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# **Basics in literature searching: PubMed & other resources**

**Dr. Thomas Fürst**

Dr. Hannah Ewald

PD Dr. Christian Appenzeller-Herzog

University Library Medicine, AS 2023

# Course attendance certificate for medical students

- Download course attendance certificate on medbas
- Fill in yourself and send to Faculty (no input from us needed)
- **Now in Zoom:**
  - Logged in as guest? Please log in again with your (stud.)unibas.ch account and correct full name
  - We can only download list of participants with Unibas account
  - Checks/Control based on this list of participants




# Overview

Getting started...

Documentation

Aims

Research question (with exercises) 

Resources – where do I find what?

Boolean operators

PubMed: free-text searching (with interactive live demonstrations)

Side note Google Scholar

Precision and sensitivity 

Critical appraisal

Take home messages

Appendix



# Getting started...

- You have an idea or a rough topic? Start with a non-specific search to get acquainted with your topic, for example on Google or on clinical information systems such as UpToDate or AMBOSS
- Refine your question continuously
- Search for (systematic) reviews (see Appendix).
  - Is the topic already covered or even relevant? What search strategies are used in topic-related reviews? Which terms are used by pertinent articles in the title or abstract?
- Build up a database search and adjust it continuously (slides follow)
- Document it!



Jakeandlindsay; <https://flic.kr/p/9qcnGe>

# Documentation

Ewald H, Appenzeller, C: First draft for <https://covid-evidence.org/>

## What to document?

- Where did you search
- Search terms, number of hits
- Date

## How? For example

- In Word, Excel or the like: copy/paste your search
- Directly in the search interface: account needed (see appendix)

## Further documentation: while screening the hits:

- Note thoughts, associations or ideas
- Author/Title/Year, what is it about, for what can I use it
- Here in addition to Word or Excel possibly also Endnote etc.

NEW PubMed

Suche 1 >> 858 Hits bzw. 733 mit Zeitfilter (orange); 12.3.2020

"severe acute respiratory syndrome coronavirus 2" [Supplementary Concept] OR "COVID-19" [Supplementary Concept] OR (wuhan[tiab] AND coronavirus[tiab]) OR (wuhan[tiab] AND pneumonia virus[tiab]) OR COVID19[tiab] OR COVID-19[tiab] OR coronavirus 2019[tiab] OR SARS-CoV-2[tiab] OR SARS2[tiab] OR SARS-2[tiab] OR "severe acute respiratory syndrome 2"[tiab] OR 2019-nCoV[tiab] OR (novel coronavirus[tiab] AND 2019[tiab]) NOT (animals[mesh] NOT humans[mesh]) AND ("2019/12/01"[EDAT] : "3000/12/31"[EDAT])

Suche 2 >> 805 Hits; wie 1, aber sensitiver (s. orange)

corona[ti] OR covid\*[ti] OR sars[ti] OR severe acute r  
acute respiratory syndrome coronavirus 2" [Supple  
Concept] OR (wuhan[tiab] AND coronavirus[tiab]) OR  
COVID19[tiab] OR COVID-19[tiab] OR coronavirus 20  
SARS-2[tiab] OR "severe acute respiratory syndrome  
coronavirus[tiab] AND 2019[tiab]) NOT (animals[me  
("2019/12/01"[EDAT] : "3000/12/31"[EDAT])

History and Search Details

Search	Actions	Details	Query
#3	⋮	Add query	ia
#2	⋮	Delete	ia
#1	⋮	Save to MyNCBI	ia

# Documentation: reference management software



You can find all courses on all these softwares on the University Medical Library website:  
<https://ub.unibas.ch/en/locations/university-medical-library/>



# Aims:

## Where do you want to go? – What will you learn today?

	Daily hospital routine	Literature search, master thesis	Systematic Review
Requirements	Fast, find specific answers	extensive, well built/solid background research	Reproducible, systematic and sensitive search
Ex. sources	<ul style="list-style-type: none"> <li>– UpToDate</li> <li>– PubMed Clinical Queries</li> </ul>	<ul style="list-style-type: none"> <li>– Google Scholar</li> <li>– PubMed/Embase</li> <li>– Web of Science/Scopus</li> </ul>	<ul style="list-style-type: none"> <li>– PubMed/Embase/Cochrane Library</li> <li>– Web of Science/Scopus</li> <li>– Grey Literature</li> <li>– Supplemental search techniques</li> </ul>

Ex. search input PubMed

Heart failure  
Spironolactone  
Mortality

Heart failure AND  
Spironolactone AND  
(Mortality OR Death)

**or more advanced**

(Heart failure[tiab] OR Cardiac Failure[tiab] OR "Heart Failure"[Mesh]) AND (Spironolactone[tiab] OR Aldactone[tiab] OR "Spironolactone"[Mesh]) AND (mortality[tiab] OR death[tiab] OR died[tiab] OR "Mortality"[Mesh])

(Heart failure[tiab] OR Cardiac Failure[tiab] OR Myocardial Failure[tiab] OR Heart Decompensation[tiab] OR "Heart Failure"[Mesh]) AND (Spironolactone[tiab] OR Aldactone[tiab] OR "Spironolactone"[Mesh]) AND (death[tiab] OR died[tiab] OR mortal\* [tiab] OR fatal\*[tiab] OR dyin\*[tiab] OR mortal\*[tiab] OR fatal\*[tiab] OR die\*[tiab]) AND (systematic[sp] OR (randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR placebo[tiab] OR "clinical trials as topic"[MeSH Terms:noexp] OR randomly[tiab] OR trial[ti] NOT ("animals"[MeSH Terms] NOT "humans"[MeSH Terms])))

Today's topic

Advanced course topic

Let information specialists advise you

# Research question: clinical vs. scientific question

## Clinical question for medical doctor

Detailed anamnesis directly relevant to the identified problem (i.e. your individual patient and his/her problem):

*Treatment plan for Ms Müller, 88 years, widowed, living in her own house outside the village, mentally very fit, diabetic, tear of posterior horn inner meniscus right knee; patient wants to be able to garden again and sing in the local church's choir with weekly gatherings in the village center*

In evidence-based medicine, an answerable, precisely structured question is essential to facilitate the **search for an answer**.

## Scientific question for clinical research/epidemiologists

Detailed anamnesis not directly applicable (i.e. perspective not directly on an individual patient, but a study population with certain “similar” characteristics):

*Arthroscopic partial meniscus resection vs. physiotherapy for elderly with meniscus tear; pain ↓, independent mobility ↑, (quality of life (QoL) ↑) ...*



# Research question: precise formulation, for instance with PICO or PECO

Consider	
<b>Patient</b>	What demographic characteristics such as age, gender and ethnicity does the patient have? Or what kind of problems are there?
<b>Intervention / Exposure</b>	What kind of intervention or exposure is being considered? For example, is it a type of medication, exercise or behaviour intervention? Or is it an exposure to chemicals or temperatures?
<b>Control / Comparison</b>	Is there a control intervention or an exposure comparison that should be considered? For example, is there a control group with a different dosage of the same drug, another drug or no drug? Or are populations with different levels of a certain exposure compared, including no exposure at all?
<b>Outcome</b>	What would be the desired effects you would like to identify? Which (side) effects, positive or negative, could you imagine/consider?

# Research question: precise formulation, for instance with PICO or PECO

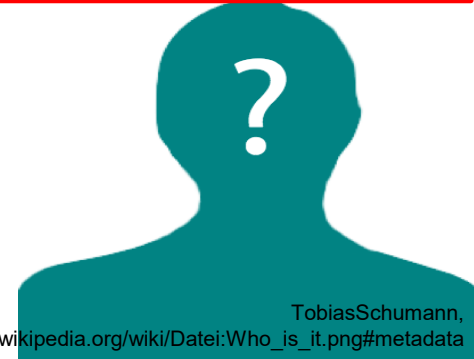
Do not unconditionally follow these frameworks, but use your own experience and brain!

**Population:** Adults with meniscus tear

**Intervention:** physiotherapy

**Control:** Arthroscopic partial meniscus resection

**Outcome:** Pain, independent mobility, (QoL)



**PICO question:** In adult patients with a meniscus tear, is physiotherapy or arthroscopic partial meniscus resection better to reduce pain and increase independent mobility (or overall quality of life)?

