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**ADMINISTRATIVE INFORMATION**

**Support** - No financial support.  
**Review Stage at time of this submission** - Preliminary searches.  
**Conflicts of interest** - None declared.  
**INPLASY registration number:** INPLASY202540072

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 21 April 2025 and was last updated on 21 April 2025.

**INTRODUCTION**

**Review question / Objective** The aim of this study is to investigate the relationship between mental fatigue variation and match performance in f Soccer players during the competitive season.

**Rationale** Mental fatigue is a psychological state caused by prolonged periods of cognitive activity and is known to negatively affect athletes' decision-making, attention, and performance. Soccer, as a high-intensity intermittent sport, requires constant cognitive engagement during training and matches. Throughout a competitive season, players are exposed to cumulative physical and psychological stressors that may lead to fluctuating levels of mental fatigue.

Although the physical demands of soccer across a season have been extensively studied, there is limited understanding of how mental fatigue evolves during the season and how it may influence match performance. Existing studies

have investigated mental fatigue in isolated scenarios, but a comprehensive synthesis of its temporal variation and relationship with competitive play is lacking.

This systematic review aims to summarize and critically appraise the current evidence on in-season changes in mental fatigue among soccer players and explore its association with match demands and performance outcomes. The findings will provide insights for practitioners to optimize training load management and mental recovery strategies throughout the season.

**Condition being studied** In-season mental fatigue and its variation among soccer players in relation to match performance.

**METHODS**

**Search strategy** ("mental fatigue" OR "cognitive fatigue" OR "mental exhaustion") AND ("football" OR "soccer") AND ("season" OR "in-season" OR "competitive period").

**Participant or population** Soccer players of any age, gender, or competition level (e.g., amateur, semi-professional, or professional) who were assessed for mental fatigue during the competitive season.

**Intervention** Exposure to cognitive, physical, or match-related demands during the competitive football season that may influence mental fatigue. This includes participation in official matches, training sessions, or assessments conducted during in-season periods.

**Comparator** Comparisons may include different time points during the season (e.g., pre-season vs in-season, early-season vs late-season), pre-match vs post-match measurements, or between athletes with varying levels of match exposure or fatigue.

**Study designs to be included** This review will include observational study designs such as longitudinal studies, cross-sectional studies, cohort studies, and case-control studies that assess mental fatigue in football players during the competitive season. Experimental studies will also be considered if they investigate mental fatigue under in-season conditions. Qualitative studies, reviews, editorials, and conference abstracts will be excluded.

#### Eligibility criteria

Inclusion Criteria:

Studies involving football (soccer) players of any age, gender, or competition level.

Studies conducted during the competitive season (in-season).

Studies that assess or report on mental fatigue using subjective or objective measures.

Observational (e.g., cross-sectional, longitudinal, cohort) or experimental study designs.

Full-text articles published in peer-reviewed journals and available in English.

Exclusion Criteria:

Studies focusing on other sports or off-season periods.

Reviews, editorials, commentaries, protocols, and conference abstracts.

Qualitative studies or studies not reporting mental fatigue as a primary or secondary outcome.

Studies without access to full text.

**Information sources** The following electronic databases will be searched: PubMed, Web of Science, Scopus, SPORTDiscus, and EBSCOhost. Additional sources may include manual searching of reference lists from relevant studies and grey literature (e.g., dissertations or preprints) if

applicable. Only studies published in English will be included.

**Main outcome(s)** The primary outcomes of interest are:

Mental fatigue levels in football players, measured using subjective (e.g., questionnaires, self-reports) or objective (e.g., cognitive performance tests, physiological markers) methods.

Performance outcomes in matches, including variables such as reaction time, decision-making accuracy, or physical performance metrics (e.g., distance covered, sprint speed).

Temporal variation of mental fatigue across the competitive season, including comparisons between different time points (e.g., pre-season, early-season, late-season).

**Quality assessment / Risk of bias analysis** The quality of the included studies will be assessed using appropriate risk of bias tools depending on the study design. For randomized controlled trials (RCTs), the Cochrane Risk of Bias Tool will be used to evaluate potential sources of bias in areas such as randomization, blinding, and attrition. For observational studies, the Newcastle-Ottawa Scale (NOS) will be used to assess the methodological quality of cohort and case-control studies, focusing on selection, comparability, and outcome assessment.

In addition to these tools, we will assess publication bias using funnel plots and Egger's test where applicable.

**Strategy of data synthesis** No.

**Subgroup analysis** No.

**Sensitivity analysis** No.

**Language restriction** English.

**Country(ies) involved** China.

**Keywords** Mental fatigue, soccer, competitive season, performance, recovery, sports psychology.

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