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EBP Workshop

Catherine Suttle



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In this session

- We are going to:
 - Use an ophthalmic practice-related scenario to find evidence
 - Follow the first two steps of the EBP process:
 - Ask
 - Acquire

Tomorrow you will go through this process yourself



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How we will do this

- Using a clinical scenario, we will formulate an answerable question using the PICO method
- Find evidence, starting at the highest level and working down



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What is an 'answerable' question?

- We can pose a question, but it might be too vague or ambiguous to find a specific answer.
 - Example: Does homeopathy work?
- On the other hand, we can pose a specific question for which we can find information targeting that particular question
 - Example: Is homeopathy effective in the treatment of chronic open angle glaucoma?



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Use of the 'PICO' method

- This method helps us to ensure we include all important concepts in the question
- The method often needs to be modified in order to include relevant concepts
 - For example, your scenario may include no intervention (I), and you may not want to include a comparison (C).
 - You may be interested in a diagnostic test, or perhaps in prevalence or prognosis of a particular condition.
 - See the [EBOptometry web site](#) for more on this

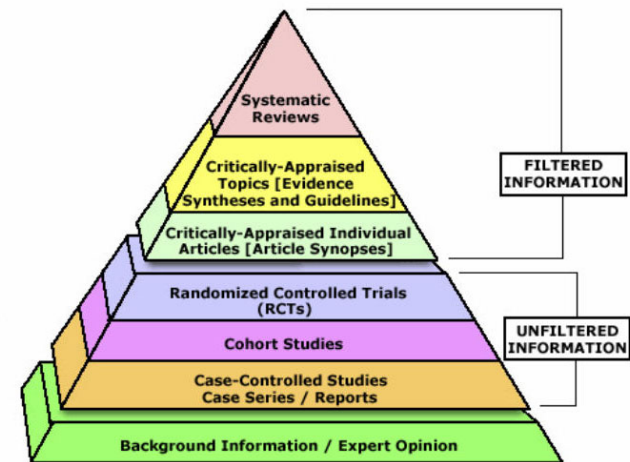


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Where do we look for evidence?

- Start at the top of the pyramid and work down if necessary
- Start with one or more of these (or other) resources:
 - www.cochrane.org/
 - www.trip.com
 - www.ncbi.nlm.nih.gov/pubmed



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How do we look for evidence?

- We use key words taken from our question
- Narrow or broaden the search as needed
- For example, for the question:
 - Is acupuncture effective as a treatment for glaucoma?
 - I might use the keywords acupuncture, effectiveness* and glaucoma



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No results are found with these search terms. The search was too narrow, and needs to be broadened.

NCBI Resources ▾ How To ▾ [Sign in to NCBI](#)

PubMed.gov
US National Library of Medicine
National Institutes of Health

PubMed ▾ acupuncture effectiv* glaucoma [Search](#)

[Create alert](#) [Advanced](#) [Help](#)

Article types
Customize ...

Publication dates
Custom range...

[Clear all](#)

[Show additional filters](#)

Search details

```
acupuncture effectiveness[All Fields]
AND ("glaucoma"[MeSH Terms] OR
"glaucoma"[All Fields])
```

[Search](#) [See more...](#)

