SO YOU'VE DECIDED TO WRITE A REVIEW PAPER

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WHY WRITE A REVIEW PAPER?

- Articulate your position/opinion on some important issue
  - Review key evidence that supports your position/opinion
  - Acknowledge critiques/weaknesses and reject them
- Career development: summarise/highlight your accomplishments
- Assess current state of the evidence
  - Systematic review
  - Meta-analysis

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WHAT IS A SYSTEMATIC REVIEW?

An observational study of the literature

OBSERVATIONAL STUDY	SYSTEMATIC REVIEW
• Research question	• Research question
• Sample participants	• Sample papers
• Collect data from participants	• Collect data from papers
• Analysis	• (Meta) Analysis

A systematic and replicable analysis of the literature

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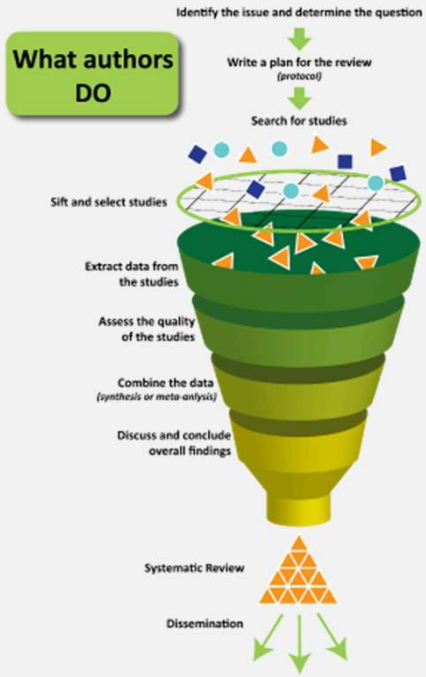
SYSTEMATIC REVIEW: THE STEPS

1. Set research question and define scope: search string
2. Identify studies
3. Screen studies
4. Read, summarize studies
5. Analyse studies
6. Write your review



(https://lib.guides.umd.edu/SR/steps)

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STEP 1: RESEARCH QUESTION

1. Significance: Topic should have high theoretical and/or practical significance
2. Novelty: No recent reviews of this topic
3. Feasibility:
   - Clear and answerable research question(s)
   - Appropriate scope/breadth

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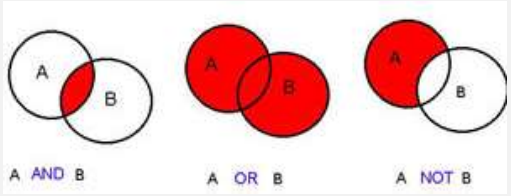
STEP 1: THE SEARCH STRING

- Translate research question into a search
  - Key words
    - Include (nearly) equivalent different terms (synonyms)
    - Truncation and wildcards: e.g., `adolescents` / `adolescence` → `adolescen*` (or `adolscen$` in some databases)
  - Use Boolean operators to combine search terms: `AND`, `OR`, `NOT`



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STEP 1: THE SEARCH STRING

(Anaerobic Exercise OR Resistance Training OR Resistance Exercise OR Strength Training OR Strength Exercise OR Weight Lifting)
AND
(Cognition OR Memory OR Attention OR Executive Function)
AND
(Adults)

(Landrigan et al., in press)

(Semantic OR Concept OR Conceptual) AND
(Taxonomic OR Categor* OR Feature OR Similarity OR Classification) AND
(Thematic OR Scenario OR Schema OR Experience OR (Event NOT ERP))

(Mirman et al., 2017)

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STEP 2: IDENTIFY STUDIES

(Anaerobic Exercise OR Resistance Training OR Resistance Exercise OR Strength Training OR Strength Exercise OR Weight Lifting)
AND
(Cognition OR Memory OR Attention OR Executive Function)
AND
(Adults)

Web of Science | PsycInfo | SPORTDiscus | PubMed

(Landrigan et al., in press)

