

THE INFLUENCE OF MATCH-RELATED FATIGUE ON PHYSICAL AND SKILL PERFORMANCE DURING ELITE RUGBY LEAGUE MATCHES

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Introduction

Successful performance in professional rugby league requires high levels of physical, technical and tactical proficiency. However, despite the perceived importance of technical skills in rugby league, relatively few studies have examined the influence of physical fatigue on the quality of skill performance during match-play. Therefore, the aim of this study was to examine the influence of match-related fatigue on the quality of skill performance in elite rugby league players.

Methods

Time-motion and notation analyses were performed on 6 elite senior and 11 elite youth players from the 'ball playing' positions (fullback, five-eight, hooker and half-back) during the 2010 season. Movement demands were collected using 5-Hz global positioning systems from 63 National Rugby League and 55 National Youth Competition match samples. Each player's involvement with the ball during the match was qualitatively assessed from video playback using a detailed skill assessment rubric. The relationships between exercise intensity and skill performance were determined by examining the exercise intensity (m/min and 5-min distances) prior to each skill involvement. The temporal changes in exercise intensity and skill measures were also examined.

Results and Discussion

Both total distance, and the quantity and quality of skill performance were reduced in the final two 5-min periods of the match compared to the opening 5-min period of each half ($P < 0.05$). In addition, there were reductions in total distance, the quantity and quality of technical skill performance in the 5-min period following the peak 5-min period where the greatest distance travelled ($P < 0.05$). Significant correlations were observed between distances travelled and skill involvements ($r = 0.69$, $P < 0.05$) in the 5-min period of highest exercise intensity. Moreover, distance travelled in the peak 5-min period was related to the distance travelled in the next 5-min period ($r = 0.46$, $P < 0.05$). These results show that like physical performance, the quantity and quality of technical skill performance is reduced by game-related physical fatigue during rugby league matches.

Conclusion

Match-related physical fatigue may reduce both physical and technical skill performance following brief periods of high-intensity activity and during the final stages rugby league matches. Therefore, training programs for elite rugby league ball players should aim to prepare players with physical capacities that allow them to withstand match-specific physical stress so that the quality of technical skill performance can be maintained.