Have a good research question

Your strategy is based on the question you ask – a well-formulated question is essential for a successful search strategy.

Example

Do electric toothbrushes work better than manual toothbrushes to remove plaque when used by children?

Example

Are there therapies available to relieve muscle cramping in patients with ALS?
Developing a search strategy

1 Brainstorm keywords

What are the most important concepts in your search?
Developing a search strategy

1. **Brainstorm keywords**
   
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Developing a search strategy

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Developing a search strategy

2. Think about synonyms

<table>
<thead>
<tr>
<th>There can be variations in the names of diseases</th>
<th>There can be variations in drug names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lou Gehrig</td>
<td>Generic trade names (ie. fluoxetine OR prozac)</td>
</tr>
<tr>
<td>OR</td>
<td>Trade names can vary by country</td>
</tr>
<tr>
<td>ALS</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
</tr>
<tr>
<td>Amyotrophic Lateral Sclerosis</td>
<td></td>
</tr>
</tbody>
</table>
Determine which MeSH headings to use

MeSH stands for Medical Subject Headings. MeSH is the controlled vocabulary used to describe articles in PubMed. Every article in PubMed is indexed, or “tagged” with MeSH headings that indicate what the article is about.
Example MeSH

Let’s say one of your concepts is breast cancer. Search the MeSH database to see what MeSH heading is used to describe breast cancer.

Choose MeSH from the dropdown

Enter your search term
The MeSH term for breast cancer is “Breast Neoplasms”.

These terms may have been used before the heading “Breast Neoplasms” was added to PubMed.

The MeSH heading “Breast Neoplasms” can be used instead of searching for all these synonyms. Searching becomes easier once you have identified the correct MeSH terms.
You can make a subject heading a “Major Topic”

This means the database will only find articles where “Dental Plaque” is considered a main point.
You can “Explode” a subject heading, and the database will search for all terms falling below that term on the hierarchy.

When you search for the MeSH term “Gingival Diseases,” PubMed will “Explode” the term, and search for all the terms falling below it.

This is where the MeSH term “Gingival Diseases” falls on the hierarchy.
Searching using MeSH terms will usually give you fewer and more relevant results.

Important: it is best to go through this same process for each of your concepts separately. You can combine them later.
MeSH as controlled vocabulary: Weaknesses

1. MeSH terms are sometimes NOT your average, day-to-day words (ie. not intuitive).

2. MeSH terms do not often reflect ALL drug formations, recent development, etc.

3. When new articles are entered into PubMed, they are not indexed or “tagged” with MeSH terms right away – there is always a delay.
Natural language (free text searching)

This is what we do all day on Google.

We can also do it in PubMed.
Natural language (free text searching)

Strengths:
- Very quick and effective
- Useful for new concepts that might not be indexed yet

Weaknesses:
- High recall, low accuracy
- Does not deal well with synonyms, variant spellings
What are you telling me?

You want accuracy and a manageable number of articles, but you also want to make sure not to miss new articles about new concepts.

So...

You will have to do both types of searches: MeSH and natural language.
Two ways of searching: MeSH & natural language/free text

1. Click “Add to search builder”

2. Finally, click “Search PubMed” to perform the search

Remember to do this for each concept!
Combining searches

PubMed saves all your searches as you go. For a list of your searches, click “Advanced”
Combining searches

Click “Add,” and your search will appear in the Search Builder.
Combining searches

Do the same with your next search to combine them. Click “Search.”
The reality of PubMed searching

- You might not get what you’re looking for on the first search.
- You might have to combine searches in different ways, try out different MeSH terms, and try different free text words.
- Remember that you can combine your free text searches with your MeSH searches to make sure you got everything.
- Be patient and keep trying.
What if I have too many references?

- Adding new and more specific terms to your search strategy will often lower your results.
- Searching a MeSH term as a “Major Topic” will usually lower your results.
What if I have too many references?