(Semantic OR Concept OR Conceptual) AND
(Taxonomic OR Categor* OR Feature OR Similarity OR Classification) AND
(Thematic OR Scenario OR Schema OR Experience OR (Event NOT ERP))

PubMed | PsycINFO | Web of Science

(Mirman et al., 2017)

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STEP 2: IDENTIFY STUDIES

- Search multiple databases: they are often complementary
  - PsycInfo: comprehensive coverage of psychology
  - Medline/Pubmed: comprehensive coverage of biomedical journals
  - Web of Science: general science
  - Other domain-specific databases
- Access through MyEd:
  - MyEd → Library: Search and access library resources → Databases A-Z

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STEP 2: IDENTIFY STUDIES

- Download / import results to a reference manager
  - Mendeley: https://www.mendeley.com
  - Zotero: https://www.zotero.org/
  - [Not-free options: RefWorks, EndNote]
- What reference managers can do:
  - Connect article .pdfs to reference entries within your reference library
  - Organise references (tags, notes, sub-folders)
  - Insert references and reference lists into essays/dissertations
  - Automatically format in-text citations and reference lists (check for errors)

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STEP 3: SCREEN STUDIES

Ideally done by two independent reviewers to ensure reliable application of criteria

1. Remove duplicates
2. Inclusion/Exclusion criteria
   - Relevant to topic (exclude false positive hits)
   - Empirical papers reporting new data (not review papers)
   - Participant sample?
   - Language of paper?
   - Etc.

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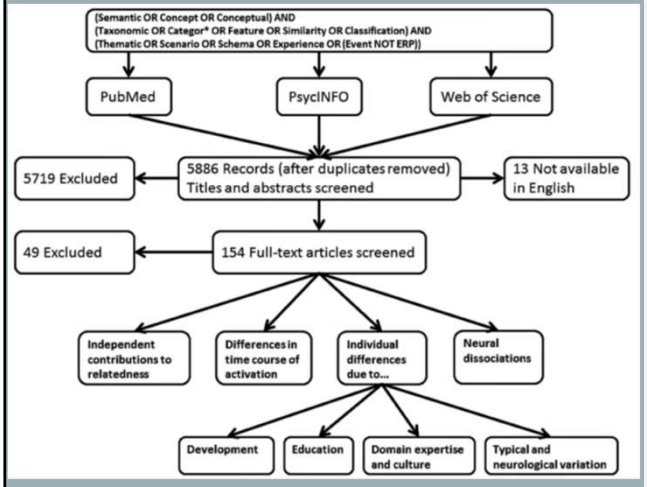
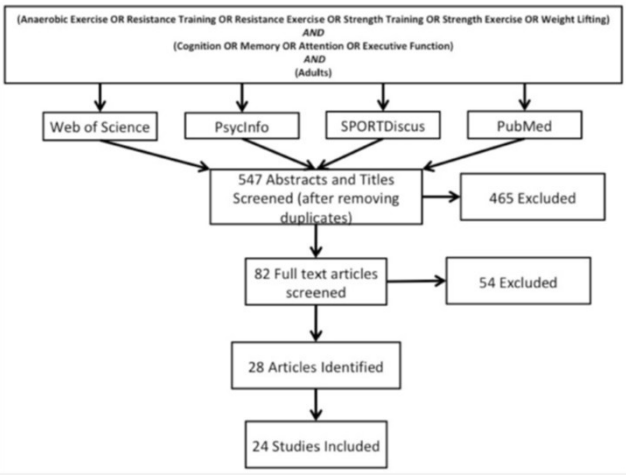


(Mirman et al., 2017)



(Landrigan et al., in press)

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RECORD-KEEPING

- The search results are your data, treat them with the same care and rigour as other kinds of study data
- Some key elements
  - Search string, databases searched, and dates of searches
  - Number of records returned
  - Number of records excluded at each screening stage (duplicates, title/abstract, full-text)
  - Table of excluded studies with exclusion stage/reason

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STEP 4: READ, SUMMARIZE STUDIES

