PubMed Tips & Tricks

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PubMed, produced by the National Library of Medicine, is the premier biomedical database. PubMed provides international coverage of English- and foreign-language journals in the areas of medicine, the biological sciences, food science and nutrition, animal science, veterinary medicine, kinesiology, and nursing.

**Accessing PubMed**

It is recommended that you access PubMed through the MSU Libraries website. This will identify you as an MSU-affiliated user and provide full-text access to journal articles that the Libraries subscribe to that you may find when searching PubMed. If you are off campus you will need to login using your MSU NetID and password.

PubMed can be accessed from the [Health Sciences Digital Library](#) under “Popular Databases”.

**Basic Search Techniques**

PubMed is designed so that, much like Google, you can type in keywords that represent your research concepts into a search box and it should be able to match these terms with relevant results. Also similar to Google, as you type a drop down box appears with autocomplete suggestions.
It is recommended that you start with a general keyword search and then use the various search techniques discussed in this document to narrow your results. When starting a search be as specific as possible, use keywords significant to the concept(s) you are searching for, don’t use punctuation, and don’t worry about capitalization.

**Filters**

Filters limit search results based on different criteria. They can help narrow your search or find more precise results related to your topic. Commonly used filters in PubMed include language, publication date, article type, or species. Frequently used filters are displayed in the frame to the left of the search results in PubMed.

1) To apply one of these filters, click on it and your results will automatically refresh to reflect the results within your original search that included the filter.

2) Other filters are available than the defaults that appear, and they require an extra step to make them visible. First, click on the link “Show additional filters” – a menu will appear and you can check the box by the type of filter to add it to the main filter menu.

3) As an example, to filter results by English language put a check mark in the box for “Languages” and then click the Show button.

4) You can then click on the link for “English” to filter your search results.
Points of caution when using filters:

- Apply each filter individually and pay attention to what they do to your search results. Applying too many filters at once may narrow your search too much and you may find yourself with no results.
- After you have completed a search and wish to move on to a new one make sure to clear your filters first. This way the previously used filters will not be applied to your new search. You can clear each individually by clicking the filter link (the check mark will disappear), or choose the “Clear All” link at the bottom of the filter menu.

**QuotationMarks**
Putting keywords in quotation marks (“….“) tells PubMed to search for the exact phrase, exactly how the words are entered. Use caution with quotation marks – all the words must be spelled correctly and appear in the exact order entered or you may receive no search results.

**Truncation**
Putting an asterisk (*) at the end of a word tells PubMed to search for variations of that keyword. For example, searching for gene* will show results that include gene, genes, genetic, genetics, genetically, etc….

**Search Connectors**
Search connectors are used to connect your keywords. The connector **AND** narrows your search, while the connector **OR** broadens your search. The connector **NOT** can be used to exclude terms from a search.

When using **AND**, only results that include all the terms connected together appear. For example, searching for **genetic AND engineering** will only find articles that have both the terms genetic and engineering.

![Diagram](image)
Using the connector **OR** will result in articles that include any of your keywords. For example, the search *genetic OR engineering* will retrieve articles that contain: only the term genetic, only the word engineering, and those that contain both genetic and engineering.

![Venn Diagram](image1)

Using **NOT** will exclude terms from your search results. The search *genetic NOT engineering* finds articles that only contain the keyword genetic without the keyword engineering. This connector is used less often than the others and should be used with caution because it may exclude relevant articles.

![Venn Diagram](image2)

Tip: When using connectors the terms will appear as appropriate but maybe not in the same order entered.

**Viewing an Article**

The default search results page in PubMed is a list of article titles. Clicking on one of these titles will bring up a detailed view of the article called the abstract. Remember that citations for articles may appear prior to their publication – these articles may not have an abstract or the full text may not be available yet.

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1) Full text access to articles from journals the MSU Libraries subscribe to can be found via the green “Full Text” and/or white “Find Text @ MSU” buttons found on the top right corner of the article’s abstract page.

