

# Myth-busting search strategies for a public health systematic review.

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# ROAR. LEAP. DARE.



Source: <http://oralfixationshow.com/share-story-jump-off-cliff/>

## This presentation will:

- ✓ Describe the systematic review (SR) – purpose, methods and results
- ✓ Look at SR search strategies and techniques
- ✓ Describe the application of information management methods to a systematic review
- ✓ Look at lessons learned and best practise

## The Systematic Review

### **Title:**

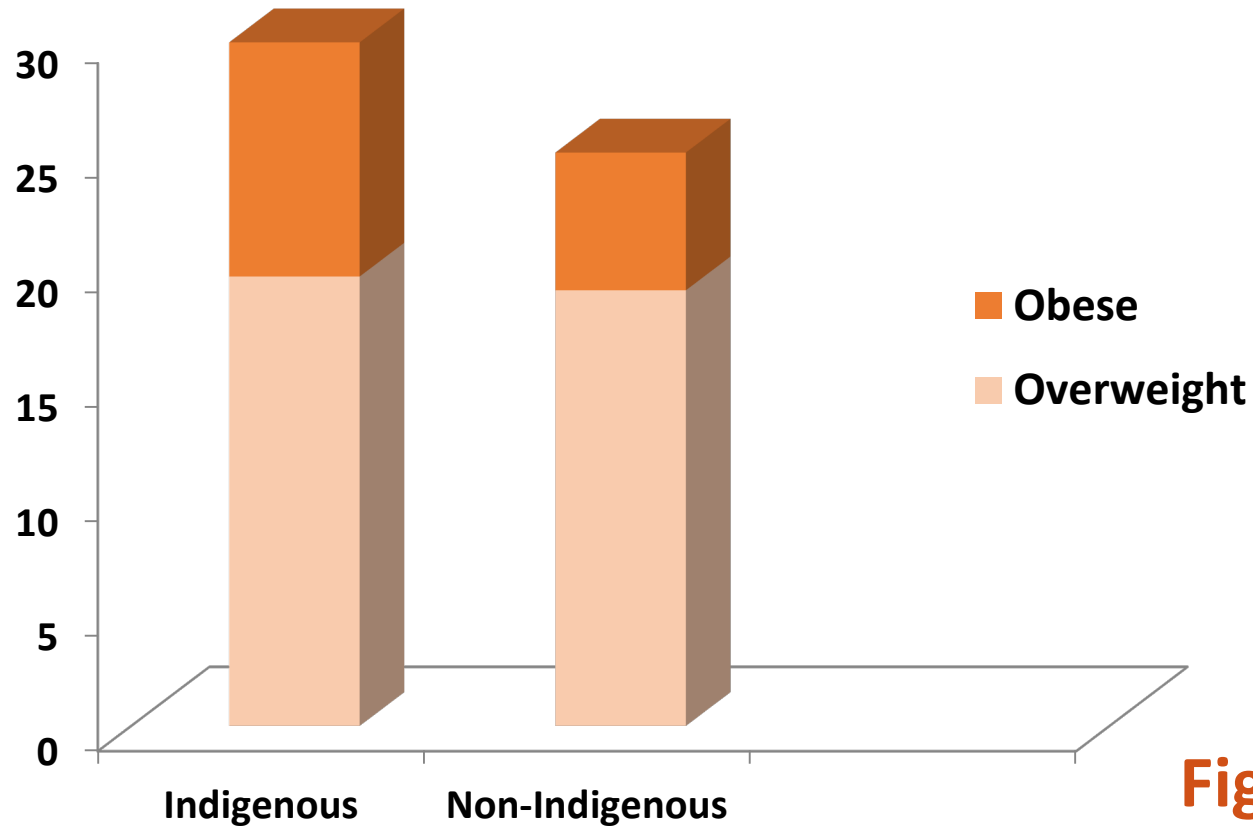
Engaging parents in school-based nutrition education interventions to encourage healthy eating and drinking behaviour of children in low-income populations: A systematic review.

### **Research questions:**

What interventions or prevention programs impact how, and to what extent, parents have been incorporated into child nutrition education interventions conducted in school settings in low-income populations?

Further, how does parental involvement impact intervention effectiveness?

