

Scientific Premise

PubMed, Google Scholar, and Web of Science

Review



What does it mean if a p value is 0.03?

What are some ways to improve the transparency of your study when reporting?

Why does the sex of your study subjects relate to reproducibility?

Outcomes: Students will be able to

- Formulate a research question
- Translate that question into PubMed syntax
- Use an iterative approach to comprehensive searching



NIH Scientific Premise Guidelines

- Describe the strengths and weaknesses in the rigor of the **prior research** that serves as key support.
- Describe plans to address weaknesses in the rigor of the prior research.

Animal Research

For animal studies, you will need to demonstrate to the Institutional Animal Use and Care Committee (IACUC) that you have thoroughly reviewed the literature.



Where do you currently search for literature?

What struggles if any do you have when searching literature?

Formulating a Research Question

Let's say you are interested on if CBD oil consumption can impact alcoholism. You want to see if this has been studied with mice in particular.

What would be a good first step?

On your own

Try a basic search on this topic: "What is the impact of smoking on the oral microbiome with regards to cancer?" in Google Scholar and Pubmed. Click the thumbs up when done.

Were results mostly the same or mostly different?



You are interested in studying inflammation of the kidney, and the role that TH17 cells may play specifically in mouse models. Name the key terms:

PubMed Techniques

Expanding a Search

Find synonyms and combine them with the word OR. Group these terms in parentheses:

|

(Mice OR mouse)

(CBD OR Cannabidiol)



Where can you find synonyms?

Where can you find synonyms

- Own knowledge
- Other articles like what you are looking for
- Online Thesauri
- MeSH



List synonyms for the terms we just created.
Discuss with your table.

AND vs OR



Or is used to:

