
Downloaded from: http://sure.sunderland.ac.uk/id/eprint/10509/

Usage guidelines

Please refer to the usage guidelines at http://sure.sunderland.ac.uk/policies.html or alternatively contact sure@sunderland.ac.uk.
Determining high intensity activity in women’s rugby union: Use of current male-derived absolute speed thresholds underestimates true levels

Eddie Bradley, Lisa Board, Bob Hogg & David Archer

Department of Sport & Exercise, Faculty of Health Sciences and Wellbeing, University of Sunderland

Background

• Absolute speed thresholds commonly used due to easy of application across a whole team (Dwyer & Gabbett, 2012).
• The use of GPS-based movement data in elite women’s rugby union is gaining in popularity.
• Speed thresholds are currently based on data derived from the men’s game for example Cunniffe et al. (2009), with High Intensity running equating to speeds of 18-21 km.h⁻¹ and Sprinting to speeds of >21 km.h⁻¹.
• Reported maximum speeds achieved by female players are 2-6 km.h⁻¹ slower (Suarez-Arrones et al., 2014, Virr et al., 2014) than reported for male players (Cahill et al., 2012).
• Use of male derived thresholds likely to under-estimate high intensity movement distances where absolute thresholds are used. For example: female Rugby 7’s (Clarke et al., 2014).

AIM:

To examine the effect of reducing the absolute speed thresholds on the volume of high speed running and sprinting in women’s 15 –a-side rugby.

Protocol

58  5 Games  GPS  Measures

High intensity running (HIR) and sprint (Spr) zones
Max Velocity – Only 41% of players who participated in this study achieved speeds greater than 21 km.h⁻¹
Mean velocity – 20.73±3.4 km.h⁻¹
4 – 8 km.h⁻¹ lower than male players (Cunniffe et al., 2009; and Coughlan et al., 2011)

Thresholds

Absolute
Zones: HIR 18-21 km.h⁻¹; Spr > 21 km.h⁻¹
Distance: 63 m; 30 m
% Time: 0.12%; 0.03%

Absolute-2
Absolute reduction of 2 km.h⁻¹
Zones: HIR 16-19 km.h⁻¹; Spr > 19 km.h⁻¹
Distance: 139 m*; 60 m*
% Time: 0.41%*; 0.07%
* indicates significantly different from Absolute

Absolute-4
Absolute reduction of 4 km.h⁻¹
Zones: HIR 14-17 km.h⁻¹; Spr > 17 km.h⁻¹
Distance: 239 m*; 71 m*
% Time: 0.88%*; 0.36%*

Conclusions

• Increases in distances and % time spent at high intensity running and sprinting were observed as expected.
• Female players mean max velocity is lower than the male-based sprinting threshold speed.
• Absolute-2 high intensity running and sprinting distances are similar to those observed in women’s international game (Suarez-Arrones et al., 2014).
• Volume of high intensity running and sprinting distances align more closely with those observed male English Premiership rugby (Cahill et al., 2013) when speed thresholds are reduced.
• Time spent at high intensity activity still lower than reported by Virr et al. (2014) using video-based time-motion analysis.
• Preliminary findings indicate that female-specific speed thresholds should be utilised in future when applying absolute threshold zones to a team analysis, as existing male-derived thresholds appear to underestimate the movement patterns of female players.

References