Profiling half-back play in rugby union and the impact of substitutions.

Smyth, Gordon and Hughes, Mike
Centre for Performance Analysis, I.T.C, Carlow, Eire.

Introduction

An exploratory method of quantifying the impact of individual players in rugby union was developed and applied to both half-back positions in 2015 Rugby World Cup matches with a view to firstly providing a method of profiling players, and secondly to assess the impact of substitutions.

Methods

A "non-substituted" control group were also analysed, in both the first and final 20 minutes of competition. A match impact scoring system was devised using the questionnaire responses of an expert group of professional rugby analysts and experienced international coaches. The scoring system weighted each game action in a positive or negative manner according to the impact on team performance. The game actions were classified as "attacking" (with possession) or "defensive" (without possession) and were divided by the number of seconds that each team had possession during the period of analysis.

Results

It was found that the proposed method produced valid and reliable data concerning player performance. It was also found that for the scrum-half position, the starting players produced a higher median efficacy score than replacement players 27.46, (std. dev. $\pm$10.06) and 20.42, ($\pm$12.45). The best performing scrum-half group were the 60-80 minute non-replaced players 29 ($\pm$9.0). For the out-half position, it was found that the highest median efficacy was achieved by the replacement player group 18.80, ($\pm$ 11.00), with the non-replaced 60-80 minute group performing worst 14.40, ($\pm$ 7.09).

Discussion and Conclusion

Future research should develop the methods applied in this study to develop player profiles for each position on the rugby field. It is suggested that these profiles should use score difference between the teams to take into account the strength of the teams involved. The concept of a weighted individual player efficacy system has been demonstrated in the sport of rugby union, but could be applied in any team sport where greater individual player performance data is required.

References

Hughes, M. T., Hughes, M. D., Williams, J., James, N., Vučković, G. and Locke, D. (2012). Performance indicators in rugby union. *Journal of Human Sport and Exercise*, 7, pp. 383-401.

James, N., Mellalieu, S. and Jones, N. (2005). The development of position-specific performance indicators in professional rugby union. *Journal of Sports Sciences*, 23, pp. 63-72.

Lim, E., Lay, B., Dawson, B., Wallman, K. and Aanderson, S. (2009). Development of a player impact ranking matrix in Super 14 rugby union. *International Journal of Performance Analysis in Sport*, 9, pp. 354-367.

Pearce, M. and Hughes, M. (2001). Substitutions in Euro 2000. In M.D. Hughes (ed.) *pass.com*, Cardiff: UWIC, pp. 303 – 317.

Villarejo, D., Palao, J., Ortega, E., Gomez-Ruano, M. and Kraak, W. (2015). Match-related statistics discriminating between playing positions during the men's 2011 Rugby World Cup. *International Journal of Performance Analysis in Sport*, **15**:1, 97-111.