1. Make a table (spreadsheet) of all included studies
   - Reference info
   - Key details: sample size, method (outcome var, manipulation), etc.
   - Sub-topic (for organisation)
   - **Effect size(s)**
2. While reading each: Read and write a 1-page summary
   - Focus on methods and results

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Table 1 Study characteristics

Study	Cognitive health	Mn Age	Gender	Exp N	Cnt N	Duration	Frequency	Control type
Anderson-Hanley et al. (2010)	Healthy	72.1	Mix	16	16	4	2–3 × week	Passive
Ansai and Rebelatto (2015)	Impairment	82.8	Mix	23	23	16	3 × week	Passive
Best et al. (2015)	Healthy	69.4	Female	46	42	52	2 × week	Stretch and balance
Cassilhas et al. (2007) (High)	Healthy	68.4	Male	20	23	24	3 × week	Warm-up and stretch
Cherup et al. (2018)	Healthy	72.2	Mixed	30	7	14	3 × week	Passive
Chupel et al. (2017)	Impairment	83.5	Female	16	17	28	2 inc to 3 × week	Passive
David et al. (2015)	Impairment	59	Mix	20	18	96	2 × week	Stretch and balance
Davis et al. (2013)	Impairment	74.1	Female	28	28	24	2 × week	Stretch and balance
Fallah et al. (2013)	Healthy	69.4	Female	106	49	24	2 × week	Stretch and Balance
Fernandez-Gonzalo et al. (2016)	Impairment	61.2	Mix	12	14	12	2 × week	Passive
Fiatarone Singh et al. (2014)/Mavros et al. (2017)/Suo et al. (2016)	Impairment	70.1	Mix	22	27	72	2 dec to 3 × week	Passive
Fragala et al. (2014)	Healthy	70.64	Mix	13	12	6	2 × week	Passive
Goekint et al. (2010)	Healthy	20.1	Mix	15	8	10	3 × week	Passive
Irandoust and Taheri (2018)	Impairment	54.9	Males	15	15	9	3 × week	Passive
Iuliano et al. (2015) / Iuliano et al. (2017)	Healthy	65.8	Mix	20	20	12	3 × week	Passive
Komulainen et al. (2010)	Healthy	66.5	Mix	220	226	24	2 or 3 × week (individualized)	Passive
Lachman et al. (2006)	Healthy	75.32	Mix	102	108	24	3 × week	Passive
Liu-Ambrose et al. (2012) (twice week)	Healthy	68.9	Female	15	17	84	2 × week	Stretch and balance
Nagamatsu et al. (2013)/ten Brinke et al. (2015)	Impairment	73.9	Female	25	25	24	2 × week	Stretch and balance
Perrig-Chiello et al. (1998)	Healthy	73.2	Mix	23	23	8	1 × week	Passive
Smolarek et al. (2016)	Healthy	65.87	Female	29	8	12	3 × week	Passive
Venturelli et al. (2010)	Impairment	83.3	Female	15	15	12	3 × week	Passive
Yoon et al. (2016) (High)	Impairment	75	Female	14	7	12	2 × week	Stretch and balance
Yoon and Song (2018)	Impairment	73.9	Mixed	20	23	16	3 × week	Stretch and balance

Cognitive health cognitive health of participants, *Mn Age* mean age of participants, *Exp N* number of participants in the experimental group, *Cnt N* number of participants in the control group, *Duration* number of weeks of intervention, *Frequency* frequency of intervention

(Landrigan et al., in press)

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RESOURCES

- Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) : http://prisma-statement.org/PRISMAStatement/
  - Consider registering your systematic review on PROSPERO: https://www.crd.york.ac.uk/prospero/
- Siddaway, A. P., Wood, A. M., & Hedges, L.V. (2019). How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. *Annual Review of Psychology, 70*, 747-770. https://doi.org/10.1146/annurev-psych-010418-102803
- UMD Library Systematic Review Guide: https://lib.guides.umd.edu/SR/steps
- Meta-analysis of fMRI data:
  - BrainMap and (Ginger)ALE: http://brainmap.org/
  - NeuroSynth: https://neurosynth.org/

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