Using PubMed

…for searching the MEDLINE database

Available online at http://pubmed.gov

A condensed version of the National Training Center and Clearinghouse's *NLM Training: PubMed*

Compiled by
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INTRODUCTION **3**

PUBLISHER SUPPLIED CITATIONS **3**

IN PROCESS CITATIONS **4**

OTHER PUBLISHER SUPPLIED CITATIONS **4**

MEDLINE & MEDLINE CITATIONS **4**

OLDMEDLINE CITATIONS **5**

AUTHOR MANUSCRIPT CITATIONS **5**

PUBMED SIDEBAR **6**

SEARCHING WITH PUBMED **7**

SUBJECT (KEYWORD) SEARCHING 7
ENTERING SEARCH TERMS 7

WHAT IS SEARCHED? AUTOMATIC TERM MAPPING **7**

1. MESH TRANSLATION TABLE 7
2. JOURNALS TRANSLATION TABLE 8
3. AUTHOR INDEX 8

PHRASE SEARCHING **9**

TRUNCATION **10**

SEARCH RESULTS SCREEN **10**

DISPLAY OPTIONS **11**

SUMMARY FORMAT 11
ABSTRACT FORMAT 12
CITATION FORMAT 13
MEDLINE FORMAT 14

RETRIEVAL SUMMARY **15**

SHOW PULL-DOWN MENU 15
SORT 15
SEND TO: CLIPBOARD 16
SEND TO: FILE 16
SEND TO: TEXT 16
SEND TO: EMAIL 17

PRINTING **18**

ORDER **18**

FEATURES TABS **19**

LIMITS TAB 19
PREVIEW/INDEX TAB 25
HISTORY TAB 29

CLIPBOARD TAB 31
DETAILS TAB 33

RELATED ARTICLES 34

SEARCHING WITH MESH: THE MESH DATABASE 36

JOURNALS DATABASE 40

SINGLE CITATION MATCHER 41

CLINICAL QUERIES 43

MY NCBI 44

MY NCBI FEATURES 44
REGISTERING FOR MY NCBI 44
SAVING SEARCHES 45
MY NCBI COLLECTIONS: SAVING RESULTS AND BIBLIOGRAPHIES 51
FILTERS 52
LINKOUT FILTERS 54
ADDING YOUR LIBRARY'S HOLDINGS AS A FILTER: 55
HIGHLIGHTING SEARCH TERMS IN PUBMED RESULTS 58

- PubMed, developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM), is available on the web. No registration, fees, or subscriptions are required.

- PubMed is one of several databases under NCBI's Entrez retrieval system and provides access and links to the integrated molecular biology databases maintained by NCBI (DNA and protein sequences, genome mapping data, 3-D protein structures, and the Online Mendelian Inheritance in Man).

- PubMed provides access to over 16 million bibliographic citations dating back to the 1940s.

- PubMed also has links to the full-text versions of articles at participating publishers' Web sites, biological data, sequence centers, etc. from third parties through LinkOut.

NOTE: This book is an edited guide to searching the MEDLINE database on PubMed. The full PubMed Manual may be found at http://www.nlm.nih.gov/pubs/web_based.html

Publisher Supplied Citations

These are citations that are electronically supplied by publishers and sent directly to PubMed. The citations are then forwarded to NLM's Indexing Section to be processed.

Citations received electronically have the tag: **[PubMed - as supplied by publisher]**.

Sample PubMed citation that has been electronically submitted but processing has not yet begun:

Notice the [PubMed – as supplied by publisher] tag.

LiCalsi C, Maniaci MJ, Christensen T, Phillips E, Ward GH, Witham C.
A powder formulation of measles vaccine for aerosol delivery.
Vaccine. 2001 Mar 21;19(17-19):2629-2636.
PMID: 11257402 [PubMed - as supplied by publisher]

In Process Citations

MEDLINE in process records provide basic citation information and abstracts before the citation is indexed with NLM's MeSH headings and NLM's quality assurance staff have checked the records for errors.

Sample of an In Process citation in PubMed:

Notice the [PubMed – in process] tag.

LiCalsi C, Maniaci MJ, Christensen T, Phillips E, Ward GH, Witham C.

A powder formulation of measles vaccine for aerosol delivery.
Vaccine. 2001 Mar 21;19(17-19):2629-36.
PMID: 11257402 [PubMed - in process]

Other Publisher Supplied Citations

Some of the citations received electronically from publishers may never become MEDLINE citations.

- These records are assigned PMIDs but are not assigned MeSH terms because they do not go through the indexing process.
- These records will carry the notation **[PubMed]** and remain in PubMed.
- There are 3 sources of these types of records: (1) out of scope articles from selectively indexed journals; (2) citations from back issues of newly-indexed Medline journals; and (3) author manuscripts from non-MEDLINE journals or journals that do not participate in PubMed Central (see next page).

MEDLINE & MEDLINE citations

MEDLINE is the name applied to the database of all *indexed* citations. PubMed, as a database, contains MEDLINE as well as other citations (non-indexed citations).

After MeSH terms, Publication Types, and other indexing terms are added, the in process citations graduate to MEDLINE records.

Fully indexed MEDLINE records are tagged **[PubMed – indexed for MEDLINE].**

Sample MEDLINE citation in PubMed

Notice the [PubMed – indexed for MEDLINE] tag.

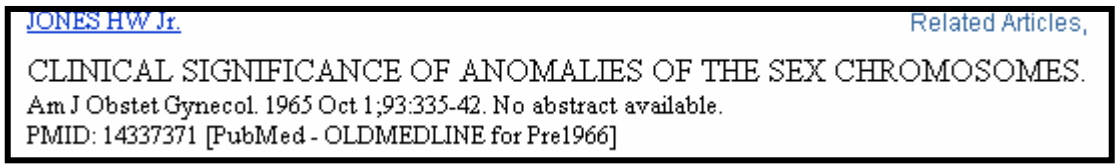
LiCalsi C, Maniaci MJ, Christensen T, Phillips E, Ward GH, Witham C.

A powder formulation of measles vaccine for aerosol delivery.
Vaccine. 2001 Mar 21;19(17-19):2629-36.
PMID: 11257402 [PubMed - indexed for MEDLINE]

OLDMEDLINE CITATIONS

On September 30, 2003, 1.5 million OLDMEDLINE citations were added to PubMed. These citations were taken from print indexes and date back to the 1950s. They are identified by the tag **[PubMed – OLDMEDLINE for pre-1966]**.

Notice the tag following the PMID


JONES HW Jr. Related Articles,

CLINICAL SIGNIFICANCE OF ANOMALIES OF THE SEX CHROMOSOMES.

Am J Obstet Gynecol. 1965 Oct 1;93:335-42. No abstract available.

PMID: 14337371 [PubMed - OLDMEDLINE for Pre1966]

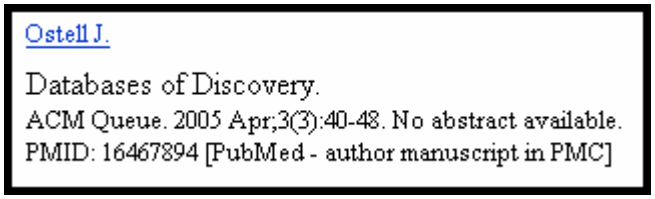
OLDMEDLINE citations vary from the current PubMed records in several important ways :

- *Abstracts*: OLDMEDLINE citations do not have abstracts.
- *Publication Type*: Journal Article is the only publication type used in these citations.
- *Language* : Some citations will indicate « undetermined » because the actual foreign language was not specified in the old print indexes and is, therefore, undetermined.
- *Article titles* : Some are all in caps; over 28,000 citations show 'Not Available' as the title because they lack English translations of the title. NOTE : It is now possible to look at the MEDLINE format for these types of citations and see the TT field – the Transliterated Title which will record the article title in the language of publication.
- *Other Term* : This field contains the original MeSH terms assigned at the time the records were first established.
- *MeSH Headings* : NLM has been adding MeSH headings to the OLDMEDLINE records. Currently, many of these citations contain only one MeSH heading and that heading is considered a MeSH Major term.

AUTHOR MANUSCRIPT CITATIONS

- The status tag **[PubMed – author manuscript in PMC]** will appear on citations for articles that would not normally be cited in PubMed because they are from journals that are not indexed for MEDLINE or from journals that do not participate in PubMed Central (PMC).
- As these citations are processed, the status tag will change as appropriate and the final designation will be [PubMed].
- To retrieve all citations in PubMed for which author manuscripts are available in PMC, use the search: **pubstatusnihms**

Notice the tag following the PMID

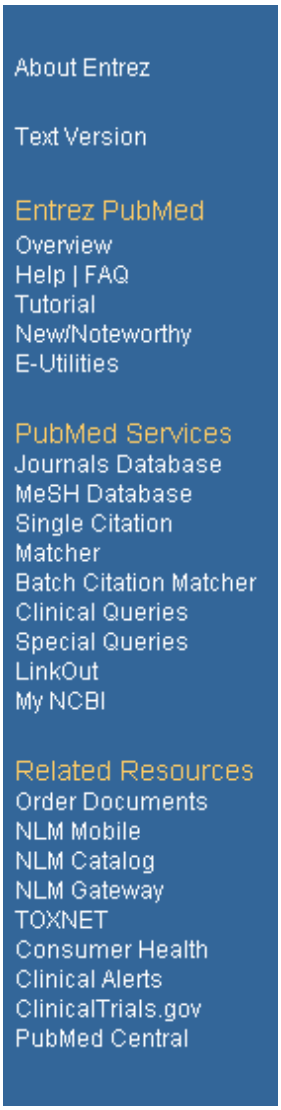

Ostell J.

Databases of Discovery.

ACM Queue. 2005 Apr;3(3):40-48. No abstract available.

PMID: 16467894 [PubMed - author manuscript in PMC]

PubMed SIDEBAR



Entrez PubMed

The **Overview** provides a detailed description of the PubMed database including database coverage and PubMed journal information.

Click on **Help** to get detailed descriptions of all the features and search and retrieval options within PubMed. **FAQs** are frequently asked questions about PubMed.

Click on **Tutorial** for a Web-based, interactive training program.

The **New/Noteworthy** link provides information about recent and future PubMed system enhancements.

PubMed Services

Use the **Journals Database** to search for journals by journal title, title abbreviation, or the International Standard Serial Number (ISSN). The list of journals with links to full-text is also included in the browser.

The **MeSH Database** allows you to browse the MeSH Vocabulary in a hierarchical structure. Searches can also be built here.

The **Single Citation Matcher** is a fill-in-the-blank form that allows users to enter journal citation information to locate a specific single article or the contents of an individual issue of a journal.

The **Batch Citation Matcher** is primarily a tool for publishers. It allows publishers to retrieve the PubMed IDs for many articles all at once. This feature requires that bibliographic information (journal, volume, page) be entered in a specific format.

The **Clinical Queries** and **Special Queries** pages have built-in search "filters" and limits that focus retrieval in specified topic areas or, as in the case of Clinical Trials, in four study categories: therapy, diagnosis, etiology, and prognosis.

LinkOut provides users with links from PubMed and other Entrez databases to a wide variety of relevant web-accessible online resources including full-text publications. This information is intended for groups who want to provide links that PubMed searchers may be interested in using.

My NCBI stores search strategies that may be updated at any time, and allows users to customize their searching experience using filters.

Related Resources

- **Order Documents** is a link to the Loansome Doc feature that allows users to order full-text copies of articles from a local medical library (local fees and delivery methods may vary).
- **NLM Mobile** is a link to NLM services available for handheld devices
- **NLM Catalog** is a link to the library catalog for NLM
- Click on the **NLM Gateway** to access NLM's other Web-based service, which also provides access to MEDLINE and additional NLM databases.
- **TOXNET** provides a link to the toxicological & environmental health resources from the Specialized Information Services (SIS) of NLM
- **Consumer Health** is a link to MedlinePlus, NLM's Web site for consumer health information.
- **Clinical Alerts** expedite the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality.
- Click on **ClinicalTrials.gov** to access the NIH/NLM Web site for current information about clinical research studies.
- **PubMed Central** is a link to NLM's archive of full text and open access journals and articles

PubMed makes use of **cookies** and **JavaScript** from your Web browser for several functions. Please enable cookies and JavaScript from your Web browser. These selections may be found under the Edit menu, and then under references (Netscape), or the Tools menu under Internet Options (Internet Explorer). For more information about cookies, see PubMed's Help.

Searching With PubMed

PubMed provides a variety of search modes to meet users' individual needs. You can run a simple search by entering a few search terms in the query box or construct complex search strategies using Boolean commands and using the various functions provided by the Features bar that provides additional search options: Limits, Preview/Index, History, Clipboard, and Details. The Features bar will be discussed later in the manual.

How it Works

Subject (keyword) Searching

Search Request: Find citations to articles about having a rash and a fever.

Entering Search Terms

Enter significant terms in the query box (e.g., ***rash, fever***). The default connector is "AND" so it is not necessary to type that into the search box.
Click on the **Go** button.
Use the **Clear** button to erase the contents of the query box.

What is searched? Automatic Term Mapping

PubMed uses **Automatic Term Mapping**, where unqualified terms that are entered in the query box are matched against (in this order):

1. MeSH (Medical Subject Headings) Translation Table
2. Journals Translation Table
3. Author Index (full author name table first, then author index)

1. MeSH Translation Table contains**:**

MeSH headings (descriptors), subheadings, and entry terms (also known as synonyms)
Mappings derived from the Unified Medical Language System (UMLS) that have equivalent synonyms or lexical variants in English.
Names of Substances and synonyms to the Names of Substances.
Publication Types.

If a match is found in this translation table:

- the term will be mapped to the appropriate MeSH term and searched as MeSH
- the searcher's term will also be searched as a Text Word.

- In the case of Entry Terms, a "mapped to" MeSH term will also be searched in the title and abstract fields in citations that have yet been assigned MeSH terms. For example, here is the PubMed Translation for ***rash*** (an entry term for the MeSH term, exanthema):

("exanthema"[TIAB] NOT Medline[SB]) OR "exanthema"[MeSH Terms] OR rash[Text Word])

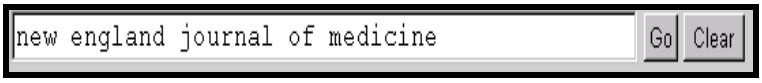
And here is the PubMed Translation for ***rash fever***:

(("exanthema"[TIAB] NOT Medline[SB]) OR "exanthema"[MeSH Terms] OR rash[Text Word]) AND ("fever"[MeSH Terms] OR fever[Text Word])

NOTE: When a term is searched as a MeSH Heading, PubMed automatically searches that heading and the more specific headings underneath it in the hierarchy. This is called exploding a term.

2. Journals Translation Table contains**:**

Full journal title
MEDLINE abbreviation
International Standard Serial Number (ISSN)

Example**:** 

PubMed Translation: ("N Engl J Med" [Journal Name])
A term will not be searched as both a text word/MeSH and journal name!

NOTE: If the journal's title is a MeSH term (for example, *Brain* or *Chest*), then enter the journal's name into the search box followed by [journal] for accurate searching.

3. Author Index
If the term is not found in the MeSH **or** Journal Translation Tables PubMed then checks the Author Index. Authors may be searched by full name or by traditional PubMed format:

Enter the author's name in the form of Last Name (space) Initials, using no punctuation :

Example: pogonka t Example: o'brien j

If only the first initial is used, PubMed automatically truncates the author's name to account for varying initials.

If only an author's last name is entered, PubMed will search that name in All Fields (Author field plus all other searchable fields). It will not default to the Author Index because the last name is not followed by one or more initials.

NOTE: If the author's last name is the same as a MeSH term, then enter the name followed by [author] for accurate searching.

- As of 2002, the author index also includes some full names. It is now possible to search for George W. Bush, for example, as an author. NOTE: this will greatly restrict retrieval.

- During 2005 & 2006, PubMed's author searching capabilities expanded to include searching for an author as the *first* named author or as the *last* named author of an article. See PubMed's Help for additional information.

If no match is found?

PubMed breaks apart the phrase and repeats the above process until a match is found.

If there is no match, the individual terms will be combined (ANDed) together and searched in All Fields.

- PubMed breaks apart a long phrase from right to left, dropping the word at the furthest right:

Example:

Searches for:	Results:	Action:
Head lice shampoo	No match found	Removes term on right to re-run Automatic Term Mapping process.
Head lice	Match found in MeSH Translation Table	***head lice*** will be searched as (***"pediculus"[TIAB] NOT Medline[SB]) OR "pediculus"[MeSH Terms] OR head lice[Text Word]***
Shampoo	No match found in Translation Tables	***shampoo*** will be searched as ***shampoo[All Fields]***

PubMed then combines (ANDs) the found matches to produce a single search strategy:

(("pediculus"[TIAB] NOT Medline[SB]) OR "pediculus"[MeSH Terms] OR head lice[Text Word]) **AND** shampoo[All Fields]

Phrase Searching

The use of quotes around a phrase forces PubMed to check PubMed's Index to attempt to find the phrase. The Index contains several million phrases. To search for a specific phrase in the Index, **enter double quotes ("") around the phrase**. NOTE: Phrase searching turns OFF Automatic Term Mapping.

Your phrase may actually appear in citation and abstract data, but may ***not*** be in the PubMed Phrase List. If this is the case, the double quotes are ignored and automatic term mapping applies.

Truncation

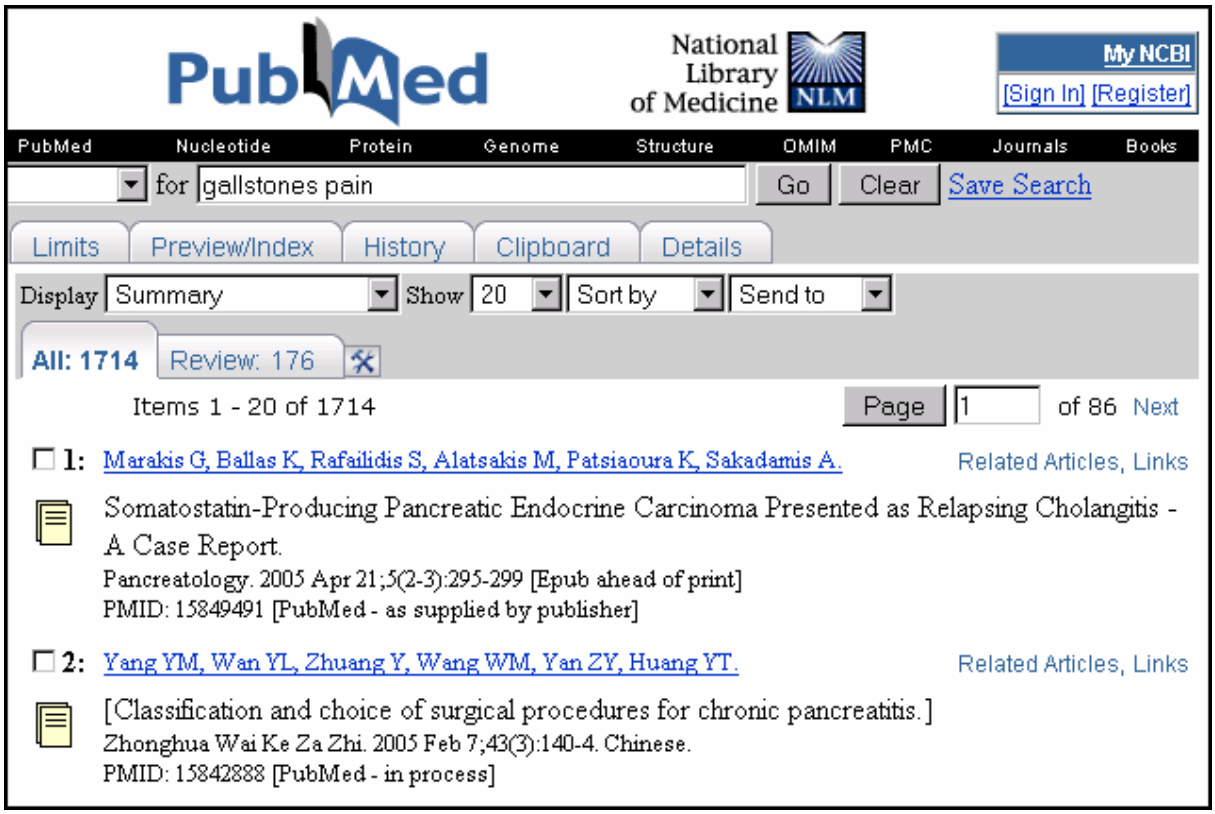
Truncation directs PubMed to find all terms that begin with a given text string. Place an asterisk (*) at the end of a term to search for all terms that begin with that word. The asterisk may only be used at the end of a string of characters. PubMed has no single character truncation (wild card in the middle of a term). For example: mimick* will find all terms that begin with the letters mimick; e.g., mimick, mimicked, mimicks, mimicking, etc. NOTE: Truncation will turn *off* Automatic Term Mapping in PubMed.

