

## TACTICAL MATCH ANALYSIS IN SOCCER: NEW PERSPECTIVES?

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Match analysis is the objective recording and examination of behavioural events of one or more players during competition or training. Notational analysis is a method to create a permanent record of the on-the-ball actions of players within a match through hand-based or computerized systems often using video technology. For the analysis of tactical behaviour, large data sets create opportunities for analysing temporal patterns (T-patterns) and network structures. Although these notational systems have improved over time, they still have certain limitations, especially from a tactical point of view. For example, information of position of the actions lack accuracy and, due to a single camera viewpoint, only on-the-ball actions of individual players are monitored properly.

In recent years, technological innovations, such as automated tracking based on video clips and GPS-like technology, have led to new possibilities for match analysis in ball team sports. High-frequency positional player data (up to 1000 Hz) is becoming available in the context of different ball team sports, such as soccer, field hockey, basketball, rugby, and handball. Until now, these data are typically used to calculate distance, speed and acceleration/deceleration profiles of individual players. These types of analysis do not capture the complexity of a soccer match and new approaches of the game are required.

Data with high spatial and temporal resolution of different players at the same time open up to player vs. player and team vs. team interactions. For example, on individual level it allows for the analysis of symmetry breaking processes in player dyads, whereas on team level attacking and defensive spaces or other geometrical configurations confined by the players can be investigated. It is obvious that the current theoretical frameworks for performance analysis are not suitable for the study of these spatial-temporal game dynamics.

In contrast, dynamical systems theory is a relevant framework and its analytical tools and methods are ideal because they can cope with this type of data. This approach leads to new insights into the interactions of players and teams within different ball team sports. New ideas and research findings on several geometrical configurations in small-sided games and real matches in elite soccer will be presented to expand the existing knowledge in this area.

### References

1. Frencken, W.G.P. et al. (2010). *Journal of Science and Medicine in Sport*, 13, 641-645.
2. Frencken, W.G.P. et al. (2011). *European Journal of Sports Sciences (in press)*.