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Differences in Anthropometric and Body Composition Factors of 5 Blind Soccer Players in Response to Playing Position: A Systematic Review

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ADMINISTRATIVE INFORMATION

Support - None.

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

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 18 June 2025 and was last updated on 18 June 2025.

INTRODUCTION

Review question / Objective The aim of this study was to systematically synthesize the existing evidence on differences in anthropometric characteristics and body composition among blind 5-a-side football players according to playing position, and to derive practical recommendations for re-searchers and coaches.

Rationale To date, no systematic review has compiled the available evidence on the differences in anthropometric factors, BC characteristics, and somatotypic profiles of blind 5-a-side players, and little research has been conducted on this sport.

Condition being studied All participants included in the study are visually impaired 5-a-side soccer players. All are in adequate health.

METHODS

Search strategy The 10 studies included in this systematic review included a total sample of 168 ath-letes. To design the search strategy, the P (population), I (intervention), C (comparison), and O (outcomes) strategies were applied, as suggested by the guidelines used for this systematic review [52]. The Boolean operators "AND" and "OR" were used to group the terms. A similar procedure was followed for each database. Before the final search phrase for each database was constructed, possible combinations were tested with the following list of words: ("Athletes of 5-a-side Football" [All fields]) OR ("blind soccer" [All fields]) OR ("FA5 for blind persons" [All fields]) OR ("w5-a-side football team Paralympic" [All fields]) OR ("5-a-side football team" [All fields]) AND ("body composition" OR somatotype OR anthropometry [All fields]). From these terms, the following search equation was con-structed: ("Athletes of 5-a-side

Football" OR "blind soccer" OR "FA5 for blind persons" OR "w5-a-side football team Paralympic" OR "5-a-side football team") AND ("body composition" OR somatotype OR anthropometry).

Participant or population The 10 studies comprising the sample of this systematic review included 168 ath-letes, all of whom were men
Hernández-Beltrán et al. [41] 12 ♂ 28.7±8.8 73.8±10.7 176.8±9.0 23.57 12.55
Lameira Oliveira et al. [40] 63 ♂ 28.0±5.8 (B1) 74.8 170.0 24.9 19.3 80.7** Mes-End
Esatbeyoglu & Kin-İsler [39] 12 ♂ 23.2±3.7 (B1) 79.8±10.9 181±0.08 24.3±2.1 10.53±3.6
Sancio et al. [38] 8 ♂ 26.8±6.5 (B1) 81.8±15.7 170.3±5.02 28.12±6.6 43.63±4.5* Mes-End
Lameira Oliveira et al. [37] 5 ♂ 32.6±8.0 (B1) 70.9±10.5 169±7.7 25.1±5.4 20.4±5.1 39.5±3.5**
Lameira De Oliveira et al. [36] 13 ♂ 27.0±6.5 (B1) 71.7±7.4 172.0±6.1 24.1±1.7 15.9±2.9 43.6±2.5* Mes-End
Lameira De Oliveira et al. [35] 15 ♂ 24±5.6 (B1) 71.7±7.4 172±6.1 24.1±1.7 15.9±2.9 Mes-End
Gorla et al. [34] 23 ♂ 22.5±31 (B1) 64.9-77.9 169-175 22.3-26 10.4-15.9 End-Mes
Durán-Agüero et al. [33] 11 ♂ 26.4±9.8 71.4±18.9 163.6±16.0 25.1 25.8 45.6* Mes
Castelli et al. [32] 6 ♂ 27.3±5.5 (B1) 1.72±0.09 25.6±1.3 15.9±4.54 End.

Intervention The interventions in the studies will be analyzed based on: Study objective, Variables, Instruments, Determination of fat percentage and somatotype, Results, Conclusions of each study.

Comparator Comparative measurements will be made based on: Body composition and anthropometric factors in blind 5-a-Side football players, Somatotype values in response to playing position, Influence of BC on the athletic performance of blind 5-a-side football players.

Study designs to be included Cross-sectional studies, longitudinal studies, randomized clinical trials, non-randomized trials.

Eligibility criteria Two authors searched independently (B.A.B.-P. and J.O.-A.). The purpose was to identify papers that met the criteria (Table 1). After the selected studies were identified, the comma separated value (CSV) file was downloaded, and relevant criteria for study selection were defined (title, keywords, abstract, year, journal, citations received). Documents were screened to remove duplicates. Furthermore, if any documents were found and not captured by the search equation, they were added through external sources. For the selec-tion and inclusion of studies in this study, a series of inclusion and exclusion criteria were established on the basis of the participants, interventions, comparison and outcomes (PICO) strategy (Table 1). Any document that included a comparison between blind and sighted players within the research area was excluded. The inclusion criteria were as follows: i) studies published without language restrictions and ii) original studies. The ex-clusion criteria were as follows: i) systematic reviews, meta-analyses, bibliometric anal-yses, narrative or literary reviews; ii) abstracts, meetings, books, reviews, letters, and edito-rials; iii) articles written without academic peer review; and iv) studies without full access to the original text.

Information sources The following databases were consulted: PubMed (Medline), Scopus, Web of Science, and Science Direct. and SPORTDiscus. Google Scholar and ResearchGate were also searched. These databases were consulted for use in various reviews and were used to search databases and other sources.

Main outcome(s) To our knowledge, this is the first systematic review to analyze BC in blind 5-a-side footballers in general and in response to playing position. The main findings of this study were as follows: 1) the somatotype of blind 5-a-side football players tends toward me-so-endomorphic; 2) there are differences in MM, FM, and BW variables in response to playing position and sporting level; 3) the players present a somatotypic profile with a predominance of the muscular component; 4) different formulas are used in the studies, although the most common are the Siri formula to determine body fat percentage on the basis of body density from other equations, the Jackson & Pollock [57] equation for BD, and the Heath–Carter method for somatotyping [55]; and 5) no significant differences were observed in the absolute values of body mass, BC, and somatotype after 16 weeks of training.