Search Results Screen

Once you click on **Go** or press the Enter key, PubMed will automatically:

Run the search

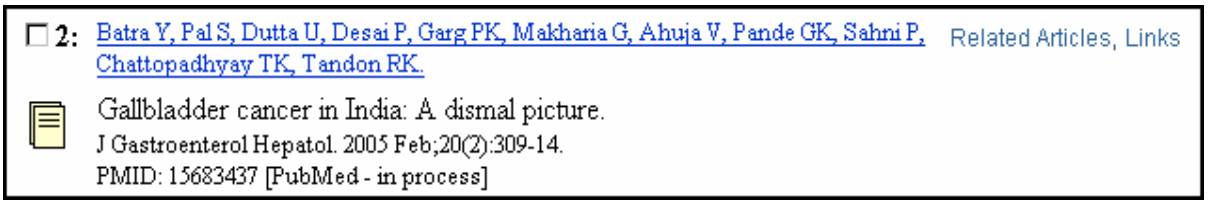
Retrieve and display citations



DISPLAY OPTIONS

Summary Format

PubMed citations are initially displayed in the Summary format:



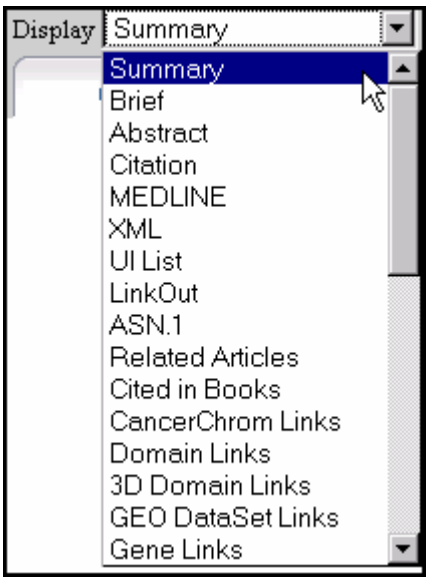
The summary format consists of the following:

- **Author Name(s):** All authors from the record are displayed.
- **Links:** Related articles and Links to other resources and other Entrez databases.
- **Title of the article:** Foreign language titles will be translated into English and placed within brackets.
- **Source:** Provides journal title abbreviation, date of publication, volume, issue, and pagination. Articles without abstracts will display the notation: "No abstract available". NOTE: Mouse-over the abbreviated title and the full name of the journal will appear.
- PubMed Unique Identifier (**PMID**).
- Status tag**: [PubMed - as supplied by publisher]**, or **[PubMed - in process]**, or **[PubMed - indexed for MEDLINE],** or **[PubMed – OLDMEDLINE for pre-1966]**, or **[PubMed – Author manuscript in PMC]**, or **[PubMed]** tag.
- **Icon** which indicates one of the following:

	No abstract is associated with this citation.
	Abstract: this citation has an abstract.
	Free full text: this citation contains a link to the full text of the article and no payment or subscription is required.
	Free in PMC: Free full text is available from PubMed Central (PMC), NLM's free digital archive of life sciences journal literature.

Other Display Formats

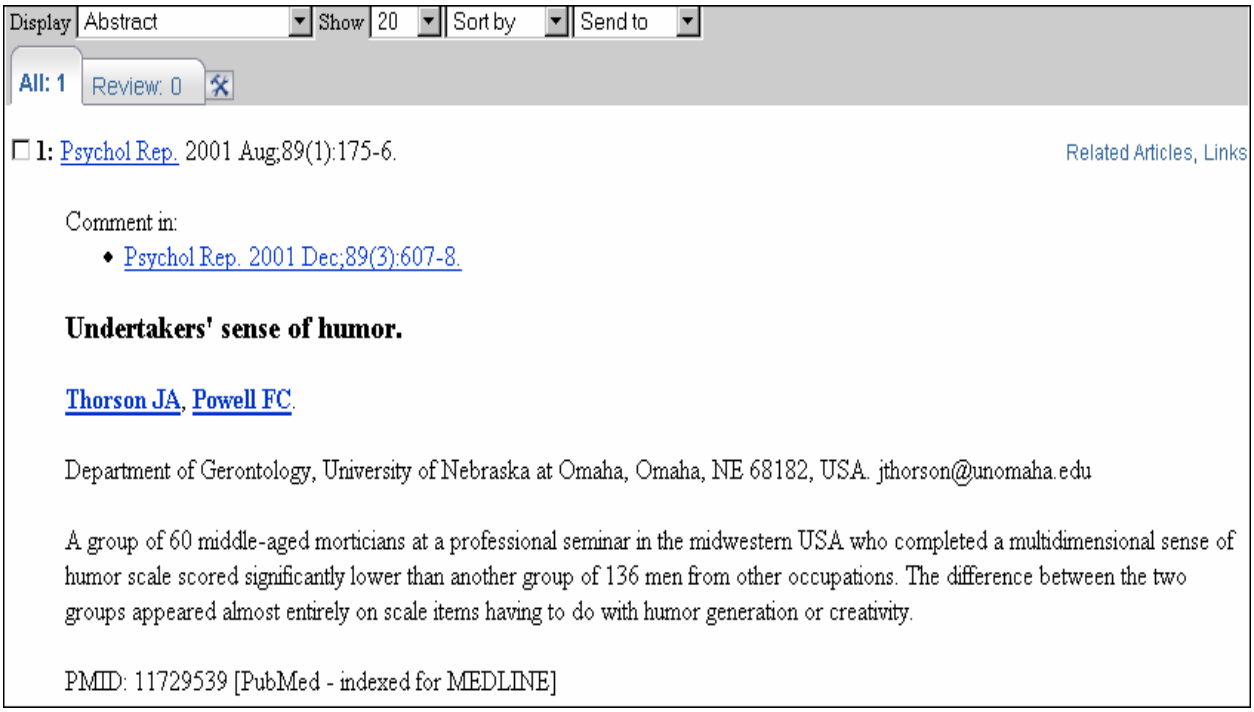
The pull-down menu next to the **Display** button allows the user to select available display formats:



Summary, Abstract, Citation, MEDLINE, and Related Articles are the most appropriate display selections for bibliographic information.

Abstract Format

This display format includes information displayed in the Summary Format along with the abstract (if present) and the author affiliation. Note that if an abstract was not provided in the original publication, there will be no abstract in PubMed. NLM indexes articles but does not abstract them.

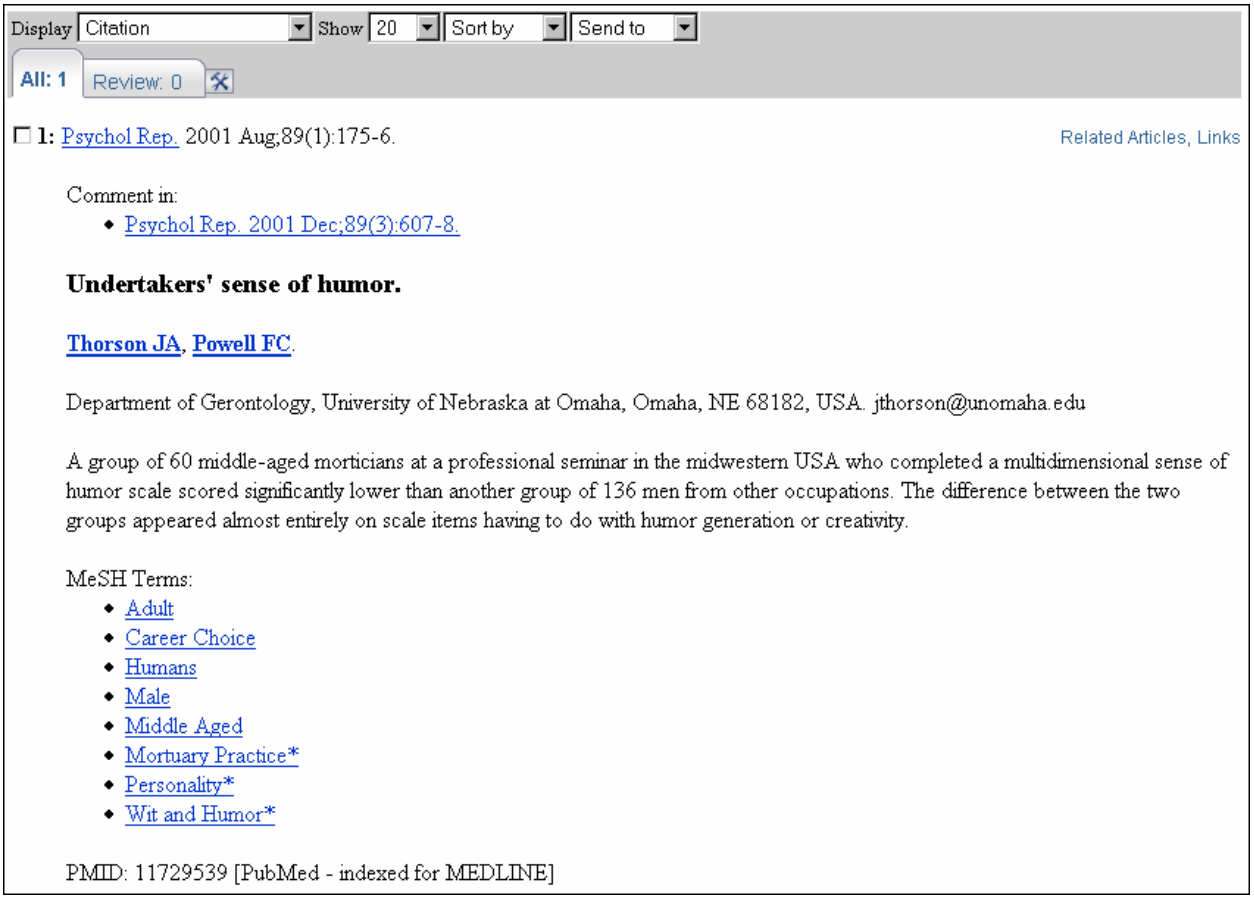


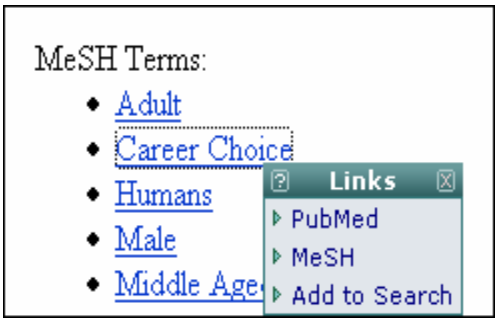
NOTE: In the Abstract Format, the journal abbreviation and the author names are both search links. Clicking on the journal abbreviation will bring up a menu of options. Clicking on an author's name will automatically run a search for all citations in PubMed by that author.

Citation Format

The Citation Format includes everything seen in the Abstract Format and adds additional information:

- MeSH terms (on indexed citations)
- Grant Support (when available and applicable)
- Substance names (when available and applicable)



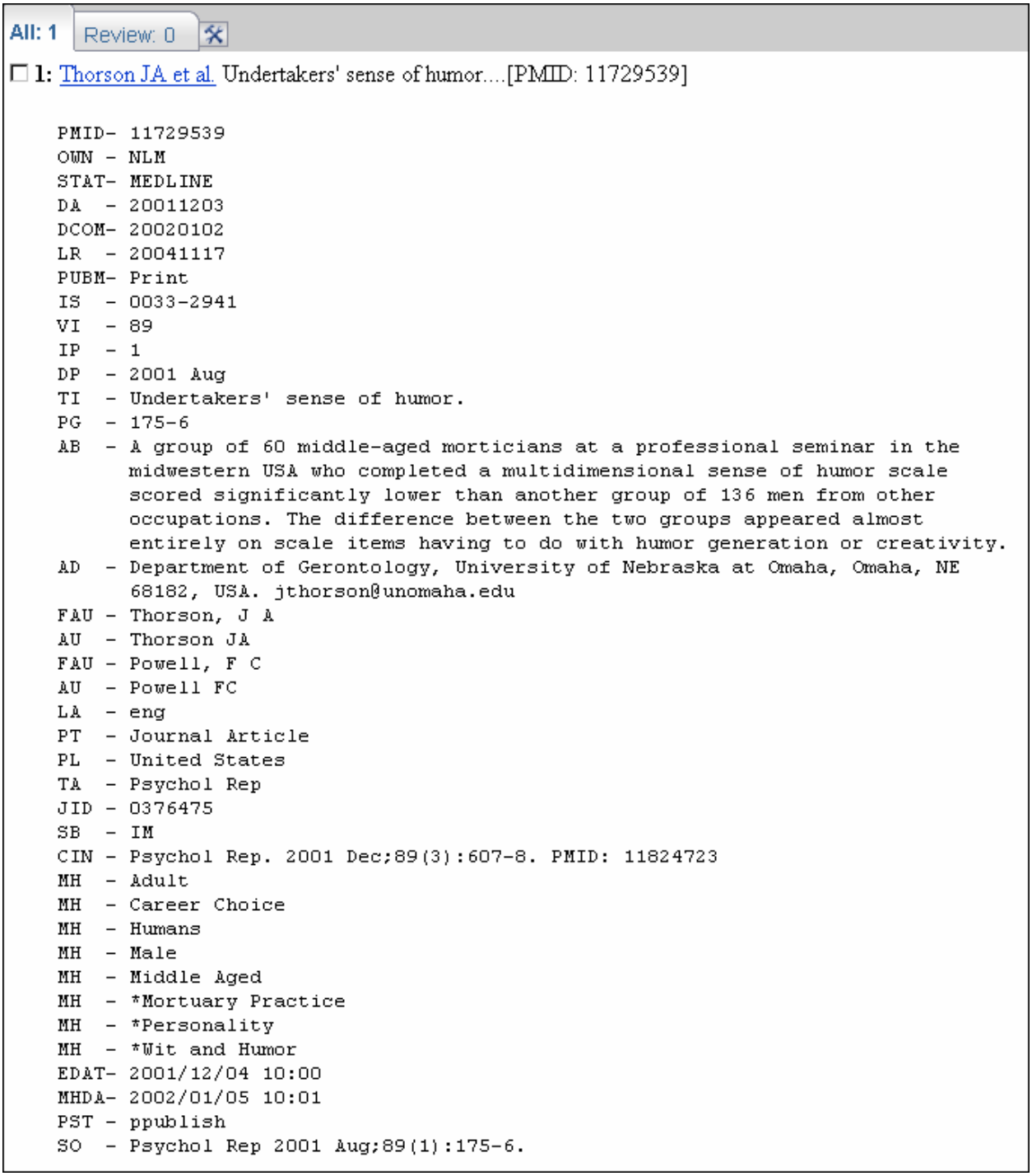


The MeSH terms in the Citation format are search links. Click on any term and a list of links will appear:

- Use the **PubMed** link to search for all citations in PubMed indexed with this MeSH term
- Use the **MeSH** link to see this term's record in the Entrez MeSH database
- Use the Add to Search link to add this MeSH term to your search strategy

MEDLINE Format

Two character tagged field format displaying all fields of the MEDLINE record.
Use this format for downloading records into bibliographic management software.

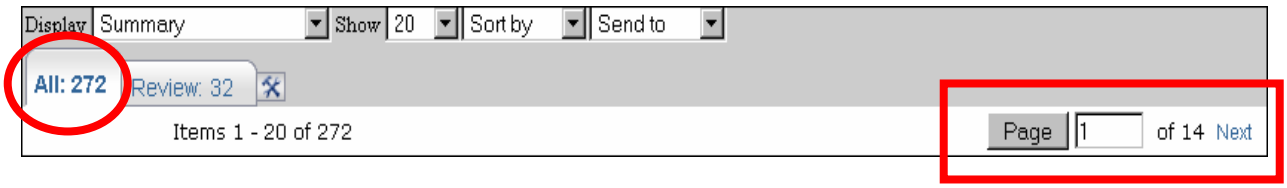


All: 1 Review: 0

1: Thorson JA et al. Undertakers' sense of humor....[PMID: 11729539]

```
PMID- 11729539
OWN - NLM
STAT- MEDLINE
DA  - 20011203
DCOM- 20020102
LR  - 20041117
PUBM- Print
IS  - 0033-2941
VI  - 89
IP  - 1
DP  - 2001 Aug
TI  - Undertakers' sense of humor.
PG  - 175-6
AB  - A group of 60 middle-aged morticians at a professional seminar in the
      midwestern USA who completed a multidimensional sense of humor scale
      scored significantly lower than another group of 136 men from other
      occupations. The difference between the two groups appeared almost
      entirely on scale items having to do with humor generation or creativity.
AD  - Department of Gerontology, University of Nebraska at Omaha, Omaha, NE
      68182, USA. jthorson@unomaha.edu
FAU - Thorson, J A
AU  - Thorson JA
FAU - Powell, F C
AU  - Powell FC
LA  - eng
PT  - Journal Article
PL  - United States
TA  - Psychol Rep
JID - 0376475
SB  - IM
CIN - Psychol Rep. 2001 Dec;89(3):607-8. PMID: 11824723
MH  - Adult
MH  - Career Choice
MH  - Humans
MH  - Male
MH  - Middle Aged
MH  - *Mortuary Practice
MH  - *Personality
MH  - *Wit and Humor
EDAT- 2001/12/04 10:00
MHDA- 2002/01/05 10:01
PST - ppublish
SO  - Psychol Rep 2001 Aug;89(1):175-6.
```

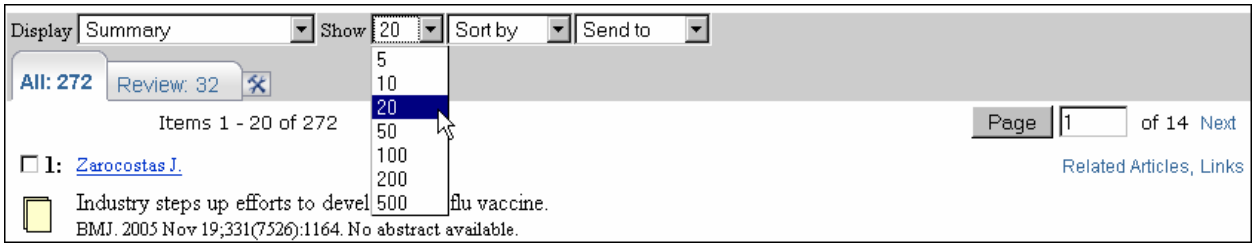
RETRIEVAL SUMMARY



The retrieval summary line displays the total number of citations retrieved by the current search, and how many pages of citations there are given the selected number of citations per page (default = 20 citations/page). It will also show how many of the retrieved citations are for Review Articles (publication type).

Show pull-down menu

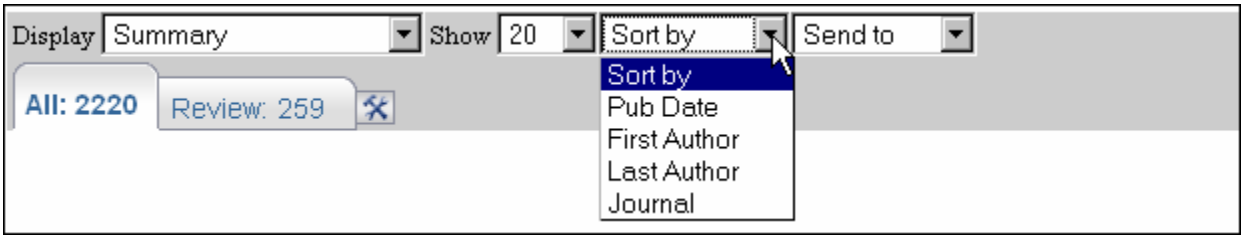
PubMed displays search results in batches of 20 citations per page (as the default)



Click on the Show pull-down menu to select a higher/lower number.
PubMed redisplays the citations based on your selection.

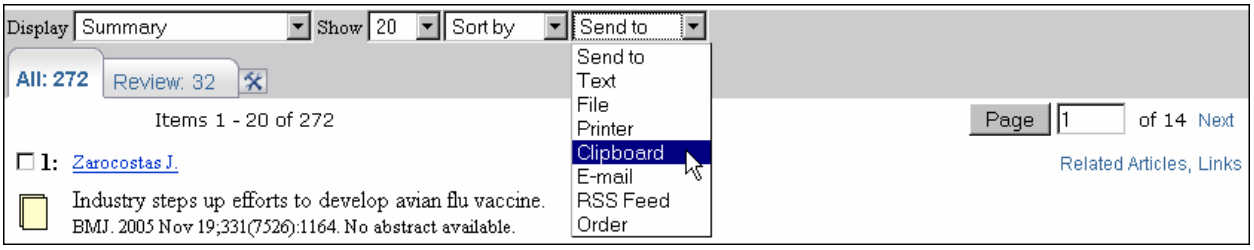
Sort

- To sort items by author (first named or last named author), journal, or publication date, click on the Sort pull-down menu and select a sort option. Pub Date sorts by publication date. Select the sort method desired by highlighting that option. PubMed redisplays the citations based on your selection.