→ Besides PICO or PECO, numerous other systems exist, depending on the context/setting, e.g. SPIDER, SPICE, ECLIPSE ...

<http://dx.doi.org/10.1136/bmjgh-2018-001107>

# Exercise: Determine possible research questions



1. A friend of yours has severe asthma. After lunch with him you see an advertisement about the Hochgebirgsklinik Davos, a clinical rehabilitation center for diseases of the respiratory system situated in the mountains in Switzerland. You are wondering if a stay in a mountain climate might indeed reduce the asthmatic attacks of your friend.
2. After the newspaper "20 Minuten" reported on the difficulties of obese children in Bettingen, the municipality contacts you. They would like to reduce the risk of the children developing diabetes mellitus and ask what is better: increase recreational activities in the community or introduce educational programs for lifestyle changes.
3. Accurate and fast diagnosis of malaria is essential for the initiation of proper treatment. New molecular diagnostic based on PCR are available and you would like to know if they are more accurate than the currently used rapid diagnostic tests (RDTs).
4. Your grandfather is a long-time smoker. You would like him to quit but he argues that in his age it will not make a difference anymore. However, if you could proof to him that there are already health benefits after one year he would stop smoking.
5. You have a heated discussion with a sound engineer at a concert about the adherence to the 80dB threshold. He arguments that 5dB more or less is just nit-picking. You wonder if that is true.

# Exercise: Possible solutions

**Do not unconditionally follow these frameworks, but use your own experience and brain!**



	<b>P</b>	<b>I / E</b>	<b>C</b>	<b>O</b>
1. Therapy	For adults with severe asthma, does	a stay in a mountain climate		reduce asthmatic attacks?
2. Prevention	For overweight children, does	an increase in community recreation	compared to educational programs	result in a reduced risk of diabetes mellitus?
3. Diagnosis (PIRD...?)	In the general population	are molecular diagnostics based on PCR	or rapid diagnostic tests (RDTs)	more accurate to diagnose malaria?
4. Prognosis (PFO...?)	Have elderly persons	who quit smoking	compared to still smoking	health benefits after one year?
5. Aetiology	Among concertgoer, what is the effect of	exposure to <80 dB	compared to ≥80 dB	on hearing impairment?

# Resources – where do I find what?

- Internet/Webpages → “grey\*” and other literature
- Study registers → completed/ongoing trials
- Clinical information systems → Basic knowledge and more
- Library catalogues → Monographs, dissertations
- Electronic databases → mainly journal articles

Focus



<https://pixabay.com/images/id-3411617/>

(\* "...materials and research produced by organization outside of the traditional commercial or academic publishing and distribution channels.")

([https://en.wikipedia.org/wiki/Grey\\_literature](https://en.wikipedia.org/wiki/Grey_literature))

# Resources: Internet/Webpages

- “You can find many/all things in the internet...!”
- For scientific literature search especially relevant for *grey literature*
- Make the right choice with internet sources! Critically assess the quality & authenticity of the information.
- Important questions that arise for the evaluation of Internet sites:
  - **WHO** is the publisher of the website?
  - **WHY** is the website offered?
  - **HOW** is the website designed?



# Resources: Internet/Webpages

**WHO** is the publisher of the website?

- Is the publisher known? Is it a reputable institution?
- If the publisher is not directly visible - look for information in the imprint or in "About us".

**WHY** is the website offered?

- Is there an educational mandate, e.g. by a state or cantonal institution (research institute, university institution, office, authority etc.)?
- Are these advertising messages from providers with commercial, political or religious interests?

**HOW** is the website designed?

- Professional, up-to-date, well maintained: Contents with serious and complete bibliography & further links?
- Styled for high gloss - advertising purposes visible?
- Private providers, "offender by conviction"? partly "simply knitted", not always up to date, no or only few serious literature references.

# Resources: Study registers

- Trials usually have to be registered. Many countries have their own registers, [https://en.wikipedia.org/wiki/List\\_of\\_clinical\\_trial\\_registries](https://en.wikipedia.org/wiki/List_of_clinical_trial_registries)
- References to planned, ongoing and completed studies. Partly not (yet) published study results.
- Mostly independent databases, similar features and functions as specialist electronic databases (see following slides).
- The best known are probably in clinical research:
  - WHO International Clinical Trials Registry Platform (international)  
<https://www.who.int/clinical-trials-registry-platform>
  - ClinicalTrials.gov (USA)  
<https://clinicaltrials.gov/>
  - EU Clinical Trials Register (Europe)  
<https://www.clinicaltrialsregister.eu/>



Shots for all <https://www.dvidshub.net/image/1836493>



# Resources: Clinical information systems, e.g. UpToDate & AMBOSS as examples

## UpToDate

- Fee-based database (license for **local** use in the University Medical Library and University Hospital Basel, no VPN access)
- Material prepared by experts for everyday clinical use (**medical, peer-reviewed "Wiki"**)
- Patient information



## AMBOSS

- **Reference work** & learning program (basic campus license at the University of Basel)
- Knowledge app (mobile & offline)
- Guidelines-compliant and cross-disciplinary



# Resources: Clinical information systems, e.g. UpToDate & AMBOSS as examples

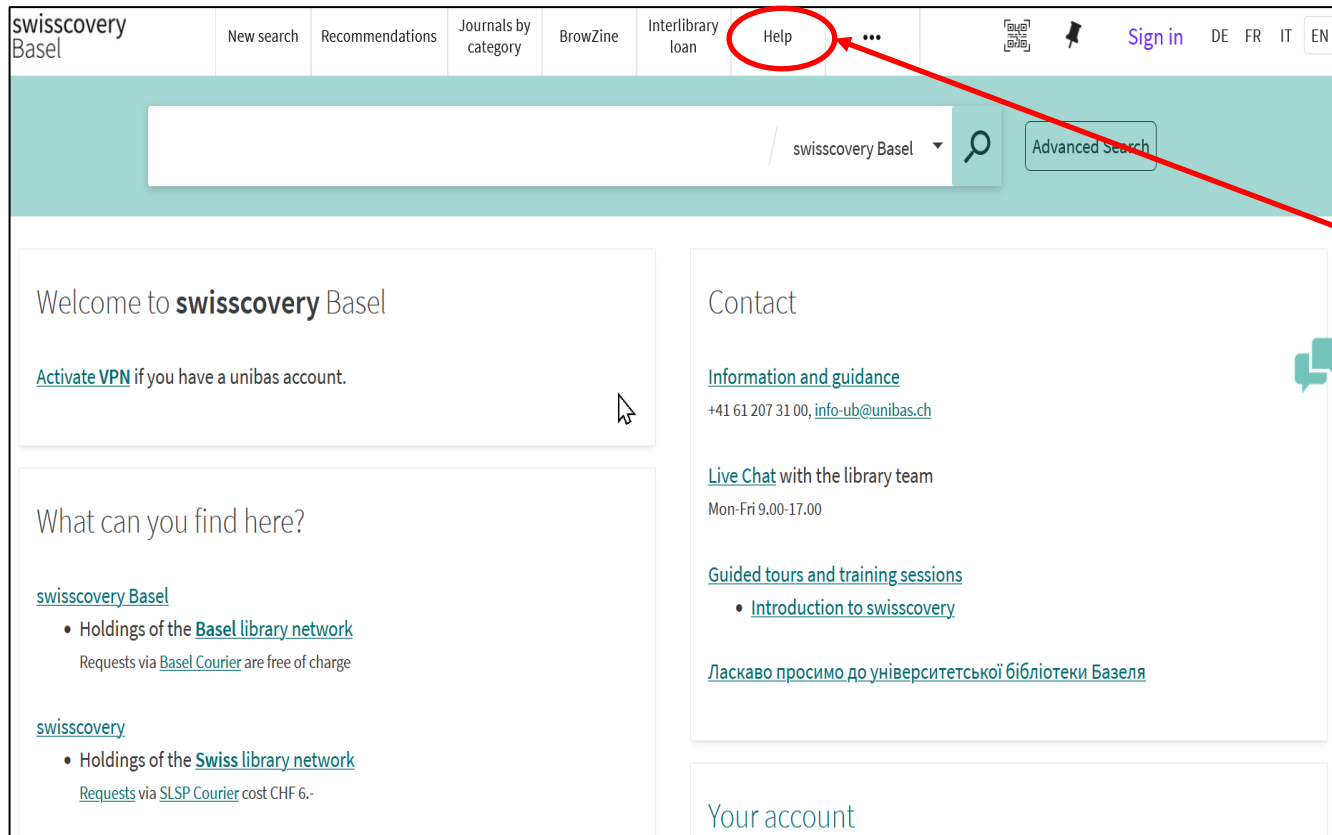
Articles	Tools & Apps	Journals, ebooks, library catalogue
<b>PubMed</b> > Medline via PubMed > Medline via OVID	<b>AMBOSS</b> Learning programme and reference work for medical students.	<b>Library catalogue / E-books</b> For viewing e-books, filter the results with "Uni Basel -Online" at the top right
<b>Embase</b> Focus on pharmaceutical research > Embase via Elsevier > Embase via OVID	<b>meditricks</b> Learning tool integrated in AMBOSS	<b>WISE Virtual Course reserves</b> For semester literature (print and e-books) recommended by lecturers
<b>Cochrane-Library</b> EBM literature database Also available for the > layperson	<b>e-Anatomy</b> Interactive anatomy atlas and reference work. App available.	<b>Browzine</b> Browse, read and monitor your journals: Digital journal shelf for e-journals licensed by the University of Basel, also available as an app.
<b>Cinahl</b> Focus on nursing and other healthcare professions	<b>DermaCompass</b> Assistant for dermatology diagnosis, differential diagnoses and therapies. Available as app, too.	<b>E-journals</b> Licenced access within the network of the university and the University Hospital Basel
<b>PsycInfo</b> Focus on psychology	<b>UpToDate</b> "Point-of-Care" database for evidence-based medicine in the clinic. Access available only through the computer network in the medical library and the University Hospital Basel. VPN access from the university's network is not possible.	<b>Journal Citation Reports InCites</b>
<b>Web of Science (WoS)</b> Multi-disciplinary literature database.		

