

# ***Systematic Literature Searches and Information Retrieval***

## ***A Collection of Teaching Handouts***

### **About These Resources**

These materials were developed to support courses and workshops that teach systematic literature search methodology. They cover essential concepts and practical skills needed to plan and conduct high-quality literature searches for evidence synthesis projects. They were created for a health care context but could be adapted for other research areas.

### **Target Audience**

These handouts are designed for anyone teaching or learning systematic search skills, e.g.:

- Health sciences librarians and information specialists
- Instructors teaching systematic search methodology
- Graduate students learning systematic review methodology

### **Collection Contents**

This collection includes three handouts:

#### **1. Types of Searching in the Systematic Review Process**

Covers different search approaches (lookup, exploratory, and systematic searches), their purposes, and when to use each method in the context of evidence synthesis.

#### **This document: 2. Systematic Database Searching**

Provides detailed guidance on planning and conducting systematic searches in bibliographic databases, including search strategy development, search terms, syntax, and documentation.

#### **3. Supplementary Searching**

Explains supplementary search methods beyond database searching, including citation searching, grey literature searching, and trial register searches.

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## Systematic database searching

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### 1. Databases and platforms

#### • **Important types of databases:**

- Bibliographic databases: Contain only bibliographic information (author, title, source, etc.) and usually abstracts, but no full texts → Search in the full text is not possible!  
⇒ e.g., MEDLINE
- Full-text databases: Contains complete texts of publications  
⇒ e.g., publisher databases (Springer Link, Science Direct, etc.)  
⇒ Adapt search to database type!

#### • **Databases and platforms:**

- Access to databases may be provided through different platforms (i.e., search interfaces, database suppliers).
- Search syntax, searchable fields, update frequency, export functions etc. depend on the platform used.
- Example: MEDLINE is a database and can be accessed via several platforms: PubMed, Ovid, Ebsco

Different syntax for the same query:

- Ovid MEDLINE: *exp randomized controlled trial/ OR randomi?ed.ti,ab,kf.*
- PubMed: *"randomized controlled trial"[Mesh] OR randomi\*ed[tiab]*
- MEDLINE (Ebsco): *(ZT "randomized controlled trial") OR (TI randomi#ed OR AB randomi#ed OR SU randomi#ed)*

#### • **Searchable fields:**

- Database entries are divided into sections (e.g., author name, title of the text, title of the journal, date, abstract field, etc.).
- Free-text searching: Systematic searches most often use title, abstract, and if available, the author-supplied keywords field.
- The selection of specific fields impacts precision and sensitivity (=recall) of the search result: e.g., limiting the search to title-only → lower sensitivity, but higher precision → will not find as many relevant records, but the search result will be smaller.

#### • **Automated search settings:**

Platforms usually have presets that dictate how a search query is interpreted, e.g.:

- Space: PubMed interprets spaces between words as AND: *music therapy* = *music AND therapy* (NOT just the phrase "music therapy"), **but** Ovid Advanced Search interprets spaces as phrase: *music therapy* = "*music therapy*"
  - Automatic assignment of subject headings: E.g., When entering search terms without using field tags, truncation, phrases, PubMed automatic term mapping looks for MeSH terms that match the search terms.
  - Automatic synonym recognition/addition of word variants: E.g., Cochrane Library and Scopus have a preset to search word variants (singular/plural, British/American spelling, adjectives, etc.).
- ⇒ In most platforms, the use of truncation or phrase searching will disable automated pre-sets. E.g., in PubMed, the automatic term mapping is turned off when quotation marks, phrases or field labels are used, e.g. "*music therapy*", *therap\**, *music therapy*[Title/Abstract]

## 2. Types of search terms

### • **Subject headings**

Subject headings/controlled vocabulary are assigned to a record by the database creator: All records on the same topic receive the same subject heading, regardless of the specific terminology used by the author of a given article.

- Subject headings are database-specific, e.g., MEDLINE MeSH terms are not identical to Embase Emtree terms.
- In systematic database searches, subject headings as well as free-text terms (e.g., title, abstract) should be used.
- Most subject heading catalogues are structured as a hierarchy, called "thesaurus" or "tree". Adding sub-terms to a subject heading search is called "term explosion": Some platforms do this automatically; in others you need to choose this option deliberately.
- MeSH = Medical Subject Headings: Controlled vocabulary used in MEDLINE (e.g. PubMed) and the Cochrane Library; structured hierarchically as a thesaurus.

