

The Influence of Competition Level and Playing Position on the Relative Age Effect in French Rugby Union

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INTRODUCTION: Many elite sporting populations contain a larger proportion of individuals who are born in the months immediately following the cut-off date for age group sport than would be expected by chance (Cobley et al., 2009). This finding is known as the relative age effect (RAE). The sport of rugby union would appear to be an ideal candidate for the RAE, given the importance of physical development to successful performance. However, relatively little research has investigated the RAE in rugby union (Delorme et al., 2009). In particular, the influence of playing position has not been considered. Unlike rugby league, in which a pronounced RAE has been demonstrated irrespective of position (Cobley et al., 2014), rugby union potentially accommodates a broader range of body types than many other field sports (Quarrie et al., 1996). Consequently, susceptibility to RAEs may not be equivalent across all playing positions. Therefore, the primary aim of the present study was to investigate whether playing position influenced RAE.

METHOD: A review of an on-line database (<http://www.itsrugby.co.uk/>) revealed the names of 2135 players of French nationality registered to play during the 2014/15 season in the top three divisions of French rugby: the Top 14, Pro D2, and Federale 1. Dates of birth were available for 1991 of these players, of which 1122 had played at least one game at the professional level. Chi-squared Goodness of Fit tests were used to examine whether the distribution of births differed from that of the general French population across the period in question (1974-1996). Cohen's *w* provided a measure of effect size.

RESULTS:

Table 1. Relative Age distribution of French rugby union players during the 2014-2015 season according to competitive level and playing position.

<u>Population (N)</u>	<u>Quarter of Birth</u>				χ^2	<i>P</i>	<i>w</i>
	First	Second	Third	Fourth			
Total (1991)	26.0%	27.37%	25.9%	20.4%	17.13	0.001	0.09
Amateur (869)	25.3%	26.8%	28.0%	19.9%	9.66	0.022	0.11
Professional (1122)	26.6%	28.3%	24.2%	20.9%	11.06	0.011	0.10
Forwards (1116)	28%	26.4%	26.0%	19.5%	17.75	0.000	0.13
Backs (875)	23.4%	29.3%	25.7%	21.6%	6.10	0.107	0.08
Prop (335)	28.4%	24.8%	27.5%	19.4%	6.56	0.087	0.14
Hooker (187)	21.9%	32.6%	24.6%	20.9%	4.36	0.225	0.15
Lock (196)	28.1%	26.0%	23.0%	23.0%	1.91	0.592	0.10
Back row (398)	30.7%	25.1%	26.9%	17.3%	15.47	0.001	0.20
Scrum half (175)	24.6%	27.4%	20.6%	27.4%	2.50	0.476	0.12
Fly half (140)	25.7%	30.7%	20.7%	22.9%	2.65	0.449	0.14
Centre (218)	23.9%	30.3%	26.6%	19.3%	3.82	0.281	0.13
Outside back (342)	21.6%	28.9%	29.8%	19.6%	7.55	0.056	0.15

Table Notes: N = number of players, χ^2 = Chi-squared statistic, *P* = probability value, *w* = Cohen's *w*.

DISCUSSION: A RAE was evident irrespective of playing level. More specifically, the data suggest a relative disadvantage to being born in the fourth quarter, rather than an advantage to being born in the first quarter. This pattern may suggest that although the advantage of being born early in the year dissipates over time, the disadvantage of being born late in the year has a continued impact on participation and achievement into senior sport. A RAE was present amongst forwards but not amongst backs. This finding was found at both the amateur and professional levels. More specifically, the findings indicate that the back row position in particular is at risk of bias due to the RAE in the French rugby system. Although this finding is in contrast with that of Cobley et al. (2014) in rugby league, the greater diversity of anthropomorphic characters accommodated in professional rugby union relative to rugby league may explain the difference. Future research should explore rugby coaches' understanding of the RAE, and in particular their policies for mitigating the effect in underage team selections.

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