Send To: Clipboard

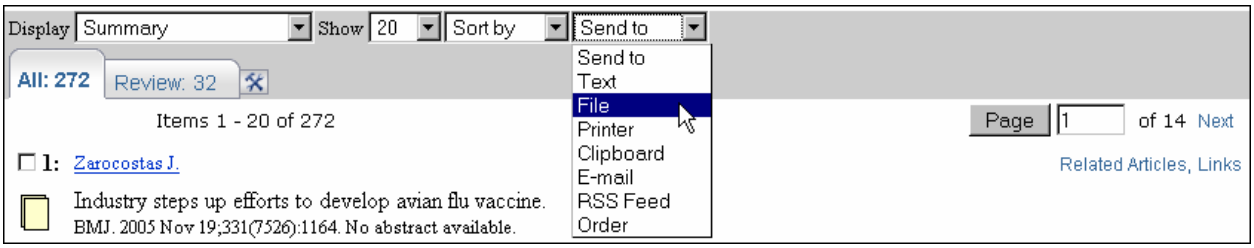
The Clipboard allows you to collect selected citations from one search or several searches that you may want to print, save, email, or order. Clipboard is a cyberspace holding area for citations.



- To place an item in the Clipboard, click on the box to the left of the citation. Then choose **Clipboard** from Send to pull-down menu. When **Clipboard** is highlighted, PubMed will send the chosen citations to the Clipboard.
- Once you have added a citation to the Clipboard, the item number color will change.
- The maximum number of items that can be placed in the Clipboard is **500**.
- The Clipboard will be **lost after eight hours of inactivity** on the computer you are using.

Send To: File

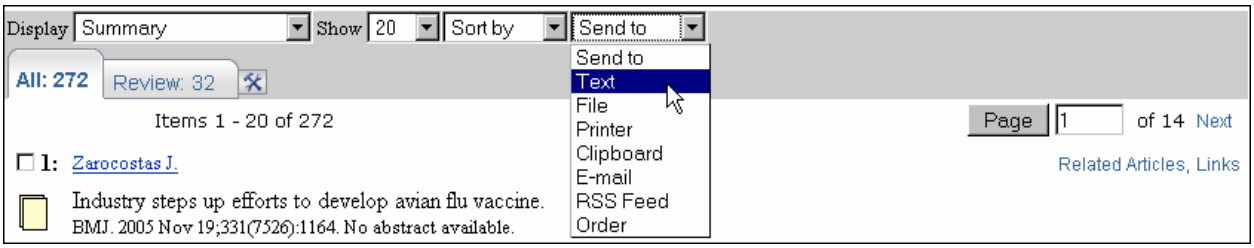
To save your entire set of search results as a computer file, use the **Display** pull-down menu to select the desired format, then highlight **File** in the Send to pull-down menu.



- To mark **selected citations to save**, click on the check-box to the left of the item number as you go through each page of your retrieval. After you select the citations and choose a display format, highlight **File** to save those citations as a computer file.

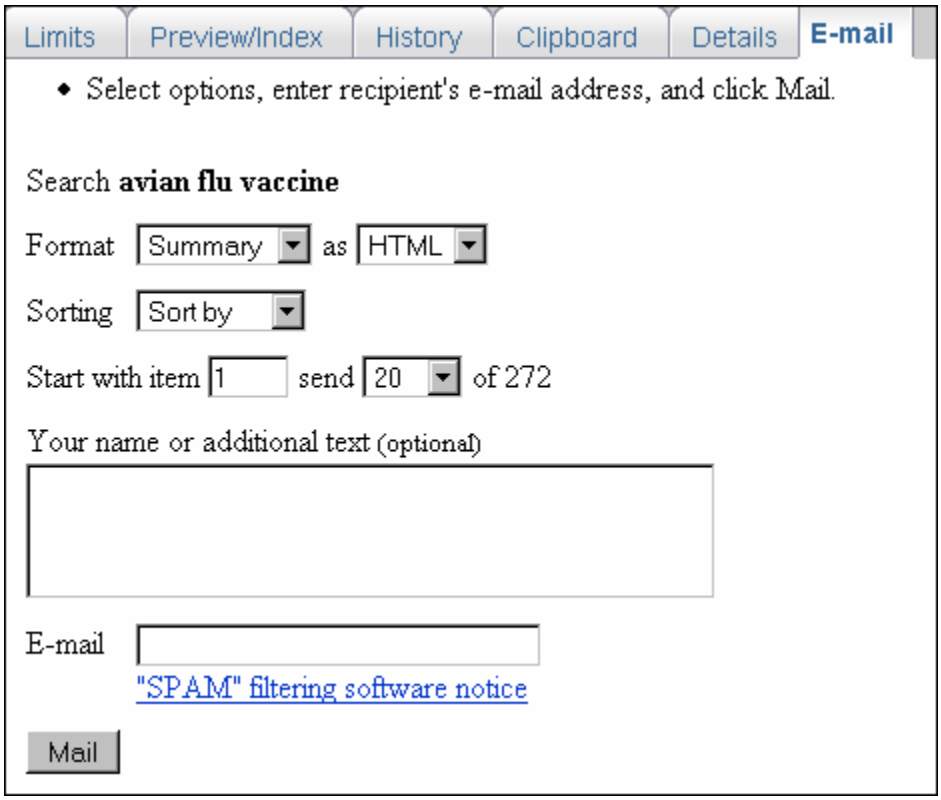
Send to: Text

Use **Text** to redisplay citations using just the text of records and omitting the graphics. When finished with the text display, use your Web browser's Back button to get back to your results in HTML. [See next page for graphic]



- The text version will display either selected citations, or, if no citations are selected, *all* the citations on the page.
- Before using the Text button, consider using the Show pull-down menu to increase the number of items displayed on each page as PubMed will print one page of citations and then stop, waiting for you to display the next page of citations for printing.
- NOTE: As of 11/28/2005, a **Send to Printer** option is also available and it would be the better choice for printing.

Send to: Email

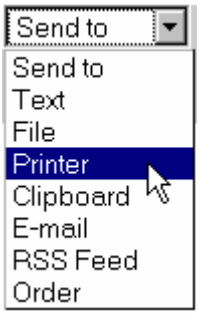


NOTE:

When PubMed sends email, the recipient's email inbox will display "Sent by NCBI" as the sender.

Consider sending the email to yourself first and then forwarding on to your colleague.

Printing



- Using the Send to Printer option will open printer-friendly page. This is the easiest way to print from PubMed.
- Think about using the Show pull-down menu to display all of your citations on one Web page. NOTE: You can only print citations from the displayed page.
- The **Text** option described above is also available for printing.

Order

- **Order** is for use with an automated document ordering program called **Loansome Doc**.
- You can also **Order** directly from the Clipboard.

The **Order Documents** feature allows you to use an automated document ordering program called **Loansome Doc**.

What is Loansome Doc?

The Loansome Doc feature allows you to electronically order the full-text of a citation from a Loansome Doc participating library in your area. Prior to using this feature, you need to establish an agreement with a Loansome Doc participating library. Your Loansome Doc library will provide you with their **Library ID**, which is needed when setting up the service within PubMed.

What does it cost?

The library providing you this service will explain their ordering fees. This service is generally ***not*** free.

What library can provide me with this kind of service?

Call your Regional Medical Library at 1-800-338-7657 Monday-Friday, 8:30 A.M. – 5:00 P.M. in all time zones to find out which medical library in your area can provide you with Loansome Doc ordering service. Or visit http://nnlm.gov to find a library that can help you.

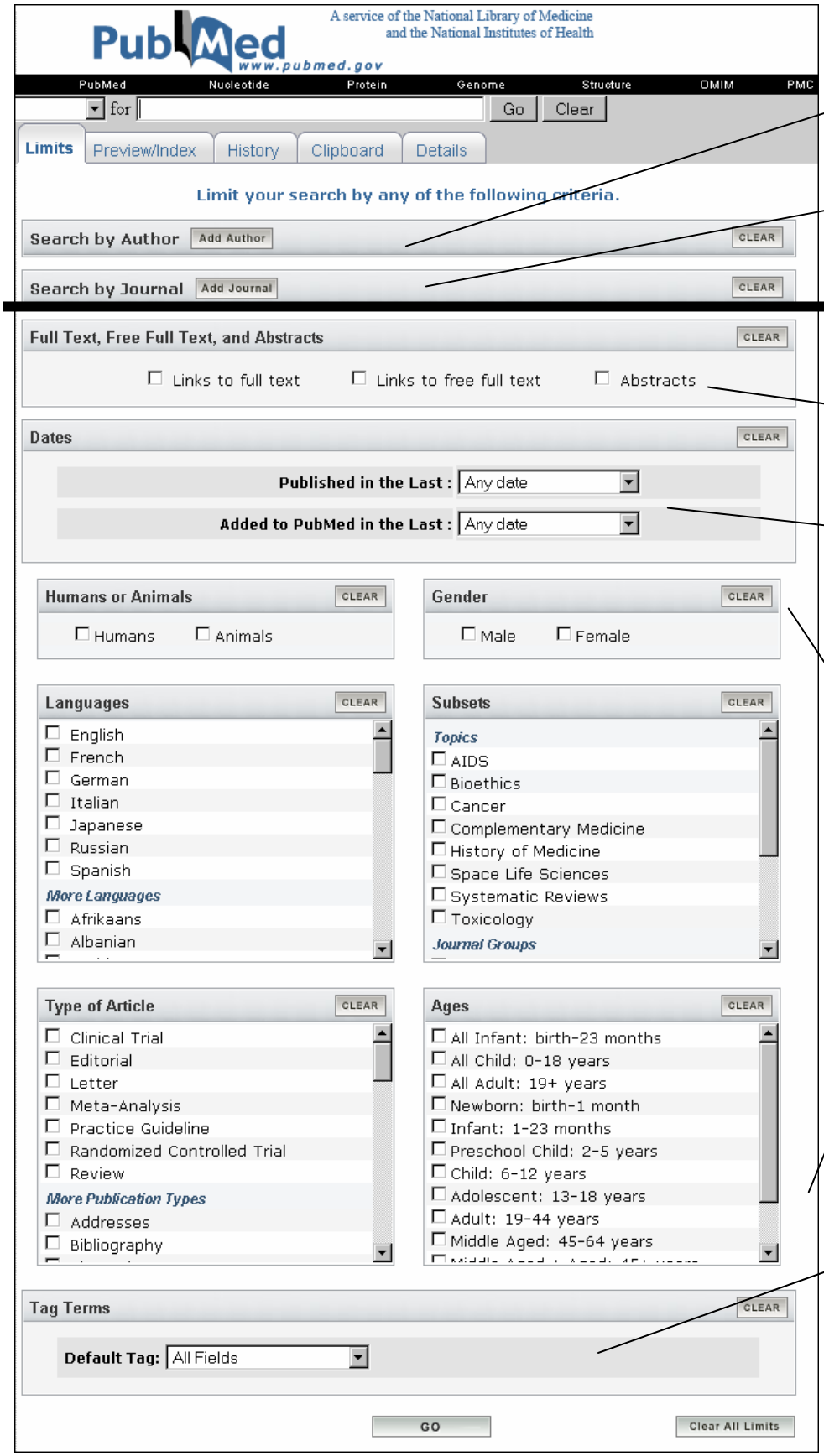
FEATURES TABS

The Features Tabs sit directly below the search box in PubMed. They allow you to select and use several functions.

Limits Tab: Access to Search Builders and Limits

- Click on Limits from the Feature tabs to access the Limits page
- The Limits page provides both **Limits** and **Search Builders**
  - Search builders are used to add terms to a search thereby restricting retrieval
  - Limits are used to narrow (restrict) retrieval by focusing a search strategy

Search Builder	**Use this Search Builder to…**
Author	Add one or more author names to your search
Journal	Add one or more journal titles to your search
Limit	**Use this Limit to restrict retrieval to only those citations…**
Full text, Free full text, and Abstracts	That are available full text from a publisher's site OR Freely available in full text OR That have abstracts
Dates	Published within a specified period of time OR Added to the database within a specified period of time
Humans or Animals	That are studies which have Human subjects OR That are studies which have Animal subjects
Gender	That have males OR females as study subjects
Languages	That are written in one or more languages that you specify
Subsets	That are part of a pre-defined topical subset OR Part of a pre-defined journal grouping OR Are MEDLINE, OLDMEDLINE or PubMed Central citations
Type of Article	That are a certain publication type
Ages	Pertinent to a specific age grouping
Tag terms	That contain word(s) or number(s) searched in a specified field of a MEDLINE record



Search Builders:

One or more author names may be selected

One or more journal titles may be selected

Limits:

Choose one or more options

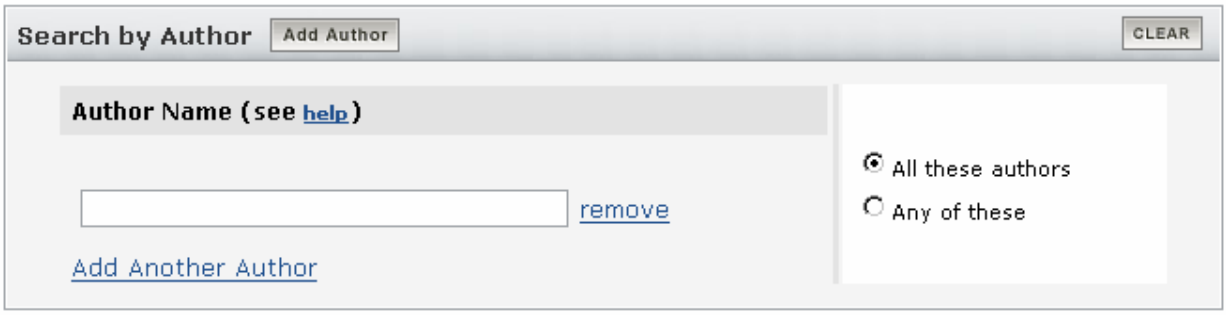
Pre-specified date ranges may be chosen or you may enter a date range of your own specification

Choose one or more options in any of these categories

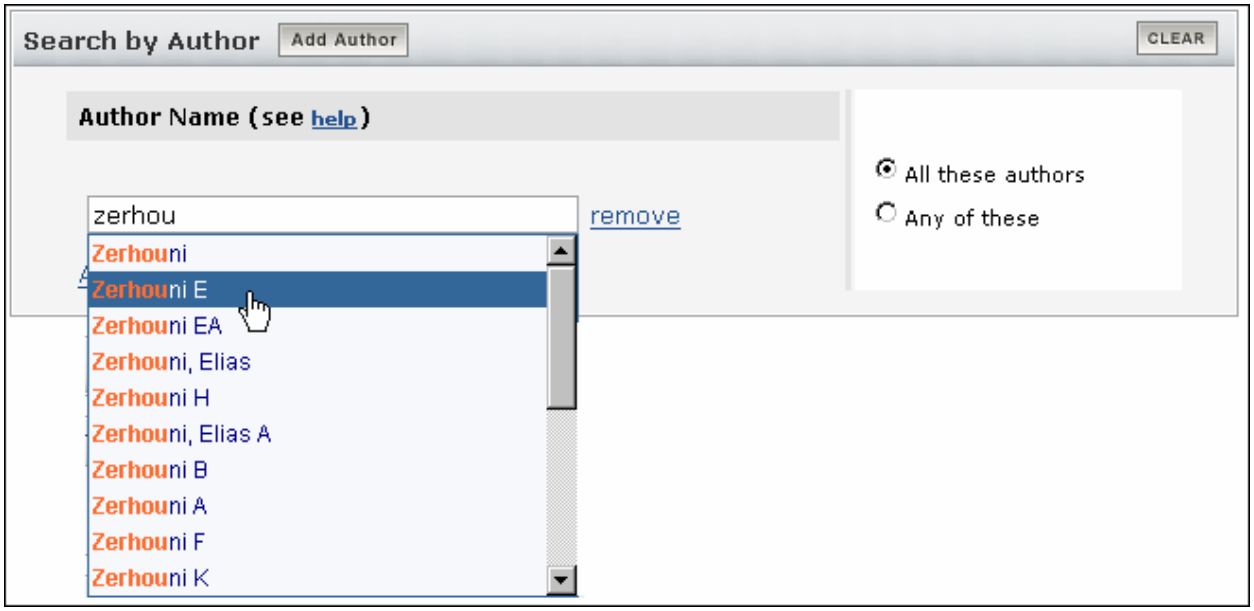
Chose a field from the drop down menu. Any terms entered into the search box will be tagged with the appropriate field tag and PubMed will search for the specified term in the specified field **only**.

Search Builder: Specify Authors

- Use this Limit to restrict retrieval to citations written *only* by the author(s) specified
- Click on Add Author and the following box will appear



- Start typing an author's name. The auto-complete feature will activate:

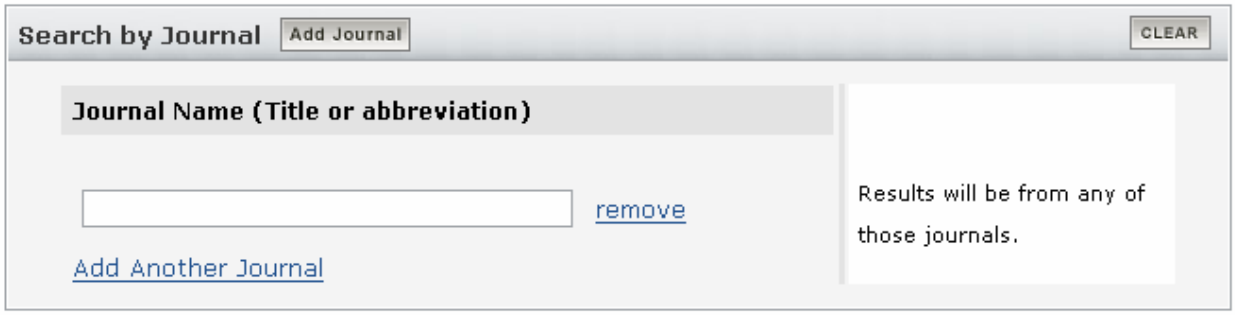


- Select the desired author name by clicking on it.
- Add additional author names by clicking on the "Add another author link"
- On the right hand side, choose whether ALL the author names must appear on the resulting citations or if ANY of the author names need appear.

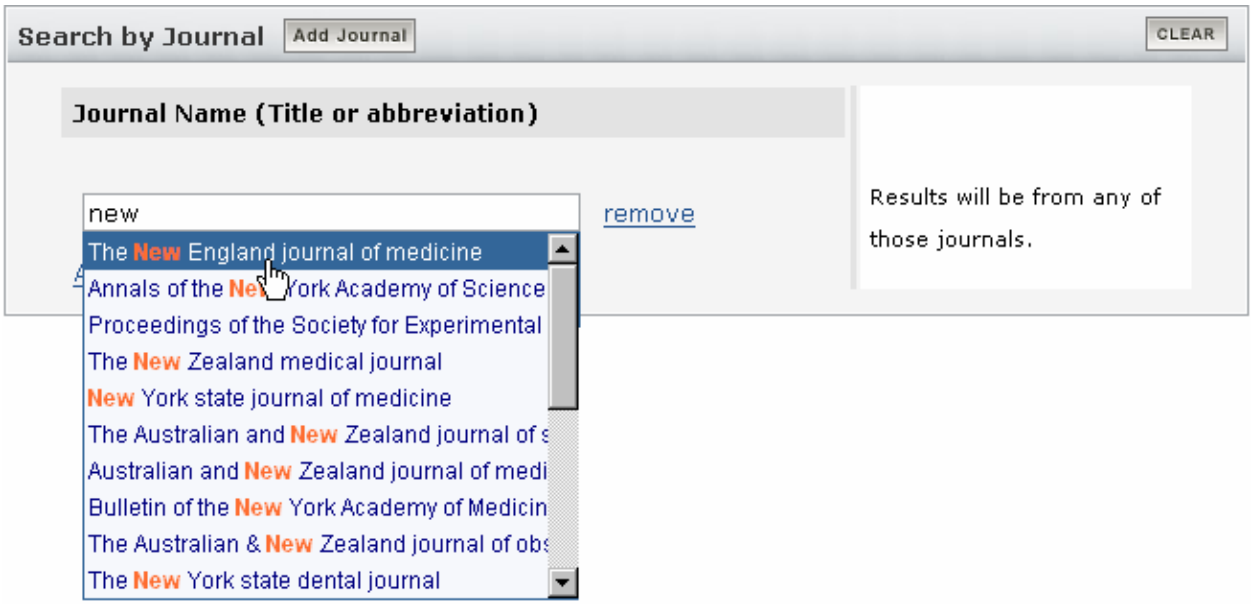
NOTE: The author names will appear in the Search Box in PubMed and will stay there until they are manually removed (deleted). They cannot be removed by using the "Clear" or the "Clear all limits" button from the Limits page because these are *not* Limits. They are additional search terms.

