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Game demands and fatigue profiles in elite football – an individual approach

Implications for training and recovery strategies

av

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Abstract

Title:	Game demands and fatigue profiles in elite football – an individual approach: Implications for training and recovery strategies
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The physical activities performed during a football game provoke fatigue temporarily throughout a game and especially towards the end of a game. Therefore, physical training in football should aim to reach physiological and metabolic adaptations to be able to resist fatigue in order to encourage optimal performance throughout a game. Furthermore, post-game recovery and restoration of performance seems to be a slow process. Physical game demands, training responses and recovery times can vary substantially between players and needs to be studied with an individual emphasis.

The aim of this thesis is to improve the understanding of physical game demands, including fatigue profiles in male elite football players, with an emphasis on individual differences and implications for physical training strategies. Fatigue profiles were investigated analysing game activity data from top-class football players (n = 473). Post-game fatigue and recovery profiles were examined in various muscle groups after a simulated football model in competitive players (n = 12). Associations between a standard game and different small-sided game formats were investigated in professional players (n = 45). Finally, muscular adaptations and physical performance responses of two different training protocols (small-sided games and speed endurance training) was examined by means of pre-post intervention tests in 39 competitive football players.

The results demonstrate that all playing positions show indication of temporary fatigue after intense periods during a football game. A large variation in running performance between and within playing positions was found during a football game. Post-game fatigue was evident in all investigated muscles and showed large differences both between muscle groups and between players. Physical responses in small-sided game formats differed from game demands on an individual level, while speed endurance training was more potent in up-regulating muscle oxidative capacity and physical performance when compared to small-sided games. In conclusion, individual differences in game demands and fatigue profiles are large and need to be considered when planning training. In order to increase physical performance additional high-intensity training should be considered for some individual football players.