**<sup>1</sup>Prevalence  
in children 2  
to 16 year  
(%)**



**Figure 1: Obesity rates**

**Table 1:** SR Publishers

Publisher	Summary
Cochrane Collaboration	Systematic reviews in healthcare
Campbell Collaboration	Systematic reviews in the fields of crime and justice, education, international development, and social welfare
Joanna Briggs Institute	Systematic reviews of evidence based health practice in nursing, midwifery and allied health

**Table 2:** Inclusion and exclusion criteria

Inclusion	Exclusion
Children aged 5 to 12 years	If >50% children aged over 12 or under 5
Obesity prevention	Obesity treatment
Family or parent involvement	No parent or family involvement
Nutrition education or nutrition promotion	No nutrition component
Combined nutrition and physical activity (PA) (or other intervention combination)	Solely PA interventions
School-based	After school and community settings outside school
Low income, low SES, rural, remote, minority, migrant or ethnic group $\geq 50\%$	High income, high SES, and minority, migrant or ethnic group not specified
Free-lunch program $\geq 50\%$	High income, free-lunch not specified
Randomised controlled trials (RCTs), controlled clinical trials (CCTs) and controlled before-and-after studies (CBAs)	No control group, Thesis, Protocol

# SEARCH: PICO

- |   |   |
|---|---|
| P | Child participants in nutrition prevention programs with a parent component |
| I | Combined parent and child nutrition prevention program/s in school          |
| C | Non-participants in nutrition prevention programs (control group)           |
| O | Consumption of targeted foods   |



**Table 3:** Search concepts (truncation excluded)

Main Concept	Synonyms
School	NONE
Parent	carer OR family OR relative OR kin
Child	adolescent OR teenager OR kid OR youth OR girl OR boy
Obesity	overweight OR weight
Nutrition	diet OR eating OR food OR drink
Education	prevention OR education OR evaluation OR intervention OR program OR strategy OR practice
Engagement	participation OR involvement OR influence OR empowerment OR encouragement OR disempowerment OR disengagement