Search Builder: Specify Journals

- Use this option to restrict retrieval to citations that come *only* from the named journal(s)
- Click on Add Journal and a box will open:



- This works like the author box. Start typing a journal title and the auto-complete feature will activate.
- As with the Author Limit, choose the journal title of interest by clicking on it:

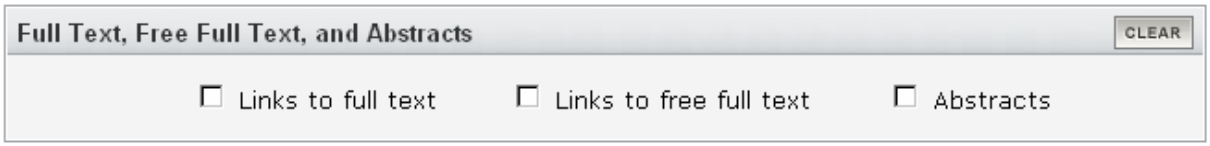


- Add additional journal titles by clicking on the "Add another journal" link.

NOTE: The journal names will appear in the Search Box in PubMed and will stay there until they are manually removed (deleted). They cannot be removed by using the "Clear" or the "Clear all limits" button from the Limits page because these are *not* Limits. They are additional search terms.

Limiting to Full Text, Free Full Text, or Abstracts

- Choose one or more options to use this limit

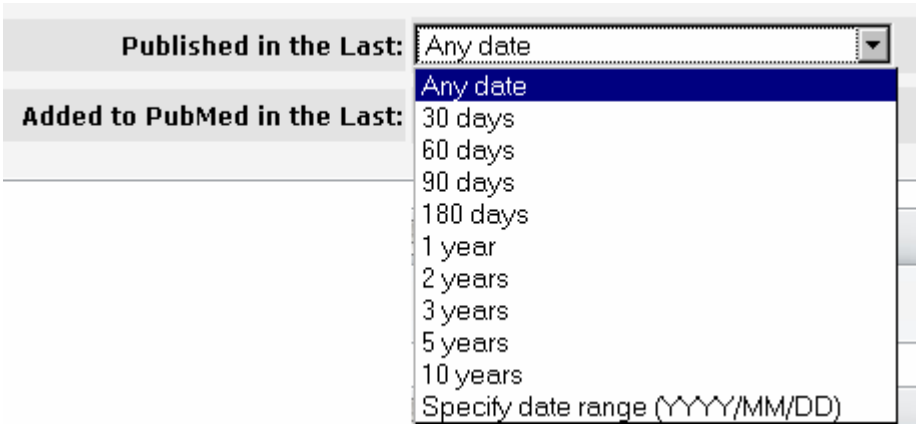


- **"Links to Full text"** means retrieval will be limited to citations with access to the full text available through a publisher's site. This access will probably *not* be free.
- **"Links to Free full text"** means retrieval will be limited to citations with access to the full text provided *freely* to anyone who has access to the web. This access may be provided by PubMed Central or by a publisher.
- **"Abstracts"** means retrieval will be limited to only those items which have an abstract.

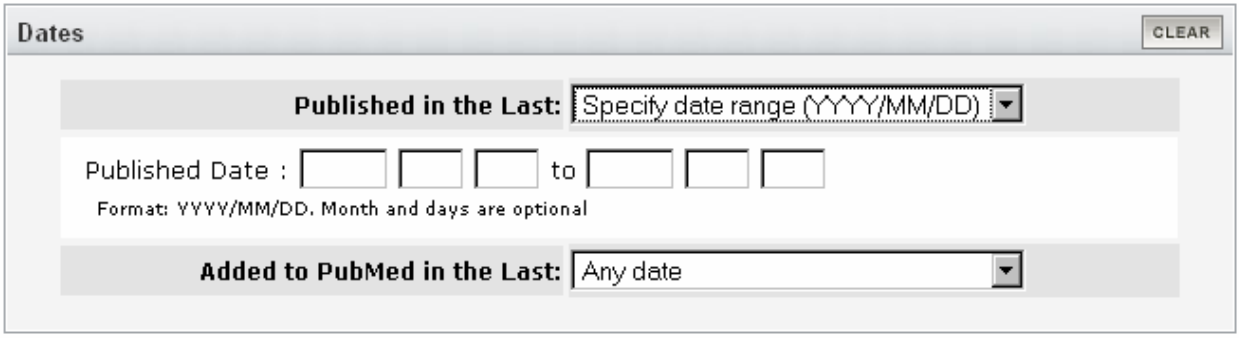
Limiting by Date

- Two general options appear for Limiting by Date:

- The drop down menus will offer pre-formatted date ranges:



- Or, select "Specify date range..." and specify the date range of interest



- NOTE: To choose a date range from some time in the past to the present, leave the *to* boxes empty. PubMed will search for all citations from the specified date to the year 3000, assuring that your search really will be to the present.

Limits to Human or Animals or Gender

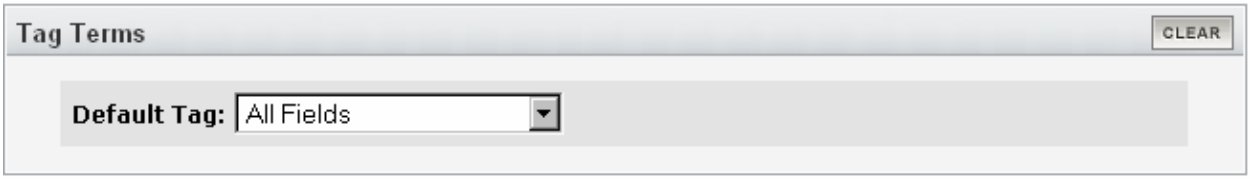
- Choosing one of these limits will restrict retrieval to studies that have
  - Humans or Animals as the study subjects
  - Males or Females as subjects of a human study

Limit to Languages, Subsets, Type of Article, or Ages

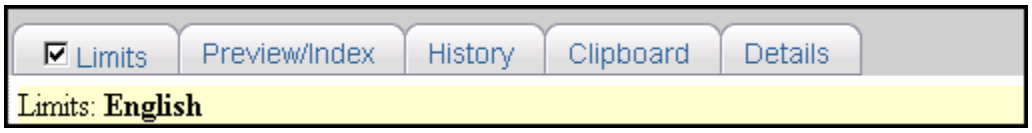
- Choosing one of more options in any of these boxes will restrict retrieval accordingly.
- **Type of Article** describes the publication type more than the content of an article. Scope notes for all the publication types may be found at http://www.nlm.nih.gov/mesh/pubtypes2006.html
- **Subsets** provide three different options: Topics, Journal Groups, and More Subsets.
  - Topics = Subject oriented
  - Journals = Core Clinical Journals, Nursing Journals, and Dental Journals. The Core Clinical Journals group may be familiar to some users as the Abridged Index Medicus titles. These are journals that are likely to be found in a reasonably sized collection. The list of titles included in the Core Clinical Journals group may be found http://www.nlm.nih.gov/bsd/aim.html
- **More subsets** = Citation status groups
  - MEDLINE is the set of all indexed citations
  - OLDMEDLINE is the set of citations from pre-1966
  - PubMed Central is the set of citations from journals participating in PubMed Central

Limit: Tag Terms

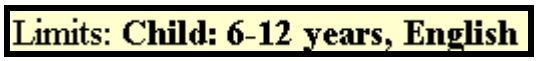
- This limit will apply the selected field tag to the terms in the search box. PubMed will then search *only* the selected field for those terms. To see the fields, simply click on the drop down arrow next to "All Fields."



Limits Indicator



- Once you have selected Limits, a check box appears next to the Limits on the Features Tab.
- If you run a search, the limits in effect will appear in the yellow bar above the Display button:



NOTE: The Search Builder options (adding author names or journal titles to your search) do not cause the Limits indicator to activate and no yellow banner will appear because those are *not* Limits, they are additional search terms.

Preview/Index Tab

This page is home to two functions: Preview and Index

Use Preview/Index to:

- Preview the number of search results before displaying the citations.
- Refine search strategies by adding one or more terms, one at a time.
- Add terms to a strategy from specific search fields.
- View and select terms from the Index to develop search strategies.
- View your search strategy as you continue to refine your search.

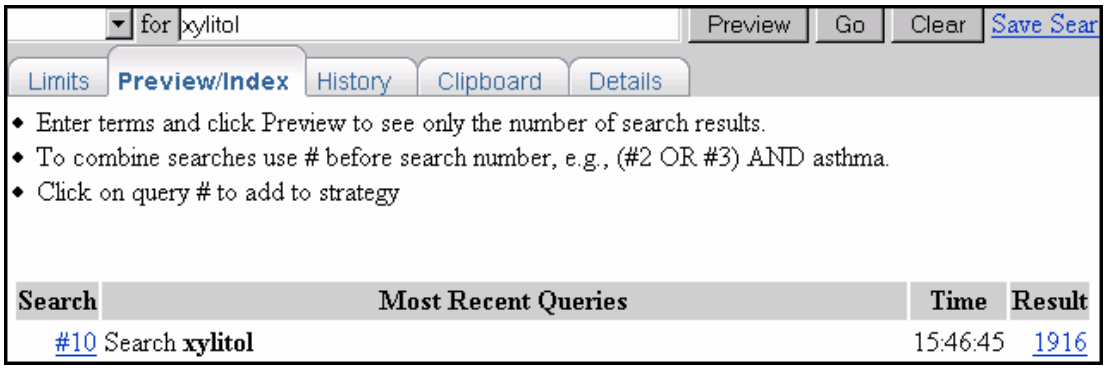
Preview

Previewing the number of search results before displaying the citations

Search Request**:** *Find citations on how xylitol prevents tooth decay in children. Xylitol is a sugar substitute used in sugar-free gum, etc.*

- Enter terms in the query box and click Preview.

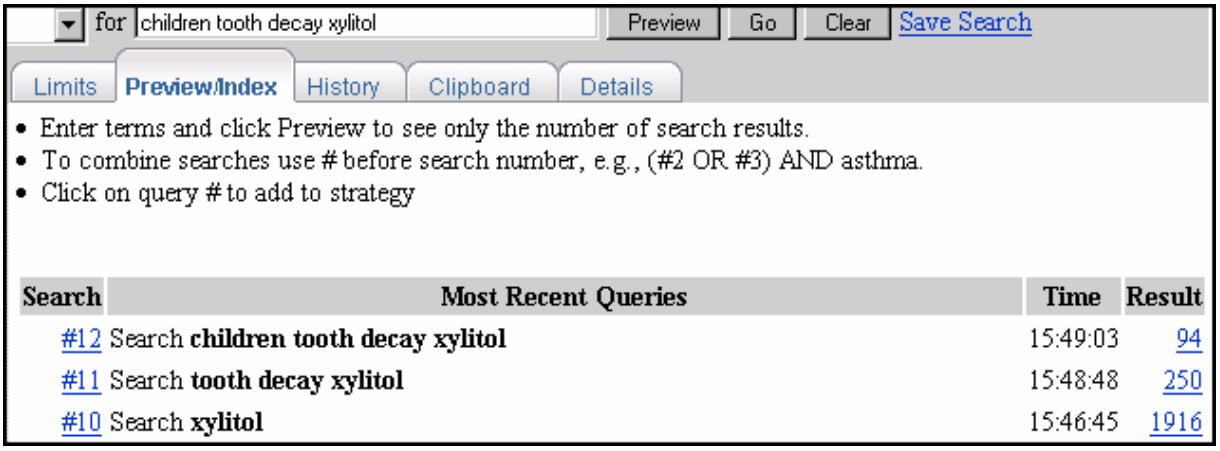
- PubMed returns the number of citations but not the actual results.



***Result** shows the number of citations.*

Refining search strategies by adding one or more terms at a time

- Add another term (e.g., tooth decay) to the query box and click **Preview**.
- Continue adding terms (e.g., children) and clicking **Preview** until your strategy is complete.
- View your search strategy and number of results as you continue to refine your search.



***Preview** shows search strategy and number of results as each term is added.*

Index: Viewing and selecting terms from the Index to develop search strategies

- Use the Index button to view and select terms from the Index of a specific field and to add them to your search strategy.
- The Index allows you to view a listing of terms within a search field.
- You may also select terms to build a search strategy using Boolean operators.

Selecting a field and entering a term to look up in the Index

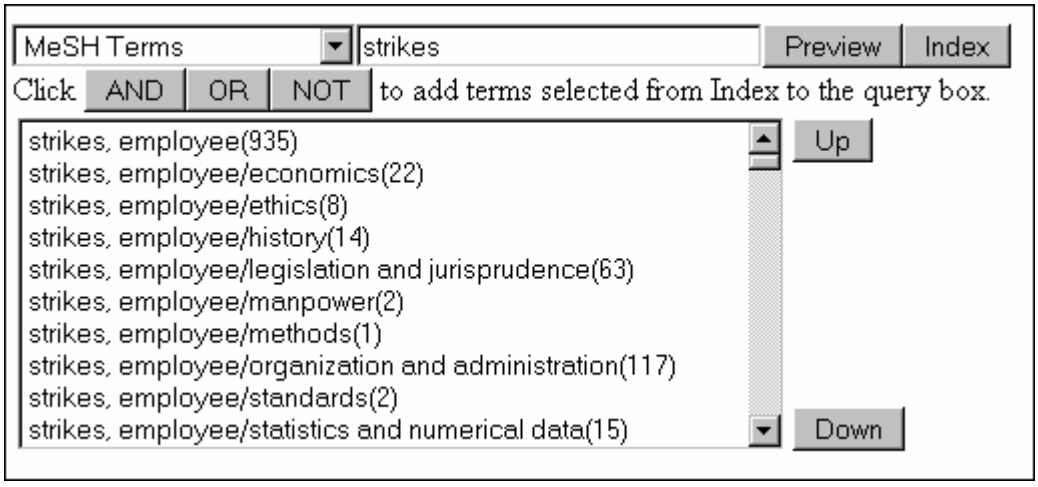
Search request: Find citations on *employee strikes*.

Select **MeSH Terms** from the pull-down menu, type in the term, **strikes** and click on **Index**.

*PubMed displays a portion of the alphabetical list of available terms for the selected search field. Scroll up and down this window using the **scroll bar**.*

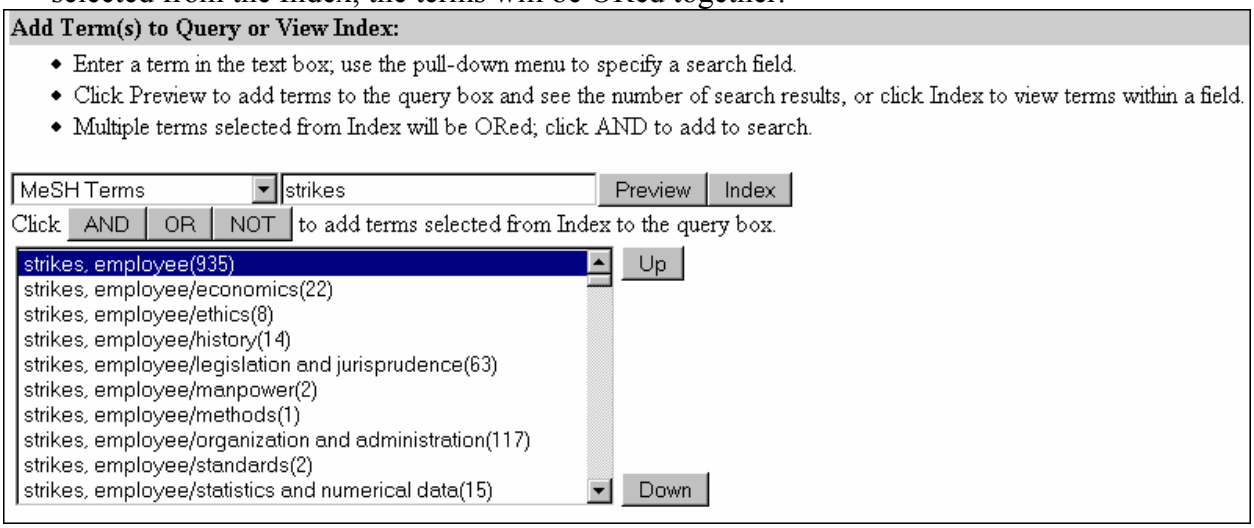
The number of citations that contain the term appears in parentheses to the right of the term.

*To scroll up or down the entire Index for the field, click the **Up** or **Down** buttons.*



Selecting a term from the Index

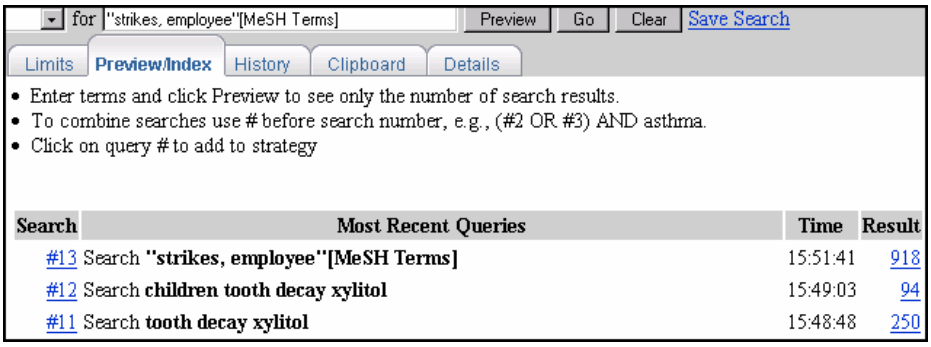
- Click on the term to highlight it.
- Multiple terms may be selected from the Index. Do this by holding down the Ctrl (control) key on a PC or the apple key on a Mac as you highlight terms. When multiple terms are selected from the Index, the terms will be ORed together.



- Click on **Preview**.
- Continue viewing, selecting, and previewing search terms until your strategy is complete.

***Query box** shows the search term and the search field.*

***Result** shows the number of citations.*



Note: Preview automatically ANDs together search terms and indicates the number of results. Use the **Boolean operators** to combine search terms as needed. If you use the Boolean operators, your search terms are added to the PubMed query box and you must click Preview to see the number of results.

Note: To **OR** together multiple terms from an Index display and then add (i.e., **AND**) them to your search, click on each term while holding down the Crtl-key (PC) or the Command-key (Mac). When all the terms you want are highlighted, click the connector AND to add the terms (OR'ed together) to the query.

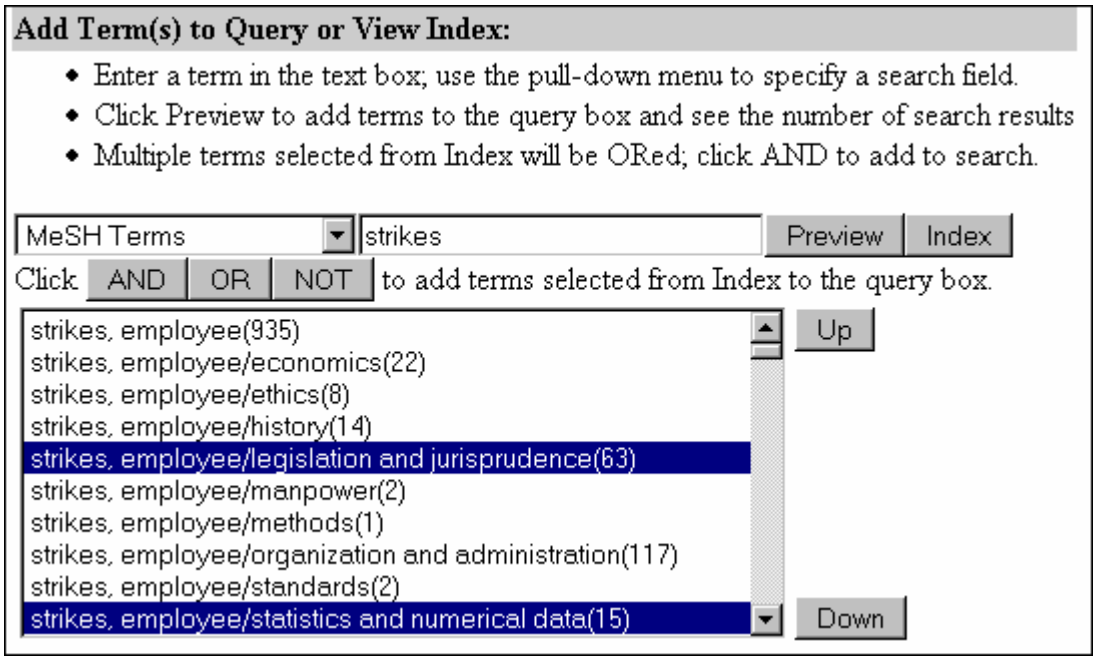
Continuing with the Search example: Find citations about employee strikes.

- Click to highlight, **strikes, employee** used with the subheading of **legislation and jurisprudence** as well as **strikes, employee** used with the subheading **statistics and numerical data** in the display.
- Click the **AND** button to select and add the terms to the query.
- Multiple selections are automatically OR'ed together.

Holding down the Crtl or Command key; click to highlight the terms.

*Click on the **AND** button.*

Multiple selections are automatically OR'ed together.