2) If you find an article that is of interest, you can see related ones in the “Similar Articles” box on the right. Click on the links at the bottom of this box to “See Reviews” or to “See All”. You will be taken to a new list of results and the further down the results list the article is, the less similar it is to the article you originally selected.

3) Under the article’s abstract you can toggle open the “Publication Types, MeSH Terms,...” section by clicking on the plus sign at the far right of the section’s title to view the MeSH terms that were assigned to the article. MeSH terms, or Medical Subject Headings, are assigned by the National Library of Medicine and describe what the article is about. MeSH terms can be helpful when trying to get an idea of what keywords to search for. If you find an article that is useful try seeing what MeSH terms have been assigned and use those in a search. Be aware that MeSH terms are assigned by hand and take some time to appear, so very recent articles may not have them.

**Known Citation Searching**

If you found the citation information about an article such as title, author, date, etc. in a different database, like Google Scholar for example, and you want to find it in PubMed you can use PubMed’s “Single Citation Matcher” to find the article. The Single Citation Matcher...
Matcher is on the PubMed home page. Just be careful to enter the information correctly – if it is not an exact match to what is in PubMed you may not find the article.

My NCBI
A My NCBI account can be used to save information and customize PubMed. First create a free account. Click the link to “Sign in to NCBI” at the top right side of PubMed’s homepage and follow the directions to “Register for an NCBI account”.

A My NCBI account allows you to save searches, create collections, and start a bibliography of your own work.
1) Saving a search will save all the search terms entered and filters used so that you can easily repeat your search on a future visit to PubMed. After performing a search that looks promising and applying filters, if necessary, click on the “Create Alert” link right below the search box and you will be taken to a page that allows you to name and save the search. It is helpful to give the search a meaningful name. You can receive alerts via email when the saved search returns new results and set the frequency, format, and number of results to include in the alert. To access a saved search, login to your My NCBI account and click on the search’s link – the search will automatically run in PubMed.

2) Collections are useful for saving articles on a topic that may require multiple different searches to find all relevant results. To save an article to a collection,
place a checkmark in the box next to the title and choose “Collections” from the “Send to:" drop down menu near the top of the results list. You will be given the option to add the article to an existing collection or create a new one – again, it is helpful to assign a meaningful name. To access all the articles in a collection, go to your My NCBI page and click on the relevant link in the “Collections” box.

3) The “My Bibliography” box is used to collect and organize articles that you have written which are found in PubMed. To save a paper to your Bibliography, put a checkmark in the box next to the title and choose “Send to: Bibliography”. This My NCBI feature is often used by scholars to comply with grant funding requirements and to keep a record of their publication for academic advancement purposes.

Additional Tips
1) Many non-English articles have abstracts in English. Non-English articles are signified in PubMed’s search results by having square brackets […] around the article’s title. The article’s language is often specified on the article’s abstract page.

2) Search results can be sorted by publication date, relevance, author, journal, or title. You can also display the results list in a summary or abstract view. The summary view displays brief information such as the title, authors, and other citation information. The abstract view includes additional information such as the abstract, full text buttons, and the ability to expand and display the MeSH list for each article right on the search results page. The options for choosing the sort order and display are at the top of the results list.

3) You can temporarily save articles to the Clipboard in PubMed. This is useful when sorting through a large number of search results. Up to 500 items can be saved, and the Clipboard will time out after 8 hours of inactivity or when a PubMed session is closed. To send articles to the Clipboard, put a checkmark in the box next to an article’s title and choose “Clipboard” from the dropdown “Send
to:” menu near the top of the results list. The link to access the Clipboard appears to the right of the “Send to:” button after you have sent an article.

4) Don’t use too many methods for narrowing search results at once. It is best to try them one by one and see how your results are affected. It may be helpful to keep a record of how many articles each step results in.

**Tutorials**
For additional help, the PubMed Tutorials are a series of 1-3 minute videos demonstrating how to do a wide range of activities, including searching PubMed, managing results, and saving searches. A link to the tutorials is available from the PubMed home page.