

Search

Views


4763

©Journal of Sports Science and Medicine (2013) 12 , 559 - 564

Download

249

Research article

from September
2014**Monitoring External and Internal Loads of
Brazilian Soccer Referees During Official
Matches**Citations in
ScholarGoogleEduardo C. Costa¹,  Caio M. A. Vieira¹, Alexandre Moreira², Carlos Ugrinowitsch², Carlo Castagna³, Marcelo S. Aoki⁴

Share this article



Full Text

PDF

[Author Information](#)[Publish Date](#)[How to Cite](#)[Email link to this article](#)**ABSTRACT**

This study aimed to assess the external and internal loads of Brazilian soccer referees during official matches. A total of 11 field referees (aged 36.2 ± 7.5 years) were monitored during 35 matches. The external (distance covered, mean and maximal speed) and internal load parameters (session ratings of perceived exertion [RPE] training load [TL], Edwards' TL, and time spent in different heart rate [HR] zones) were assessed in 3-4 matches per referee. External load parameters were measured using a wrist Global Positioning System (GPS) receiver. No differences in distance covered (5.219 ± 205 vs. 5.230 ± 237 m) and maximal speed (19.3 ± 1.0 vs. 19.4 ± 1.4 km·h⁻¹) were observed between the halves of the matches ($p > 0.05$). However, the mean speed was higher in the first half of the matches (6.6 ± 0.4 vs. 6.4 ± 0.3 km·h⁻¹) ($p < 0.05$) than in the second half. The mean HR during the matches was $\sim 89\%$ of HR_{max}. In $\sim 95\%$ of the matches, the referees demonstrated a HR $\geq 80\%$ of HR_{max}. Nonetheless, the time spent at 90-100% of HR_{max} was higher in the first half (59.9 vs. 52.3%) ($p < 0.05$). Significant correlations between session RPE TL and distance covered at 90-100% of HR_{max} ($r = 0.62$) and session RPE TL and maximal speed ($r = 0.54$) ($p < 0.05$) were noted. Furthermore, there was a positive correlation between session RPE TL and Edwards' TL ($r = 0.61$) ($p < 0.05$). Brazilian soccer referees demonstrated high external and internal load demands during official matches. The portable GPS/HR

monitors and session RPE method can provide relevant information regarding the magnitude of the physiological strain during official matches.

Key words: Match activity, heart rate, session ratings of perceived exertion, training load, GPS receiver

Key Points

- High external and internal loads were imposed on Brazilian soccer referees during official matches.
- There was a high positive correlation between a subjective marker of internal load (session RPE) and parameters of external load (distance covered between 90-100% of HR and maximal speed).
- There was a high positive correlation between session RPE method and Edwards' method.
- Session RPE seems to be a reliable marker of internal load.
- The portable GPS/HR monitors and the session RPE method can provide relevant information regarding the magnitude of external and internal loads of soccer referees during official matches.

HOME

Contact

Email alerts

ISSUES

Current

In Press

Archive
Supplements

Most Read

Articles

Most Cited

Articles

ABOUT

Editorial
board

Mission

Scope

Statistics

AUTHORS

Authors

instructions

For Reviewers



JSSM | Copyright 2001-2018 | All rights reserved. | [LEGAL NOTICES](#) | [Publisher](#)

It is forbidden the total or partial reproduction of this web site and the published materials, the treatment of its database, any kind of transition and for any means, either electronic, mechanic or other methods, without the previous written permission of the JSSM.

This work is licensed under a  [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](#).

