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Movement and subjective task load characteristics of match officials during the Men's and Women's Rugby League World Cup

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INTRODUCTION:

Rugby league match officials (i.e., a referee and two touch judges) must position themselves relative to the players' actions during a match to make appropriate decisions that enable regulation of the players' behaviour by administering the laws of the game. Influence of the official's role during matches (i.e., referee vs. touch judge) on the physical and subjective task loads remains to be elucidated. Likewise, whether an official's load is influenced when controlling men's or women's competition requires investigation. Therefore, the aims of this study were to examine the influence of the match official's role and whether they were officiating male or female players on their movement and subjective task loads during international match play.

METHODS:

A total of 123 performances (referees: $n = 39$; touch judge: $n = 84$) from 28 match officials (male $n = 25$; female $n = 3$) were assessed during the Men's and Women's Rugby League World Cup. Movement and heart rate data were collected during matches using a 10 Hz global positioning system device and heart rate monitor, respectively. Individual subjective task load was quantified by each official after every match for six sub-scales (Mental, Physical, Temporal, Performance, Effort, Frustration) using the National Aeronautics and Space Administration Task Load Index (NASA-TLX).

RESULTS:

Despite similar relative distances (78.7 ± 12.2 cf. 74.3 ± 12.2 m/min; $P = 0.061$), peak speeds (7.6 ± 1.6 cf. 7.6 ± 1.2 m/s; $P = 0.904$) and mean heart rate (146 ± 28 cf. 140 ± 21 bpm; $P = 0.292$), referees performed more accelerations (49 ± 14 cf. 42 ± 18 ; $P = 0.032$), decelerations (52 ± 18 cf. 41 ± 21 ; $P = 0.009$) and had higher perceived Mental (6.2 ± 2.2 cf. 5.4 ± 1.9 , $P = 0.03$) and Physical (6.2 ± 1.6 cf. 5.1 ± 1.7 ; $P < 0.001$) loads during a match than touch judges. Conversely, touch judges (6.3 ± 3.4 m/min) performed more high-speed running in a match than referees (3.8 ± 2.1 m/min) ($P < 0.001$). High-speed running (6.4 ± 3.2 cf. 3.4 ± 2.3 m/min; $P < 0.001$), accelerations (49 ± 16 cf. 32 ± 14 ; $P < 0.001$), decelerations (50 ± 16 cf. 34 ± 19 ; $P < 0.001$), peak speed (7.8 ± 1.4 cf. 7.1 ± 1.0 m/s; $P = 0.01$), Mental (6.2 ± 1.8 cf. 4.5 ± 2.1 ; $P < 0.001$), Physical (6.2 ± 1.4 cf. 4.0 ± 1.5 ; $P < 0.001$) and Temporal (5.4 ± 1.8 cf. 3.7 ± 1.8 ; $P < 0.001$) perceived loads were higher in those officiating men's compared to women's matches.

CONCLUSION:

An official's role during a rugby league match will influence the physical and perceived load that has implications for conditioning practices. Referees need to perform repeated multidirectional movements under high perceived mental and physical load, whereas touch judges require more high-speed running capability. Those officiating men's international rugby league matches also require greater high-speed running and sprint capability, the ability to perform repeated changes of direction and greater tolerance of perceived mental, physical and time pressure loads compared to those controlling the women's game.

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