If interested, go to <https://ub.unibas.ch/en/locations/university-medical-library/> and navigate to "Electronic resources".

# Resources: Library catalogues

<https://basel.swisscovery.org/>

- National library platform providing access to holdings of currently 490 scientific libraries in Switzerland
- Especially relevant for books/e-books and dissertations



The screenshot shows the swisscovery Basel website. The top navigation bar includes links for 'New search', 'Recommendations', 'Journals by category', 'BrowZine', 'Interlibrary loan', and 'Help'. The 'Help' link is circled in red. Below the navigation bar is a search bar with 'swisscovery Basel' entered and an 'Advanced Search' button. The main content area is divided into two columns. The left column contains a 'Welcome to swisscovery Basel' message, a link to 'Activate VPN', and a section titled 'What can you find here?' with links to 'swisscovery Basel' and 'swisscovery'. The right column contains a 'Contact' section with links for 'Information and guidance', 'Live Chat', and 'Guided tours and training sessions'. A red arrow points from the circled 'Help' link to a red-bordered box on the right.

Try it out yourself!

There is an online help!

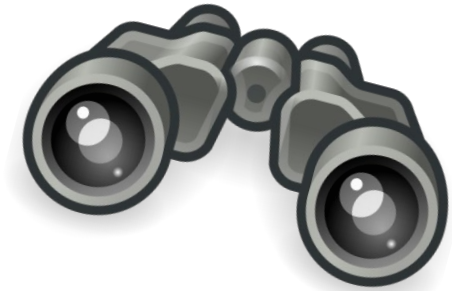
If need be, ask your librarian!

# Resources: Electronic databases

	Clinical medicine	Biomedicine	Biology	Pharmacy Pharmacology	Psychology Psychiatry	Health Sciences	Nursing, all health professions
PubMed	■	■	■	■	■	■	■
Embase	■	■	■	■	■	■	■
Biosis Previews	■	■	■	■	■	■	■
Cochrane Library	■	■	■	■	■	■	■
CINAHL	■	■	■	■	■	■	■
PsycINFO	■	■	■	■	■	■	■
Scopus	■	■	■	■	■	■	■
Web of Science	■	■	■	■	■	■	■

Adapted, table by Martina Gosteli

# Resources: Electronic databases

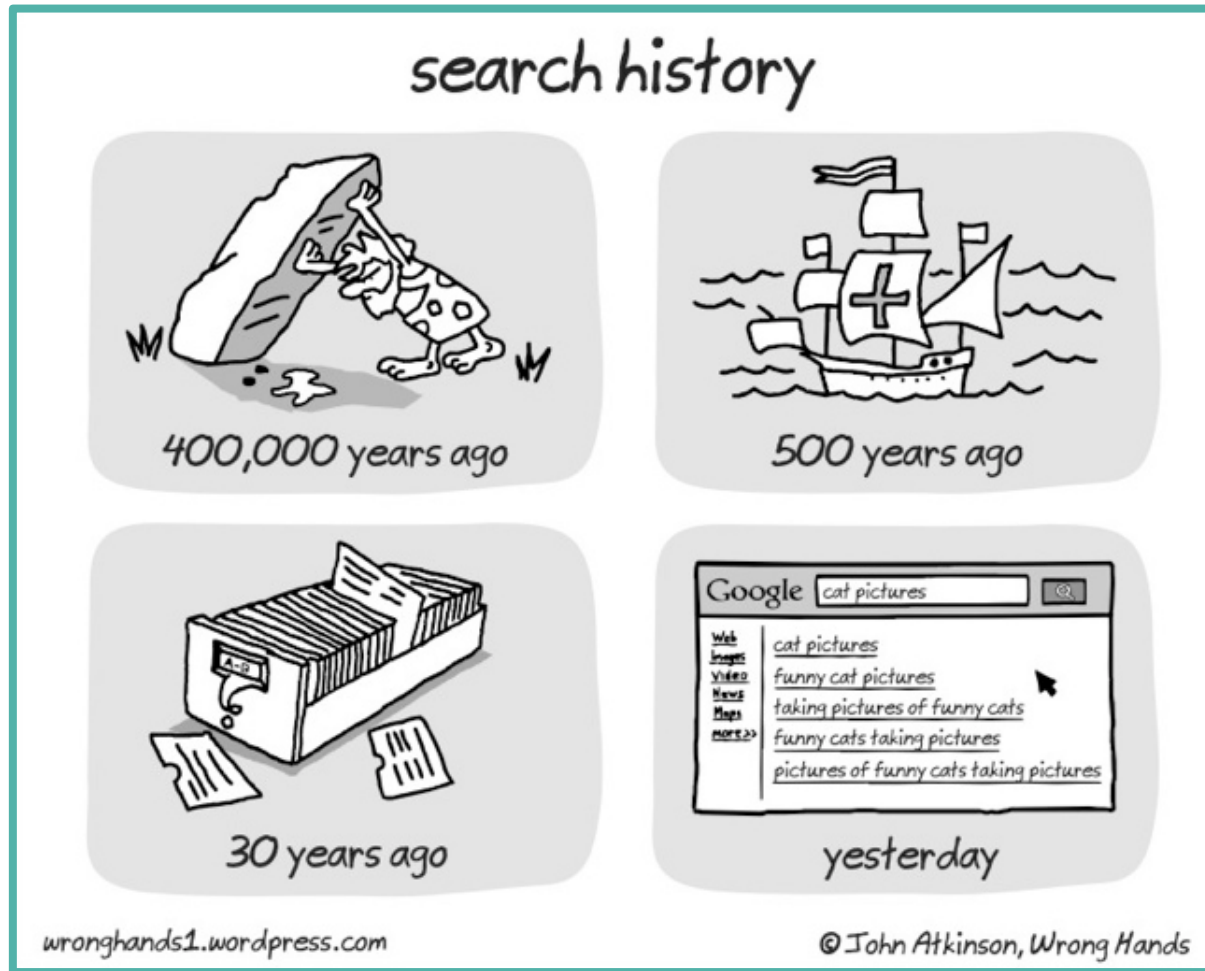


Articles	Tools & Apps	Journals, ebooks, library catalogue
<b>PubMed</b> > <a href="#">Medline via PubMed</a> > <a href="#">Medline via OVID</a>	<b>AMBOSS</b> Learning programme and reference work for medical students.	<b>Library catalogue / E-books</b> For viewing e-books, filter the results with "Uni Basel -Online" at the top right
<b>Embase</b> Focus on pharmaceutical research > <a href="#">Embase via Elsevier</a> > <a href="#">Embase via OVID</a>	<b>meditricks</b> Learning tool integrated in AMBOSS	<b>WISE Virtual Course reserves</b> For semester literature (print and e-books) recommended by lecturers
<b>Cochrane-Library</b> EBM literature database Also available for the > <a href="#">layperson</a>	<b>e-Anatomy</b> Interactive anatomy atlas and reference work. App available.	<b>Browzine</b> Browse, read and monitor your journals: Digital journal shelf for e-journals licensed by the University of Basel, also available as an app.
<b>Cinahl</b> Focus on nursing and other healthcare professions	<b>DermaCompass</b> Assistant for dermatology diagnosis, differential diagnoses and therapies. Available as app, too.	<b>E-journals</b> Licenced access within the network of the university and the University Hospital Basel
<b>PsycInfo</b> Focus on psychology	<b>UpToDate</b> "Point-of-Care" database for evidence-based medicine in the clinic. Access available only through the computer network in the medical library and the University Hospital Basel. VPN access from the university's network is not possible.	<b>Journal Citation Reports InCites</b>
<b>Web of Science (WoS)</b>		

Go to  
<https://ub.unibas.ch/en/locations/university-medical-library/>  
and navigate to  
"Electronic resources".

