommendation to rugby coaches based upon these results in relation to previous football studies, would be that players should attempt to minimize the amount of time that the ball spends in their team's half of the field of play.

If possession is gained by the defending team deep in their half of the field of play a possible tactical option is to kick it clear. Should the opposition gain possession it will be in their own half giving the defence more time and opportunity to tackle and force the opposition to make more passes, thereby increasing the chance of possession being regained. If a team is particularly strong defensively there is a high chance that this possession will be gained from a turnover in the opponent's half therefore increasing the chance that it will result in a try. If the team does not kick it clear these results indicate that they are unlikely to be able to run the ball to a successful try.

This recommendation should be tempered by consideration of the situation at the time possession is gained. It may be that there is a gap in the defence or that there are no friendly players further up the field. In these situations other options could be considered such as kicking the ball out of play and allowing friendly players to be moved up the field of play, or attempting to run the ball up the pitch to a more advantageous position before considering further options.

Table. 4 and Fig. 5 show the timing of tries scored. Using football studies as a predictor it was thought that that tries were more likely to be scored immediately prior to the end of time periods (Jinshan *et al.*, 1993). This has been ascribed to a combination of fatigue and failing concentration (McLean, 1992). While the I.R.B results did show an increase in scoring towards the end of the second half no such pattern was apparent in the first half of the game. A possible cause of this difference may be the multiple methods of scoring in rugby. Unlike football it is possible to score points in a number of ways, most importantly tries and penalties. It is possible that if all methods of scoring were considered in a rugby game then a similar pattern to other team sports may become apparent.

A possible recommendation based upon the findings of the timing of tries would be to analyse player fatigue and tactical substitution. Using these variables effectively could reduce the chance of tries being conceded. Additionally these finding could also be used offensively. If players are less fatigued than the opposition, a large offensive attack could be made towards the end of a game. These tactics would require awareness of fitness levels and monitoring of both teams substitutions.

It is important that further study should also be carried out in relation to the timing of penalties as it is possible that these could shed more light on the pattern of play over the course of a rugby game.

All of the variables were observed in relation to successful tries and so it is impossible to say which if any had the most impact on the scoring of a try. Future work should compare similar try scoring situations to analyse possible predictive outcomes. Variables were also not examined in relation to each other. Therefore it is impossible to say, for example, whether tries resulting from possession gained in the teams own half had more or fewer tackles and passes than tries resulting from possession gained in the opponents half. This information could reveal important details of the pattern of play and would also be useful in making tactical recommendations based upon a player's position and situation.

Additional limitations that also needs considered are environmental conditions such as weather and the state of the pitch. These variables could have important implications for tactical recommendations due to their possible influence on the success of running and passing games and should be considered in any future work.

## **5 Conclusion**

This study highlights the possibilities of using comparative data gathered from other sports, showing how such data can be used either singularly or in conjunction with other work, to draw conclusions and make recommendations for training and tactics. The study would have benefited from the cross examination of certain variables, yet as the IRB (2003) had recorded each variable separately and made no link between them this was impossible. A prime example of this is the conclusion that tries were more likely when possession was gained further up field due to the decreased opportunity for tackles or need for passes, yet it was only possible to infer this as data for individual tries was not available.

In conclusion this paper highlights the potential for the use of previously gathered parallel research in other sports research to assist in making recommendations for effective play.

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