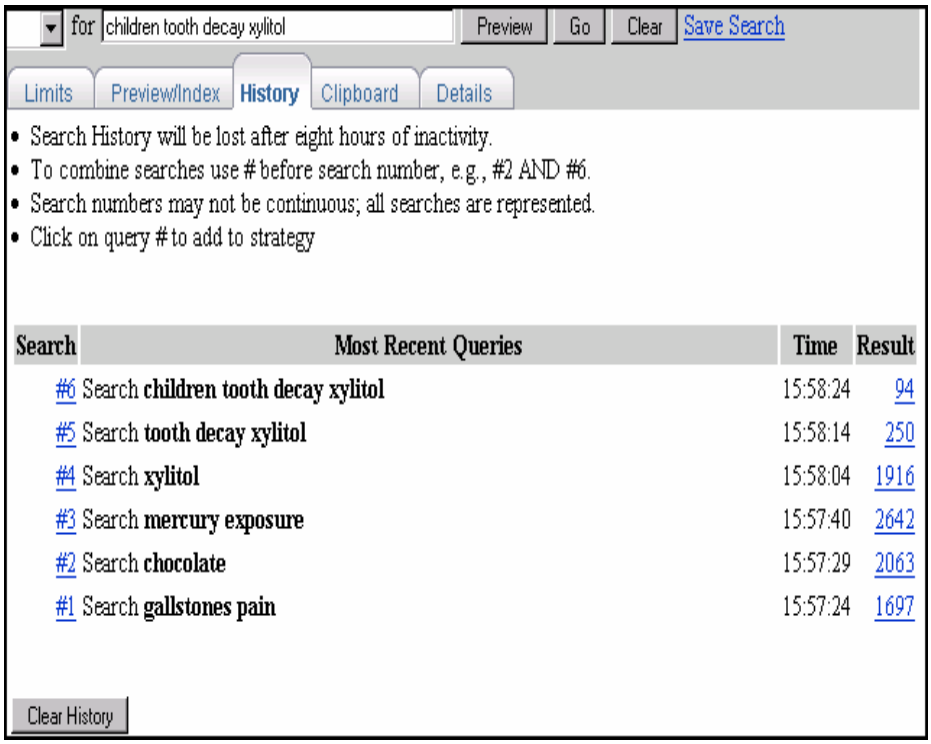


The following search is added to PubMed's query box: **("strikes, employee/legislation and jurisprudence" [MeSH Terms] OR "strikes, employee/statistical and numerical data" [MeSH Terms])**. To run this search in PubMed, click the **Go** button.

Author Field Index: PubMed automatically truncates on the author's name to account for varying initials, e.g., smith j will retrieve smith ja, smith, jb, smith j jr, etc. In the Author Field Index, when an author's name is displayed with the @ symbol after the first initial, this indicates occurrences of the author name without a middle initial. Selecting smith j@ from the index will retrieve smith j only.

History Tab

- History holds up to 100 search strategies and results from this search session.
- The History screen displays:
    - Your search query
    - The time of the search
    - The number of citations in your search results



Using History

- You can use the search statement numbers shown in history in search strategies.

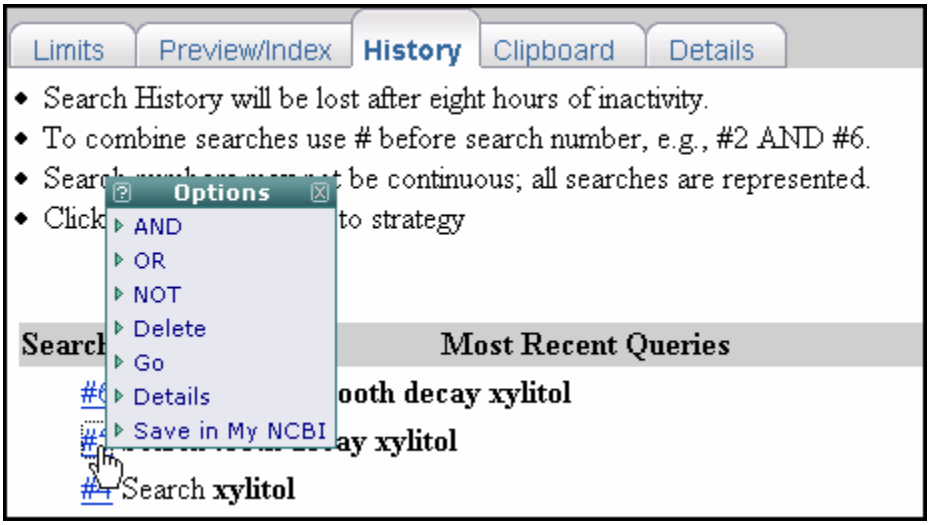
Example:

Boolean operators must be typed in **all caps** as shown in the example above.

- You can also use History to Preview search results, just like with the Preview/Index feature.

Search Statement Number Menu

- Click on the search statement number to open an Options menu:



Use the Options Menu to:

- Construct searches
- Delete a single search statement from History
- Rerun the search
- See the Details of a given search
- Save the search in your My NCBI account

History Tips:

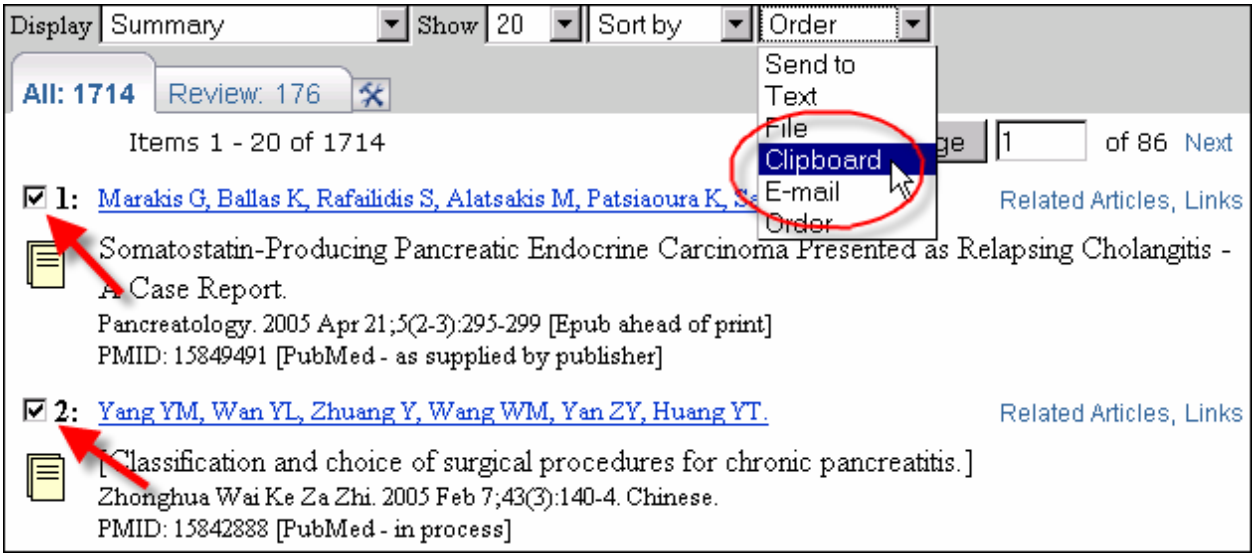
- The search history will be deleted after 8 hours of inactivity on the computer in use.
- PubMed will move a search statement number to the top of the History if a new search is the same as a previous search.
- A separate Search History will be kept for each of the Entrez databases although the search statement number will be assigned sequentially for all databases.
- The Clear History button will delete ALL the searches in the History.

Clipboard Tab

Allows you to save or view selected citations – search *results* -- from one search or several searches.

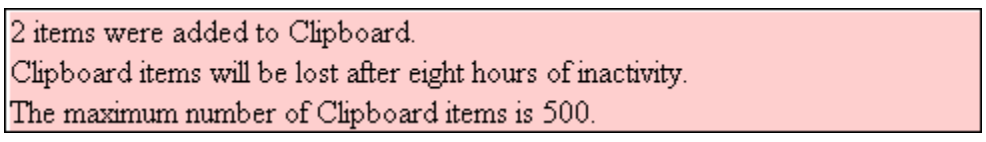
NOTE:

- The maximum number of items the clipboard can hold is 500.
- If you click **Send to: Clipboard** *without* selecting citations using the check-box, PubMed will add all the citations in your result set to the clipboard (up to 500 citations).
- The clipboard will be lost after eight hours of inactivity.
- You can **sort, print, save, email or order** the citations on the Clipboard.



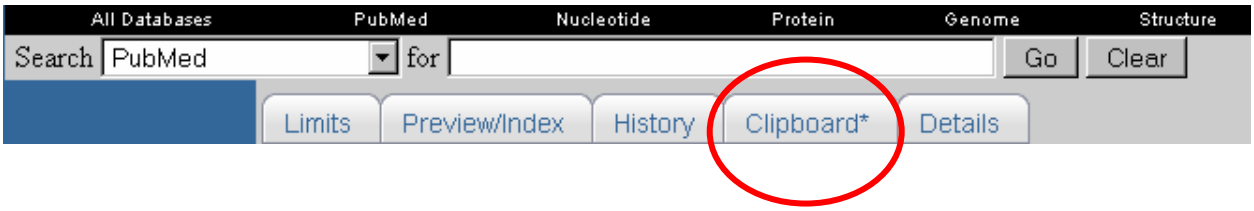
- To place items on the clipboard, click on the check-box to the left of the citation.

- Then select **Clipboard** from the **Send to** drop down menu. Click "Send to". A confirmation message states the number of items added to the Clipboard:



- Once the citations are added to the Clipboard, that citation's item number color changes from black to green.

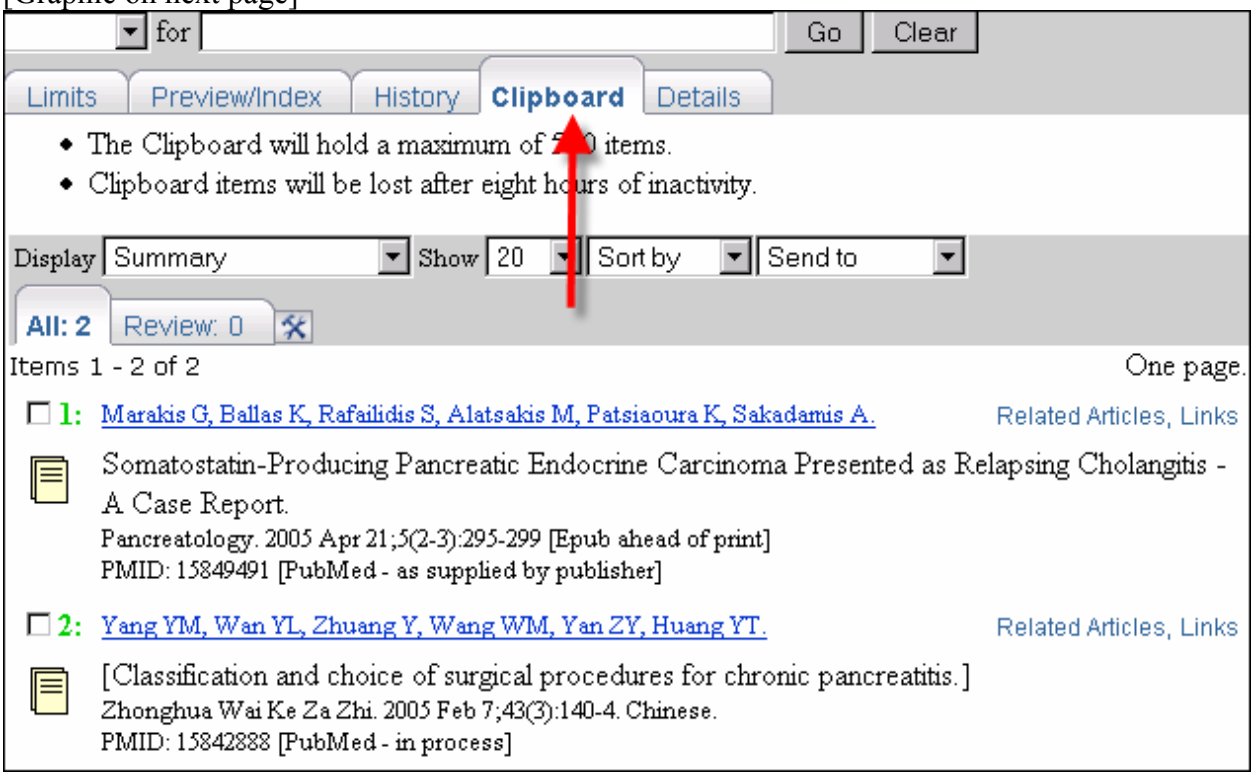
- The Clipboard tab will display an asterisk when citations have been successfully added:



Using the Clipboard

- To view the contents of your clipboard, click on the Clipboard tab.

[Graphic on next page]



- To delete selected citations, click on the box to the left of the item number and then select **Clip Remove** from the drop down menu adjacent to "Send to." Click **Send to**.

- Caution: If you follow this procedure *without* selecting individual citations, ALL citations will be removed from the clipboard.

Details Tab

- Clicking on Details displays your search strategy as it was translated by PubMed.
- Error messages (e.g., stopwords, truncation warnings, and misspellings) are also displayed.
- The PubMed Query box in Details allows you to edit a search strategy and resubmit it.
- Details also allows you to save a search strategy using the URL button provided.

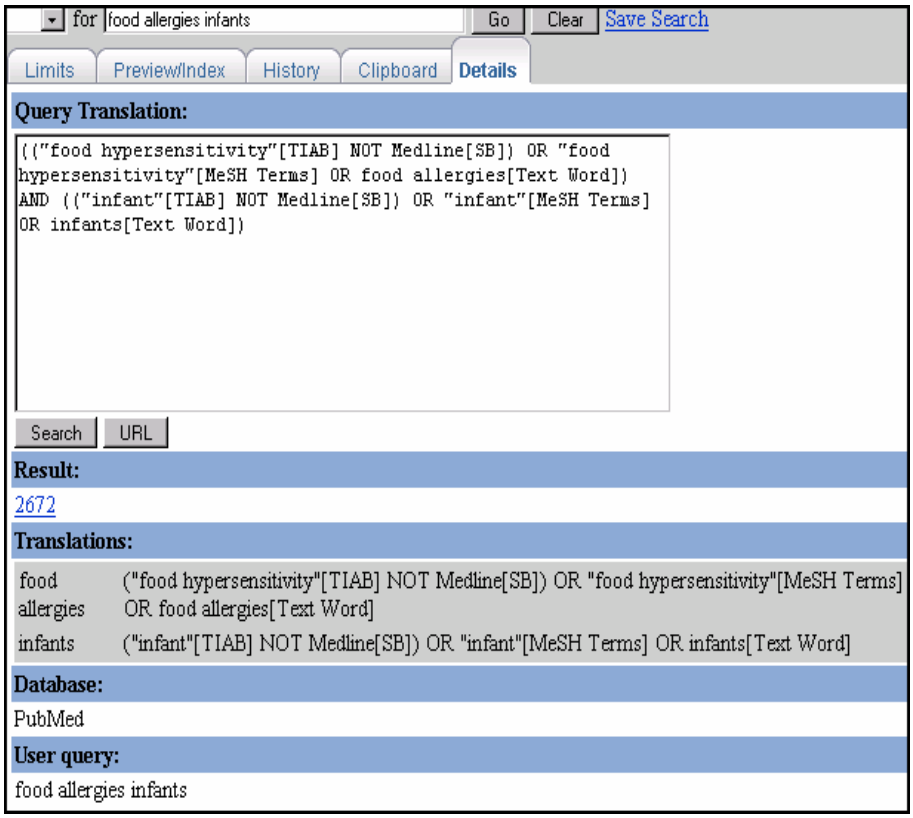
Here's a closer look at Details:

*You can modify the Search strategy if you wish and then click on the **Search** button.*

*Click on the **URL** Button to create a URL that allows you to save this search strategy.*

*Click on the **Result** Number hyperlink to return to the current search results.*

PubMed Translations



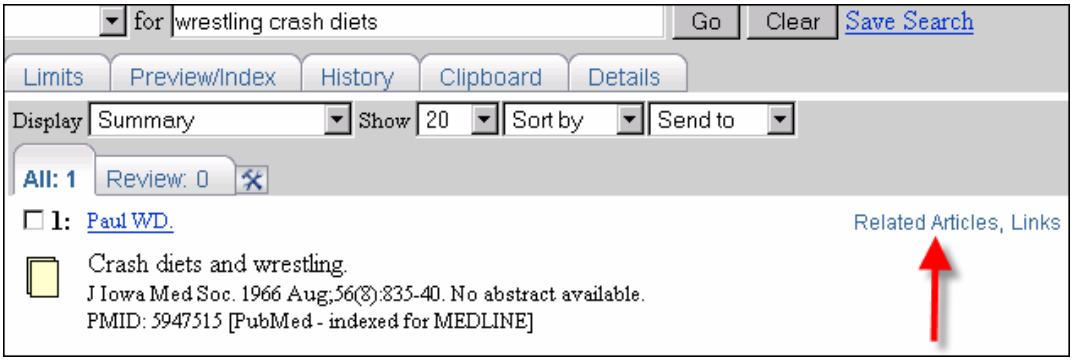
Related Articles

- Citations in PubMed have a **Related Articles** link. Clicking on this link will access the citations in PubMed that are most closely related to the original citation.
- The Related Articles citations display is in rank order from most to least relevant. The citation you linked from is displayed first.
- To create this list of Related Articles PubMed compares words from the Title and Abstract of each citation, as well as the MeSH headings assigned, using a powerful word-weighted algorithm.

A detailed explanation of the Related Articles algorithm is available in the PubMed Help or access the article directly at:

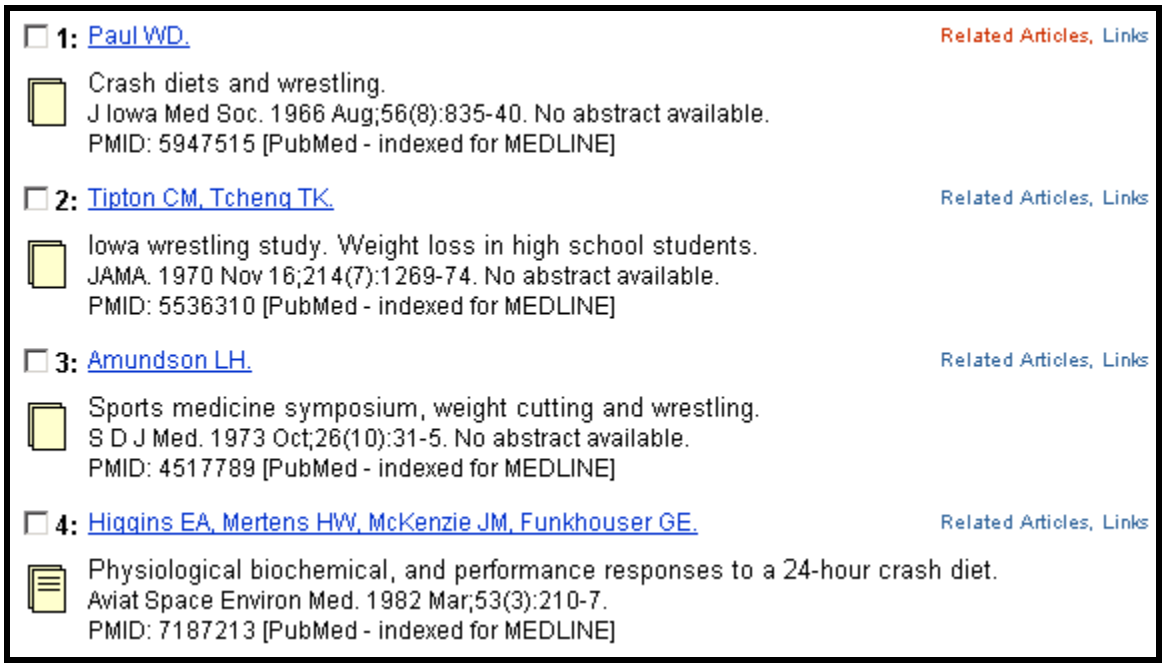
http://www.ncbi.nlm.nih.gov/entrez/query/static/computation.html

Example: *Find citations to articles about wrestling and crash diets.*



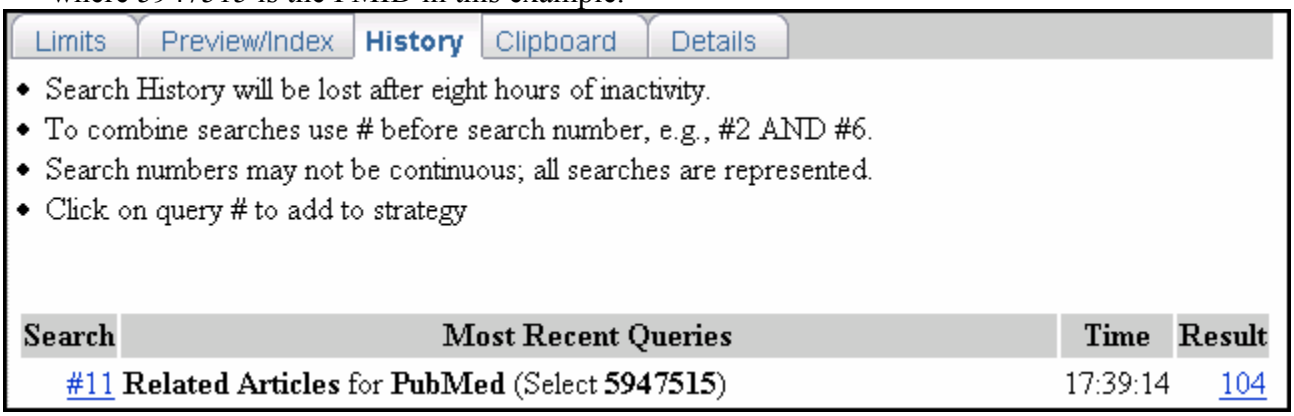
Related Articles Link

- This search retrieves only 1 citation. Now click on the Related Articles link and PubMed will display a list of related citations:



Refining your Related Articles retrieval set:

- Click History
- The Related Articles link is represented as: Related Articles for PubMed (Select 5947515), where 5947515 is the PMID in this example.