Important: there are many other and also open access electronic databases, e.g. the more regional AJOL (<https://www.ajol.info/>) or LILACS (<https://lilacs.bvsalud.org/en/>), etc.

# Okay, but how do I search?

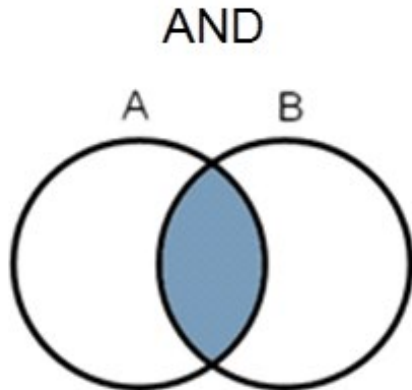


# Boolean operators

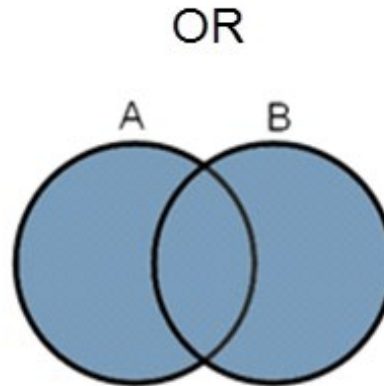
AND = both search terms occur

OR = at least one of the two search terms occurs

NOT = without this search term



Radiation AND Cancer



Cancer OR Neoplasm

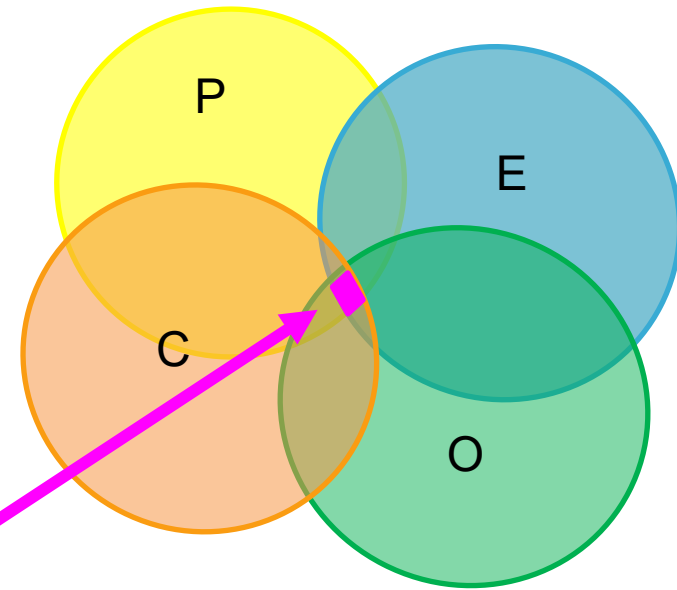
Attention: 'NOT' usually leads to unwanted exclusions. Best to contact an information specialist

# Boolean operators: Combination of PECO elements with AND

P AND E AND C AND O

resp. with synonyms:

(Population 1 OR Population 2 OR ...) AND  
(Exposure 1 OR Exposure 2 OR ...) AND  
(Comparison 1 OR Comparison 2 OR ...) AND  
(Outcome 1 OR Outcome 2 OR ...)



**Intersection = final relevant hits**

**Hint:** Not all elements of PECO need to be considered as search blocks in a search strategy. For instance, if you want to explore all potential health outcomes caused by a certain exposure, you should not include an outcome search block in your search strategy (you would only find what you look for...!).

Credo: “As many search blocks as needed, but as few as possible!”



# Boolean operators: Combination of PECO elements – Attention: Brackets!

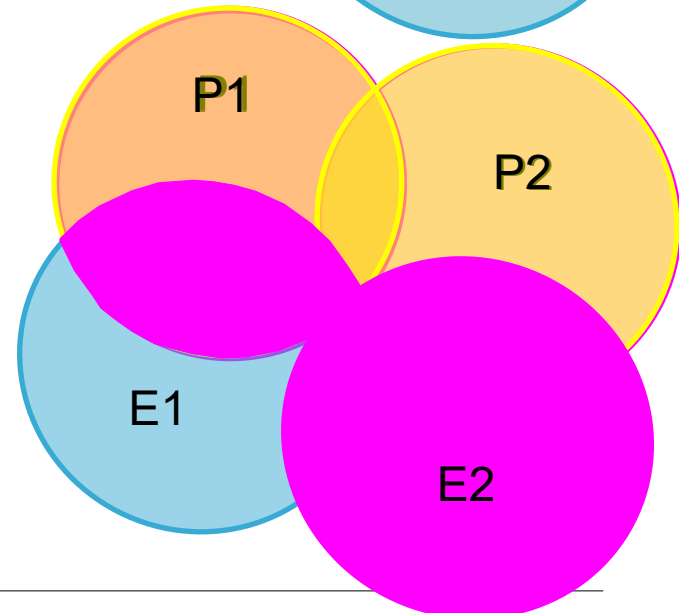
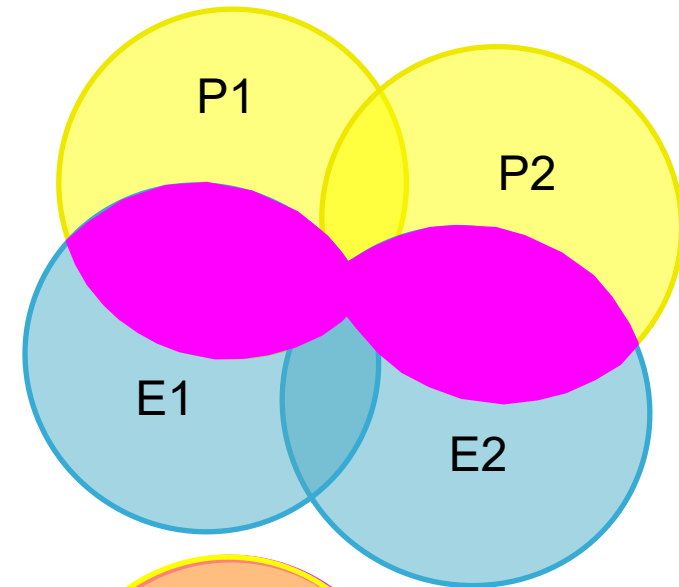
**(P1 OR P2) AND (E1 OR E2)**

With brackets: “nesting” → commands in brackets are executed first!

**(Population 1 OR Population 2) AND  
(Exposure 1 OR Exposure 2)  
= final hits 1**

Without brackets: commands strictly executed from left to right!

**Population 1 OR Population 2 AND  
Exposure 1 OR Exposure 2  
= final hits 2**



# PubMed

- **Public** access to **Medline** database
- Most comprehensive medical search interface
- Fundamental redesign in 2020 (New PubMed)
- Publisher: US National Library of Medicine (NLM)
- Daily updates
- Annually ~1 Mio new citations
- Search in full text not possible! (abstracts freely accessible)



# PubMed: Useful Links

## PubMed access via Uni Basel

<https://pubmed.ncbi.nlm.nih.gov/?otool=unibaslib>

## PubMed Online Training:

<https://learn.nlm.nih.gov/rest/training-packets/T0042010P.html>

## PubMed User Guide

<https://pubmed.ncbi.nlm.nih.gov/help/>

## Training courses at the University Medical Library (not only on PubMed)

<https://ub.unibas.ch/de/ub-medizin/#c10083>

# Free-text search

## Intelligent search engine:

PubMed is capable of intelligent implementation of a "simple search query" (= free-text search); (= automatic term mapping (ATM) → details advanced course!)