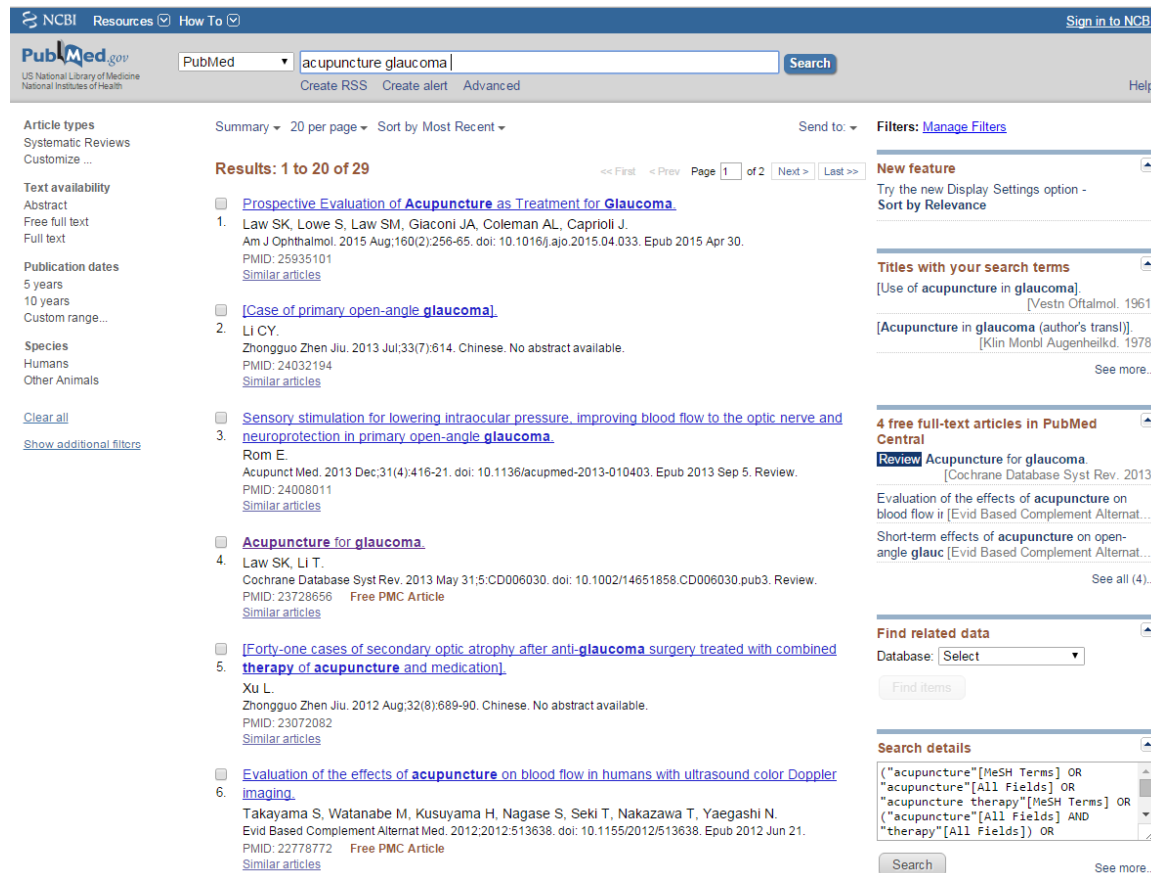
No items found.



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Now we might try *acupuncture glaucoma* and see what comes up. 29 is a fairly manageable number, but we could narrow this down a bit to include only high level evidence.



The screenshot shows the PubMed website interface. At the top, the search bar contains the query "acupuncture glaucoma". Below the search bar, the results are displayed as a list of 29 items, with the first 6 visible. The results include titles, authors, journals, and PMIDs. Some results are marked as "Free PMC Article". On the right side, there are several filters and options, including "New feature", "Titles with your search terms", "4 free full-text articles in PubMed Central", "Find related data", and "Search details".

Search Results: 1 to 20 of 29

Results:

