Global Performance Indicators for Soccer Players Based on Expanded Sets of Kinematic Variables

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Current player tracking systems in soccer enable the collection of hundreds of kinematic variables that describe the physical demands of soccer. However, in practice, only a limited number of variables are selected to represent these demands. This may be due to the common practice of analyzing variables individually, rather than adopting an approach that aggregates them. Additionally, even with a reduced set of variables—typically no more than 10—it remains challenging to obtain a clear picture of the player's overall performance. Therefore, the aim of this study is to provide a methodology that consolidates a large number of player activity variables into two global performance indicators: (1) an individual performance indicator that allows the comparison of a player's performance in the current session against their performance in match and (2) a comparative performance indicator that facilitates the comparison of a player's performance in a session with that of other players in the same session. For the first indicator, relative values for each variable were calculated using the player's individual maximum. After calculating the relative values for each variable, their mean for the session was compared to the average of previous sessions. For the second indicator, each variable was ranked, followed by the calculation of percentiles and T-scores (TS). The TS mean was then computed for each player, and the players ranked to facilitate comparisons. The data used in this study pertains to players from a professional soccer team competing in Portugal's second division, collected via GPS devices (Vector S7, CatapultSports). We present results that compare an individual player's performance in an end-of-season match against his performance in all previous matches and againts teammates. The results demonstrate that it is possible to provide the coaching staff with simple yet relevant information derived from an expanded set of variables using only two indicators.