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Effects of Small-Sided Games versus Interval Training on Anaerobic Performance in Senior Male Soccer Players: A Systematic Review Protocol

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ADMINISTRATIVE INFORMATION

Support - No funding.

Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 January 2026 and was last updated on 22 January 2026.

INTRODUCTION

Review question / Objective The objective of this systematic review is to compare the effects of small-sided games and interval training on anaerobic performance outcomes in senior male soccer players.

Rationale Small-sided games (SSG) and high-intensity interval training (HIIT) are widely used conditioning methods in soccer, aiming to improve physical performance through different training stimuli. While running-based HIIT protocols are commonly applied to enhance anaerobic capacity, SSG-based training is often preferred due to its ecological validity and potential psychological and motivational benefits.

However, evidence comparing the effects of SSG and interval training on anaerobic performance outcomes in senior male soccer players remains limited and inconsistent. In applied practice, coaches frequently alternate between these methods without clear evidence regarding their

relative effectiveness for improving anaerobic performance.

Therefore, a systematic review comparing the effects of small-sided games and interval training on anaerobic performance in senior male soccer players is warranted to support evidence-based decision-making in soccer conditioning.

Condition being studied Anaerobic performance in senior male soccer players, including repeated sprint ability, high-intensity intermittent running capacity, sprint performance, and physiological markers associated with anaerobic metabolism. The condition is examined in response to different training modalities, specifically small-sided games and interval-based high-intensity training.

METHODS

Search strategy A systematic search will be conducted in the PubMed database. The search strategy will combine terms related to population, intervention, and comparator using Boolean

operators. The following search string will be applied:

(soccer OR football) AND ("small-sided games" OR "small sided games" OR SSG) AND ("interval training" OR HIIT OR "intermittent running" OR "running-based training").

No outcome-related terms will be included in the final search strategy in order to avoid restricting the retrieval of potentially relevant studies. Reference lists of included studies will also be screened to identify additional eligible articles.

Participant or population Senior male soccer players aged 18 years or older, competing at amateur or professional level.

Intervention Small-sided games (SSG) applied as a structured training intervention, involving modified soccer games with reduced number of players, adjusted pitch dimensions, and specific task constraints, designed to elicit high-intensity intermittent physiological demands.

Comparator Running-based high-intensity interval training protocols, including traditional high-intensity interval training (HIIT), sprint interval training (SIT), and speed endurance training (SET), used as structured conditioning methods without the ball.

Study designs to be included Experimental and quasi-experimental studies, including randomized controlled trials (RCTs) and non-randomized intervention studies, that directly compare small-sided games with running-based high-intensity interval training in soccer players.

Eligibility criteria Studies were eligible if they met the following criteria:

- included male senior soccer players (≥ 18 years);
- compared small-sided games (SSG) with running-based interval training, including high-intensity interval training (HIIT), sprint interval training (SIT), or speed endurance training;
- adopted an experimental or quasi-experimental design;
- reported at least one anaerobic performance outcome (e.g., repeated sprint ability, sprint performance, lactate concentration, Wingate test, or Yo-Yo Intermittent Recovery Test);
- were published in English or Portuguese;
- provided full-text access.

Studies were excluded if they:

- involved female players or participants under 18 years of age;
- did not include a direct comparison between SSG and interval training;

- were reviews, meta-analyses, editorials, conference abstracts, or case studies;
- focused exclusively on aerobic outcomes without anaerobic performance measures.

Information sources The electronic literature search will be conducted in the PubMed (MEDLINE) database. PubMed was selected due to its comprehensive coverage of biomedical and sports science research and its suitability for identifying peer-reviewed studies related to exercise physiology and soccer training. No additional databases will be searched, in accordance with the scope of the present academic protocol.

Main outcome(s) The primary outcomes of this review will be measures of anaerobic performance in senior male soccer players, including repeated sprint ability (RSA), sprint performance (e.g., 5–30 m sprint tests), anaerobic power assessed through tests such as the Wingate Anaerobic Test, blood lactate responses, and performance in high-intensity intermittent tests (e.g., Yo-Yo Intermittent Recovery Test Level 2).

Quality assessment / Risk of bias analysis The methodological quality and risk of bias of the included studies will be independently assessed using the PEDro scale for randomized and quasi-experimental studies. This tool evaluates key domains such as random allocation, allocation concealment, baseline comparability, blinding, completeness of follow-up, intention-to-treat analysis, and adequacy of statistical reporting. Any disagreements will be resolved through discussion.

Strategy of data synthesis Due to the limited number of eligible studies and the heterogeneity of training protocols, participant characteristics, and outcome measures, the results will be synthesized using a narrative and structured approach. The findings will be summarized and compared according to intervention type (small-sided games vs. interval training), training characteristics, and anaerobic performance outcomes. A meta-analysis will not be conducted unless sufficient methodological and statistical homogeneity is identified.

Subgroup analysis No subgroup analyses are planned due to the limited number of included studies and the expected heterogeneity in training protocols and outcome measures.

Sensitivity analysis Sensitivity analyses are not planned due to the small number of included

studies and the absence of a quantitative synthesis.

Country(ies) involved Portugal.

Keywords Soccer; Football; Small-sided games; Interval training; High-intensity interval training; Anaerobic performance; Speed endurance training; Yo-Yo intermittent recovery test; Male athletes.

Contributions of each author

Author 1 - Tiago Paz - Conceived the study, developed the research question, designed the protocol, conducted the literature search, screened the studies, extracted the data, and drafted the manuscript.

Author 2 - Raynieri Montoro - RRC analyzed and interpreted the data, wrote the statistical report, wrote and revised the original manuscript.

Author 3 - Paulo Malico Sousa - Run the data search, performed the methodological assessment, conducted the data extraction, wrote and revised the original manuscript.

Author 4 - Valter Pinheiro - Run the data search, performed the methodological assessment, conducted the data extraction, wrote and revised the original manuscript.