- [Prospective Evaluation of Acupuncture as Treatment for Glaucoma.](#)
Law SK, Lowe S, Law SM, Giacony JA, Coleman AL, Caprioli J.
Am J Ophthalmol. 2015 Aug;160(2):256-65. doi: 10.1016/j.ajo.2015.04.033. Epub 2015 Apr 30.
PMID: 25835101
[Similar articles](#)
- [\[Case of primary open-angle glaucoma\].](#)
Li CY.
Zhongguo Zhen Jiu. 2013 Jul;33(7):614. Chinese. No abstract available.
PMID: 24032194
[Similar articles](#)
- [Sensory stimulation for lowering intraocular pressure, improving blood flow to the optic nerve and neuroprotection in primary open-angle glaucoma.](#)
Rom E.
Acupunct Med. 2013 Dec;31(4):416-21. doi: 10.1136/acupmed-2013-010403. Epub 2013 Sep 5. Review.
PMID: 24008011
[Similar articles](#)
- [Acupuncture for glaucoma.](#)
Law SK, Li T.
Cochrane Database Syst Rev. 2013 May 31;5:CD006030. doi: 10.1002/14651858.CD006030.pub3. Review.
PMID: 23728656 **Free PMC Article**
[Similar articles](#)
- [\[Forty-one cases of secondary optic atrophy after anti-glaucoma surgery treated with combined therapy of acupuncture and medication\].](#)
Xu L.
Zhongguo Zhen Jiu. 2012 Aug;32(8):689-90. Chinese. No abstract available.
PMID: 23072082
[Similar articles](#)
- [Evaluation of the effects of acupuncture on blood flow in humans with ultrasound color Doppler imaging.](#)
Takayama S, Watanabe M, Kusuyama H, Nagase S, Seki T, Nakazawa T, Yaegashi N.
Evid Based Complement Alternat Med. 2012;2012:513638. doi: 10.1155/2012/513638. Epub 2012 Jun 21.
PMID: 22778772 **Free PMC Article**
[Similar articles](#)

Filters: [Manage Filters](#)

New feature
Try the new Display Settings option - [Sort by Relevance](#)

Titles with your search terms
[Use of acupuncture in glaucoma].
[Vestn Oftalmol. 1961]
[Acupuncture in glaucoma (author's transl)].
[Klin Monbl Augenheilkd. 1978]
[See more...](#)

4 free full-text articles in PubMed Central
Review Acupuncture for glaucoma.
[Cochrane Database Syst Rev. 2013]
Evaluation of the effects of acupuncture on blood flow in [Evid Based Complement Alternat...]
Short-term effects of acupuncture on open-angle glauc [Evid Based Complement Alternat...]
[See all \(4\)...](#)

Find related data
Database: [Select](#)
[Find items](#)

Search details
("acupuncture"[MeSH Terms] OR
"acupuncture"[All Fields] OR
"acupuncture therapy"[MeSH Terms] OR
("acupuncture"[All Fields] AND
"therapy"[All Fields]) OR
[Search](#) [See more...](#)



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Great – some systematic reviews – and the most recent is available via ‘open access’.

NCBI Resources How To Sign in to NCBI

PubMed.gov US National Library of Medicine National Institutes of Health

PubMed acupuncture glaucoma Search

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Article types clear Summary Sort by Most Recent Send to: Filters: Manage Filters

✓ Systematic Reviews Customize ...

Text availability

Abstract

Free full text

Full text

Publication dates

5 years

10 years

Custom range...

Species

Humans

Clear all

Show additional filters

Results: 4

Filters activated: Systematic Reviews. [Clear all](#) to show 29 items.

☐ [Acupuncture for glaucoma.](#)

1. Law SK, Li T.
Cochrane Database Syst Rev. 2013 May 31;5:CD006030. doi: 10.1002/14651858.CD006030.pub3. Review.
PMID: 23728656 **Free PMC Article**
[Similar articles](#)

☐ [\[Systematic review of randomized controlled trials of acupuncture for glaucoma\].](#)

2. Gao R, Shi CH, Tian JH, Kang Z.
Zhongguo Zhen Jiu. 2011 Dec;31(12):1142-5. Review. Chinese.
PMID: 22256660
[Similar articles](#)

☐ [\[Analysis and strategy report on overseas large-scale systematic evaluation on clinical effectiveness of acupuncture\].](#)

3. Li JH, Su YS, Jing XH, Shi H, Chen SL, Zhang L, Jin ZG.
Zhongguo Zhen Jiu. 2011 Jul;31(7):665-9. Chinese.
PMID: 21823302
[Similar articles](#)

☐ [Acupuncture for glaucoma.](#)