0

Expand your
search (get
more results)
by combining
different
concepts

0

Limit your
search (fewer
results) by
combining
similar terms

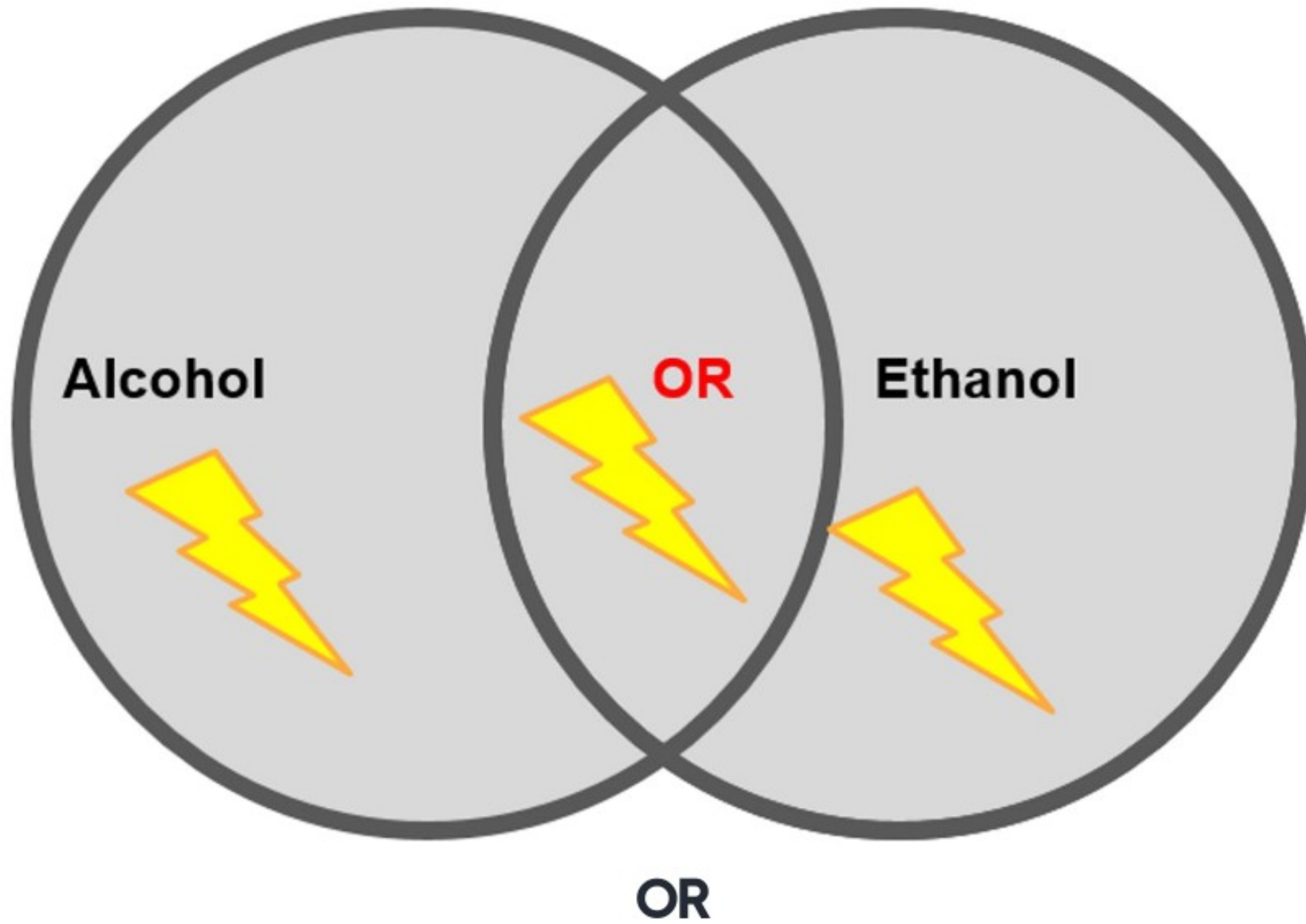
0

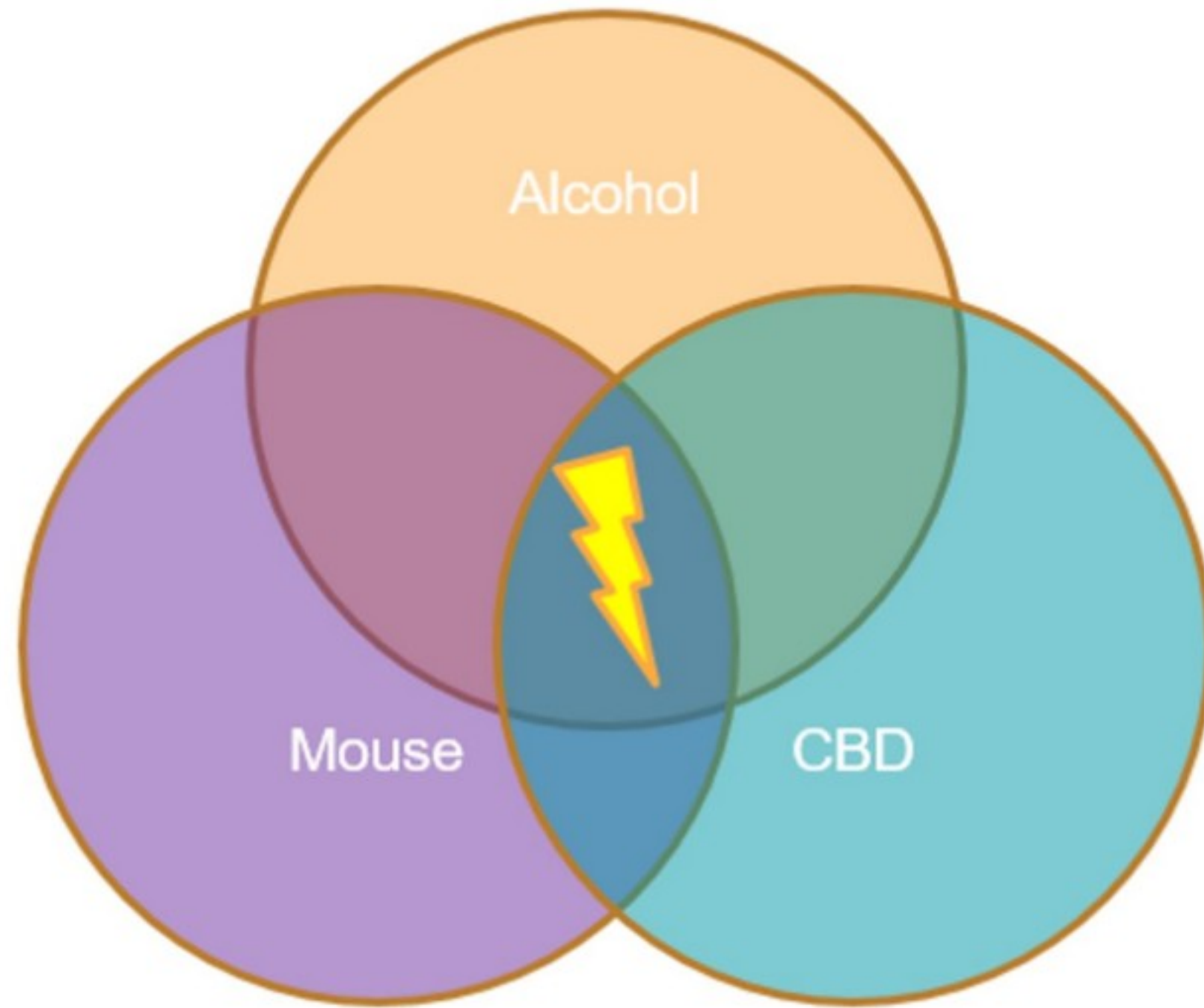
Expand your
search (get
more results)
by combining
similar terms