#### Advantages:

- Finding articles on a topic even if the authors used vague terminology.
- Because of the hierarchical structure of a subject heading tree, sub-terms can easily be added to the search.
  - E.g., in PubMed, "neoplasms"[Mesh] also finds:
    - Database entries that use the words cancer, tumor, etc. (i.e., the word "neoplasms" does not appear in the text)
    - Database entries tagged with a sub-term of "neoplasms"[Mesh], e.g. "Leukemia"[Mesh]

#### Disadvantages:

- Automated subject indexing can cause errors: MeSH indexing has been automated since 2022 to ensure that new database entries are indexed as promptly as possible. However, this has lowered the accuracy of MeSH.
- Subject headings for complex topics are not always applied consistently. E.g., a study about prevention of type 2 diabetes in obese people could be tagged as "primary prevention" or "secondary prevention" depending on whether the indexer/algorithm considered "obesity" as a disease in this context.
- Depending on the database, not all records may be subject-indexed: E.g., Some entries in PubMed will never receive MeSH (non-Medline entries) and can only be found via a free-text search.

- Not all bibliographic databases have subject indexing (e.g., Scopus)

- **Free-text/text word terms**

Free-text terms are words that have to appear somewhere in the database entry. For a bibliographic database, the most important sections for free-text searching are: title, abstract, author keywords, journal title.

### 3. Development of systematic search strategies

- **Databases searching as part of a systematic search process:**

Database search strategies are only one part of a full systematic search process. To conduct a full comprehensive systematic search, you will also need one or more additional information sources, e.g.:

- Study Registries
- Reference lists, citation databases (for forward citation tracking and reference tracking)
- Hand search (in selected publications)
- Grey Literature: Web search, Theses/Dissertation databases, Selected Websites, etc.
- Contacting an experts

- **Database selection**

- Systematic search strategies are usually developed for a primary (most important) database, the search strategy is then translated to other databases. For health care topics, the primary database is usually MEDLINE.
- Databases should be searched via platforms that allow bulk export for the entire search result.
- Searchsmart ([https://www.searchsmart.org/?~\(\)](https://www.searchsmart.org/?~())) can be used to find useful databases/platforms

- **Identifying search terms:**

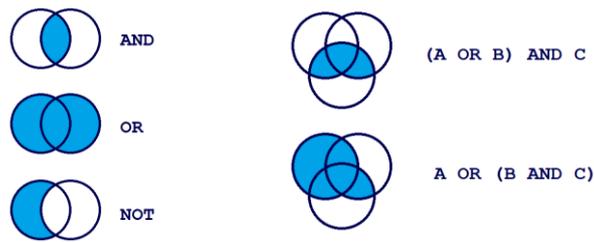
Preliminary/scoping searches, a finalized researched question, and eligibility criteria prerequisites for developing a systematic search strategy. They provide important information that is needed to design a comprehensive search.

Some approaches for term harvesting are:

- From the elements of the question: Which elements are relevant for the search? How can the relevant elements be described (= search terms)
- From already known literature (e.g. textbooks, already known articles, overview texts, etc.): For known eligible articles, concentrate on terms in title, abstract, author keywords, and database subject headings.
- From description of subject headings (scope notes and entry terms): A thesaurus (e.g., MeSH) usually provides additional information about what is covered by a specific subject heading. E.g., the MeSH database lists “entry” terms for each subject heading. Read them and decide if any should be added to the free-text search terms.
- Step-by-step: Start with a limited/focused search strategy → Review the results: Does the result meet the expectations/question? Are there any relevant hits? Can additional/more precise search terms and controlled vocabulary be identified in these relevant documents? → Revise the search strategy until you are confident it will find all relevant results.

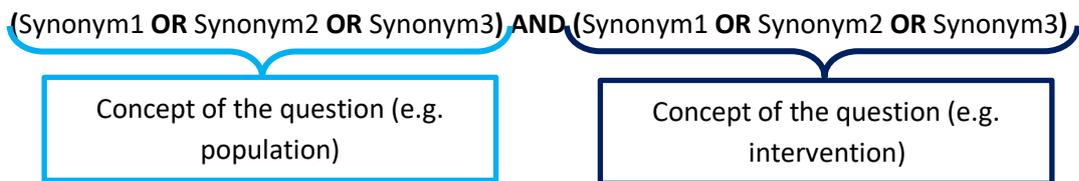
- **Block building/concept blocking → Deal with elements of the question separately**

Block building provides the base structure for systematic search strategies. You need to understand Boolean search logic to use it:



#### Basic steps:

1. Identify which concepts/elements of the research question and/or eligibility criteria are relevant for the search strategy.
2. For each relevant element, identify search terms (free-text and subject headings).
3. Search terms for one concept are combined using OR.
4. Separate concepts are combined using AND.