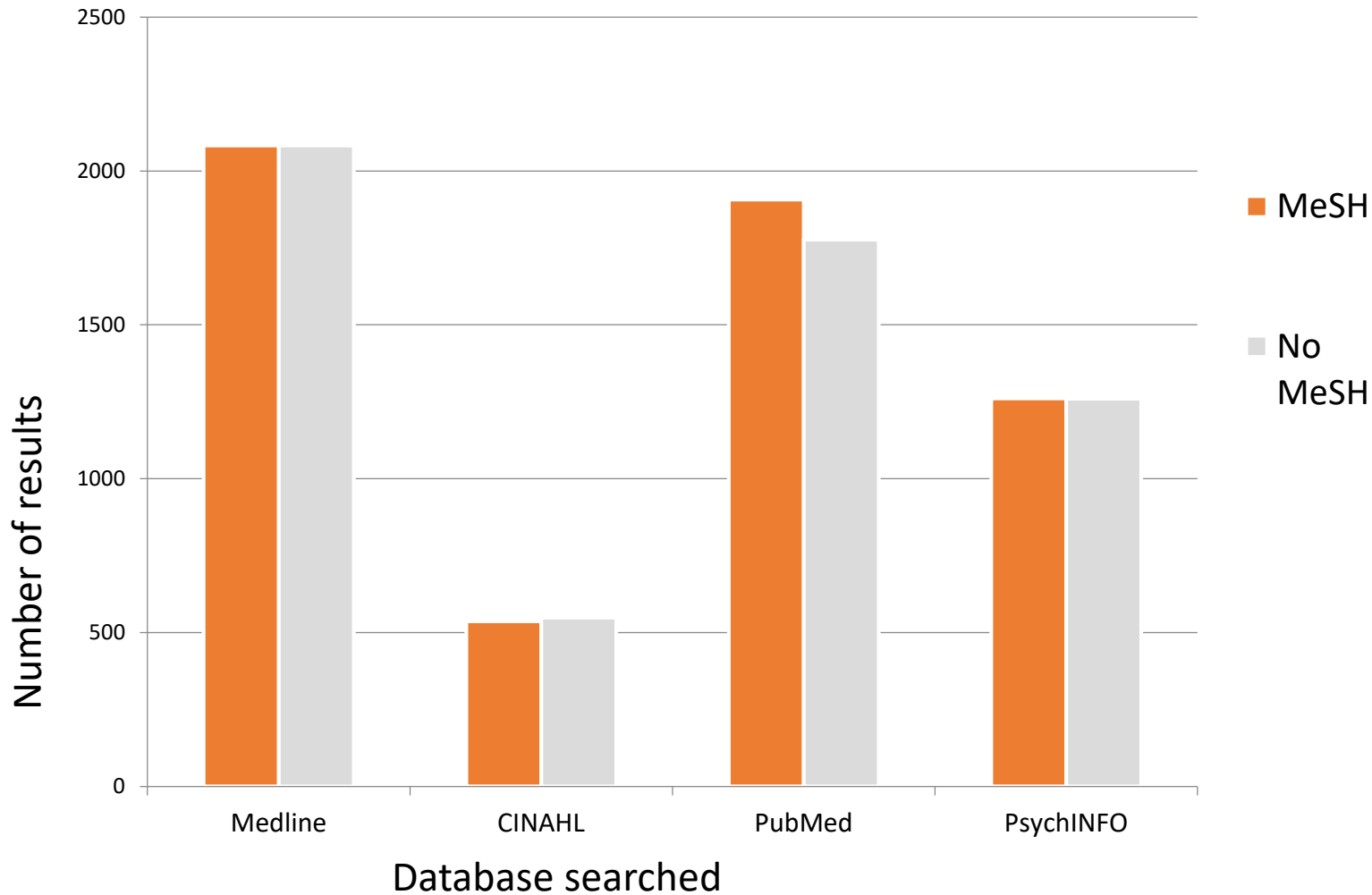
**Table 4:** Databases searched

DATABASE
Medline
PsycINFO
Science Direct
Cochrane Library
PubMed
Eric
SocINDEX
APAIS-Health Informit
CINAHL
A+ Education

**Table 5:** MeSH selection

Search Concept	MeSH
School	MH Schools
Parent	MH Caregiver OR MH Parents
Child	MH Child OR MH Adolescent
Obesity	MH Obesity OR MH Overweight
Nutrition	MH Child Nutrition Sciences
Education	MH Education
Engagement	N/A

# SEARCH: MeSH



Limits: Date range ' \_\_ / \_\_ / \_\_ to 2006 / 10 / 31'

**Figure 2:**  
Search results  
MeSH vs No MeSH

## DEFINITION: HANDSEARCHING

Involves a manual page-by-page examination of the entire contents of a journal issue or conference proceedings to identify all eligible reports of trials.

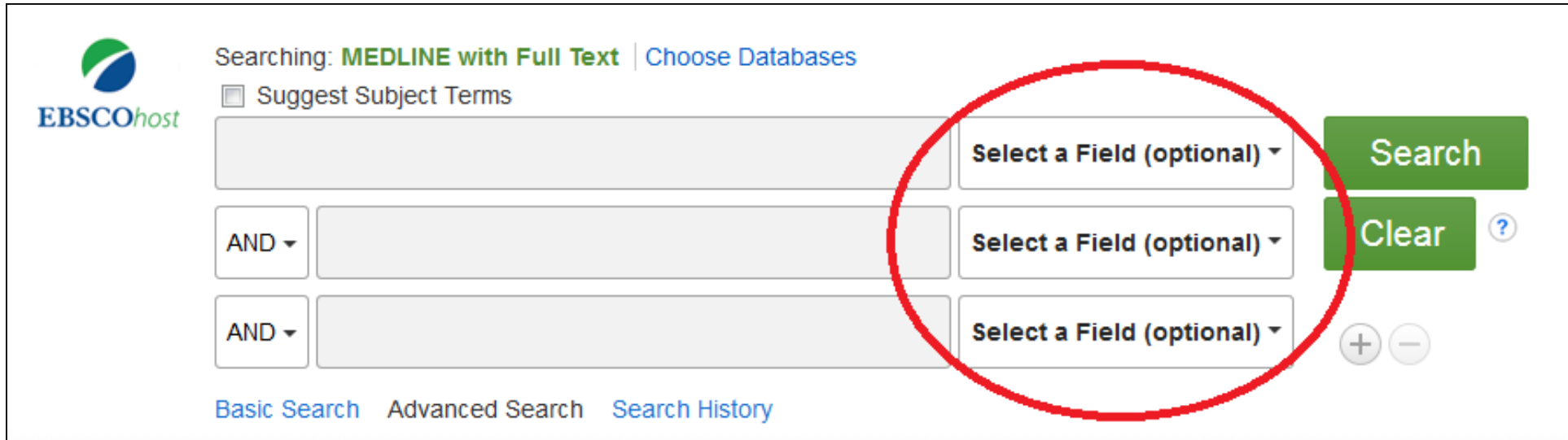
(Source: Cochrane Handbook [Section 6.2.2.1 ])

## DEFINITION: PEARLING

Reference lists of relevant articles are examined for articles that may have been missed by the database searches.