Use the search statement number (here, it's #11) and type it in the search box. Then use Limits or combine with another concept:

Example: #11 AND english [la]

Refining will <u>remove</u> the ranking by relevancy.

Searching with MeSH: The MeSH Database

The MeSH Database allows you to:

Locate and select MeSH terms (Headings, Subheadings, & Publication Types)
See the definition and other helpful information for a MeSH term.
Build a PubMed search strategy.
Display MeSH terms in the hierarchy.
Limit MeSH terms to a major concept for a search.
Attach subheadings for a search.
Link to the NLM MeSH Section's MeSH Browser

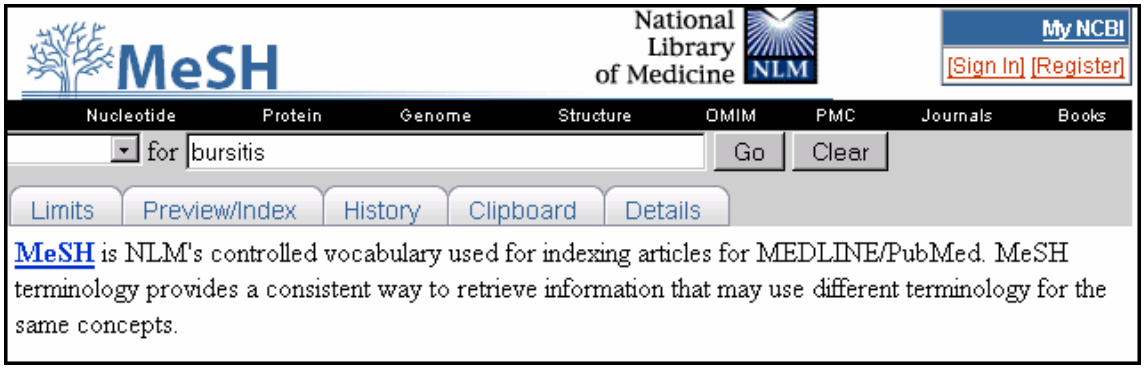
Searching with just MeSH terms will search only indexed citations. This means that the following types of citations will NOT be retrieved:

As supplied by publisher
In process
Oldmedline
PubMed

How to Get There

Click on MeSH Database on the blue sidebar on the left hand side of the PubMed page.
Use the MeSH Database to build a search strategy for a search for citations about the *diagnosis of bursitis*.

Enter the term, ***bursitis*** *, in the query box and click the* ***Go*** *button.*



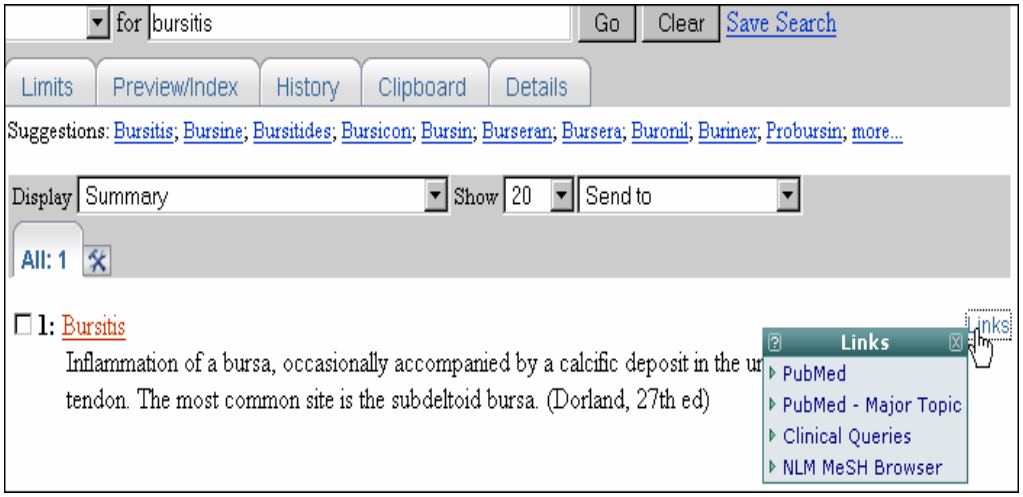
PubMed displays retrieval from this database in the Summary format:

***Suggestions** are MeSH or Entry terms generated by an algorithm that compares letter combinations.*

***Links** allows you to run a PubMed search or link to MeSH Section MeSH Browser.*

Scope Note (meaning for this concept) is displayed.

Click on the term to see the Full display.



The **Full** Display provides more information about the term:

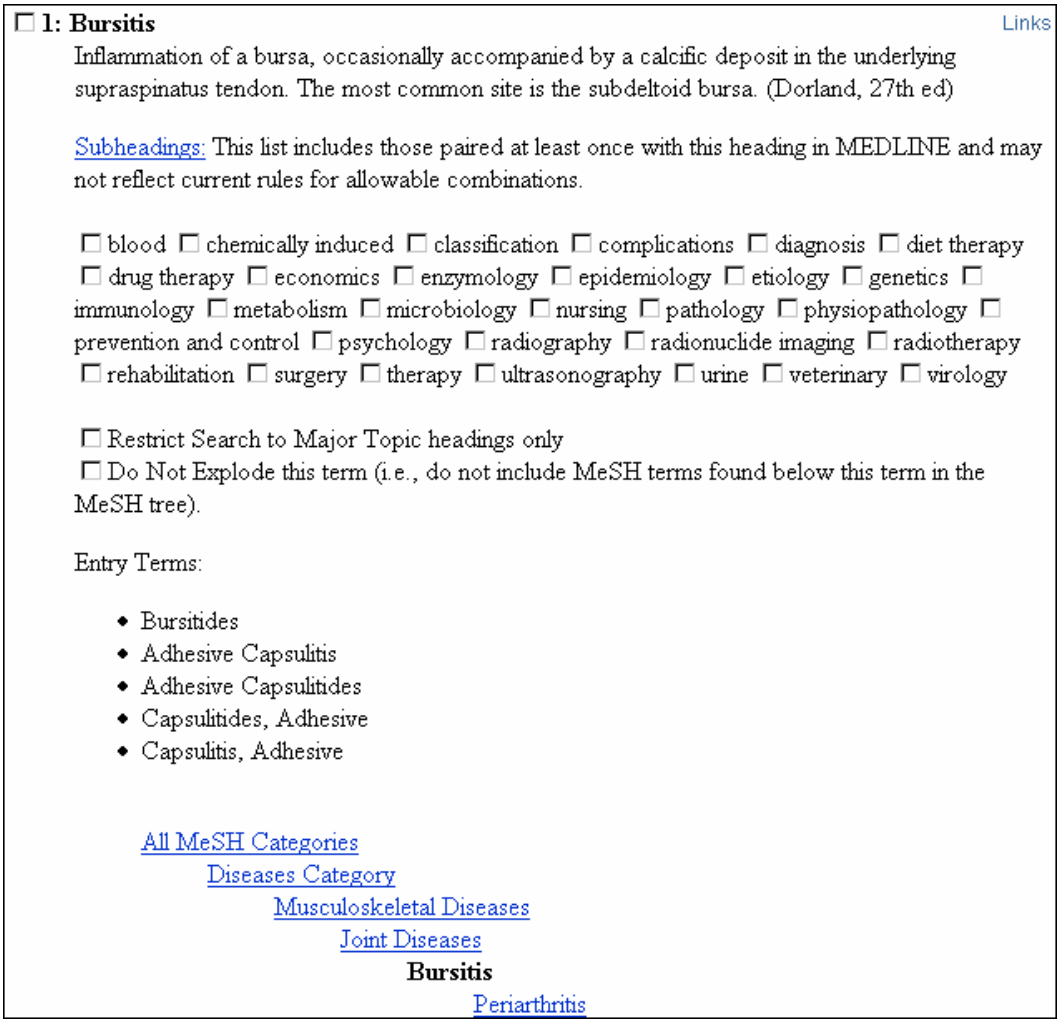
[See next page]

Use the check boxes to select subheadings. Click on the ***Subheadings*** *link to see a list of subheading definitions.*

Use these checkboxes to restrict to major topic or to not explode a term.

Entry Terms (synonyms) are provided.

MeSH hierarchy is displayed with searched term in boldface.

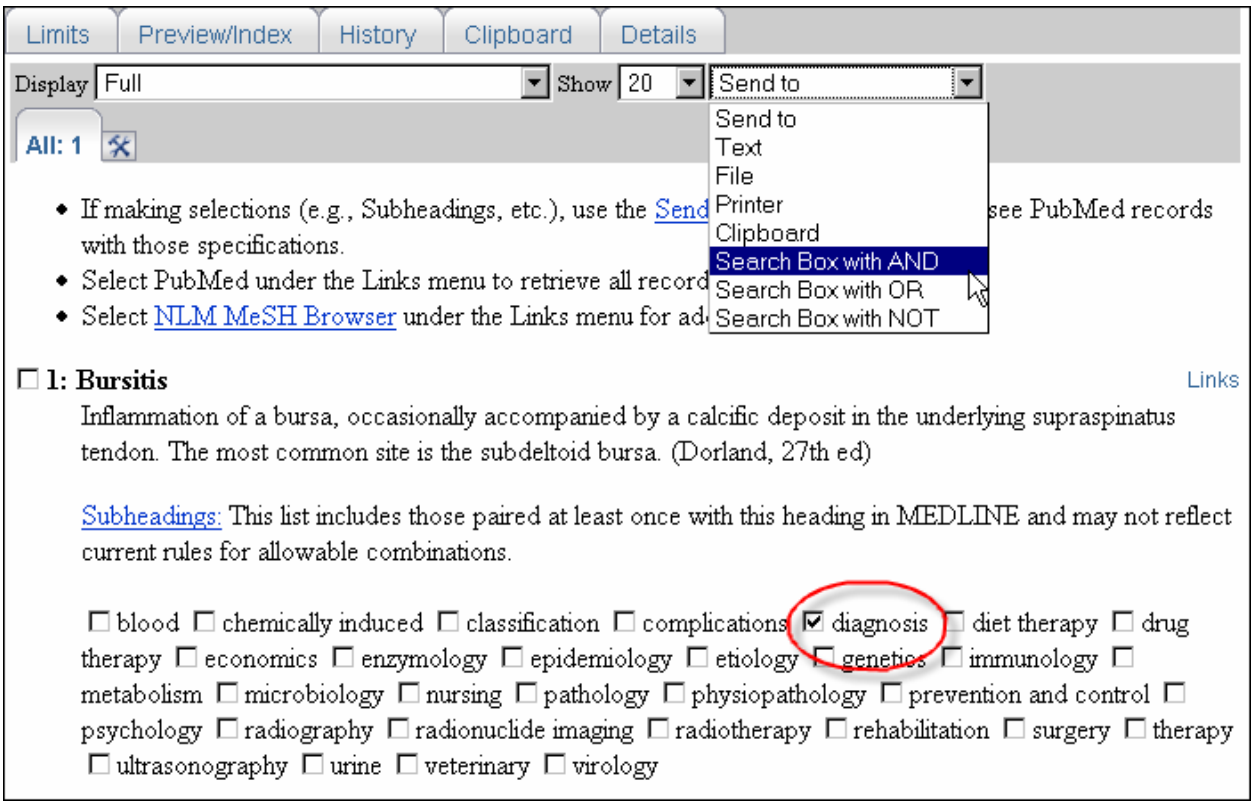


Send to Search Box

To specify a search for:

Citations about the diagnosis of bursitis

1. Select the diagnosis subheading from the Full display screen.
2. Select **Search Box with AND** from the **Send to** pull-down menu.

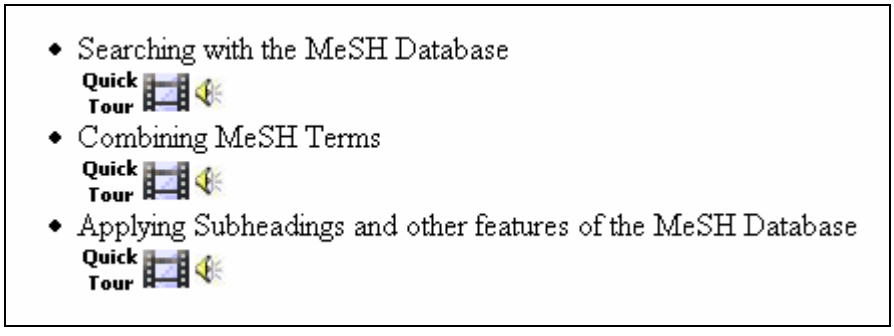


The term with any specifications will appear in the Search Box:

To add additional terms to this strategy, continue searching the database and add terms to the Search Box using the Send to Search Box feature. Click Search PubMed to run the search.

NOTE: The MeSH browser allows terms to be saved to the Clipboard. This is NOT the same Clipboard that you see when in the PubMed Database. This is the MeSH Database Clipboard.

Learn more about using the MeSH database with these Quick Tours on the MeSH database home page



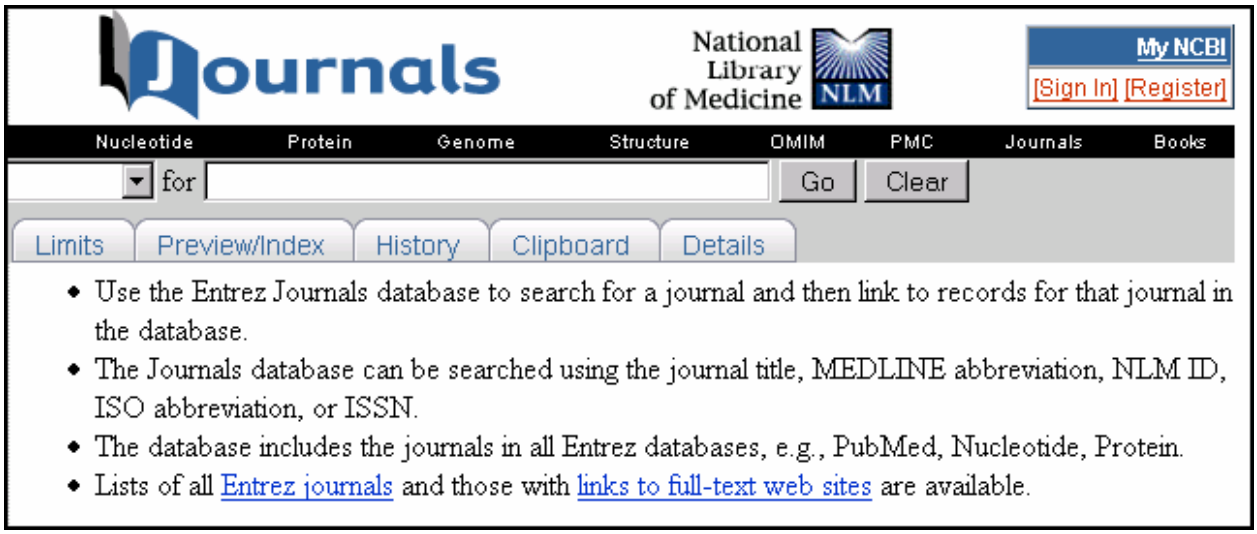
JOURNALS DATABASE

The PubMed Journals Database allows you to look up information about a journal in PubMed and search for citations from that journal. You can locate a journal using:

- Title
- ISSN (International Standard Serial Number)
- MEDLINE journal title abbreviations

How to get there:

- Clicking on the Journals Database link from the PubMed homepage sidebar takes you to Journal Browser screen:



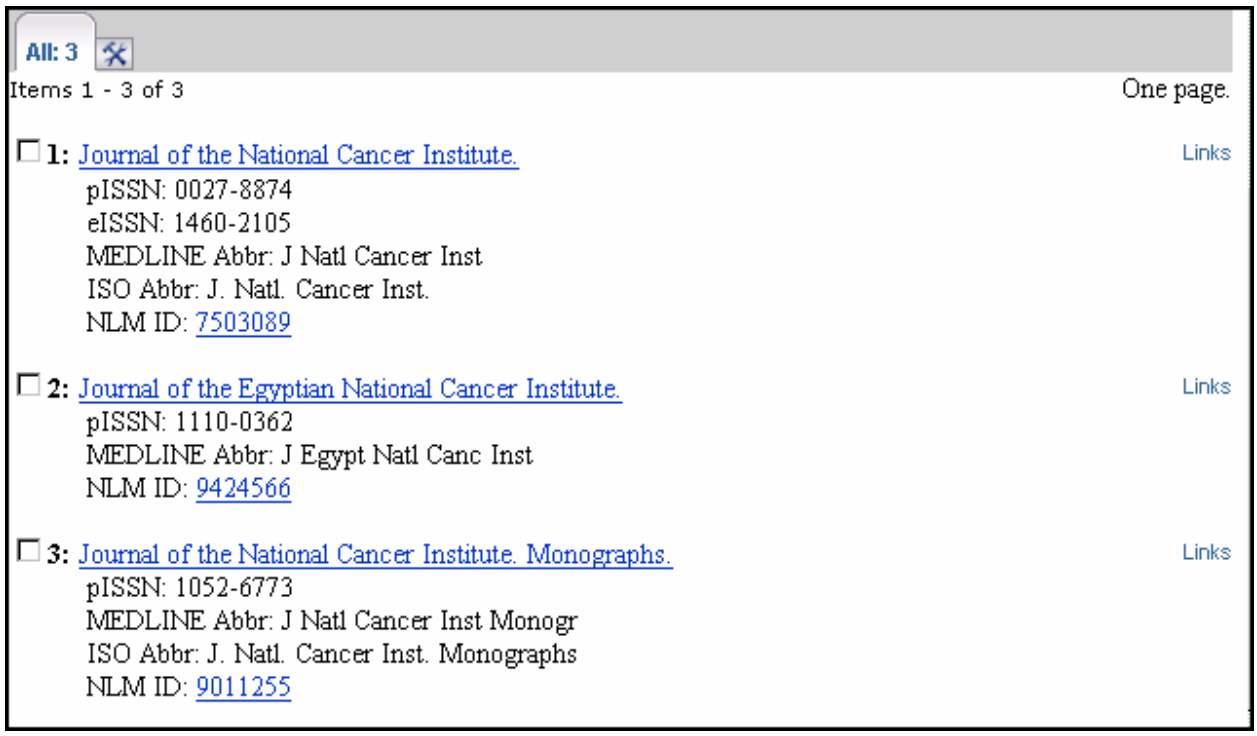
Journals Database screen:

- Enter the journal information.
- Click on the **Go** button to run the search.

Example: Journal of the National Cancer Institute

Result:

[see graphic next page]



- Clicking on the title will display a more detailed record for the journal. Clicking on the NLM ID will display the record from Locator*plus*, the NLM catalog.
- Clicking on **Links** at the right hand side of the page will display a drop down menu. Select PubMed from this menu if you wish to do a search for all citations from this journal in PubMed.

SINGLE CITATION MATCHER

The **Single Citation Matcher** allows you to find a single citation using bibliographic information such as a journal name, volume, issue, page number, publication date, and title words.