Free-text search terms are compared with the indexed standard vocabulary (=MeSH → details advanced course!) and different spellings are taken into account (e.g. singular/plural, American/British English).

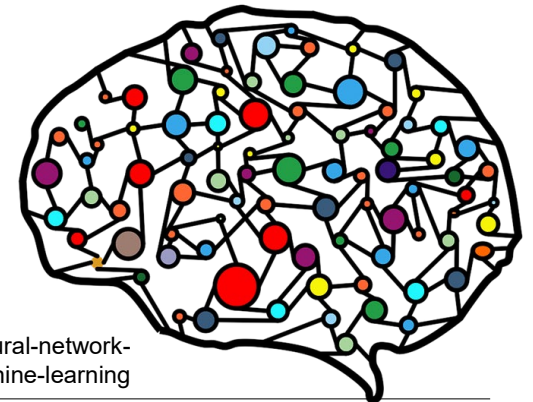
For example, you can enter one term for each aspect of the PICO question.

Without the manual input of Boolean operators an '**AND**' is assumed between the words entered.

e.g.: exercise translates to:

"exercise"[MeSH Terms] OR "exercise"[All Fields] OR "exercises"[All Fields] OR "exercise therapy"[MeSH Terms] OR ("exercise"[All Fields] AND "therapy"[All Fields]) OR "exercise therapy"[All Fields] OR "exercise's"[All Fields] OR "exercised"[All Fields] OR "exerciser"[All Fields] OR "exercisers"[All Fields] OR "exercising"[All Fields]

<https://www.needpix.com/photo/1637259/artificial-neural-network-ann-neural-network-neural-network-brain-mind-computer-machine-learning>



# PubMed Live! What do I find where?

## **Live demonstration in the course**

Documented by screenshots in the handout (appendix)

# Google Scholar

Google Scholar

<https://scholar.google.ch/>

Beliebige Sprache  Seiten auf Deutsch

**Auf den Schultern von Riesen**

Google Scholar

<https://scholar.google.com/>

Articles  Case law

**Stand on the shoulders of giants**

# Google Scholar: Advantages

## Suitable for fast, simple searches

- Freely accessible, simple search
- Large amount of scientific data
- Includes various document types such as journals and conference proceedings, reports, patents, etc.
- Searches full texts
- Link to articles that cite a specific article ("Cited by")
- "Cited by" option also searches citations in books
- Scientific literature partly freely accessible and library links to licensed full text

# Google Scholar: Disadvantages

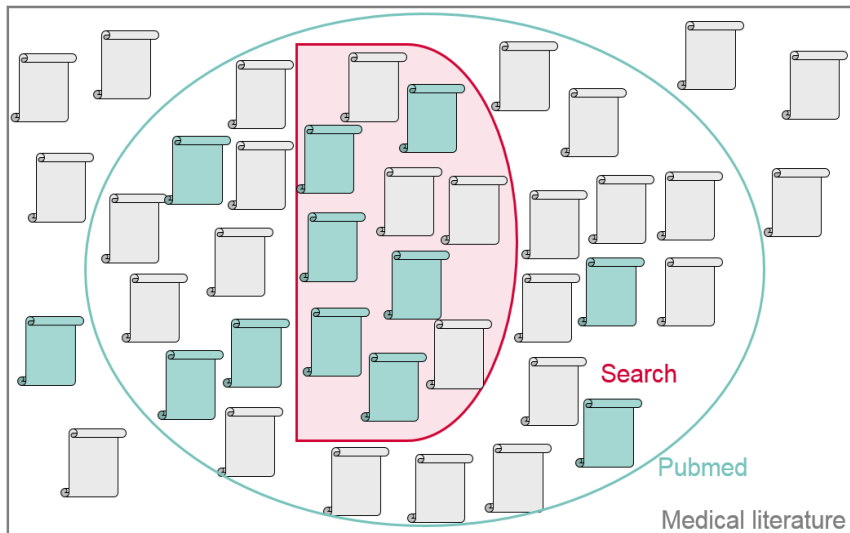
## Less suitable for systematic and reproducible searches

- Search algorithms not comprehensible, searches only conditionally reproducible
- Only 1000 results visible
- Only one reference exportable at a time
- No advanced search, few filters
- Boolean operators incorrect (<https://www.ncbi.nlm.nih.gov/pubmed/27076802>)
- Author, title and journal search functions do not work properly (missing metadata, wrong field recognition)
- Too many hits and relevance not reliable



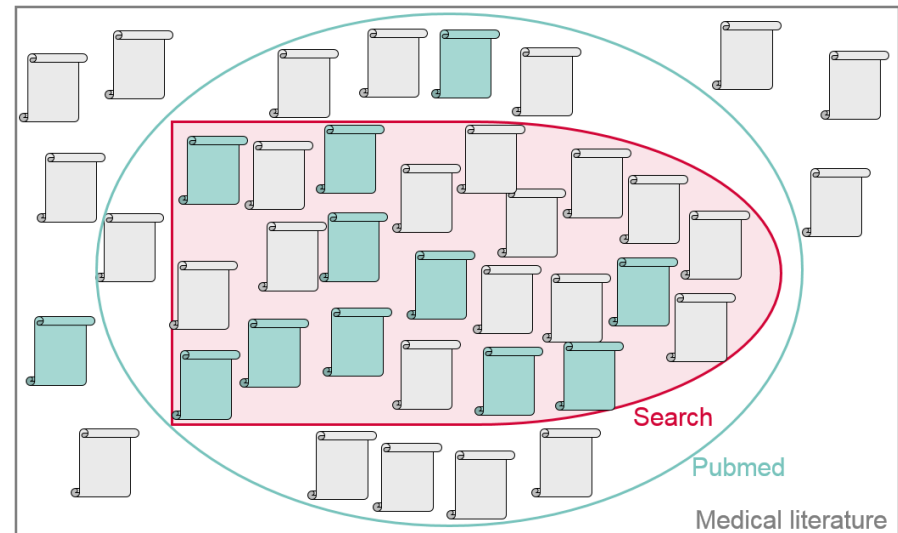
# Precision vs. sensitivity

**Precision:** specific, narrow; few hits (only a few of the relevant hits found but little noise)



e.g. for daily hospital routine, master thesis?

**Sensitivity:** complete, broad; many hits (almost all of the relevant hits found but among lots of noise)



e.g. for Systematic Reviews, Health Technology Assessments, ...

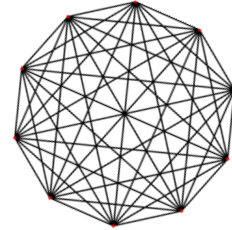
→ Try different strategies and observe how this changes the results

# Precision vs. sensitivity

**Precision** ↑  
(fewer results)



**vs. Sensitivity** ↑  
(more results)



---

Precise terms (e.g. diabetes mellitus type 2)

General terms (e.g. Diabetes)

---

Targeted, no (or few) synonyms and word variations per search block

More synonyms and word variations per search block

---

Set filters (e.g. publication type, year)

Do not set filters (e.g. publication type, year)

---

Combine more PECO aspects with AND, e.g.

**P** AND **E** AND **C** AND **O**

Combine fewer PECO aspects with AND, e.g.

**P** AND **E**  
**P** AND **E** AND **C**  
**E** AND **C**

# Precision and sensitivity in free-text searching: Exercise



In adult patients with a meniscus tear, is physiotherapy or arthroscopic partial meniscus resection better to reduce pain and increase quality of life?

Search, PubMed, 16.10.2023	Hits
Meniscus tear Physiotherapy <b>Arthroscopic partial meniscus resection</b> Pain Quality of life	0
Meniscus tear Physiotherapy Arthroscopy Pain Quality of life	11
Meniscus tear Physiotherapy Arthroscopy Pain Quality of life <b>Filters: Systematic Reviews</b>	4

You can find more studies (sensitivity ↑) if you add synonyms!