Data management This search string was adapted for the databases and the other methods. The controlled vocabulary search was performed with the keyword search to improve retrieval. Searches were conducted to identify studies without other restrictions regarding publication date, language, or study design. Citation searches were also performed for key included studies, with the goal of tracking other documents. When it was not possible to obtain the full texts of articles from institutional or open access subscriptions, attempts were made to contact the corresponding authors directly through the ResearchGate

platform. Furthermore, if a document was found that did not appear in the search strategy, it was added through external sources.
All the retrieved articles were analyzed for duplicate entries. Two authors independently (B.A.B.-P. and J.O.-A.) reviewed the different searches to determine the terms that yielded the greatest number of documents related to the topic. Any disagreement (5% of the total documents) regarding the final inclusion/exclusion status was resolved through academic discussion, both in the selection and inclusion phases. During the discussion, the two independent authors simultaneously analyzed the articles following the criteria established in the order shown in Table 2. This process was systematized in Excel. The academic debates for the inclusion of the studies took into account the duplicate search by two authors on two different days to review the documents. In particular, the methodology (study design, variables, instruments, determination of fat percentage, and somatotype) was reviewed, as well as the results and main conclusions.

Quality assessment / Risk of bias analysis The methodological quality of the articles included in this review was assessed via the PEDro scale [53]. This scale is based on criteria that allow identification of whether the studies have sufficient internal validity and statistical information to interpret the results (external validity (item 1), internal validity (items 2-9), and statistical information (items 10-11). Each item was classified as yes or no (1 or 0, respectively), depending on whether the criterion was met in the study. The total score considers items 2 to 11; therefore, the maximum score was 8 [32]. Regarding the quality of the evidence, scores < 4 are consid-ered poor quality, scores ranging from 4-5 moderate quality, scores ranging from 6-8 good, and scores ranging from 9-10 excellent [41]. In this review, 100 items (97.5%) were as-sessed by agreement between two reviewers, and the remaining items were assessed ac-cording to the mean of the studies (Table 2). The methodological quality ranged from “moderate to good” since some studies did not present randomization in the selection of the sample, nor did they have a control group. Furthermore, the methodological quality was heterogeneous across all studies. Therefore, the methodological quality was defined by the consensus of the investigators as “moderate”, indicating differences in the method-ological rigor of the included studies [53].

Strategy of data synthesis This search string was adapted for the databases and the other methods. The controlled vocabulary search was performed with the keyword search to improve retrieval. Searches were conducted to identify studies without other restrictions regarding publication date, language, or study design. Citation searches were also performed for key included studies, with the goal of tracking other documents. When it was not possible to obtain the full texts of articles from institutional or open access subscriptions, attempts were made to contact the corresponding authors directly through the ResearchGate platform. Furthermore, if a document was found that did not appear in the search strategy, it was added through external sources.
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Subgroup analysis This search string was adapted for the databases and the other methods. The controlled vocabulary search was performed with the keyword search to improve retrieval. Searches were conducted to identify studies without other restrictions regarding publication date, language, or study design. Citation searches were also performed for key included studies, with the goal of tracking other documents. When it was not possible to obtain the full texts of articles from institutional or open access subscriptions, attempts were made to contact the corresponding authors directly through the ResearchGate platform. Furthermore, if a document was found that did not appear in the search strategy, it was added through external sources.
All the retrieved articles were analyzed for duplicate entries. Two authors independently (B.A.B.-P. and J.O.-A.) reviewed the different searches to determine the terms that yielded the greatest number of documents related to the topic. Any disagreement (5% of the total documents) regarding the final inclusion/exclusion status was resolved through academic discussion, both in the

selection and inclusion phases. During the discussion, the two independent authors simultaneously analyzed the articles following the criteria established in the order shown in Table 2. This process was systematized in Excel. The academic debates for the inclusion of the studies took into account the duplicate search by two authors on two different days to review the documents. In particular, the methodology (study design, variables, instruments, determination of fat percentage, and somatotype) was reviewed, as well as the results and main conclusions.

Sensitivity analysis This search string was adapted for the databases and the other methods. The controlled vocabulary search was performed with the keyword search to improve retrieval. Searches were conducted to identify studies without other restrictions regarding publication date, language, or study design. Citation searches were also performed for key included studies, with the goal of tracking other documents. When it was not possible to obtain the full texts of articles from institutional or open access subscriptions, attempts were made to contact the corresponding authors directly through the ResearchGate platform. Furthermore, if a document was found that did not appear in the search strategy, it was added through external sources.
All the retrieved articles were analyzed for duplicate entries. Two authors independently (B.A.B.-P. and J.O.-A.) reviewed the different searches to determine the terms that yielded the greatest number of documents related to the topic. Any disagreement (5% of the total documents) regarding the final inclusion/exclusion status was resolved through academic discussion, both in the selection and inclusion phases. During the discussion, the two independent authors simultaneously analyzed the articles following the criteria established in the order shown in Table 2. This process was systematized in Excel. The academic debates for the inclusion of the studies took into account the duplicate search by two authors on two different days to review the documents. In particular, the methodology (study design, variables, instruments, determination of fat percentage, and somatotype) was reviewed, as well as the results and main conclusions.

Language restriction Studies published without language restrictions.

Country(ies) involved The country where the study is conducted is Spain. The authors' nationalities are: Colombia, Spain, Chile.

Keywords blind soccer; body composition; anthropometry; somatotype; body weight.

Contributions of each author

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