#### Important considerations:

- Use subject headings and free text whenever possible.
- Combine concepts stepwise-not all at once and check the result:
  - Are the results in line with expectations?
  - Do you need to add more blocks to further narrow down the result?
  - How important/relevant are individual blocks for the question/topic?
- Pay attention to spelling and syntax: Are AND,OR,NOT used correctly? Are the correct rows linked? Are the keywords spelled correctly? → Pay attention to plausible result figures!
- Use formal restrictions (e.g. language, time span, etc.) only at the end of the search process.

#### • **Quality assurance**

The primary search strategy needs to be checked for issues before finalizing the database searches:

- Peer review of the search strategy: A second person checks the planned database search strategy for errors and completeness, e.g.:
  1. Logical Errors: Boolean-operator-use
  2. Error in database/platform-specific syntax: use of field tags, operators
  3. Missing search terms: free-text and subject heading use

⇒ Detailed Peer Review Checklist: PRESS Peer Review Electronic Search Strategies (see bibliography)
- Validation using known studies/test references:
  1. Search for known relevant studies in your primary database and write down the ID numbers (e.g., PMID for Medline). Note: If your primary database only contains a small number of the entire set of known relevant studies, you should reconsider your database selection.
  2. Transform the IDs in a Boolean query (e.g. ID1 or ID2 or ID3 etc.) and check if the known relevant studies are retrieved by the search strategy (by AND-ing the query to the search result).

3. If some relevant studies that are available in the database are not found by the search, find out why. Depending on the reason, you will need to revise your search strategy.

- **Translation of search strategies**

In a systematic search, usually more than one database is searched.

There are some important considerations when translating a search strategy to another database and platform:

- **Coverage:** Is the scope of the database similar?  
E.g., Medline is a large database for published articles on all healthcare topics and study designs, but CENTRAL is a database for RCTs that also contains trials register entries. When translating from Medline CENTRAL, you do not need an RCT-filter but may need to add another filter that removes trials register entries.
- **Available search fields and subject headings:** What contents can be used for searching?  
Subject headings are database specific, while searchable fields usually depend on the platform (e.g., in Ovid Medline you can search the abstract field on its own, but in PubMed you cannot).
- **Syntax:** How is a valid search query formed?  
The way field tags, operators, etc. are written and combined depends on the platform.

**Semi-automated translation:** Polyglot (<https://polyglot.sr-accelerator.com/>) can be used to translate a PubMed or Ovid Medline strategy to another syntax.

**Caveat: This is a mechanical mapping of the syntax!** You still need to consider coverage, manually translate subject headings and verify that all search fields were correctly translated.

#### 4. After the search

- **Document your search process**

Check the reporting standards of the review type before starting the systematic search.

The documentation of a systematic literature search must be **transparent and (for bibliographic databases) reproducible!**

PRISMA 2020 states the minimum information about the search that have to be reported:

- All sources of information (databases and additional search methods!) with the date of the last search
- All search strategies with filters used
- Total number of documents found (pre- and post-deduplication)

PRISMA-S/PRISMA Search is an extension that specifies how each element of the search process should be reported. (see bibliography)

Required information depends on information source/search method:

- Bibliographic databases
  - Methods section: database name, platform name, date, restrictions (e.g. language)
  - Appendix: database, complete search strategy, optional: hits per line
- Other databases and search engines
  - Methods section: database/platform/URL, date, restrictions (e.g., how many Google Scholar hits were screened/exported)
  - Appendix: complete search strategy, exported/screened hits per database/search engine
- Electronic citation searching (e.g., forward/backward citation searching)

- Methods section: Description of the seed references, the type of search (e.g. forward citation searching, backward citation searching, co-citations, similarity searches, etc.), citation index used, date, additional restrictions
- Appendix: list of seed references, exported hits

#### Tips for documenting database search strategies:

- The database search strategy must include the exact syntax and all search terms and filters used. The specification of hits per search line is optional.
- If possible, use export functions or copy and paste to document search strategies. (Typing often leads to errors!)
- The documentation of the final search strategy should only contain lines and search terms that contribute to the final result: Delete superfluous lines (attempts, errors, tests with known references)
- Consider adding an explanation of the search concepts and terms used to the search strategy. This "search narrative" makes it easier for readers and reviewers to understand the search strategy.

