

INPLASY PROTOCOL

To cite: Zhang et al. Physical performance of elite football referees and assistant referees in games: A Systematic Review. Inplasy protocol 202220071. doi: 10.37766/inplasy2022.2.0071

Received: 18 February 2022

Published: 19 February 2022

Corresponding author:
Lingling ZHANG

qdzhl@hotmail.com

Author Affiliation:
Universiti Putra Malaysia.

Support: None.

Review Stage at time of this submission: Data analysis - Completed but not published.

Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: In this review, we sought to outline the current studies on match physical performance of top-class football referee and assistant referees. The information obtained of each variable could then be used to develop specific training drills. The review suggests that future research in this field should reach a consensus on the definition of velocity threshold.

Physical performance of elite football referees and assistant referees in games: A Systematic Review

Zhang, L¹; Geok, SK².

Review question / Objective: In this review, we sought to outline the current studies on match physical performance of top-class football referee and assistant referees. The information obtained of each variable could then be used to develop specific training drills. The review suggests that future research in this field should reach a consensus on the definition of velocity threshold.

Condition being studied: All the studies related to the physical performance of football referee and assistant referee in elite match with comparison in different match periods.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 February 2022 and was last updated on 19 February 2022 (registration number INPLASY202220071).

Condition being studied: All the studies related to the physical performance of football referee and assistant referee in elite match with comparison in different match periods.

METHODS

Participant or population: Referees and assistant referees in elite match.

Intervention: Elite matches.

Comparator: physical performance (internal load and external load) in different match periods.

Study designs to be included: There are no restrictions on experimental or non-experimental methods.

Eligibility criteria: Population, Referee and or Assistant Referee; Instruments, Elite Match; Comparison, Physical performance in different match periods; Outcome, Physical performance.

Information sources: The literature search was undertaken in five international databases: the Web of Science, SCOPUS, PubMed, EBSCOhost, and CINK Plus. The search was undertaken on the 6th July and 30th October 2021 respectively. Key terms inclusive of football match, referee, physical performance were used. In each database, a search was conducted by title, taking a predefined combination of keywords: (("Football" OR "Soccer") AND ("Referee" OR " Match Official?" OR "Arbitrator" OR "Umpire") AND ("Physical load" OR "Physical performance" OR "Physical demand" OR "Fitness demand" OR "Physical Profile" OR "Match activity" OR "activity profile" OR "Physical activity" OR "kinematical activity" OR "Physical exertion" OR "activity pattern" OR "Movement pattern" OR "physiological characteristics" OR "physiological profile" OR "energy expenditure" OR "Speed" OR "Sprint" OR "Endurance" OR "Yo-Yo intermittent" OR "Aerobic" OR "High intensity")) In addition, the reference lists of included articles were screened to make the search as complete as possible.

Main outcome(s): The distance covered of TD and HIR and the mean or peak heart rate during the match revealed top level referees' match physical demands is high, assistant referees' is MI. The physical demands stresses mainly the aerobic system, and irregularly mixed with the significant anaerobic requirement. Therefore, referees' physical performance be considered as a highly intermittent exercise mode. Specific training and fitness assessment are needed for

refereeing at least at top level. The total distance and HIR distance covered by R both are longer than the ARs. The R use more backward running and the ARs have more sideway running. Therefore, in the overall intermittent mode, the R and ARs should have different movements and training intensity.

Quality assessment / Risk of bias analysis: The selected publications were analyzed according to eight quality criteria adapted from Castellano et al, (2014) and Darryl E. Hands & Xanne Janse de Jonge, (2020) (see Table 3). Each of these criteria scored on a binary scale (0/1), in which maximum score possible equated to ten. That is scored depending on the degree to which the specific criteria were met (1 = yes, 0 = no,). A summary score was calculated for each article by summing. The total score multiplied by 1.25 is the final score for the essay. Two reviewers (Zhang and Kim) independently conducted quality assessments. Score 6 is considered moderate quality, score >8 is considered high quality.

Strategy of data synthesis: Data collected through match video or GPS or match track system. The anthropometric data were compared using t-test.

Subgroup analysis: For the analysis of the physical load during match-play, a two-way analysis of variance (ANOVA) was performed using different groups by time periods and activities and or percentage of HRmax.

Sensitivity analysis: Statistical significance was set at $p < 0.05$ for all statistical tests in all the selected studies.

Language: English.

Country(ies) involved: China.

Keywords: Referee, Match, Total distance, High intensity activities, Heart rate.

Contributions of each author:

Author 1 - Lingling ZHANG - The literature search and selection of studies were

carried out by authors ZHLL and KS. ZHLL and KS conduct a comprehensive screening of potentially eligible studies using specific inclusion methods. Study quality assessment was performed by ZHLL and KS . All authors contributed to manuscript revision, read, and approved the.

Email: qdzhll@hotmail.com

Author 2 - Soh Kim Geok - KS and ZHLL conduct a comprehensive screening of potentially eligible studies using specific inclusion methods. Study quality assessment was performed by KS and ZHLL. All authors contributed to manuscript revision, read, and approved the submitted version.

Email: kims@upm.edu.my