4. Law SK, Li T.
Cochrane Database Syst Rev. 2007 Oct 17;(4):CD006030. Review. Update in: [Cochrane Database Syst Rev. 2013;5:CD006030.](#)
PMID: 17943876 **Free PMC Article**
[Similar articles](#)

Summary Sort by Most Recent Send to: Find related data

Database: Select

New feature

Try the new Display Settings option - **Sort by Relevance**

Titles with your search terms

Prospective Evaluation of **Acupuncture** as Treatment for **Glaucoma** [Am J Ophthalmol. 2015]

[Impact of **acupuncture** on 24 h intraocular pressure of **glaucoma**] [Zhongguo Zhen Jiu. 2011]

Short-term effects of **acupuncture** on open-angle **glaucoma** [Evid Based Complement Alternat...]

See more...

4 free full-text articles in PubMed Central

Review **Acupuncture for glaucoma.** [Cochrane Database Syst Rev. 2013]

Evaluation of the effects of **acupuncture** on blood flow in [Evid Based Complement Alternat...]

Short-term effects of **acupuncture** on open-angle **glaucoma** [Evid Based Complement Alternat...]

See all (4)...



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An example clinical scenario

- True story!
- A patient contacted the clinic to ask about some treatment she had heard about called *perceptual learning* which could improve reading in presbyopes, and asked whether we offered this, and what we thought of it.



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Next, we need to refine the scenario into a question

- Patient, population, problem?
- Intervention, or test?
- Comparison?
- Outcome?
- Have a go – talk with your partner(s) and decide on each of these components

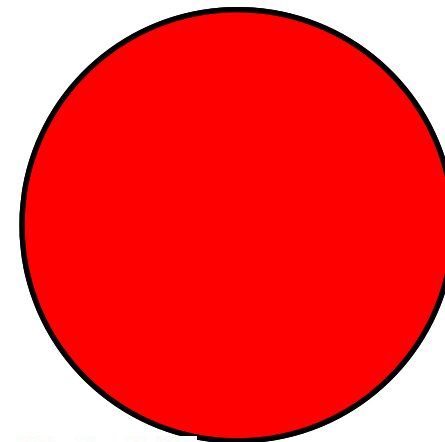
A patient contacted the clinic to ask about some treatment she had heard about called *perceptual learning* which could improve reading in presbyopes, and asked whether we offered this and what we thought of it.



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Our question and key words

- So our question could be:
- Does perceptual learning improve near acuity in presbyopes?
- This suggests the following key words
 - Perceptual learning
 - Near acuity
 - Presbyope or presbyopia
- We can use these key words in our search for evidence



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Trusted evidence.
Informed decisions.
Better health.

perceptual learning

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Highlighted Reviews



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Trusted evidence.
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Search Manager

Medical Terms (MeSH)

Browse



Title, Abstract, Keywords

perceptual learning

Go

Save

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(Word variations have been searched)

[Add to Search Manager](#)

Clear

All Results (426)

☒ Cochrane Reviews (1)

☐ All

☐ Review

☐ Protocol

☐ Other Reviews (1)

☐ Trials (424)

☐ Methods Studies (0)

Cochrane Database of Systematic Reviews : Issue 9 of 12, September 2015

Issue **updated daily** throughout month

There is **1** result from **9049** records for your search on 'perceptual learning in Title, Abstract, Keywords in Cochrane Reviews'

Sort by Relevance: high to low ▾

[Select all](#) | [Export all](#) | [Export selected](#)



[Pharmacological interventions for borderline personality disorder](#)

Jutta Stoffers , Birgit A Vöhl , Gerta Rücker , Antje Timmer , Nick Huband and Klaus Lieb

Online Publication Date: June 2010



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NS Review

The Cochrane database has only one article, which is not relevant.

A few research papers are available on Pubmed. What level of evidence are they? Are they relevant? Are they available?

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PubMed US National Library of Medicine National Institutes of Health

PubMed perceptual learning near acuity presbyop* Search

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Article types
Clinical Trial
Customize ...