#### Example the documentation of a PubMed search strategy

- Must include the exact syntax, search terms and filters used.
- Showing number of results for each line is optional.
- An explanation of the concepts or structure of search strategy is optional
- Search strategies are generally reported in the appendix of a systematic review. The methods section of the review should list all information sources and search dates. The number of search results found, screened, and included are usually part of the results section.

#### PubMed 16 Sept 2021

Search number	Query	Results	Concepts/Structure
1	"Femoral Fractures"[Mesh]	41,593	Population: Subject headings and free text search for hip fractures
2	((intertrochanteric[Title/Abstract] OR intertrochanteric[Title/Abstract] OR proximal[Title/Abstract]) AND (femoral[Title/Abstract] OR femur[Title/Abstract] OR hip[Title/Abstract])) AND (fracture*[Title/Abstract])	10,002	
3	#1 OR #2	46,012	Intervention: Subject headings and free text search for gamma nails or sliding screws
4	("Bone Screws"[Mesh]) OR "Bone Nails"[Mesh] OR "Fracture Fixation, Intramedullary"[Mesh]	41,833	
5	"gamma nail*"[Title/Abstract]	442	
6	"Intramedullary Nail*"[Title/Abstract]	7,534	
7	"Gamma locking nail*"[Title/Abstract]	19	
8	"sliding hip screw*"[Title/Abstract]	406	
9	"compression hip screw*"[Title/Abstract]	128	
10	"dynamic hip screw*"[Title/Abstract]	957	
11	#4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10	44,485	
12	#3 AND #11	9,747	

13	randomized controlled trial[Publication Type] OR random*[Title/Abstract] OR placebo[Title/Abstract]	1,442,860	RCT-Filter: adapted from Clinical Hedges – Therapy - Best balance of sensitivity and specificity <small>(<a href="https://hiruweb.mcmaster.ca/hkr/hedges/medline">https://hiruweb.mcmaster.ca/hkr/hedges/medline</a>)</small>
14	#12 AND #13	665	Final result: Population + Intervention + RCTs

- **Deduplication**

The search results from different information sources (bibliographic databases, supplementary searching) will overlap: Before starting the literature selection process, you need to eliminate duplicates from the search result:

1. Collect all search results in one place: a reference management program (e.g., Endnote) or a systematic review platform (e.g., Covidence)  
Note: Results of supplementary searching (e.g. web search engines, trials registers) may not be available in a format that can be easily imported into a reference management systems or platform. Consider if adding these references manually is worth the effort. (Advantage: all references are in one place; Disadvantage: manually adding references is time consuming)
2. Deduplicate the entire search result either within the program/platform or using a separate deduplication tool.  
Note: No automated deduplication process is completely reliable, some manual checking is always advisable.

- **Finding full texts**

- Use automated "find full text" functions in your reference manager (e.g., Endnote, Zotero)
- Take advantage of the resources provided by your institutional library! →
  - o Institutions usually have access to full texts that are not freely available on the Internet
  - o Interlibrary loan is cheaper than buying texts from the publisher
- Check whether a text is freely available on the Internet (e.g., via Google Scholar; browser extensions such as Unpaywall can help you to find legal free versions of scholarly articles)
- Contact authors to ask for the publication (e.g., via ResearchGate)

## 5. Further Reading

Atkinson, Lauren Z., and Andrea Cipriani. "How to Carry out a Literature Search for a Systematic Review: A Practical Guide." *BJPsych Advances* 24, no. 2 (2018): 74-82. Published electronically 74. doi:10.1192/bja.2017.3, <https://doi.org/10.1192/bja.2017.3>.

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- "Sure Info: Summarized Research in Information Retrieval for Hta." <https://sites.google.com/york.ac.uk/sureinfo/home>.

## 6. Systematic search in PubMed

This section includes screenshots of the interface of PubMed. Bethesda (MD): National Library of Medicine (US), <https://pubmed.ncbi.nlm.nih.gov/>

- For complex search strategies:

**Advanced Search Builder:** <https://PubMed.ncbi.nlm.nih.gov/advanced/>  
PubMed Advanced Search Builder

The screenshot shows the PubMed Advanced Search Builder interface. Annotations include:

- 1. Select Field tag:** Points to the dropdown menu showing "Date - Publication".
- 2. Add to Query (select AND/OR/NOT if necessary):** Points to the "ADD" button.
- 3. Add to history:** Points to the "Add to History" button.
- Line number (to link):** Points to the "#1" in the search history table.
- Save search strategy (as CSV):** Points to the "Download" button.