- NOT exploding a term will lower your numbers

Check this box to “unexplode” the MeSH term.
What if I have too many references?

- Limits such as date/language/article type will lower your numbers

Filters are found to the left of your search results.

Click on the chosen filter to activate it.

Click to see more filters.
What if I have too few references?

- Remove one of your search terms – ideally the least important one
- Remove limits (filters)

Click “Clear” to remove a filter

Click “Clear all” to remove all filters you have used
A Tip: What to do when you find one really good article

Let's say this article is exactly the sort of thing you're looking for.

Tip: Learn which MeSH terms were used to describe this article. Use those terms to find similar articles.
1. Click “Display Settings”

2. Choose “Abstract.” Click “Apply”
3. Immediate versus delayed loading of single mandibular molars. One-year results from a randomised controlled trial.
Meloni SM, De Riu G, Pisano M, De Riu N, Tullio A.
University Hospital of Sassari, Italy. melonisilviomario@yahoo.it

Abstract
PURPOSE: To compare the outcome of immediate non-occlusal loading and that of delayed implant loading in the bilateral replacement of single mandibular molars.

MATERIALS AND METHODS: This study was designed as a randomised, controlled, split-mouth trial. Twenty patients with bilaterally missing first mandibular molars had one of the sites to be restored randomly assigned to be treated with immediately or conventionally loaded single implants. A total of 40 implants were bilaterally installed. All the implants were inserted in healed healthy bone with an insertion torque between 35 and 45 Ncm. One molar was restored with a non-occluding temporary crown within 24 h after implant placement, while the contralateral molar was restored with a definitive crown 4 to 5 months later, according to a two-stage procedure. Final restorations were provided 4 to 5 months after implant placement for all implants. Outcome measures were implant survival, complications, radiographic marginal bone-level changes, PPD and BOP.

RESULTS: No patients dropped out and no implant failed. Only minor prosthetic complications were observed (2 provisional acrylic crown fractures in the immediate loading group and 2 ceramic chipping in the delayed loading group). Mean marginal bone loss was 0.83 ± 0.16 mm (95% CI 0.75 to 0.91) in the immediate loading group and 0.86 ± 0.16 mm (95% CI 0.78 to 0.94) in the conventional loading group and no statistically significant differences between the two groups were observed (P = 0.530). Mean PPD and BOP values were, respectively, 2.76 ± 0.48 (95% CI 2.55 to 2.97) and 1.30 ± 0.73 (95% CI 0.98 to 1.62) in the immediate loading group, and 2.70 ± 0.37 (95% CI 2.54 to 2.86) and 1.40 ± 0.75 (95% CI 1.07 to 1.73) in the conventional loading group. Also, a statistical comparison of BOP and PPD did not show any significant difference (P = 0.163 and P = 0.652, respectively).

CONCLUSIONS: Within the limitations of this study, the present data seem to confirm the hypothesis that the clinical outcome of immediate versus delayed loading of implants in single mandibular molar sites is comparable.

PMID: 23304688 [PubMed - indexed for MEDLINE]
Related citations

Get It C DAL

Publication Types, MeSH Terms
A whole list of search terms you might want to try

- Adult
- Aged
- Alveolar Bone Loss
- Computer-Aided Design
- Crowns
- Dental Implantation, Endosseous
- Dental Implants, Single-Tooth*
- Dental Prosthesis Design
- Dental Prosthesis, Implant-Supported
- Dental Restoration Failure
- Female
- Humans
- Immediate Dental Implant Loading*
- Male
- Mandible
- Middle Aged
- Molar
What if I want to save my search strategy for later use? Two options:

1. **Download it**

   From the Advanced Search screen...
Create a free NCBI account to store all your PubMed searches.
What if I need help?

Kellogg Library is at your service

Reference help:
494-2482

RefWorks help:
Shelley McKibbon 494-2483
mckibbon@dal.ca

Search help:
Patrick Ellis 494-1669
pellis@dal.ca