

Physical Activity during a Prolonged Congested Period in a Top-Class European Football Team

Léo Djaoui^{*1ACDG}, MSc; Del P. Wong^{2EG}, PhD; Vincent Pialoux^{1EG}, PhD; Christophe Hautier^{1EG}, PhD; Cristiano D. Da Dilva^{3EG}, PhD; Karim Chamari^{4EG}, PhD; Alexandre Dellal^{1,5,6BDEG}, PhD

Authors' Affiliation:

1. Centre de Recherche et d'Innovation sur le Sport (CRIS), Université de Lyon 1, France
2. Technological and Higher Education Institute of Hong Kong, Hong Kong
3. Department of Physical Education, Faculty of Viçosa, Viçosa, Brazil
4. Research and Education Centre, Aspetar, Qatar Orthopaedic and Sports Medicine Hospital, Doha, Qatar
5. Laboratory of "Sport Performance Optimization", National Centre of Medicine and Science in Sports, University of Tunis, Tunis, Tunisia
6. FIFA Medical Excellence Centre, Santy Orthopaedics clinical, sport science and research department, Lyon, France

Authors' Contribution

- A** Concept / Design
- B** Acquisition of Data
- C** Data Analysis / Interpretation
- D** Manuscript Preparation
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* Corresponding Author;

Address: CRIS, Bâtiment Raphaël DUBOIS, Campus Universitaire de la Doua 69622 Villeurbanne Cedex, France

E-mail: leo.djaoui@gmail.com

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Abstract

Purpose: The aim of the present study was to examine the variation in physical activity of elite soccer players within successive prolonged periods of fixture congestion over 5 months of competition during the competitive season 2011-2012.

Methods: Sixteen international players, classified into 6 positions (central defenders: CD; full-backs: FB; central defensive midfielders: CDM; wide midfielders: WM; central attacking midfielders: CAM; forwards: FW), were examined during the French First League, French Cup, and UEFA Champion's League matches. The total distance covered at light ($<12 \text{ km}\cdot\text{h}^{-1}$), sustained-cruising ($>18\text{-}21 \text{ km}\cdot\text{h}^{-1}$), high ($>21\text{-}23 \text{ km}\cdot\text{h}^{-1}$), very high ($>23\text{-}25 \text{ km}\cdot\text{h}^{-1}$), sub-maximal ($>25\text{-}27 \text{ km}\cdot\text{h}^{-1}$), and maximal ($>27 \text{ km}\cdot\text{h}^{-1}$) intensity running (IR) were measured and analysed using a semi-automatic match analysis system (Amisco Pro™).

Results: No differences were observed between congested and non-congested periods (two vs. one match a week, respectively) for the total distance covered at all the speed thresholds over $18 \text{ km}\cdot\text{h}^{-1}$, with no variation in physical fitness over the 5 studied months. Specifically to the playing positions, regardless of the congestion periods, FB and WM covered more distance than CDM over $21 \text{ km}\cdot\text{h}^{-1}$; FB, WM and FW covered similar distances for all running intensities; and CD and CDM covered shorter distance during non-congested compared to congested periods ($P<0.05$) at light-IR.

Conclusion: The present study reveals that prolonged congested match fixture did not affect the high-intensity physical activity of top-class soccer players during official games during a 5 months fixture period.

Key Words: Fitness Training; Soccer; High-Intensity Running; Motion Analysis; Work Rate; Match Congestion

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INTRODUCTION

Performance in soccer has been described as the interaction of several factors such as the technical, tactical, physical, and mental aspects [1]. The analysis of the changes of these parameters following a sequence of games or all across a season has already been reported, with data about the eventual differences

in-between players of different positions on the field [2-8]. However, a better understanding of these changes may help to improve the physical preparation of the players according to their playing position.

Since several years, visual estimating methods in soccer have been substituted by the semi-automatic video analysis [6,8,9,10]. This tracking system allows provision of much information in less time than visual