(Source: Cooke et al, 2012)

**Image 1:** EBSCO Search Builder



The screenshot shows the EBSCO Search Builder interface. At the top left is the EBSCOhost logo. The main heading is "Searching: MEDLINE with Full Text | Choose Databases". Below this is a checkbox for "Suggest Subject Terms". The search area consists of three rows. Each row has a text input field, a dropdown menu for field selection, and a search button. The dropdown menus are currently set to "Select a Field (optional)". The search buttons are labeled "Search" and "Clear". A red circle highlights the three dropdown menus. At the bottom, there are links for "Basic Search", "Advanced Search", and "Search History".

**Image 2:** PubMed Search Builder



The screenshot shows the PubMed Search Builder interface. The heading is "Builder". Below this is a search area with two rows. Each row has a text input field, a dropdown menu for field selection, and a search button. The dropdown menus are currently set to "All Fields". The search buttons are labeled "Show index list". A red circle highlights the two dropdown menus.

**Table 6:** Analysis of studies that were found through pearling

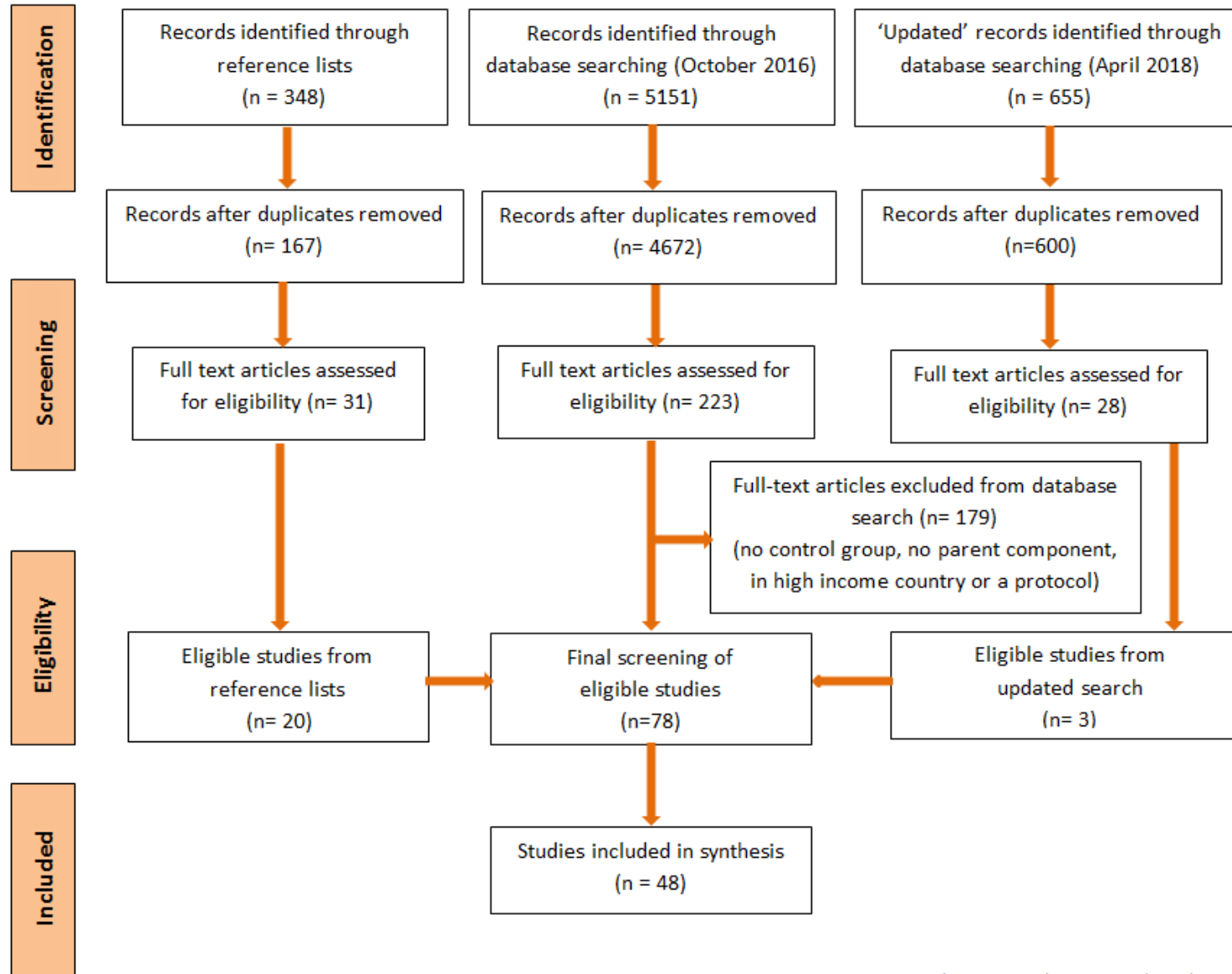
Author/ Year	Article Title	Keyword comparison	Journal title	Indexed in EBSCO databases that were searched
Burgi 2012	Effect of a lifestyle <b>intervention</b> on adiposity and fitness in socially disadvantaged subgroups of <b>preschoolers</b> : A cluster-randomized trial (Ballabeina).	School Intervention	Preventive Medicine	MEDLINE, CINAHL Plus, SocINDEX, PsycINFO
De Coen 2012	Effects of a 2-year healthy <b>eating</b> and physical activity <b>intervention</b> for 3–6-year-olds in communities of high and low socio-economic status: The POP ( <b>Prevention</b> of Overweight among Pre-school and <b>school children</b> ) project.	School Children Eating Prevention Intervention	Public Health Nutrition	MEDLINE, CINAHL Plus