The interface includes a query box with the text "Enter / edit your search query here" and a table for "History and Search Details":

Search	Actions	Details	Query	Results	Time
#1	...	>	Search: "music therap*" [Title/Abstract]	2,471	05:07:50

**MeSH Database:** <https://www.ncbi.nlm.nih.gov/mesh/>

The screenshot shows the MeSH Database interface for "Music Therapy". Annotations include:

- 1. Add to Builder (choose AND/OR/NOT if necessary):** Points to the "Add to search builder" button.
- 2. Perform a search for the MeSH in PubMed:** Points to the "Search PubMed" button.

The interface includes a "Send to:" dropdown menu and a "PubMed Search Builder" window.

- **Syntax**

**Case sensitive:** PubMed is not case-sensitive (= upper or lower case letters are treated the same)

**Truncation/Wildcard: \***

- Substitutes for 0 or more characters.
- Can be used at the end of the word and within the word.
- Terms must begin with at least 4 characters before the first wildcard: colo\*
- Multiple wildcards can be used in the same term: organi\*ation\*
- Can be combined with phrase searching: "colo\* cancer\*"
- Cannot be combined with proximity searching (see below)

**Phrases:** PubMed has multiple options for phrase searching:

- Enclose the phrase in double quotes: "kidney allograft"
- Use a field tag: kidney allograft[tiab]
- Use a hyphen: kidney-allograft

Note: PubMed uses a phrase index to provide phrase searching: If the phrase you searched is not included in the phrase index, the query may be processed in unexpected ways.

**Important field tags:**

- Title [TI] or [Title] → "light therapy"[ti]
- Title/Abstract [TIAB] or [Title/Abstract] → "light therapy" [tiab]
- ⇒ Space between term and field tag is optional, field tags are not case sensitive
- ⇒ When using field tags (except [all]), word sequences are treated as phrases → *light therapy*[tiab] = "Light Therapy" [tiab]
- ⇒ Title/Abstract also includes author keywords
- ⇒ Field tags Overview: <https://PubMed.ncbi.nlm.nih.gov/help/#search-tags>

**Tags: Medical Subject Headings (Mesh):**

- MeSH Terms [MH] or [Mesh] → "Phototherapy"[Mesh]
  - ⇒ Automatic term explosion: Sub-terms are automatically included
- [Mesh:NoExp] or [mh:noexp] → sub-terms are excluded
- MeSH Subheadings [SH] → *toxicity* [sh] = "floating" subheading, not tied to a specific MeSH term
- MeSH Major Topic [MAJR] → *Phototherapy*[majr] = MeSH term marked as the main topic of the article

**Proximity Searching**

- "search terms"[field:~N] → "light therapy"[tiab:~2] finds "light therapy" but also "light-based therapy" and "therapy using near-infrared light"
- ⇒ Usable fields: Title, Title/Abstract, Affiliation
- ⇒ Word order does not matter → "light therapy"[tiab:~2] = "therapy light"[tiab:~2]
- ⇒ N = maximum number of words between the two search terms

⇒ Cannot be combined with truncation or parentheses!

**Subset [SB]** → search filters for topics, database areas, publication types

- e.g., systematic[sb] (=systematic review filter), medline[sb] (records with completed MeSH-indexing)

⇒ <https://pubmed.ncbi.nlm.nih.gov/help/#systematic-reviews>

⇒ <https://PubMed.ncbi.nlm.nih.gov/help/#citation-status-subsets>

- **After the search**

**Export search strategy:** History and Search Details → Download → Download CSV → convert to table in Excel (or similar) → add date and database name

⇒ Optional: delete unnecessary columns, change row order

⇒ **Instructions** How to View, Open, and Edit a .CSV on Windows or Mac:

<https://www.wikihow.com/Open-CSV-Files>

**Export the entire search result:** Results screen → “Send to” → “Citation Manager” → Option: Import “All results” → “Create file” → Import into reference management program (EndNote, Citavi, Zotero, Mendeley, etc.)

