

ANALYSIS OF GAME DYNAMICS AND RELATED GAME EVENTS IN 11v11 SOCCER

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Introduction

Interactions between soccer players give rise to team behaviour.¹ The teams' interactive behaviour can be described through collective variables, that allow for the analysis of game dynamics. In soccer, the distance between centroid positions has been proposed as such a collective variable.² Sudden changes in a collective variable are hypothesized to be indicative of specific match events like goals-scoring opportunities. Although data is available on game dynamics in small-sided games, it is unclear how this relates to 11v11 matches. Therefore, the aim of the current study is to describe the relation between game dynamics and match events in 11v11 soccer.

Methods

Position data of an elite female soccer match was collected with the local position measurement (LPM) system at 45 Hz. For both teams, centroid positions were calculated as the mean x,y position of individual outfield player positions. Subsequently, the inter team distance (ITD) was calculated in longitudinal (ITD_x) and lateral (ITD_y) direction. Variability was calculated as the standard deviation over a moving 2.5 s window. Critical periods in game dynamics were marked if variability exceeded a sample-based criterion value. Critical periods were mapped to match events using video analysis.

Results & Discussion

94 critical periods of high variability in ITD were identified. In small-sided games, these periods are indicative of goal-scoring opportunities and goals.² However, results of 11v11 demonstrate that changes in ITD_x are mainly indicative of forward passing and dead ball situations like throw-ins. For ITD_y, these periods mainly precede lateral passing of defenders. The difference in game demands between small-sided games and 11v11 underlies these findings. In sum, this study demonstrates that 11v11 game dynamics map differently to specific match events compared to small-sided games.

Conclusion

ITD dynamics in 11v11 differ from small-sided games and map to other match events.

References

1. McGarry, T. et al. (2002). *J Sport Sci*, 20, 771-781.
2. Frencken, W.G.P. et al. (Accepted). *Eur J Sport Sci*.