

INPLASY PROTOCOL

To cite: Martinho et al. Soccer referees are also part of the game: a systematic review. Inplasy protocol 202280052. doi: 10.37766/inplasy2022.8.0052

Received: 14 August 2022

Published: 14 August 2022

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Support: No financial support.

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

Conflicts of interest:
None declared.

Soccer referees are also part of the game: a systematic review

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Review question / Objective: The of this study was to review and organise the literature using a holistic approach about match indicators, testing, nutrition and physiology on soccer refereeing.

Condition being studied: This review is focused on physical, physiological, body composition, and physiological outputs among soccer referees. Each main topic will be organized according to the results of extracted studies.

Eligibility criteria: (1) population – male and/or female soccer referees and/or assistant referees; (2) relevant data about body size, body composition, physical performance, physiological outputs and nutrition.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 August 2022 and was last updated on 14 August 2022 (registration number INPLASY202280052).

INTRODUCTION

Review question / Objective: The of this study was to review and organise the literature using a holistic approach about match indicators, testing, nutrition and physiology on soccer refereeing.

Rationale: Most of the literature on soccer is focused on players. The fitness of soccer referees is an important point once they need to perform field protocols to be nominated for international games. Additionally, the regulations of FIFA are not equivalent to national organizations rules thereby, it is necessary to discuss the age criterion used. In parallel, nutritional

guidelines and body composition assessment are ignored by FIFA and the literature addressing these topics needs to be reviewed.

Condition being studied: This review is focused on physical, physiological, body composition, and physiological outputs among soccer referees. Each main topic will be organized according to the results of extracted studies.

METHODS

Search strategy: (Soccer OR football AND refer*) AND (physical OR physiolo* OR load* OR "body composition" OR "fat mass" OR "fat free mass" OR "body size" OR "nutrition*" OR "nutritional assessment" OR "nutritional intake" OR "macronutrient*" OR "micronutrient*").

Participant or population: Soccer referees.

Intervention: Physical or physiological assesment; body composition and assessment of nutritional and energy intake.

Comparator: NA.

Study designs to be included: All studies design were included.

Eligibility criteria: (1) population – male and/or female soccer referees and/or assistant referees; (2) relevant data about body size, body composition, physical performance, physiological outputs and nutrition.

Information sources: Three electronic databases (Web of Sciences all databases, PubMed and Scopus).

Main outcome(s): The studies will be categorized in five different topics: size and body composition, performance, physiological variables, and nutrition.

Quality assessment / Risk of bias analysis: Different tools will be to analyse the risk of bias of manuscripts in the present review according to studies design (National Institute of Health, 2014a). The tool for

Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (National Institute of Health, 2014) includes fourteen items regarding the research question, study population, groups recruited from the same population and uniform eligibly criteria, sample size justification, exposure assessed prior to outcome of measurement, sufficient timeframe to observe an effect, different levels of the exposure effect, exposures measurement, repeated exposure assessment, outcomes measurement, blinding of outcomes assessors, follow-up rate, and statistical analysis. In addition, a global assessment of the publication as good, fair or poor is needed. The tool for Quality Assessment Tool for Before-After (Pre-Post) Studies With No Control Group (National Institute of Health, 2014b) contains twelve questions about study purpose, inclusion criteria and population, eligibility of participants, sample size, description of intervention, data quality about dependent variables, blinding process, follow-up rates, data analysis, multiple outcome measures, inter and intra-individual variability in addition to a global assessment (good, fair or poor) of each manuscript. Finally, the bias of studies with a control group will be obtained using a specific tool - Quality Assessment of Controlled Intervention Studies (National Institute of Health, 2014c). The tool considers fourteen questions about randomization design, allocation of participants, blinding process, characteristics of the sample at baseline, dropout, adherence, confounding interventions, measurements of the outcome, power calculation, predetermined outcomes, intention-to-treat effects. An overall assessment of study quality (good, fair or poor) is needed. Two independent authors (DVM/HS) familiarized with the tools will complete the bias assessment for each study and disagreements will be solved by a third reviewer (AR).

Strategy of data synthesis: Relevant information - mainly sampling characteristics, country, purpose of the study, significant results, and practical

applications will be organized on an adapted template of Cochrane Consumers and Communication Review Group (Group CCCR, 2016). The studies will be, subsequently, categorized into five different topics: size and body composition, performance, physiological variables, and nutrition. Relevant information about missing data will be questioned to corresponding authors.

Subgroup analysis: NA.

Sensitivity analysis: NA.

Language restriction: Only Papers written in English were considered.

Country(ies) involved: Faculty of Sport Sciences and Physical Education University of Coimbra; School of Human and Health Sciences, University of Huddersfield.

Keywords: match performance; body composition; nutrition; referees.

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