**Table 7:** Searched Grey Literature Sources

Source	Source
AIHW	Eldis
NZResearch.org	CORE
OpenGrey	Mednar



# SEARCH: PRISMA CHART



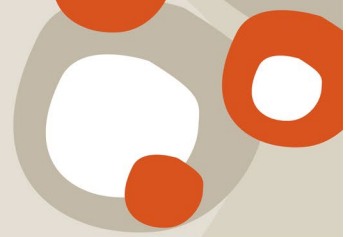
**Figure 3:**  
Database search and screening results

## A comparison of results using the RCT filter in PUBMED

- ✓ Search results without RCT filter = 1175
- ✓ Search results with RCT filter = 148
- ✓ Of 148 results 5 (11%) appeared in my final set of selected papers (55 papers)



**Image 3:** Screenshot of PubMed RCT Filter



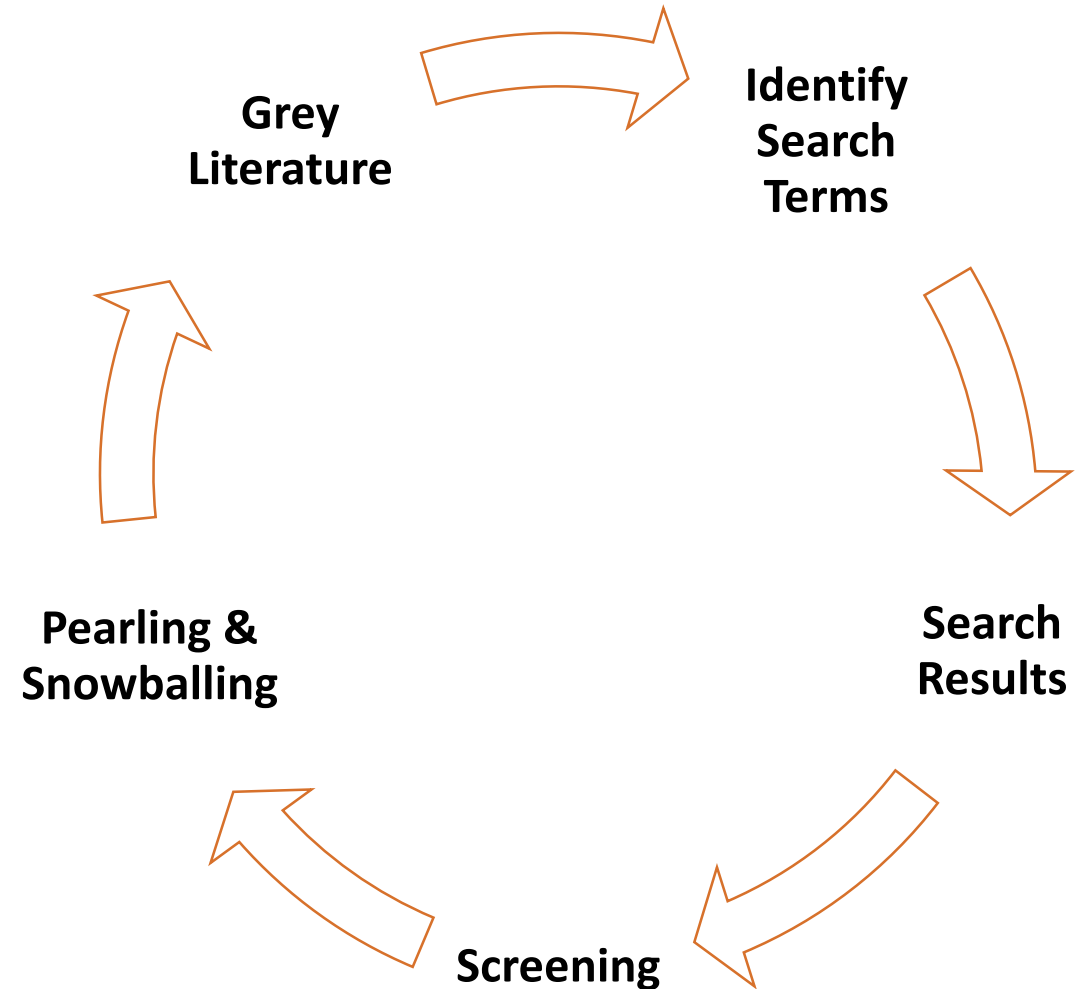
**Table 8:** Data management resources for SRs