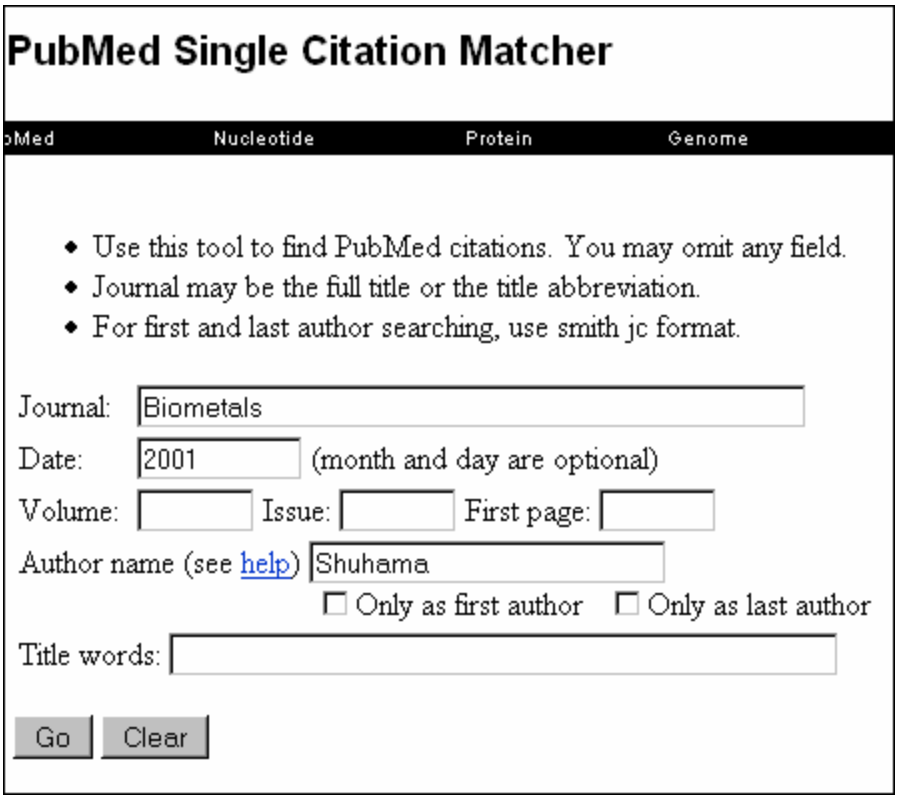
The **Single Citation Matcher** can also be used to get a "Table of Contents" listing of items indexed from a particular issue of a journal. Caution: Remember some MEDLINE journals are selectively indexed and there are indexing policies which may mean that not every item from every journal will be in the database.

How to Get There

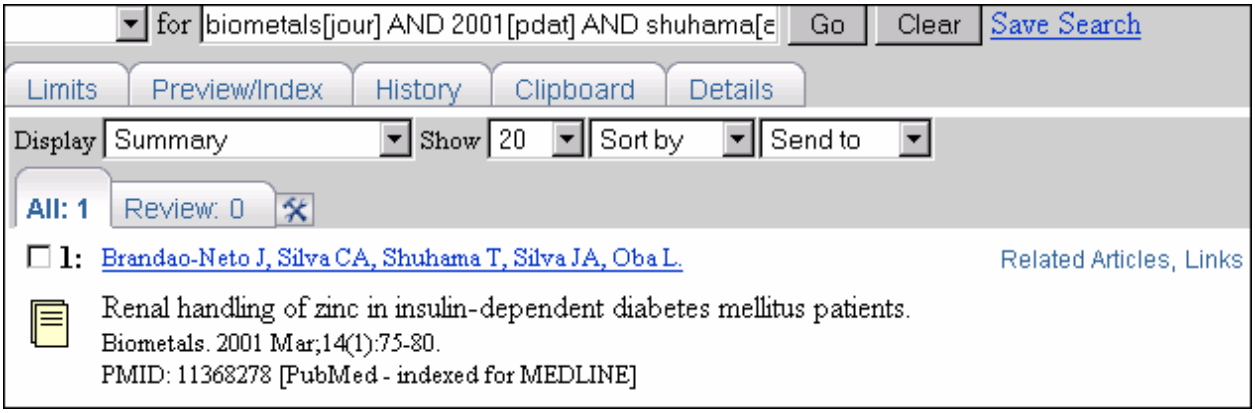
- Clicking on **Single Citation Matcher** on the PubMed homepage sidebar takes you to the Citation Matcher for Single Articles screen :

  Example: Biometals, 2001, one author is Shuhama

- Enter as much information as you know. Only one field is required. Then, click Search.



Result:



If you know four or more significant words from the title that is often all that is needed to locate a reference.

CLINICAL QUERIES

This page provides specialized search filters intended for use by clinicians and researchers.

How to get there

- Click on Clinical Queries on the PubMed homepage sidebar to access this search feature.

Search by Clinical Study Category

This specialized search query has built-in search 'filters' that search for research-based citations.

Four study categories or filters are provided: therapy diagnosis etiology prognosis clinical prediction guides	Two emphasis categories or filters are provided: • **narrow,** specific search • **broad,** sensitive search

- Retrieval can be further refined using Limits.

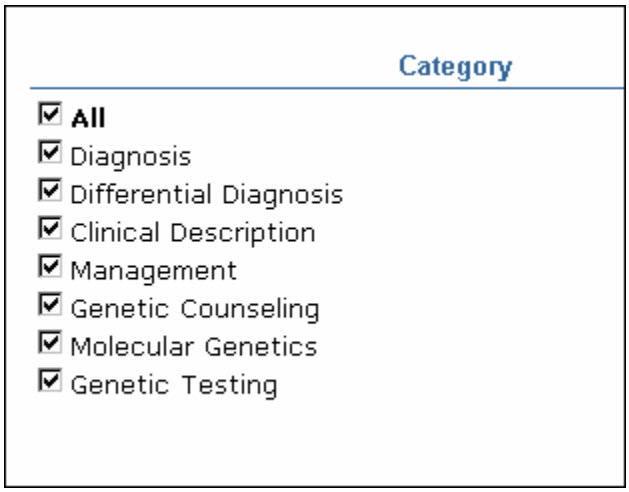
Find Systematic Reviews

For your topic(s) of interest, this search finds citations for systematic reviews, meta-analyses, reviews of clinical trials, evidence-based medicine, consensus development conferences, and guidelines.

Medical Genetics Searches

This search finds citations and abstracts related to various topics in medical genetics.

NOTE : The default here is to have **ALL** categories selected. When using this option, it may be best to *uncheck* the **ALL** box and select the specific area you wish to search.



My NCBI

My NCBI Features

- Saved Searches: save search strategies to get updates - including automatic e-mailed updates.
- Filters: Group your retrieval by topics of interest to you
- Highlighting of search terms

Getting to My NCBI

- PubMed's banner will display links to My NCBI.
- The **My NCBI** link goes to your list of saved searches.
- **Sign In** links to the Sign In page.
- **Register** links to the My NCBI registration page.

Registering for My NCBI

- To use My NCBI you need to register for an account.

Sign In: Session-Only or Automatic

The check box, "Keep me signed in unless I sign out" is un-checked as the default.

*This means that My NCBI features will be available for **your current session.***

*Check the box if you want My NCBI features to be available from that computer without signing in again. This is done by use of a **permanent cookie** which remains on the computer.*

*Click **About automatic sign in** for more information about this feature.*

Important Facts about the E-mail for My NCBI Account

- Each My NCBI account can have **only one** e-mail address that will be used for all automatic e-mail updates saved in that account.
- If, at a later time, you change the e-mail address for your account, the new e-mail address will be used for **all** automatic updates following confirmation (see below).
- To change the e-mail address on an account, go to **User Preferences** on the My NCBI sidebar.

Take Note:	Watch for a CONFIRMATION email sent to you from NCBI and respond to it! My NCBI will NOT send emails to addresses that have not been confirmed.

The Confirmation E-mail

- The first time an automatic e-mail update is created for an account, or if the e-mail is changed in User Preferences, a confirmation e-mail will be sent to that address.
- No automatic updates will be sent to an address until it has been confirmed.

Saving Searches

- Run your PubMed search.
- From the Results page, click on the **Save Search** link to the right of the query box.

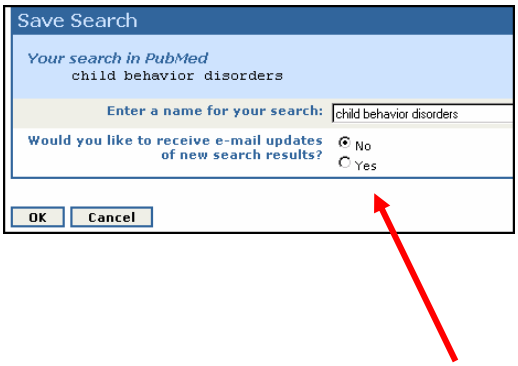
Search Tip:

PubMed uses the search as it is stored in the History, so it is important to run a search in order for it to appear in the History.

PubMed will open a separate window in your browser to start the saving process. (If you are not already signed into My NCBI, you will be prompted to do so.)

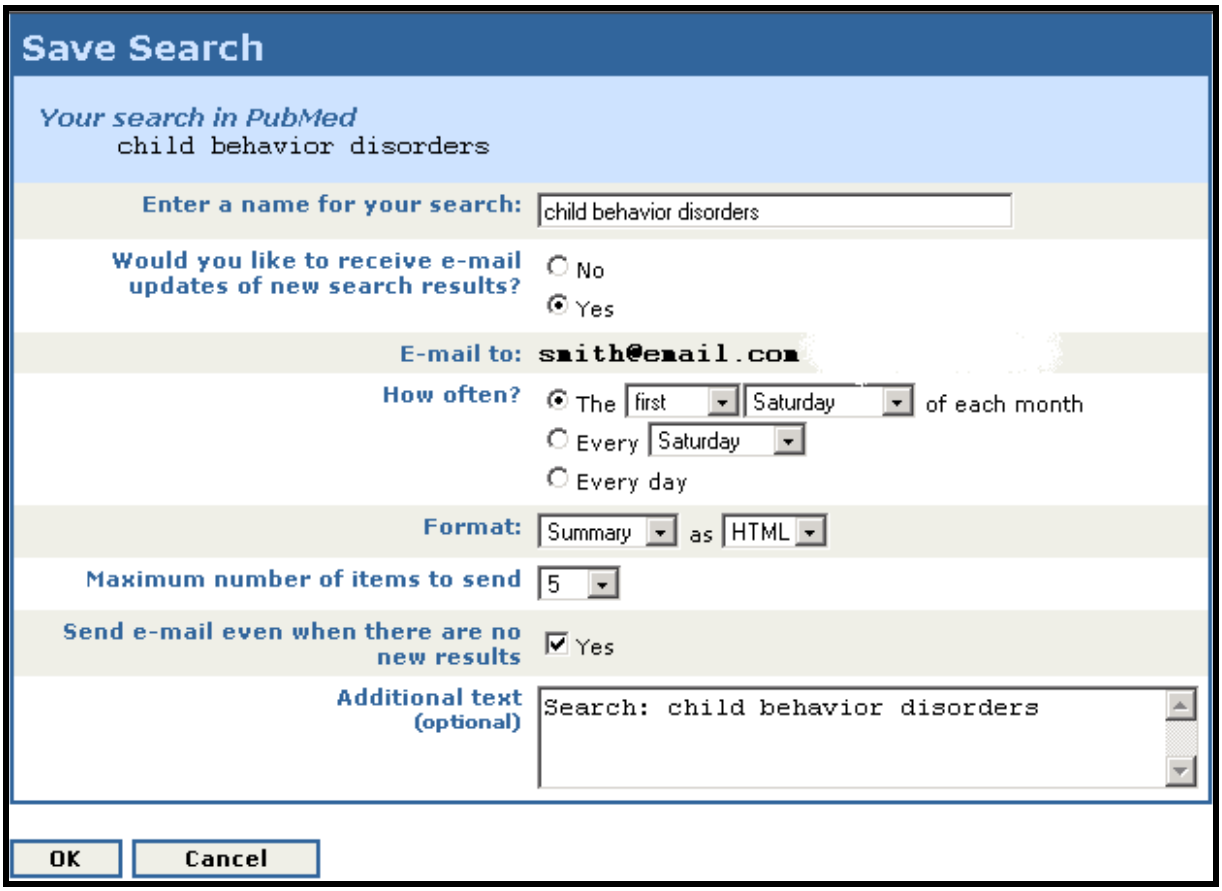
You may edit the name of the search

This name will be part of the subject line of automatic email updates.



- Next, indicate whether or not you want to have the updates automatically e-mailed.
- If you leave the setting as No, the search is saved and you can update it at your convenience.
- If you select the Yes button, the window will extend to display additional options for customizing the update:

[see graphic next page]

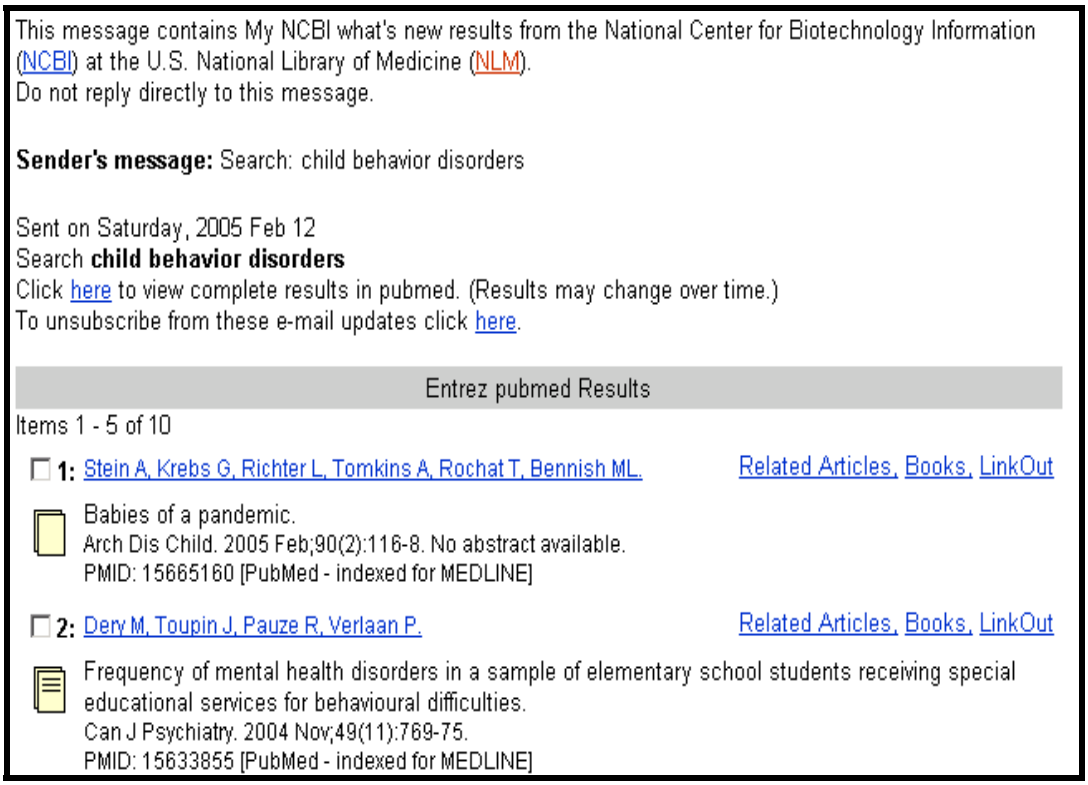


Setting up automatic updating

Searches saved for automatic updating require that additional details be supplied.

- If the e-mail box is blank, enter an **e-mail address** for the account. ***All*** automatic updates will be sent to that address following confirmation
- Select **How often** you want to get updates - monthly, weekly, or daily.
- Select the **format** (Summary, Abstract, etc.)**,** and either an HTML or text e-mail.
- Select the **maximum number of items to be sent** with each update. Don't worry about picking a number that is too low. You can use a link in the e-mail that takes you to the total update results in PubMed.
- If you want to know when an update retrieved no citations, select, **Send e-mail when there are no new results**.
- The **Additional text** box will default to the search name. You can replace this text, keeping in mind that this text will display on each e-mail update as "Sender's message" and the strategy is also displayed in the e-mail message. Many users will prefer not to include additional text.

*Click on the word, "**here**" to view the complete results. For this example, to see all 10 citations.*



This message contains My NCBI what's new results from the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).
Do not reply directly to this message.

Sender's message: Search: child behavior disorders

Sent on Saturday, 2005 Feb 12
Search **child behavior disorders**
Click here to view complete results in pubmed. (Results may change over time.)
To unsubscribe from these e-mail updates click here.

Entrez pubmed Results

Items 1 - 5 of 10

1: Stein A, Krebs G, Richter L, Tomkins A, Rochat T, Bennish ML. Related Articles, Books, LinkOut

Babies of a pandemic.
Arch Dis Child. 2005 Feb;90(2):116-8. No abstract available.
PMID: 15665160 [PubMed - indexed for MEDLINE]

2: Dery M, Toupin J, Pauze R, Verlaan P. Related Articles, Books, LinkOut

Frequency of mental health disorders in a sample of elementary school students receiving special educational services for behavioural difficulties.
Can J Psychiatry. 2004 Nov;49(11):769-75.
PMID: 15633855 [PubMed - indexed for MEDLINE]

Partial e-mail update results

Manually Updating Searches

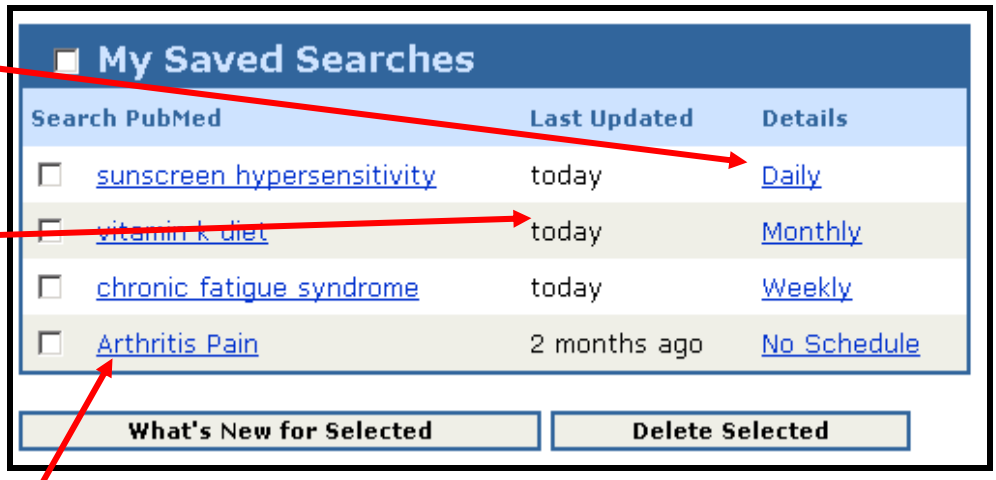
- To manually update a search, go to your saved searches in My NCBI.
- Check the box to the left of the search to be updated and click **What's New for Selected** at the bottom of the page.
- My NCBI will indicate if there are any new citations retrieved by the strategy since your last update.
- If you link to the results, i.e., complete the update, your saved search list will reflect the date and time of the update.

Additional Functions available from My Saved Searches page

*In the **Details** column click on the frequency (Daily, Weekly, Monthly) to go to the Search Details page where you can make changes.*

*Hold your cursor over the data in the **Last Updated** column to show the date the next e-mail update will be sent, or in the case of No Schedule, you will see the date you last manually generated new citations.*

Saved searches can be run to retrieve total results, i.e., not limited to new citations. Click on the name of the search. (This will not affect future updates.)



Modifying a Strategy: Save a New One -- Delete the Old

- Saved search strategies cannot be edited. To modify a strategy, re-save it with your changes.
- To delete a search, select the search using the check box and click on the **Delete Selected** button at the bottom of the page.

Changing the E-mail Address for an Account

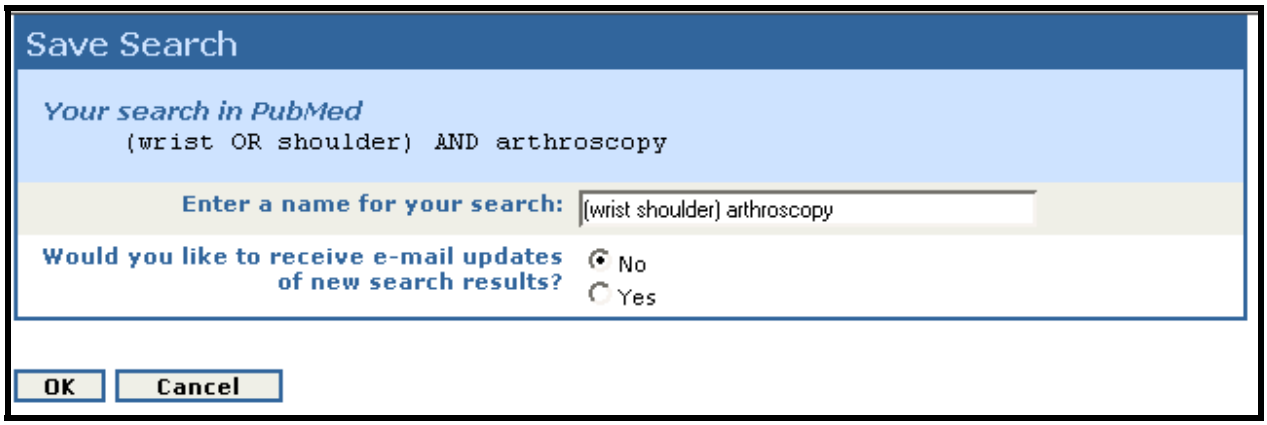
- User Preferences is accessible via a link on the My NCBI sidebar. You can change the e-mail address for your My NCBI account here.
- Keep in mind, anytime you change the e-mail for an account, all automatic updates will be sent to that address following confirmation.