# Precision and sensitivity in free-text searching: Exercise



In adult patients with a meniscus tear, is physiotherapy or arthroscopic partial meniscus resection better to reduce pain and increase quality of life?

Search, PubMed, 16.10.2023	Hits
Meniscus tear Physiotherapy <b>Arthroscopic partial meniscus resection</b> Pain Quality of life	0
Meniscus tear Physiotherapy Arthroscopy Pain Quality of life	11
Meniscus tear Physiotherapy Arthroscopy Pain Quality of life <b>Filters: Systematic Reviews</b>	4

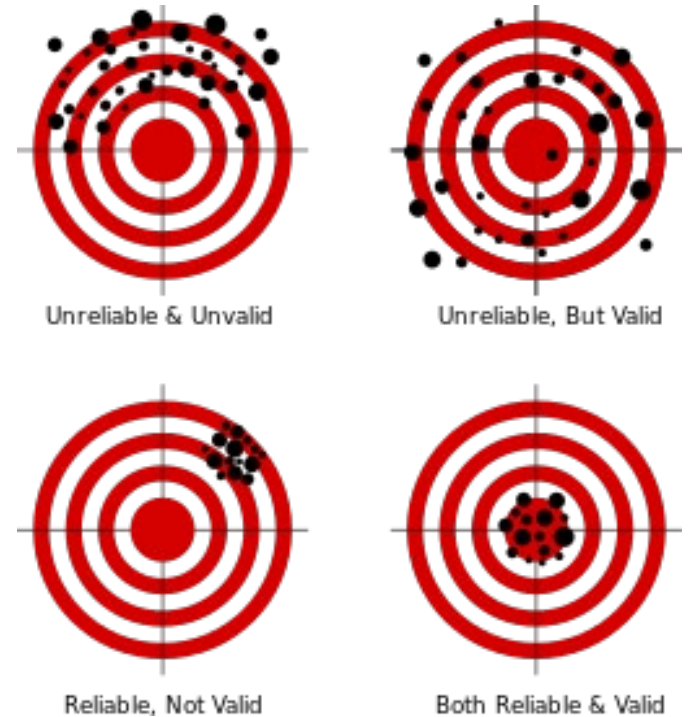
You can find more studies (sensitivity ↑) if you add synonyms!

(Meniscus tear <b>OR Meniscal tear</b> ) <b>AND</b> (Physiotherapy <b>OR Physical therapy OR Manual therapy OR exercise therapy OR non-surgical intervention</b> ) <b>AND</b> (Arthroscopy <b>OR meniscectomy OR meniscus resection OR meniscal resection</b> ) <b>AND</b> (Pain) <b>AND</b> (Quality of life)	29 6 SR
--	------------

# Critical Appraisal

Essential for any kind of literature review (e.g. master thesis) or if you want to apply study results (e.g. on patients)!

Are the results **valid** (*Objectives clearly described? Methods adequate to explore the objectives? Sources of bias?*), **reliable** (*Analyses and results clearly described and precise?*) and **relevant** (*Were all relevant outcomes measured? Can the results be transferred to other settings? Is the study population comparable to the patient in practice?*)?



[https://commons.wikimedia.org/wiki/File:Reliability\\_and\\_validity.svg](https://commons.wikimedia.org/wiki/File:Reliability_and_validity.svg)

- Short, simple introduction: <https://youtu.be/ikuVmCtBvF0>
- Overview of different tools: <https://guides.temple.edu/systematicreviews/criticalappraisal>
- Understanding the numbers: <https://youtu.be/3ZYSyZyqxjE>

# Take Home Messages

- Just start – and continuously refine!
- Document!
- A well-defined (re)search question is essential!
- There is no all-encompassing database – search for evidence from different sources, e.g. PubMed, other electronic databases, study registers, grey literature ... !
- Combine search terms (subject headings and textwords) with Boolean operators AND and OR and pay attention to brackets!
- Depending on the project (e.g. quick search in clinical practice? narrative review? systematic review?), get the trade-off between precision and sensitivity right!
- Critically appraise identified literature/information!
- Take time for the first steps >> then it will go faster later!



<https://catalog.archives.gov/id/535413>



Universität  
Basel

Universitätsbibliothek

# Thank you for your attention

**Further information:**

<https://ub.unibas.ch/en/locations/university-medical-library/>

**Contact:**  [thomas.fuerst@unibas.ch](mailto:thomas.fuerst@unibas.ch)

# Overview Handout Appendix (for your information)

- Systematic, Scoping and Narrative Reviews
- PubMed: What do I find where?
- PubMed: My NCBI Account/log in
- PubMed: Get full text



# Systematic Reviews

⇒ Umbrella term for systematic, quality-assessed, synthesis of study results on a research question

## Individual steps of a Systematic Review:

- Defining a scientific question
- Set inclusion/exclusion criteria
- Search for studies / evidence
- Select studies / evidence and extract data
- Assess the risk of bias of included studies
- Synthesis of the results, meta-analysis
- Interpret results and draw conclusions

**Cochrane reviews** are systematic reviews that follow the methodology given in the **Cochrane Handbook**.

(<https://training.cochrane.org/handbook/current>)

# Scoping Reviews

⇒ Usually answer broader questions than classic systematic reviews. No risk of bias assessment.

## Indications for a Scoping Review:

- As a precursor to a systematic review.
- To identify and analyze knowledge gaps.
- To identify the types of available evidence in a given field.
- To clarify key concepts/ definitions in the literature.
- To examine how research is conducted on a certain topic or field.
- To identify key characteristics or factors related to a concept.

From: Munn et al. (2018) '*Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach*', *BMC Med Res Methodol*, vol. 18, no. 1, pp. 143.

## Further guidance:

- Joanna Briggs Institute Manual for Evidence Synthesis:  
<https://jbi.global/ebp#jbi-manuals>

# Narrative Review and other review types

⇒ Describes and appraises previous work but does not describe specific methods by which the reviewed studies were identified, selected and evaluated

## Indications:

- As part of introduction/background or discussion section
- For editorials, viewpoints, ...
- To use as rationale for new research

## Limitations:

- Underlying assumptions and agenda often unknown
- High risk for bias in selecting and assessing the literature
- Cannot be replicated

## Further reading – also on other review types:

- Temple University Lib Guide:  
<https://guides.temple.edu/c.php?g=78618&p=4156607>
- Sutton et al. (2019) '*Meeting the review family: exploring review types and associated information retrieval requirements*'. [doi:10.1111/hir.12276](https://doi.org/10.1111/hir.12276)
- Grant & Booth (2009) '*A typology of reviews: an analysis of 14 review types and associated methodologies*'. [doi:10.1111/j.1471-1842.2009.00848.x](https://doi.org/10.1111/j.1471-1842.2009.00848.x)

# PubMed: What do I find where?

The image shows a screenshot of the PubMed.gov website. At the top left, there is the NIH logo and the text "U.S. National Library of Medicine National Center for Biotechnology Information". At the top right, there is a user profile icon labeled "herzogch". The PubMed logo is prominently displayed on the left side. In the center, a light blue callout box with a tail pointing to the search input field contains the text "Search box". The search input field is a white bar containing the text "depression", a clear button (an 'X' icon), and a green "Search" button. Below the search bar, the word "Advanced" is visible. At the bottom of the page, there is a paragraph of text: "PubMed® comprises more than 30 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites."

# Presentation of the results

Filters to filter the retrieved hits (e.g. by year of publication, article type, study population characteristics, language...)

The screenshot shows the PubMed search interface for the query "depression". At the top, the search bar contains "depression" and a "Search" button. Below the search bar are links for "Advanced", "Create alert", and "User Guide". A "Sorted by: Best match" dropdown menu is circled in red, with a callout box stating "Default sorting by 'best match' (can be changed easily)". Below the search bar are buttons for "Save", "Email", and "Send to".

On the left side, there are sections for "MYNCBI FILTERS", "RESULTS BY YEAR" (with a bar chart showing an increase in results over time from 1788 to 2020), "TEXT AVAILABILITY" (with checkboxes for "Abstract", "Free full text", and "Full text"), and "ARTICLE ATTRIBUTE" (with a checkbox for "Associated data").