Text availability
Abstract
Free full text
Full text

Publication dates
5 years
10 years
Custom range...

Species
Humans

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[Show additional filters](#)

Summary Sort by Most Recent

Results: 3

☐ [Training on spatiotemporal masking improves crowded and uncrowded visual acuity.](#)
1. Yehezkel O, Sterkin A, Lev M, Polat U.
J Vis. 2015;15(8):12. doi: 10.1167/15.6.12.
PMID: 26024459
[Similar articles](#)

☐ [Training the brain to overcome the effect of aging on the human eye.](#)
2. Polat U, Schor C, Tong JL, Zomet A, Lev M, Yehezkel O, Sterkin A, Levi DM.
Sci Rep. 2012;2:278. doi: 10.1038/srep00278. Epub 2012 Feb 23.
PMID: 22363834 **Free PMC Article**
[Similar articles](#)

☐ [Computer-based primary visual cortex training for treatment of low myopia and early presbyopia.](#)
3. Durrie D, McMinn PS.
Trans Am Ophthalmol Soc. 2007;105:132-8; discussion 138-40.
PMID: 18427602 **Free PMC Article**
[Similar articles](#)

Summary Sort by Most Recent

Send to: Filters: [Manage Filters](#)

New feature
Try the new Display Settings option -
Sort by Relevance

2 free full-text articles in PubMed Central
Training the brain to overcome the effect of aging on the human eye. [Sci Rep. 2012]
Computer-based primary visual cortex training for treatment of low myopia and early presbyopia. [Trans Am Ophthalmol Soc. 2007]
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Database: Select
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This article describes relevant research which seems to be the highest level available on this question – so we could appraise this one.

NCBI Resources How To Sign in to NCBI

PubMed.gov US National Library of Medicine National Institutes of Health PubMed Advanced Help

Abstract Send to:

Sci Rep. 2012;2:278. doi: 10.1038/srep00278. Epub 2012 Feb 23.

Training the brain to overcome the effect of aging on the human eye.

Polat U¹, Schor C, Tong JL, Zomet A, Lev M, Yehezkel O, Sterkin A, Levi DM.

Author information

Abstract

Presbyopia, from the Greek for aging eye, is, like death and taxes, inevitable. Presbyopia causes near vision to degrade with age, affecting virtually everyone over the age of 50. Presbyopia has multiple negative effects on the quality of vision and the quality of life, due to limitations on daily activities - in particular, reading. In addition presbyopia results in reduced near visual acuity, reduced contrast sensitivity, and slower processing speed. Currently available solutions, such as optical corrections, are not ideal for all daily activities. Here we show that perceptual learning (repeated practice on a demanding visual task) results in improved visual performance in presbyopes, enabling them to overcome and/or delay some of the disabilities imposed by the aging eye. This improvement was achieved without changing the optical characteristics of the eye. The results suggest that the aging brain retains enough plasticity to overcome the natural biological deterioration with age.

PMID: 22363834 [PubMed - indexed for MEDLINE] PMCID: PMC3284862 **Free PMC Article**

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Full text links

nature publishing group PMC **FREE Full text**

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Similar articles

Training on spatiotemporal masking improves crowded and uncrowded visual acuity [J Vis. 2015]

Making perceptual learning practical to improve visual functions. [Vision Res. 2009]

Impact of presbyopia on quality of life in a rural African setting. [Ophthalmology. 2006]

Review Physiology of aging and its influence on the contact lens pres [J Am Optom Assoc. 1991]

Review Presbyopia and the dentist: the effect of age on clinical vision. [Int Dent J. 1990]

See reviews...

See all...

Cited by 12 PubMed Central articles

Editorial: Improving visual deficits with perceptual learning. [Front Psychol. 2015]

Improving vision across older adults: behavioral



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Now you try:

- Think of a clinical question you would like to answer
- Form an answerable question
- Identify key words from that question to form the basis of a search
 - [Here, you are conducting the first step, Ask]



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