

THE RELATIONSHIP BETWEEN GPS WORK RATE AND PERFORMANCE IN THE AFL

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Introduction

Whilst a large number of studies have investigated the validity and reliability of GPS (Global Positioning System) technology for use in Australian football relatively few studies have examined the current work rate demands of player. Furthermore, very few studies have linked individual and team movement patterns to performance variables. This study aimed to identify the most relevant GPS work rate variables to performance in the AFL. By better understanding the relationship between GPS derived work rate data and player and team performance, football club staff may be able to streamline the use of GPS technology.

Methods

Between 10-22 players from the West Coast Eagles Football Club wore GPS in games across the 2009 and 2010 AFL seasons. Each player was allocated to one of two broad categories (stationary and free-roaming) for positional comparisons. To quantify individual performance objective player impact scores were produced by entering a formula, developed and validated for use in Australian football. Pearson correlations were made between the GPS variables and the performance variables (possessions/minute and derived impact points/minute).

Results & Discussion

Overall distance covered per minute of game time was the only positive statistically significant predictor of possessions gained per minute of game time ($r = 0.41$, $p < 0.01$). This relationship existed for the players in the stationary group ($r = 0.37$, $p < 0.01$) and the free-roaming group ($r = 0.31$, $p < 0.01$). Accordingly, optimizing aerobic capacity should likely be the primary focus from a running conditioning perspective. However, no GPS variables correlated significantly with derived impact points gained per minute. There is a need to further investigate the relationship between high velocity running, and particularly repeat sprint ability with AFL performance.

Conclusion

The overall distances that players cover per minute of game time is the most relevant work rate variable to Australian Football performance and not rate of entry into high velocity speed zones.