The main results area shows 549,650 results. The first result is "Mental health: a world of depression." by Smith K., published in Nature in 2014. The second result is "Editorial: A Systematic Review of Depression." by Cui R., published in Curr Neuropharmacol. in 2015, marked as a "Free PMC article". The third result is "Depression: a change of mind." by Anthes E., published in Nature in 2014. Each result has "Cite" and "Share" links.

A callout box points to the "Cite" link of the second result, stating "Links to abstract view".

Default sorting by "best match" (can be changed easily)

Links to abstract view

# Abstract view

Comparative Study

> Int J Psychiatry Clin Pract, 21 (4), 314-317 Nov 2017

## Comparison of Depression in Primary Depression and Secondary-to-Schizophrenia Depression

Twana Rahim<sup>1</sup>, Roshe Rashid<sup>2</sup>

Affiliations + expand

PMID: 28503978 DOI: 10.1080/13651501.2017.1324

### Abstract

**Objectives:** This study exclusively aimed to clinically assess which symptom pattern discriminates primary depression from depression-secondary-to-schizophrenia.

**Methods:** A total of 98 patients with primary depression and 71 patients with secondary-to-schizophrenia depression were assessed for identifying the clinical phenomena of depression. Diagnosis of schizophrenia was confirmed by Mini International Neuropsychiatric Interview. Each patient was, however, assessed by Patient Health Questionnaire-9 as well as Calgary Depression Schizophrenia (CDSS) for possible concurrent depressive symptoms. Depressed mood, loss of interest, reduced energy and pathological guilt were more common in primary depression, whereas sleep disturbance and guilty ideas of reference were more amounting towards the diagnosis of depression secondary-to-schizophrenia.

**Conclusions:** It is clinically hard to differentiate primary from secondary-to-schizophrenia depression, especially in the absence of obvious psychotic symptoms. Symptoms of depression like subjective depressed mood, anhedonia and guilt were more prominent in the primary depression.

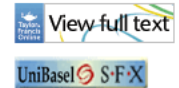
**Keywords:** Depression; common symptoms; schizophrenia

### Similar articles

[Association of physical and social anhedonia with depression in the acute phase of](#)

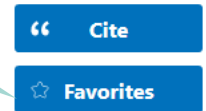
Links to full text

FULL TEXT LINKS



Send to "favourites" (needs My NCBI account)

ACTIONS



Share options

SHARE



Direct link to the previous (or next) abstract

PREV RESULT

3 of 549,711

**Depression:** a change of mind.

Anthes E. Nature. 2014. PMID: 28503978 No abstract available.

PAGE NAVIGATION

< Title & authors

Abstract

Similar articles

Cited by

Publication types

MeSH terms

LinkOut - more resources

Links to all fields in the view (alternative to simply scrolling down)

# Abstract view: hint for finding additional articles on a topic

Daily administration of low-dose aspirin has proved to be beneficial in preventing recurrent cardiovascular events. However, the role of aspirin for primary prevention in patients with no overt cardiovascular disease is more controversial. In fact, in lower risk patients, the modest benefit in reducing serious vascular events can be offset by the increased risk of bleeding, including intracranial and gastrointestinal hemorrhage. Diabetes mellitus has been associated with a substantially increased risk of both first and recurrent atherothrombotic events, which makes aspirin therapy of potential value in these subjects. Moving from general aspects of aspirin pharmacology and specific issues in diabetes mellitus, this article reviews the literature on the topic of aspirin for primary prevention in general, and in subjects with diabetes mellitus in particular, to culminate with arguments pro and con and a practical risk-based algorithm for aspirin initiation in daily practice.

**Keywords:** acetylsalicylic acid; aspirin; diabetes mellitus; primary prevention.

© 2016 American Heart Association, Inc.

## Similar articles

### [Low-dose aspirin for primary prevention of cardiovascular events in patients with diabetes: Benefit or risk?](#)

Leggio M, Bendini MG, Caldarone E, Lombardi M, Severi P, D'Emidio S, Stavri DC, Armeni M, Bravi V, Mazza A. *Diabetes Metab.* 2018 Jun;44(3):217-225. doi: 10.1016/j.diabet.2017.11.002. Epub 2017 Nov 14. PMID: 29257747    Review.

### [Aspirin therapy and primary prevention of cardiovascular disease in diabetes mellitus.](#)

Younis N, Williams S, Soran H. *Diabetes Obes Metab.* 2009 Nov;11(11):997-1000. doi: 10.1111/j.1463-1326.2009.01068.x. Epub 2009 Jun 16. PMID: 19531055    Review.

SHARE



PAGE NAVIGATION

[Title & authors](#)

[← Abstract](#)

[Similar articles](#)

[Cited by](#)

[MeSH terms](#)

[Substances](#)

[LinkOut - more resources](#)

# Presentation of the results

Options to save or email some or all results

The screenshot shows the PubMed search interface. At the top left is the PubMed.gov logo. A search bar contains the term 'depression' with a search button and a 'User Guide' link. Below the search bar are links for 'Advanced' and 'Create alert'. A callout box points to three buttons: 'Save', 'Email', and 'Send to'. To the right of these buttons is a 'Sorted by: Best match' dropdown with a settings icon. On the left side, there are filters for 'MYNCBI FILTERS' and 'RESULTS BY YEAR' with a bar chart showing an increase in results over time from 1788 to 2020. Below the filters are options for 'TEXT AVAILABILITY' (Abstract, Free full text, Full text) and 'ARTICLE ATTRIBUTE' (Associated data). The main results area shows 549,650 results. Three results are listed, each with a checkbox, title, author, journal, year, volume, issue, pages, doi, and PMID. Callout boxes highlight the 'Save', 'Email', and 'Send to' buttons, and another callout box points to the 'Send to' button, explaining its options.

PubMed.gov

depression

Advanced Create alert

Search

User Guide

Save Email Send to

Sorted by: Best match

MYNCBI FILTERS

RESULTS BY YEAR

1788 2020

TEXT AVAILABILITY

Abstract

Free full text

Full text

ARTICLE ATTRIBUTE

Associated data

549,650 results

**Mental health: a world of depression.**

1 Smith K.  
Nature. 2014 Nov 13;515(7526):181. doi: 10.1038/515180a.  
PMID: 25391942 No abstract available.

“ Cite Share

**Editorial: A Systematic Review of Depression.**

2 Cui R.  
Curr Neuropharmacol. 2015;13(4):480. doi: 10.2174/1570159x130415083  
PMID: 26412067 Free PMC article. Review. No abstract available.

“ Cite Share

**Depression: a change of mind.**

3 Anthes E.  
Nature. 2014 Nov 13;515(7526):185-7. doi: 10.1038/515185a.

Options to send some or all results to temporary “Clipboard”, “My Bibliography” or “Collections” (in My NCBI account) or to a citation management software (like EndNote – more on this follows!)



# Presentation of the results

Access to the  
Advanced PubMed  
search interface

PubMed.gov

depression

Advanced Create alert

Search

User Guide

Save Email Send to

Sorted by: Best match

MYNCBI FILTERS

RESULTS BY YEAR

1788 2020

TEXT AVAILABILITY

Abstract

Free full text

Full text

ARTICLE ATTRIBUTE

Associated data

549,650 results

**Mental health: a world of depression.**

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Nature. 2014 Nov 13;515(7526):181. doi: 10.1038/515180a.  
PMID: 25391942 No abstract available.

“ Cite Share

**Editorial: A Systematic Review of Depression.**

2 Cui R.  
Curr Neuropharmacol. 2015;13(4):480. doi: 10.2174/1570159x1304150831123535.  
PMID: 26412067 **Free PMC article.** Review. No abstract available.

“ Cite Share

**Depression: a change of mind.**

3 Anthes E.  
Nature. 2014 Nov 13;515(7526):185-7. doi: 10.1038/515185a.

Create an email alert if new hits for a certain search are available

# PubMed: My NCBI account/log in

NIH National Library of Medicine  
National Center for Biotechnology Information

PubMed.gov

Search

Advanced

PubMed® comprises more than 32 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full text content from PubMed Central and publisher web sites.

- Google Account
- ORCID
- Login.gov
- Microsoft
- Facebook
- NIH Account
- NCBI Account

more login options

**Create/Login Account for free**

**Create/Login with various options**

Click on «more login options» to connect with your Unibas Account.

For longer-term access, it may be useful to connect also with another, non-unibas account (possible when logged in under Account Settings).

