



Training and development in sport officials: A systematic review

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Background

- Sport officials (i.e., referees, umpires, judges) occupy an essential role in overseeing and adjudicating organized sport for millions of participants globally.
- While there is a growing body of research on the characteristics of expert officials, and influences on sport officials' performance (e.g., crowds and injury), substantially less is known about the development of sport officials (Livingston et al., 2020; Pina et al., 2018)
- **Purpose:** Provide a state of the science summary of research on the training and development of sport officials, to identify dominant themes in that literature, and to identify gaps and make recommendations for future research.



Method

- PRISMA systemic review (Moher et al., 2009)
- Inclusion criteria:
 - *Sport official participants*. Only studies where sport officials were the primary participant were included in the review.
 - *Development: Time-based and/or volume-based comparison*. Included studies must have tracked a training or performance variable over time (i.e., change over time)
 - *Empirical studies*
- Search of three databases: Web of Science, SportDiscus, and PsycInfo
 - From January 1990–October 2020
 - Role-specific descriptors included: '*sport official*', '*sport referee*', '*sport judge*', '*sport umpire*'. Development descriptors included: '*training*', '*development*', '*deliberate practice*', '*expertise*', '*elite*', '*career*', and '*talent*'. Combinations of these terminology categories were then employed in our search.
- Grey search: A secondary search of external sources was conducted, such as the reference list of articles found from the database(s) search, references in books, and additional website searches (i.e., Google Scholar).



Results

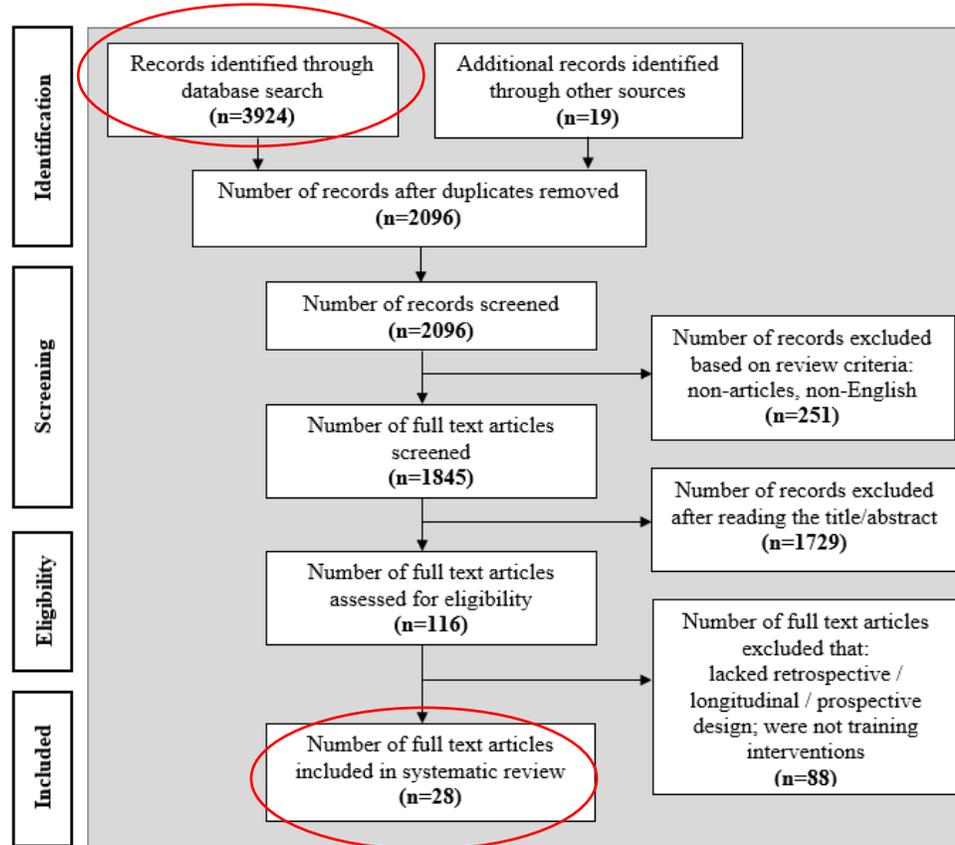


Figure 1: PRISMA flow chart showing number of citation records collected and number of eligible records after the screening process. *PRISMA*: Preferred Reporting ITEMS for SYSTEMATIC Reviews and Meta-Analyses

Results

- 75% of studies were comprised of samples from European countries
 - Notable mentions: Australia (n=3), three from Israel (n=3), and one from the USA (n=1).
- 78% of studies focussed on football/soccer
 - Notable mentions: rugby union (n = 2) and Australian rules football (n = 2).
- Gender of participants was primarily male.
 - Only five studies included female participants, in which females made up 17% of the total samples
- Expertise level
 - **86%** of studies included 'expert' samples (e.g., international and national competition, professional sport league),
 - 50% of studies included 'developing' officials (i.e., semi-professional, metropolitan, regional, club, senior divisional)
 - Only 2 studies included samples of 'Beginner' sport officials (i.e., youth, elementary school, community sport)



Results

Thematic Categories	Number of studies	Summary
Perceptual-cognitive	11	<ul style="list-style-type: none">- Focus on decision making accuracy- Video based testing and training (mean duration 6.5 weeks)- All studies demonstrated statistically significant improvement in perceptual-cognitive skill (ranging from 2% to 18% improvements).
Physical fitness	5	<ul style="list-style-type: none">- Many measures (max heart rate, distance, blood lactate, VO₂max)- Generally positive effects, with some age-related differences
Psychological skills	4	<ul style="list-style-type: none">- Either no clear benefit or lacked explicit measurement criteria to demonstrate efficacy
Practice history and developmental pathway/experiences	8	<ul style="list-style-type: none">- Match experience crucial to expertise development- Low accumulated volume of deliberate practice compared to athletes.- Skill transfer from playing experience(?)



Discussion

- Much more research needed on
 - sports other than football/soccer
 - non-expert officials
 - female officials
- Representativeness of training
 - Does video based training transfer to on-field performance?
- More rigor needed on psychological skills training research
 - Communication skills, self-regulation, self-efficacy.



Thank You!

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