

Pattern recognition in sport: Why, how and does it do any good?

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Coaches routinely make decisions on the performance of players from both tactical and technical perspectives. This is achieved using domain knowledge gained over many years and can be influenced by personal bias and memory deficits. To supplement this feedback process, scientists with different skill sets augment the information given to players with data driven evidence derived from various technologies. The number of sports scientists and the complexity of the data gathering devices having grown exponentially over recent years. This has meant that the goals of this support network have similarly changed, from providing relatively simple information to providing complex analyses, with the aim of making the increasingly smaller improvements in athletic performance. Current trends in performance analysis have seen the proliferation of different forms of data analysis using terms such as analytics, mining and visualisation, each representing the shift towards interpreting large data sets using techniques developed in the computer science and engineering domains. This talk focusses on the process of determining the most suitable mathematical approaches to pattern recognition e.g. linear or non-linear, vector-based algorithms to classify or discover information. This can only be achieved in sport by the cooperation of experts in sports coaching (deriving the questions), the data analyst (to collect and analyse the data) and the sports scientist (to interpret and visualise the data in a format understandable and applicable to the coach and players). Without this symbiotic relationship, messages get misinterpreted and the added value diluted. The necessity of building specialised teams is therefore suggested as essential for competitive elite sport with the final recommendation that training interventions need to be measured longitudinally for effects to be verified.