

This resource has been prepared and made freely available here for academicians and students by members of the OCULUS group, funded in part by Erasmus Plus.

If you use this resource, please acknowledge the providers as follows:

“Thanks to Catherine Suttle, City, University of London and the Erasmus Plus-funded OCULUS group for providing this resource”

FINDING EVIDENCE FOR EVIDENCE BASED PRACTICE

Acquiring Evidence

In this lab, you will be using the key words from the question you formulated last week to begin a search for evidence relevant to your question. There are several online databases available to search for research evidence, but as an example we will use Pubmed today <http://www.ncbi.nlm.nih.gov/pubmed/>

To find Pubmed without the above link, use Google to search for “Pubmed” and the first item that comes up will be the correct link. The Pubmed home page is shown below. The Quick Start Guide will be helpful as you begin to use this database, but we will work through the basics today.

The screenshot shows the PubMed website interface. At the top, there is a navigation bar with 'NCBI Resources' and 'How To' links, and a 'Sign in to NCBI' button. Below this is the 'PubMed.gov' logo and a search bar containing the text 'PubMed'. The main content area features a large banner for PubMed with the text: 'PubMed comprises more than 24 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.' To the right of the banner is a 'PubMed Commons' section with a 'Featured comment - Nov 14' and a link to a resource. Below the banner are three columns of links: 'Using PubMed' (including Quick Start Guide, Full Text Articles, FAQs, Tutorials, and New and Noteworthy), 'PubMed Tools' (including Mobile, Single Citation Matcher, Batch Citation Matcher, Clinical Queries, and Topic-Specific Queries), and 'More Resources' (including MeSH Database, Journals in NCBI Databases, Clinical Trials, E-Utilities (API), and LinkOut).

You will need to enter your key words into the search bar at the top of the page, and click Search or press Enter. Pubmed uses the Boolean operators AND, OR and NOT to allow you



Co-funded by the
Erasmus+ Programme
of the European Union

to be more specific in your search terms. In fact, 'AND' is the default case, so Pubmed assumes that you want all of the terms you have entered unless you use a Boolean operator. When you use these operators they are read left to right by Pubmed, so if you search for: pen AND paper OR pencil, Pubmed will find articles that include both terms 'pen' and 'paper' as well items that include only 'pencil'.

As one example, let's say our question is: *What effect does off-axis retinoscopy have on refractive error results?* We can put the key words *effect, off-axis, retinoscopy* and *refractive error* into Pubmed and see what comes up.

The screenshot shows a web browser window with the URL `www.ncbi.nlm.nih.gov/pubmed/?term=retinoscopy+off-axis+effect+refractive+error`. The page is the PubMed search results interface. At the top, the search bar contains the query and a 'Search' button. Below the search bar, there are options for 'Display Settings' (Summary, Sorted by Recently Added) and 'Send to' (Manage Filters). The main content area shows 'Results: 3' and lists three articles:

- The impact of off the visual axis retinoscopy on objective central refractive measurement in adult clinical practice: a prospective, randomized clinical study.**
Tay E, Mengher L, Lin XY, Ferguson V.
Eye (Lond). 2011 Jul;25(7):888-92. doi: 10.1038/eye.2011.79. Epub 2011 Apr 15.
PMID: 21494285 [PubMed - indexed for MEDLINE] **Free PMC Article**
[Related citations](#)
- The effect of off-the-visual-axis retinoscopy on objective refractive measurement.**
Jackson DW, Paysse EA, Wilhelmus KR, Hussein MA, Rosby G, Coats DK.
Am J Ophthalmol. 2004 Jun;137(6):1101-4.
PMID: 15183796 [PubMed - indexed for MEDLINE]
[Related citations](#)
- Comparison of on- and off-axis photorefraction with cycloplegic retinoscopy in infants.**
Harner RD, Norcia AM, Day SH, Haegerstrom-Portnoy G, Lewis D, Hsu-Winges C.
J Pediatr Ophthalmol Strabismus. 1992 Jul-Aug;29(4):232-9.
PMID: 1512665 [PubMed - indexed for MEDLINE]
[Related citations](#)

On the right side of the page, there are several panels: 'New feature' (Try the new Display Settings option - Sort by Relevance), '1 free full-text article in PubMed Central' (The impact of off the visual axis retinoscopy on objective central refractive measurement in adult clinical practice), 'Find related data' (Database: Select, Find items), and 'Search details' ({"retinoscopy"[MeSH Terms] OR "retinoscopy"[All Fields] AND off-axis[All Fields] AND effect[All Fields] AND "refractive errors"[MeSH Terms]}).

To read the Abstract of each of the articles, we need to click on the title – the Abstract will give us an indication of whether the article is directly relevant to our question, and whether we want to obtain the full article. If so, in some cases the article is available in 'open access', which means we can simply download it from here. If not, we need to go to the University library and either obtain the article online or in hard copy.

In your own search, you may find that you get no articles, or only one or two, in which case you will need to broaden your search (e.g. by using a less specific population or outcome). On the other hand, you may find you get a large number of articles (too many for you to appraise) in which case you should narrow the search. For example, you can increase specificity of your terms, or you could narrow your search down to a particular time period (see the left hand bar item 'Publication dates' on the screen shot at the top of this page). If you do get a large number of articles, try narrowing down the type of evidence too,



specifying higher level evidence (e.g. systematic reviews or randomised controlled trials). You can do this using the 'article types' link on the left hand side of the page.

To save relevant articles, click on the box to the left of each then click 'Send to' and choose either 'Clipboard' or 'Email' – either method saves the list of relevant articles for you to retrieve later.