Search Statement Numbers in Saved Searches

- My NCBI allows you to save searches with search statement numbers.
- Be aware that the default search name does not include any Boolean operators and search tags, if entered.
    - Example: History shows:

Search	Most Recent Queries
#3	Search **arthroscopy**
#2	Search **shoulder**
#1	Search **wrist**

    - Search: (#1 OR #2) AND #3
    - Click Save Search



- This name does not affect the strategy, so it is advisable to edit it to something short, yet meaningful.
- Be sure to run your search before saving it, in order for it to appear in the History and be successfully saved.

About the Updates

- The update strategies used for My NCBI are detailed in PubMed's Help.
- New or modified searches can be generated no sooner than the next day. For example, this morning, you changed the frequency for an update from Monthly to Daily. The first update will be sent tomorrow.

My NCBI Collections: Saving Results and Bibliographies

- My NCBI Collections allows users to save individual citations
- Saving results to a collection is a two-step process; results are first sent to the clipboard and then to My NCBI Collections:

    1. Sign in to My NCBI if you have not already done so.
    2. Run a PubMed search, and then on the results page select the items you want to save using the check boxes; if you do not select any items all results up to 500 items will be sent to the clipboard.
    3. Click Clipboard, select the items you want to save, if you do not select any items all results will be saved.
    4. Select My NCBI Collections under the Send to menu.
    5. On the Save Collection pop-up window you may create a new collection or append to an existing collection, enter a collection name, and delete the saved items from the clipboard.

	Your Web browser will need to allow pop-ups from NCBI Web pages to use collections. The maximum number of items in a collection is 1500. The total number of collections for each My NCBI account is 100.

Managing and deleting collections

1. To display your collections, click My NCBI and then the Collections tab.
2. Click the arrows next to the column headings to sort alphabetically by collection name, date last modified, or by the number of items in your collection.
3. Click the collection name to display the items in PubMed.
4. Click Details to view the collection contents, change the name, or delete items from the collection. Collections with more than 11 items display in Brief format.

Merging collections

1. Click the Collections tab and use the check boxes to select the collections you want to merge.
2. On the Merge Collection pop-up window you may enter a collection name and choose to remove the merged collections.

Filters

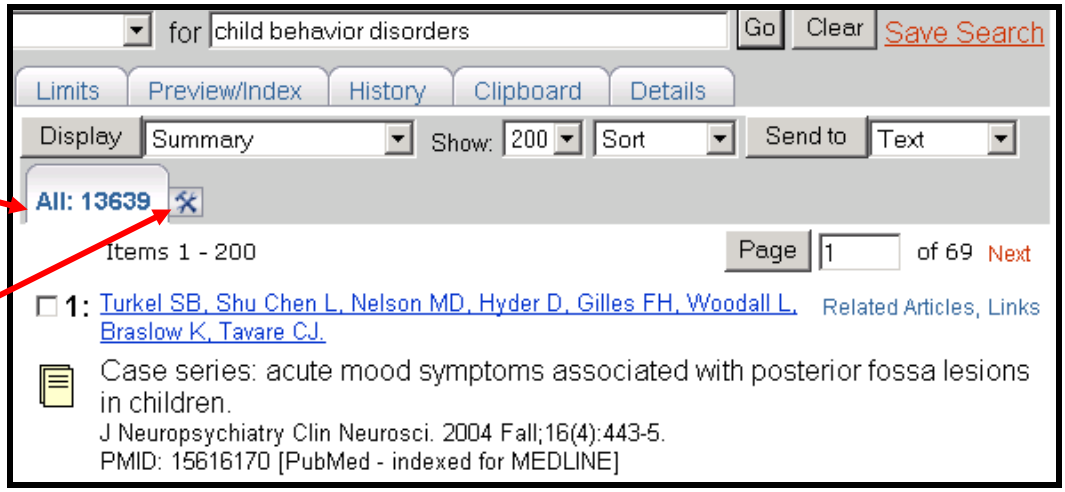
- My NCBI includes a Filters feature which groups search results by areas of interest.
- You can have up to **five** active filters using My NCBI.

The Tabs

- "All" tab shows the total retrieval for the search.

*The **All** tab which shows the total retrieval for the search.*

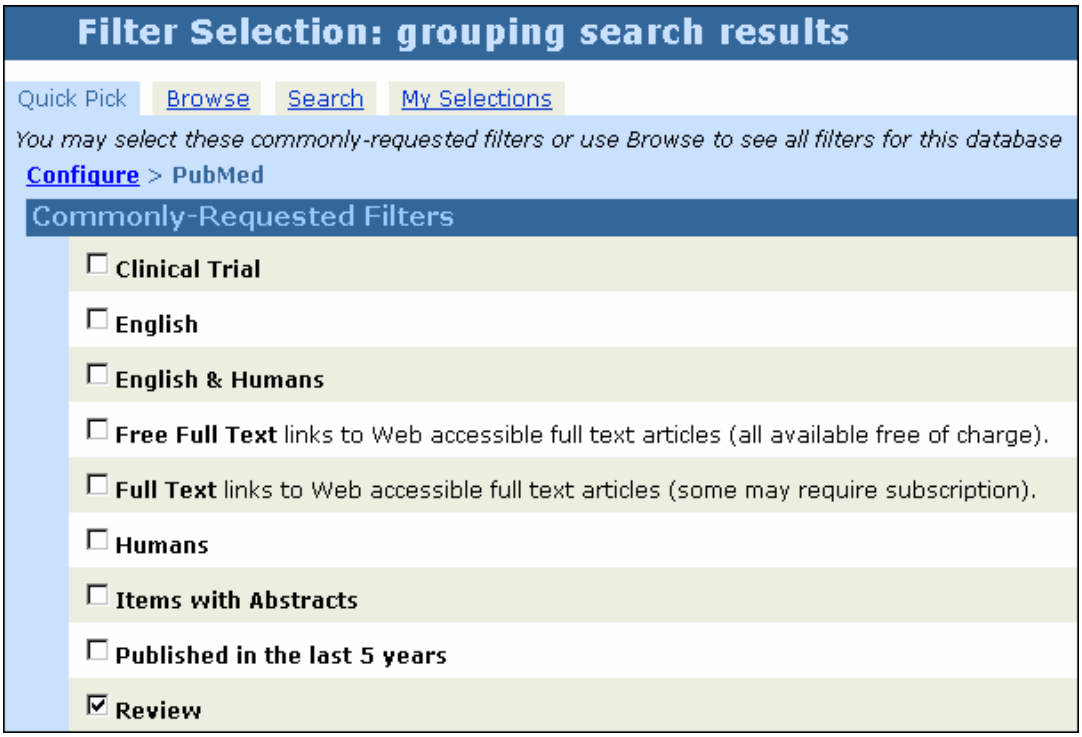
To the right of the "All" tab, the hammer and wrench icon links you to My NCBI where you can add or modify your filter choices.



Adding Filters

- Use the icon to link to the **Quick Pick** list of commonly-requested filters:

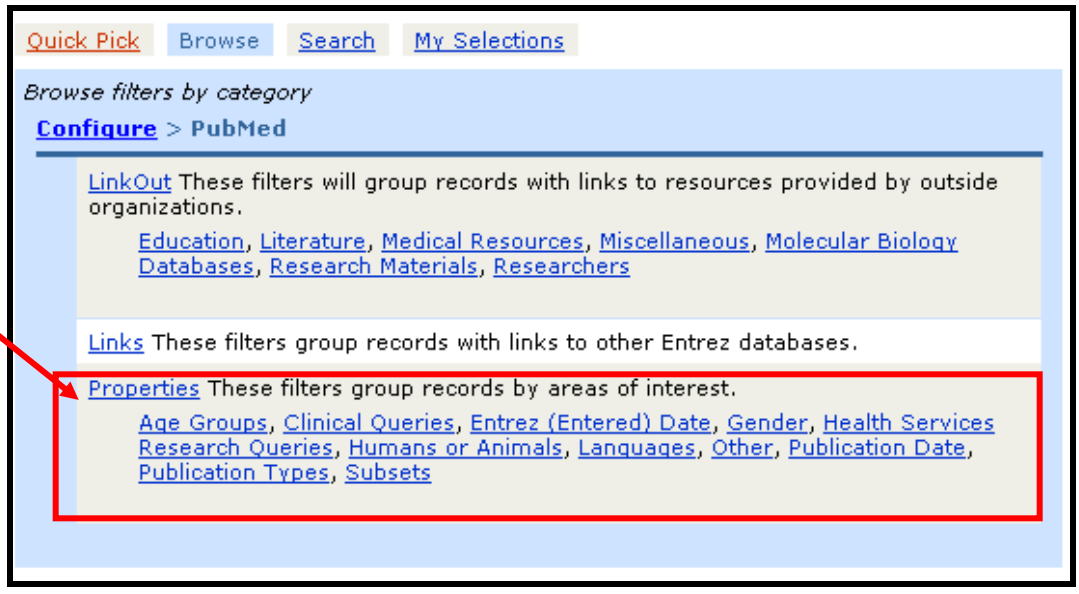
Click in the checkboxes to select or deselect filters.



Browse

- Click on Browse to see additional options for PubMed filters.
- On the Browse page there are three categories:LinkOut, Links, and Properties. Users interested in **subject related filters** for their searches should look at Properties.

*There are over 70 filter options under **Properties**.*



Under Properties, use the links to see the available filters for each sub-category. Here's the one for Publication Types:

Use the link for the desired filter to go to a page where you can select that filter.

Click in the checkbox to select the filter.

LinkOut Filters

- Filters in this category group results by full text providers, libraries, and other outside resources.

Adding your library's holdings as a filter:

- From the Browse page – click on Libraries:

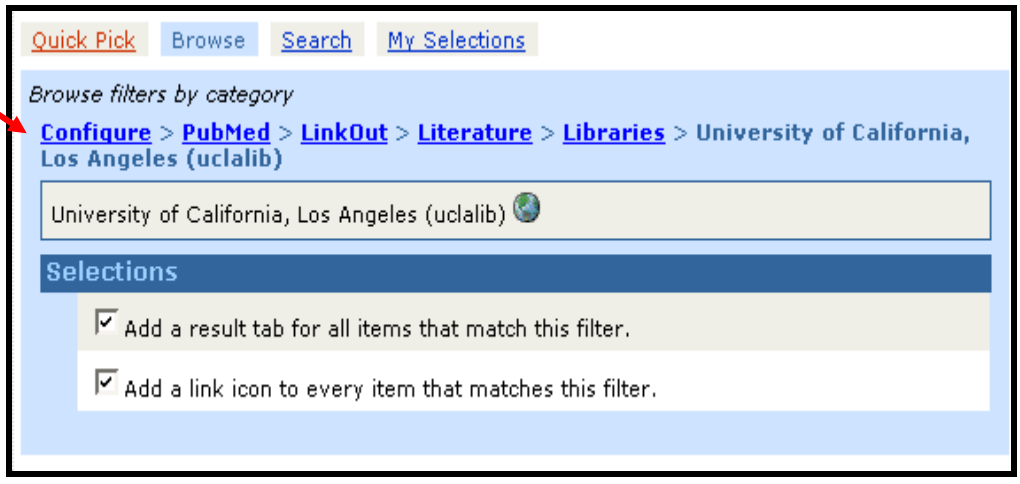
This will bring up a page with all of the LinkOut-participating libraries.

- Use your browser's Find feature or scroll down to locate your library.
- Click on the desired library link. (Not the globe, the name of the library.)
- Then click on the checkboxes to add a result tab and/or display the library's icon:

Notice the use of "breadcumbs" on the Filters pages.

Each breadcrumb for a higher level is a link to that page.

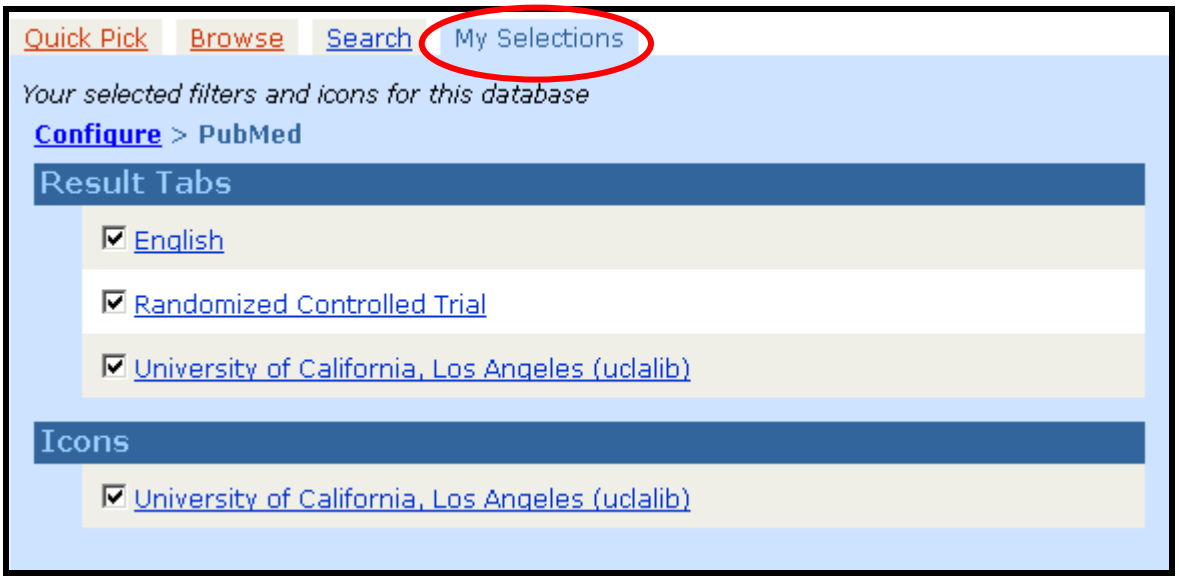
Click in the checkboxes to add these selections.



- Results tabs for LinkOut providers display the LinkOut user name.
- Place your cursor over this ID to see the name of the provider.
- Users who connect to PubMed with a URL that includes a library's holdings parameter will continue to see their library icon even if they do not select their library in My NCBI. Users should select their library filter if they want to see a **filter tab** for their library in the search results.

My Selections

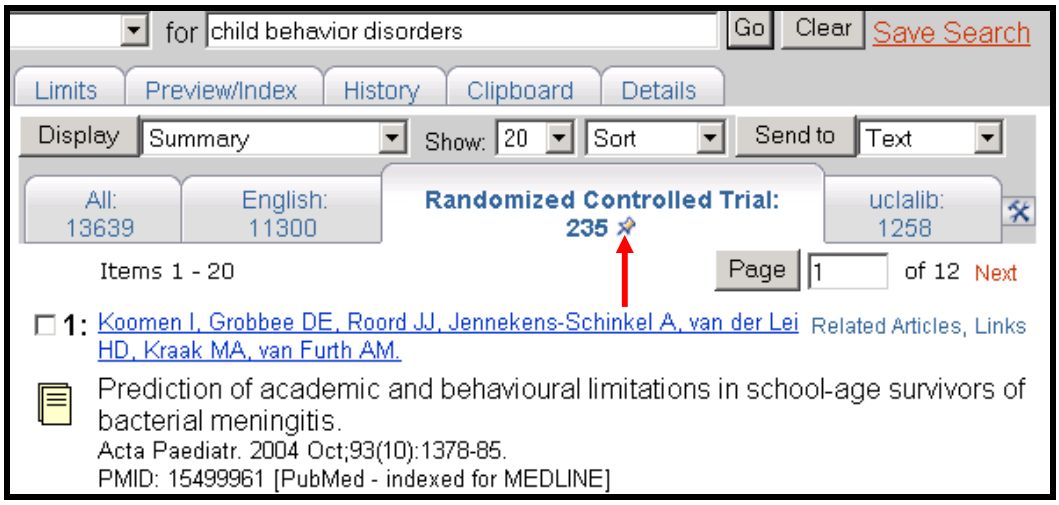
- Click on My Selections at any time to check on the filters selected:



Using the Filter Tabs

- Click on a filter tab to go to the citations for a particular filter. Select any display format you wish.
- When you click on the filter name (tab) to see the results for a filter, a tack symbol will appear in the tab. Use it to "tack" the filter onto the search query.

Clicking on the icon "tacks" that filter onto the search query.



- Filters added this way will display in the query box with the [Filter] tag.
- If you want to save this search, click on Save Search.
- Many filter topics can be added to the search via the Limits page. Either way will yield the same results.

Some additional comments about filters, saving searches, and My NCBI

- Filters "float" along the top of a search. They are NOT part of the search *strategy*.
    - To add a filter to your search *strategy*, the filter needs to be "tacked" onto the search strategy, as noted above.

Limits applied to a search are a part of the search query itself.

Filters sort of "float" along on top of a search and allow users to see, at a glance, a specific group of citations. Filters are NOT attached to the search query.

- Each filter is independent. There is no way to click on all the active filters simultaneously. Think of Filters as Boolean ORs, not ANDs.

- What this means:

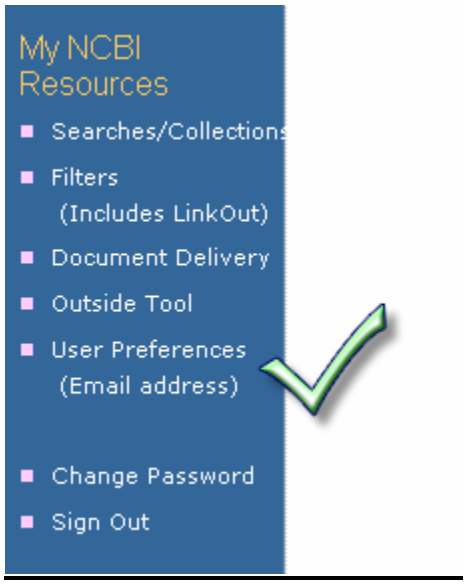
    - A searcher has set the following filters in her My NCBI account: English language, human, and Review article.
    - After she runs a search, she can easily see the group of results that are in English OR those that had human subjects, OR those that are Review Articles.
    - What she <u>cannot</u> see, using Filters, are those results which are English AND human AND review articles.

In order to see the group of results that are
English AND *human* AND *Review articles*:

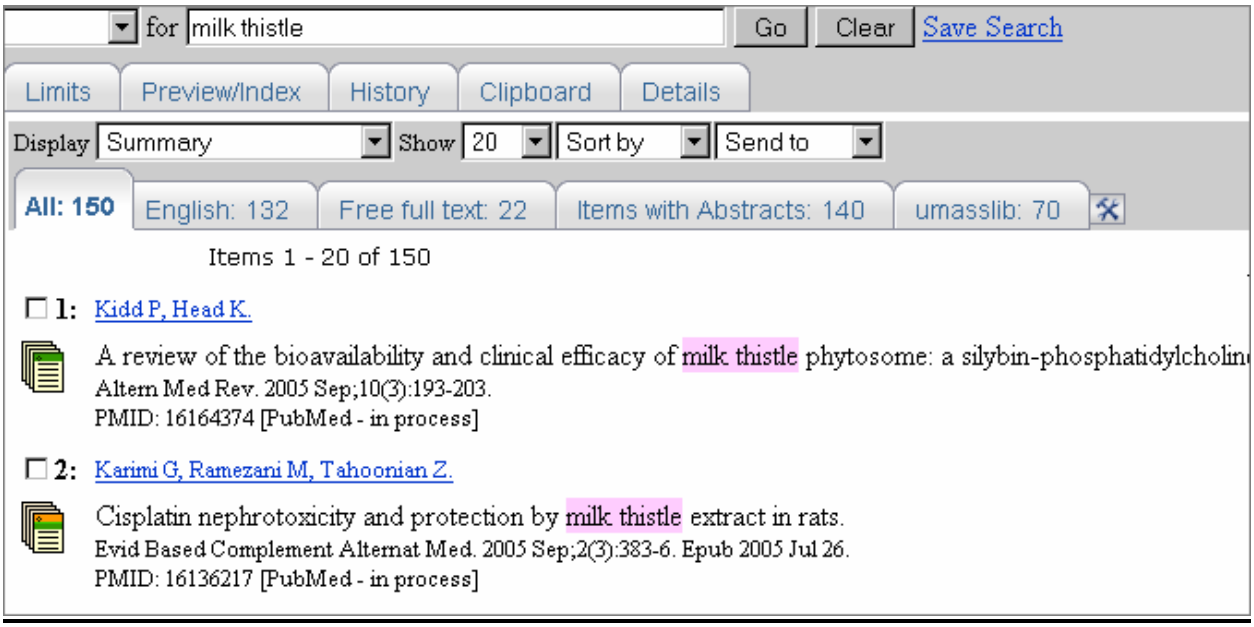
Those filters must be tacked onto the search
or
Those specific Limits must be chosen and the search re-run

Highlighting Search Terms in PubMed Results

- To turn on the highlighting feature in My NCBI, access the User Preferences section from the blue side bar on the left hand side of the page:



- Select the highlighting color you'd like and then click OK. The highlighting feature will stay ON in your My NCBI account until you turn it off.



NOTE: See the using My NCBI section in the PubMed Help for additional information regarding setting up and using a My NCBI account.
http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=helppubmed.section.pubmedhelp.My_NCBI

Or, see the PowerPoint "Using My NCBI" available on the NER website at
http://nnlm.gov/ner/training/#databases

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