

Global Positioning System Match Characteristics as a Predictor of Badminton Players' Group Classification

Authors : Yahaya Abdullahi, Ben Coetzee, Linda Van Den Berg

Abstract : The study aimed at establishing the global positioning system (GPS) determined singles match characteristics that act as predictors of successful and less-successful male singles badminton players' group classification. Twenty-two (22) male single players (aged: 23.39 ± 3.92 years; body stature: 177.11 ± 3.06 cm; body mass: 83.46 ± 14.59 kg) who represented 10 African countries participated in the study. Players were categorised as successful and less-successful players according to the results of five championships' of the 2014/2015 season. GPS units (MinimaxX V4.0), Polar Heart Rate Transmitter Belts and digital video cameras were used to collect match data. GPS-related variables were corrected for match duration and independent t-tests, a cluster analysis and a binary forward stepwise logistic regression were calculated. A Receiver Operating Characteristic Curve (ROC) was used to determine the validity of the group classification model. High-intensity accelerations per second were identified as the only GPS-determined variable that showed a significant difference between groups. Furthermore, only high-intensity accelerations per second ($p=0.03$) and low-intensity efforts per second ($p=0.04$) were identified as significant predictors of group classification with 76.88% of players that could be classified back into their original groups by making use of the GPS-based logistic regression formula. The ROC showed a value of 0.87. The identification of the last-mentioned GPS-related variables for the attainment of badminton performances, emphasizes the importance of using badminton drills and conditioning techniques to not only improve players' physical fitness levels but also their abilities to accelerate at high intensities.

Keywords : badminton, global positioning system, match analysis, inertial movement analysis, intensity, effort

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