Abstract

The aims of the present study were (1) to analyse the physical demands of top-class referees and (2) to compare their official FIFA fitness test results with physical performance during a match. The work rate profiles of 11 international referees were assessed during 12 competitive matches at the 2003 FIFA Under-17 World Cup and then analysed using a bi-dimensional photogrammetric video analysis system based on direct lineal transformation (DLT) algorithms. In the first 15 min of matches, the referees were more active, performing more high-intensity exercise \( (P < 0.01) \) than in the first 15 min of the second half. During the second half of matches, the referees covered a shorter distance \( (P < 0.01) \), spent more time standing still \( (P < 0.05) \), and covered less ground cruising \( (P < 0.05) \), sprinting \( (P < 0.05) \), and moving backwards \( (P < 0.001) \) than in the first half. Also in the second 45 min, the distance of referees from infringements increased \( (P < 0.05) \) in the left attacking zone of the filed. There was also a decrease \( (P < 0.05) \) in performance in the period following the most high-intensity activity, compared with the mean for the 90 min. Time spent performing high-intensity activities during a match was not related to performance in the 12-min run \( (r(2) = 0.30; P < 0.05) \), the 200-m sprint \( (r(2) = 0.05; P < 0.05) \), or the 50-m sprint \( (r(2) = 0.001; P < 0.05) \). The results of this study show that: (1) top-class referees experienced fatigue at different stages of the match, and (2) the typical field tests used by FIFA (two 50-m and 200-m sprints, followed by a 12-min run) are not correlated with match activities.