Covidence (Cochrane)	<ul style="list-style-type: none"> <li>Import citations</li> <li>Screen titles and abstracts</li> <li>Upload references</li> <li>Screen full text</li> </ul>	<ul style="list-style-type: none"> <li>Create forms</li> <li>Risk of bias</li> <li>Data extraction</li> <li>Export</li> </ul>
Sumari (JBI)	<ul style="list-style-type: none"> <li>Protocol development</li> <li>Team management</li> <li>Study selection</li> <li>Critical appraisal</li> </ul>	<ul style="list-style-type: none"> <li>Data extraction</li> <li>Data synthesis</li> <li>Writing</li> </ul>
NVivo	<ul style="list-style-type: none"> <li>Store and organise data</li> <li>Categorise</li> <li>Analyse</li> </ul>	<ul style="list-style-type: none"> <li>Export</li> <li>Visualise</li> </ul>

**Table 9:** SR results summary

<b>Study Characteristics</b>	<b>Intervention</b>	<b>Primary Outcomes</b>
<ul style="list-style-type: none"><li>• 48 studies (55 papers)</li><li>• 25/48 RCTs</li><li>• 14 countries (28/48 USA)</li><li>• Duration (range): 6 weeks – 8 years</li></ul>	<ul style="list-style-type: none"><li>• 10/48 Diet/Nutrition only</li><li>• 38/48 Diet/Nutrition and Physical Activity</li></ul>	<ul style="list-style-type: none"><li>• 29/48 Anthropometric</li><li>• 18/48 Dietary</li><li>• 1/48 Clinical</li></ul>

- ✓ Searching is subjective: it is not an exact science
- ✓ ‘What is a good number of search results?’
- ✓ To MeSH or not to MeSH?
- ✓ The benefits of pearling and snowballing



**Figure 4:** Search cycle

- Australian Aboriginal and Torres Strait Islander Health Survey: Nutrition Results - Food and Nutrients, 2012-13 <http://www.abs.gov.au/australianhealthsurvey>
- Australian Institute of Health and Welfare (2014). Indigenous health. Retrieved from <http://www.aihw.gov.au/australias-health/2014/indigenous-health/>
- Cooke, A., Smith, D., & Booth, A. (2012). Beyond PICO: the SPIDER tool for qualitative evidence synthesis. *Qual Health Res*, 22(10), 1435-1443. doi:10.1177/1049732312452938
- Greenhalgh et al, 2018. Time to challenge the spurious hierarchy of systematic over narrative reviews? *European Journal of Clinical Investigation* <https://onlinelibrary.wiley.com/doi/full/10.1111/eci.12931>
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- Sayers, A. (2007). Tips and tricks in performing a systematic review. *The British Journal of General Practice*, 57(542), 759.
- Williams, A et al. 2013. Systematic review and meta-analysis of the association between childhood overweight and obesity and primary school diet and physical activity policies. *International Journal of Behavioral Nutrition and Physical Activity* 2013, 10:101, <https://ijbnpa.biomedcentral.com/track/pdf/10.1186/1479-5868-10-101>

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## Questions?



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