# PubMed: My NCBI dashboard

## Saved Searches

- Reproduce searches
- **Set Alerts:** Updates (new hits) for searches per email

## Filters

- Create own filters

## Collections

- Save articles for topics

## My Bibliography

- Literature management

## Recent Activity

- Tracking; can also be turned off

**My Bibliography**

Your bibliography contains **no items**.

[Manage My Bibliography »](#)

**Recent Activity**

Time	Database	Type	Term
05:04 AM	PubMed	search	<a href="#">(Depressive Disorder/Title/Abstract...</a>
04:55 AM	MeSH	record	<a href="#">adverse effects [Subheading]</a>
04:55 AM	MeSH	search	<a href="#">adverse effects</a>
04:46 AM	PubMed	search	<a href="#">("Hypericum/therapeutic use"[Mesh])...</a>
04:46 AM	PubMed	search	<a href="#">"Hypericum/therapeutic use"[Mesh]</a>
04:45 AM	MeSH	record	<a href="#">Hypericum</a>
04:45 AM	MeSH	search	<a href="#">hypericum</a>

suterbr My NCBI Sign Out

[Customize this page](#) | [NCBI Site Preferences](#) | [Video Overview](#) | [Help](#)

**Saved Searches**

Search Name	What's New	Last Searched
<b>PubMed Searches</b>		
<a href="#">Botox bei Zoster (4Tr)</a>	1	4 months ago
<a href="#">Neuralgia and Botox</a>	0	4 months ago
<a href="#">("Premature Birth"[Mesh]) AND (((("Adolescent"[M...</a>	0	5 months ago
<a href="#">(((Preterm*[Text Word] OR Premature*[Text Word]...</a>	7	5 months ago

[Manage Saved Searches »](#)

**Collections**

Collection Name	Items	Settings/Sharing	Type
<a href="#">Favorites</a>	0	Private	Standard
<a href="#">My Bibliography</a>	0	Private	Standard
<a href="#">Other Citations</a>	0	Private	Standard
<a href="#">atrial fibrillation</a>	2	Private	Mixed

[Manage Collections »](#)

**Filters**

Filters for: PubMed

# PubMed: My NCBI site preferences

My NCBI » Preferences

✔ Highlighting preference saved!

**Note:** Your account password, email address, and a hyperlinked username at the top right of NCBI will be updated.

### Common Preferences

Username	mwe111
<a href="#">Links Display</a>	Popup Menu
<a href="#">Highlighting</a>	Lime Green
<a href="#">Auto Suggest</a>	On

Recent Activity

Time	Database	Type
05:04 AM	PubMed	search
04:55 AM	MeSH	record
04:55 AM	MeSH	search
04:46 AM	PubMed	search
04:46 AM	PubMed	search
04:45 AM	MeSH	record
04:45 AM	MeSH	search

Pathogenesis of **tuberculosis** and other mycobacteriosis.  
Cardona PJ.  
Enferm Infecc Microbiol Clin (Engl Ed). 2018 Jan;36(1):38-46. doi: 10.1016/j.eimc.2017.10.015. Epub 2017 Dec 2.  
PMID: 29198784 English, Spanish.  
The evolution between Mycobacterium **tuberculosis** infection and active **tuberculosis** is multifactorial and involves different biological scales. ...Severe immunosuppression can only explain 10% of active **tuberculosis** cases, while the remainder are attributable ...

NCBI Site Preferences  
– Highlighting: Search terms will be highlighted in search results

# PubMed: Get full text -- directly from database to full text (A) or ordering via swisscovery (B)

> Diabetes Care, 41 (10), 2086-2095 Oct 2018

## Long-term Relapse of Type 2 Diabetes After Roux-en-Y Gastric Bypass: Prediction and Clinical Relevance

Appears only if PubMed recognises that you access it as a member of the University of Basel – best to access Pubmed via

<https://pubmed.ncbi.nlm.nih.gov/?otool=unibaslib>

**With this button, you will be**

- **Case A:** directed to the full text via swisscovery Basel if the University Basel has the respective license
- **Case B:** directed to an ordering form on swisscovery Basel if the University Basel has not the respective license

with 5-year follow-up. Using machine learning algorithms, we developed a scoring method, 5-year Advanced-Diabetes Remission (5y-Ad-DiaRem), predicting longer-term DR postsurgery by integrating

FULL TEXT LINKS



Get full text

ACTIONS

Cite

Favorites

SHARE



PAGE NAVIGATION

< Title & authors

Abstract

Similar articles

# PubMed: Get full text

## Case A: University Basel has the respective license



### Malaria Elimination: Time to Target All Species.

Lover, Andrew A; Baird, J Kevin; Gosling, Roly; Price, Ric N

ISSN: 0002-9637 , 1476-1645; DOI: 10.4269/ajtmh.17-0869; PMID: 29761762

The American journal of tropical medicine and hygiene : official journal of the American Society of Tropical Medicine and Hygiene. , 2018, Vol.99(1), p.17-23

 [Full text](#) 

 [Online verfügbar](#) >

 [BrowZine](#) 

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### Links

[Kopienbestellung](#)  >

---

### Online ansehen

Open-Access-Version gefunden über: Unpaywall

Full text link  
to click on



Requirement: Unibas/Swiss TPH internet or from home with Swiss TPH laptop or VPN activated!

# PubMed: Get full text

## Case B: University Basel has not the respective license, ordering via swisscovery Basel (1)

swisscovery  
Basel

New search

Recommendations

Journals by  
category

BrowZine

...



Fürst, Thomas

DE FR IT EN



### Malaria.

Garcia, Lynne S

ISSN: 0272-2712 , 1557-9832; DOI: 10.1016/j.cll.2009.10.001; PMID: 20513543

Clinics in laboratory medicine. , 2010, Vol.30(1), p.93-129

PDF

Check for available services

BrowZine

### Links

[Photocopy request form](#)



### Loan and request options

[not in Region Basel]

You need to be logged in on swisscovery to obtain a link to the photocopy request form

# PubMed: Get full text

## Case B: University Basel has not the respective license, ordering via swisscovery Basel (2)



You need to register again with your Switch Edu-ID (upper button) to get to the request form

### Authentifizierungs-Methode

ANMELDUNG MIT SWITCH EDU-ID

ANMELDUNG MIT INSTITUTIONELLEM ACCOUNT SWISSCOVERY

Sie haben noch keine SWITCH edu-ID? Registrieren Sie sich [hier](#). Angehörige einer Uni/FH wählen unter AAI ihre Institution; alle anderen wählen «Benutzerkonto erstellen» ohne AAI ([Anleitung](#)). Institutionen melden sich bei [SLSP](#).



# PubMed: Get full text

## **Case B:** University Basel has not the respective license, ordering via swisscovery Basel (3)

Titel des Artikels/Beitrags *	Surgical forum proceedings of the ... annual sessi
Zeitschriften- / Buchtitel *	cal congress of the American College of Surgeons
AutorIn	ARTZ, C P
Jahr	1955
Volume	5
Seiten	803; 808
ISSN	0071-8041
Meduid	13247137
Quelle	Entrez:PubMed
Bemerkungen, weitere Angaben	
Versandart	<input checked="" type="radio"/> Elektronisch (wenn möglich) * <input type="radio"/> Postversand

**WEITER**

Now, you will see the request form with all the prepopulated fields from PubMed; click on continue.

In the following window, check again all details and definitively send your request.

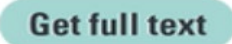
Please also consider the fees (5-12 CHF/article) and delivery times (usually 1-2 days)

# PubMed: Get full text

## Fall B: Summary -- ordering via swisscovery Basel (4)

You need a swisscovery account, which is linked to your Switch Edu-ID!

### Request:

1. Got to PubMed via the University of Basel link (see again below), find the respective article and click on «Get full text» 
2. Log in on swisscovery
3. Click on the «photocopy request form» link
4. You need to register again with your Switch Edu-ID
5. Check again all details and definitively send your request

University of Basel PubMed-Link (see also University Library Medicine Basel website):

<https://pubmed.ncbi.nlm.nih.gov/?otool=unibaslib>

Guidance for registering on swisscovery/Switch Edu-ID:

<https://ub.unibas.ch/en/services/register-borrow-order/>

or help via [info-medb@unibas.ch](mailto:info-medb@unibas.ch) / 061 207 32 00

**OR ASK YOUR LOCAL LIBRARY TEAM !!!**