AND is used to:

0	0	0
Limit your search by combining different concepts/ideas	Expand your search by combining different concepts/ideas	Limit your search by combining similar terms





AND

On Your Own

Try adding the word "OR" between synonyms for the "What is the impact of smoking on the oral microbiome with regards to cancer?" search

Parentheses are used to:

0

Group your
similar terms
combined with
OR

0

Group your
different terms
combined with
AND

0

Parentheses
are not
necessary
because the
system
understands



On Your Own

- Combine your terms with OR
- Group these concepts in parentheses, e.g.: (mouse OR mice OR mus musculus etc)
- Combine these groups of parentheses with AND, e.g.: (mouse OR mice OR etc) AND (alcohol OR ethanol etc)



What could you do if you had too many results?

What could you do if you had too few/worried you were missing something relevant?

Other NCBI Resources

Gene: Searchable database of genes including name, localization, products and attributes, markers, phenotypes, interactions, citations.

Genetics Home Reference

Try Searching: EIF4E on its own in PubMed, and then try it in Gene to see if synonyms appear.

Google Scholar

Google	PubMed	Purpose
-	NOT	Exclude a term
" "	" "	In Google, this seeks a specific phrase in full text, in PubMed, this looks for a phrase in a term list and ALSO turns off mapping to <u>MeSh</u> Terms
author: f <u>lapolla</u>	<u>lapolla</u> f[au]	Find an author, note in PubMed, do not add a comma.

X
Advanced search

Find articles

with **all** of the words

with the **exact phrase**

with **at least one** of the words

without the words

where my words occur

☒ anywhere in the article
☐ in the title of the article

Return articles authored by

e.g., "PJ Hayes" or McCarthy

Return articles published in

e.g., J Biol Chem or Nature

Return articles dated between

—

e.g., 1996

In Google Scholar

- Extensive use of synonyms will not work
- Benefit: Google is fast and may involve less work
- Drawback: Less reproducible, difficult to assess thoroughness



Web of Science

Web of Science

- Can work with Boolean (OR AND)
- Can run basic or advanced searches
- Strong cited by tool for tracking citations

Conclusion

- Regardless of which tool, break down your question into its concepts
- With PubMed, combine synonyms with OR grouped in parentheses
- Because different databases contain different articles, when trying to be thorough search in a few places