Save	Email	Send to	Sort by:	Best match
------	-------	---------	----------	------------

Create a file for external citation management software

Selection:

Create file	Cancel
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## 7. Systematic search in Ovid Medline

This section includes screenshots of the interface of Ovid MEDLINE. Platform: OvidSP, Wolters Kluwer N.V. Publisher: U.S. National Library of Medicine

**Important:** Depending on your institution's settings, searches will be lost after an inactive period (e.g., 30 minutes). To avoid losing your in-progress search strategy, create an account and save the search strategy regularly!

- **For complex search strategies: Advanced search and Search Fields**

Basic Search Find Citation Search Tools **Search Fields** **Advanced Search** Multi-Field Search

1 resource selected Hide Change

📄 Ovid MEDLINE(R) ALL 1946 to October 18, 2024

Keyword
  Author
  Title
  Journal

Enter keyword or phrase (\* or \$ for truncation)

Include Multimedia
  Map Term to Subject Heading

Search Term Finder ↗

- enter search term without field tags to find MeSH terms
- enter search terms with field tags for free-text searching

- **MeSH searching**

Keyword
  Author
  Title
  Journal

insomnia

Include Multimedia
  Map Term to Subject Heading

Search Term Finder ↗

→ Search term without field tag + “map term to subject heading”-option

**Your term mapped to the following Subject Headings:**

Click on a subject heading to view more general and more specific terms within the tree.  
See term mapped to thesaurus term

Include All Subheadings

Combine with: OR Continue

Select	Subject Heading	Explode	Focus	Scope
<input checked="" type="checkbox"/>	"Sleep Initiation and Maintenance Disorders"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	insomnia.mp. search as Keyword	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. optional: select correct operator when selection more than 1 Mesh term

2. Check the Mesh hierarchy for the term

1. Check Scope for description of the Mesh terms and entry terms

4. Select appropriate MeSH term with or without terms lower in the hierarchy (=explode)

Subheadings for: **exp Sleep Initiation and Maintenance Disorders**

Combine with:

OR

Continue

Run the search in Medline

Include All Subheadings  
or choose one or more of these subheadings

- /bl - Blood
- /ec - Economics
- /me - Metabolism
- /rt - Radiotherapy
- /cf - Cerebrospinal Fluid
- /em - Embryology
- /mi - Microbiology
- /rh - Rehabilitation
- /ci - Chemically Induced
- /en - Enzymology
- /mo - Mortality
- /su - Surgery

Note: Subheadings are optional!

If you want to include all instances of the MeSH term (i.e., with and without subheadings) do not click on anything and select "continue".

The search has been conducted in Medline:

Search History (1) View Saved

#	Searches	Results	Type	Actions	Annotations
1	exp "Sleep Initiation and Maintenance Disorders"/	19446	Advanced	Display Results More	

Save Remove Combine with: AND OR

- **Free-text searching**

All free-text searches need to specify the fields used. You can either type them manually (see section syntax) or select them from the search fields tab or the multi-field search.

Option 1: Manually enter field tags in advanced search:

Basic Search Find Citation Search Tools Search Fields **Advanced Search** Multi-Field Search

1 resource selected Hide Change

Ovid MEDLINE(R) ALL 1946 to October 18, 2024

Keyword  Author  Title  Journal

(insomnia? or sleep initiation or sleep disorder).ti,ab,kf

Search

Option 2: select field tags in the search fields tab

Basic Search Find Citation Search Tools **Search Fields** Advanced Search Multi-Field Search

1 resource selected Hide Change

Ovid MEDLINE(R) ALL 1946 to October 18, 2024

(insomnia? or sleep initiation or sleep disorder\*)

Search

My Fields All Fields Clear Selected

- af All Fields
- ab: Abstract**
- at: Abstract Label
- my: Anatomy Supplier Concept
- mx: Anatomy Supplementary Concept Word
- id: Article Identifier
- ax: Author Last Name
- ai: Author NameID
- au: Authors
- fa: Authors Full Name
- bd: Beginning Date
- bk: Book Accession
- ba: Book Authors
- bf: Book Authors Full Name
- be: Book Edition
- br: Book Editors

### Option 3: Select field tags in the Multi-field search

Basic Search Find Citation Search Tools Search Fields Advanced Search **Multi-Field Search**

1 resource selected Hide Change

Ovid MEDLINE(R) ALL 1946 to October 18, 2024

Field	Term	Operator	
Title	(insomnia? or sleep initiation or sleep disorder*)	OR	
Abstract	(insomnia? or sleep initiation or sleep disorder*)	OR	Remove
Keyword Heading Work	(insomnia? or sleep initiation or sleep disorder*)	AND	Remove

Note: if you search for in more than 1 field using this option, you have to select the correct Boolean operator!

