medical sciences

*Supplementary Materials*

# Chronic Venous Disease and Systemic Vascular Dysfunction: Mechanistic Links and Cardiovascular Associations—A Systematic Review

**María Lourdes del Río-Solá, Iván Alejandro Díaz Rengifo and Emilio Vargas Castrillón**

## File S3 Model assisted workflow and human verification

This file summarizes the tools, source access and human oversight used in the review. The retained task prompts and criteria are reproduced verbatim in the accompanying Annex S3A (prompts S3.1–S3.12). Final search strings are in File S1; eligibility clarifications are in File S2; report-level data and validation records are in File S4.

## 1. Models and source access

Claude Opus 5.5 (Anthropic; claude-opus-5-5) assisted formulation and description of database-specific search strategies, which the researchers reviewed and approved. The exact search-strategy prompt was not retained; the executed strings are provided in File S1. Retention of prompts for other assisted stages does not establish that every stage used this model. Subsequent reconciliation, source checks and drafting used ChatGPT/Codex (GPT-6-based), deterministic scripts and supplied documents; a precise deployment/build identifier was not retained.

Sources comprised exported bibliographic records and abstracts from MEDLINE/PubMed, Embase, Scopus and CENTRAL; PubMed Central; open-access publisher pages; institutional subscriptions accessed by the authors; and author-supplied PDFs. Reports were labelled by the source actually used. Of the 163 included reports, 95 were assessed from full texts and 68 from abstracts. Missing methods or numerical data were not inferred. Supplementary methods for Ge and Levin remained inaccessible.

## 2. Human oversight by stage

*Table S3 Responsibilities and verification*

| Stage | Human oversight and scope | Documentation |
|---|---|---|
| Search and deduplication | Researchers reviewed and approved the assisted database-specific strategies and checked exports/counts. Scripts supported deduplication. | File S1 |
| Title screening | Titles were classified against the retained criteria. A historical claim of a 300-record title-exclusion check with 87.0% agreement could not be independently reproduced because its log was unavailable. | Annex S3A, S3.1–S3.2 |
| Abstract screening and classification | Expanded human validation covered 521 distinct records from 572 initial exclusions. Of these, 432 discordances were resolved by consensus between M.L.D.R.-S. and I.A.D.R.; 89 were concordant exclusions. The other 51 retained their initial disposition without this additional validation. | Annex S3A, S3.3–S3.6 and S3.12; File S4 |

| Stage | Human oversight and scope | Documentation |
|---|---|---|
| Eligibility and principal data | María Lourdes del Río-Solá and Iván Alejandro Díaz Rengifo independently verified all 163 retained reports and their principal extracted data; discrepancies were resolved by consensus. Verification was limited to the available source, including abstracts where no full text was obtained. | Annex S3A, S3.7–S3.9; File S4 |
| Risk of bias and source checking | Item-level documentary checks are distinguished from eligibility/data verification: 265 previously missing pointers across 56 main reports were reconciled and 20 item judgments corrected. Unverifiable supplementary methods remained unclear. | File S2, Table S6; File S4 |
| Map and synthesis tables | Assisted coding and condensation were checked against source-linked records and deterministic counts. The map is descriptive; its membership does not establish systemic dysfunction. Human verification of principal extracted data covered all retained reports. | Annex S3A, S3.10–S3.11; File S4 |

The retained workbooks contain 174 assessments allocated to M.L.D.R.-S., 173 to E.V.C. and 174 to I.A.D.R. The 432 adjudicated records yielded 18 retrieval referrals, 130 map referrals and 284 exclusions. Adding 89 concordant exclusions and the 51 outside expanded validation gives 424 final screening exclusions. The initial 62.7% agreement was reported historically and was not recomputed from an unavailable first-sample log.

## 3. Final decisions and reporting limits

The final independent verification of all 163 included reports was confirmed by the corresponding author on 13 November 2026; it includes the three reports retained after clarification of unreported sampling details. An unnamed puncture vein alone does not exclude an otherwise eligible basal blood comparison with healthy/normal controls. If a required comparator, blood compartment or separable eligible population remains unconfirmed, the report awaits classification rather than being treated as a demonstrated exclusion or retrieval failure. Seventeen reports remain awaiting classification outside the principal synthesis (Files S2 and S4).

Automated consistency checks do not establish source validity and do not substitute for human verification. Verification from an abstract cannot establish unreported methods or data. The complete retained prompts are supplied for reproducibility in Annex S3A; local paths and output instructions there are historical operational details, not additional study procedures.