New queries are added to the search history:

Search History (3) [View Saved](#)

#	Searches	Results	Type	Actions	Annotations
1	exp "Sleep Initiation and Maintenance Disorders"/	19446	Advanced	<a href="#">Display Results</a> <a href="#">More</a>	<a href="#">🗨</a>
2	(insomnia? or sleep initiation or sleep disorder*).ti. or (insomnia? or sleep initiation or sleep disorder*).ab. or (insomnia? or sleep initiation or sleep disorder*).kf.	58956	Advanced	<a href="#">Display Results</a> <a href="#">More</a>	<a href="#">🗨</a>
3	(insomnia? or sleep initiation or sleep disorder*).ti,ab,kf.	58956	Advanced	<a href="#">Display Results</a> <a href="#">More</a>	<a href="#">🗨</a>

### Combining search lines

Option 1: Selecting lines and using the AND/OR buttons

# ▲ Searches R

<input checked="" type="checkbox"/>	1	exp "Sleep Initiation and Maintenance Disorders"/
<input type="checkbox"/>	2	(insomnia? or sleep initiation or sleep disorder*).ti. or (insomnia? or sleep initiation or sleep disorder*).ab. or (insomnia? or sleep initiation or sleep disorder*).kf.
<input checked="" type="checkbox"/>	3	(insomnia? or sleep initiation or sleep disorder*).ti,ab,kf.

Combine with:

Option 2: Manually entering line numbers (also works with NOT)

Basic Search Find Citation Search Tools Search Fields **Advanced Search** Multi-Field Search

1 resource selected Hide Change

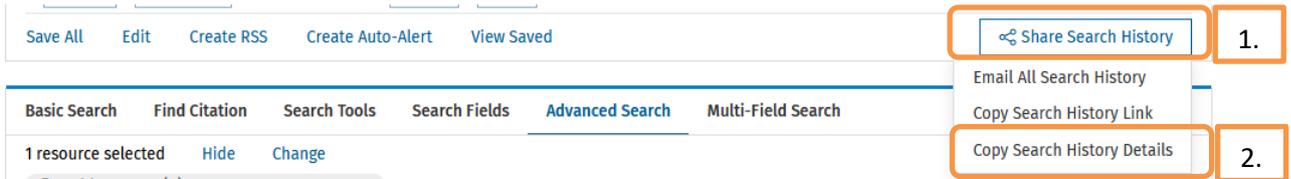
Ovid MEDLINE(R) ALL 1946 to October 18, 2024

Keyword
  Author
  Title
  Journal

1 or 2 or 3

Note: to combine consecutive lines with OR, you can use this syntax: *or/1-3*

- **Exporting the search strategy**



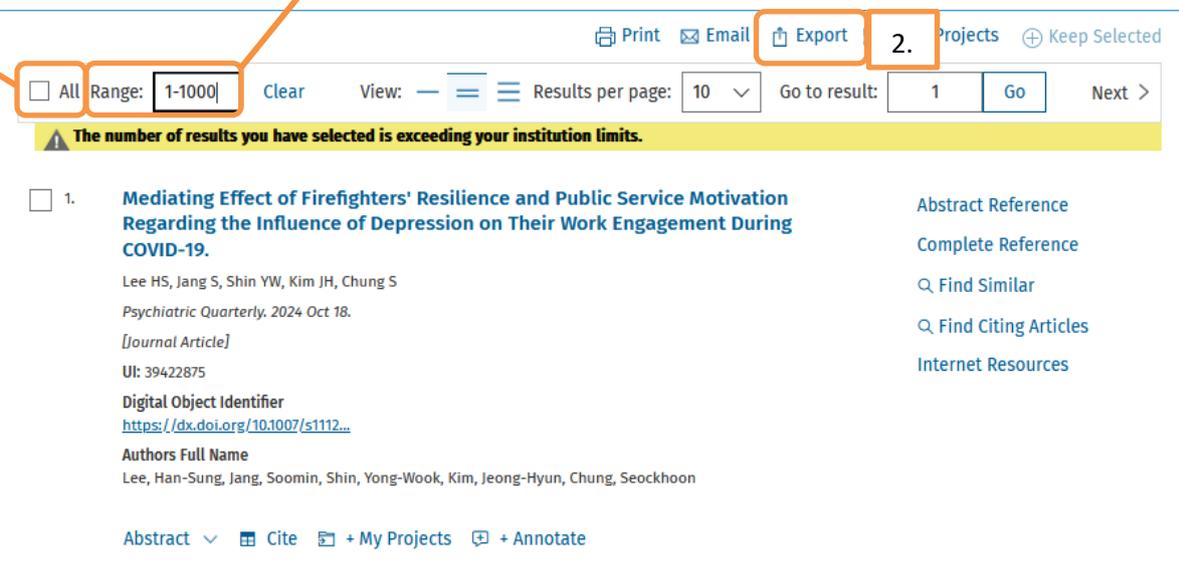
- "Copy search history details" will create a table with the complete search history that can be imported into Word, Excel etc.
- "Copy search history link" creates an executable URL that can be shared with anyone who has access to Ovid Medline

- **Exporting search results**

Note: Depending on your institution, you may only be able to export a set number of results at once. In this case, you will need split a large search result into several export files

1a: up to 1000 hits

1b: More than 1000 hits: export in tranches of 1000, e.g. 1-1000, 1001-2000, etc



**Export Citation(s)**

1000 Selected: 1-1000

Default Custom

Format

EndNote

Fields

Complete Reference

Includes

Link to External Resolver

URL

3. Select Format (usually Endnote or RIS) and Fields ("complete reference" to include all information that is necessary for abstract screening)

- **Syntax**

**Upper/lower case:** Everything you enter will be transformed into lower case

**Truncation and wildcards:**

- Placeholder for 0-∞ letters: \* or : or \$  
e.g. *varic\** finds varices, variceal, varicella.
- Placeholder for 0 or 1 additional letters: ?  
e.g. *h?emorrhage* finds haemorrhage and hemorrhage.
- Placeholder for exactly 1 letter: #  
e.g. *wom#n* finds woman and women

All placeholders can be used within a word or at the end of a word (=right truncation).

Not possible: left truncation ~~\*therapy~~

**Phrases:** words separated by a blank space will be interpreted as phrase.

e.g., *music therapy.ti.* = the phrase "music therapy" has to appear in the title field

Exception: Basic search

**Important free-text fields:**

- Title: .ti. → *light therapy.ti.*
- Title/Abstract: .ti,ab. or .tw. → *light therapy.ti,ab.*
- Author keywords (≠ Mesh): .kf. → *light therapy.kf.*

⇒ Field tags can be freely combined, e.g. ti,ab,kf.

⇒ If no field tag is specified, .mp. is used. This searches the following fields: "title, abstract, original title, abstract, name of substance word, subject heading word, protocol supplementary concept, rare disease supplementary concept, unique identifier"

⇒ List of all field tags: <https://ospguides.ovid.com/OSPguides/medline.htm#search>

**Controlled vocabulary/MeSH**

- Selection: "Advanced Search" + "Map Term to Subject Heading" or "Term Finder"
- Term explosion (=inclusion of lower-hierarchy terms) must be selected manually
- Subheadings can be searched separately (floating subheadings)

Examples:

- *exp Mouthwashes/* = "exploded" term, includes lower hierarchy MeSH-terms
- *Mouthwashes/* = searches only this MeSH term
- *drug therapy.fs.* or *dt.fs.* = floating subheading without a specific MeSH
- *Migraine Disorders/dt* = Mesh with specific subheading
- Publication Types are a specific type of controlled vocabulary: .pt. or /  
e.g. *randomized controlled trial.pt.* = *randomized controlled trial/*

**Operators**

- **Boolean operators:** and, or not
- **Proximity Operators:** *adjn*, *adj* (can be combined with truncation, Boolean operators and any free-text search fields)
  - **Search terms in any order within n words:** *adjn*.

- e.g. *varic\* adj5 bleed\** finds variceal bleeds, bleeding of esophageal varices etc.
  - **Specific order of terms: *adj***  
e.g. *(brain or head) adj trauma\** finds brain trauma/s, head trauma/s, **but not** traumatic brain injury (term1 appears before term2 and next to each other)
  - But: *(brain or head) adj1 trauma\** finds brain trauma/s, head trauma/s **and** traumatic brain injury
- **Frequency Operators: *freq=n***  
This operator can be used to set a minimum number of times a term has to appear in one field to be found by the search.  
e.g. *methods.ab./freq=3* → The word „methods“ has to appear at least 3 times in each abstract retrieved by the search.