MyResearch Graduate Seminars
Module 3 – Search Strategies and Techniques

Winter 2017
Objectives

• Learn how to choose search terms from your research topic

• Understand how to search different databases

• Find out how to keep up with your research through mobile apps and email alerts
Steps to searching

1. Define your question and break it down into its separate concepts

2. Identify database(s) to search

3. Develop a search strategy and run your search
   - Search each concept separately
   - Combine search terms (AND/OR)
   - Use parentheses to combine search terms in right order, when needed
   - Apply limits when appropriate

4. Evaluate your results and modify your search
Why searching well should matter to you!
1. Start with your research question

What are the effects of marine-derived nutrients from spawning salmon on freshwater ecosystems?
2. Identify your key concepts

What are the effects of marine-derived nutrients from spawning salmon on freshwater ecosystems?
2. Identify database(s)
Example of a couple of databases for Aquatic Science:

- Web of Science
- ProQuest Aquatic Science Collection

PNAS
### Identifying subject-specific databases

<table>
<thead>
<tr>
<th>Use the Library</th>
<th>Find</th>
<th>Subject guides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library account</td>
<td>Books</td>
<td>Agriculture &amp; environmental sciences</td>
</tr>
<tr>
<td>Questions? Ask Us!</td>
<td>Articles</td>
<td>Art, architecture &amp; urban planning</td>
</tr>
<tr>
<td>Hours</td>
<td>Journals</td>
<td>Education</td>
</tr>
<tr>
<td>Librarians</td>
<td>Databases</td>
<td>Engineering</td>
</tr>
<tr>
<td>Workshops</td>
<td>Course reserves</td>
<td>Health &amp; biological sciences</td>
</tr>
<tr>
<td>Branch libraries</td>
<td>Course guides</td>
<td>Humanities</td>
</tr>
<tr>
<td>Room booking</td>
<td>Citation guides &amp; software</td>
<td>Law</td>
</tr>
<tr>
<td>Scan / Print / Copy</td>
<td>Reference materials</td>
<td>Management &amp; business</td>
</tr>
<tr>
<td>Borrowing books, etc</td>
<td>Newspapers</td>
<td>Music</td>
</tr>
<tr>
<td>Interlibrary loan (ILL)</td>
<td>Audio/visual materials</td>
<td>Physical sciences</td>
</tr>
<tr>
<td>Computer finder</td>
<td>Theses &amp; dissertations</td>
<td>Social sciences</td>
</tr>
</tbody>
</table>

McGill Library. Everything You Need.
Very basic search strategy

marine-derived nutrients

AND

freshwater ecosystem

AND

spawning salmon
# Generating synonyms

<table>
<thead>
<tr>
<th>CONCEPT 1 “Marine-derived nutrients”</th>
<th>CONCEPT 2 “Freshwater ecosystem”</th>
<th>CONCEPT 3 Spawning salmon</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDN</td>
<td>Freshwater</td>
<td><em>Oncorhynchus</em></td>
</tr>
<tr>
<td>Etc.</td>
<td>Riparian</td>
<td><em>Anadromous</em></td>
</tr>
<tr>
<td>Etc.</td>
<td>Etc.</td>
<td>Etc.</td>
</tr>
</tbody>
</table>
Many databases allow truncation:
  - E.g., salmon* retrieves salmon / salmonid*

Consider using quotations for phrase searching:
  - Not always necessary, depends on the database
  - E.g., “marine derived micronutrient*”

Combine synonymous concepts with OR:
  - E.g., salmon OR oncorhynchus OR andramodous (Note: capitalization doesn’t normally matter; databases usually treat hyphens as spaces)

Combine different concepts with AND:
  - E.g., (MDN concept set) AND (salmon concept set) AND (freshwater concept set)

User parentheses
Run your search:
Start with your first concept

(“marine derived nutrient*” OR MDN)
Run your search:
Continue with your second concept

(freshwater OR “fresh water” OR river* OR riparian OR stream* OR inland)
Run your search:
Continue with your third concept

(salmon* OR anadromous OR oncorhynchus OR fish)
Run your search:
Join your concept sets together with AND
Join your concepts with AND:

("marine-derived nutrient*" OR MDN) AND
(freshwater OR “fresh water” OR river* OR riparian OR *stream* OR inland) AND
(salmon* OR anadromous OR oncorhynchus OR fish)
Let’s try it in Web of Science
Activity! On your worksheet:

- Describe your research topic and circle the main concepts
- Copy the main concepts below and brainstorm synonyms
- Share your topic and your concepts with your neighbour. Discuss possible other synonyms. Add them to your chart.
- Stop here! The next steps will come later!
Beyond keywords: Using subject headings
Subject headings in MEDLINE: MeSH

27,883 MeSH terms

McGill Library. Everything You Need.
Why bother with subject headings (e.g., MeSH)?

- cancer
- tumor(s)
- tumour(s)
- neoplasm(s)
- neoplastic

There are 27,883 MeSH terms
Objective: To estimate the effect of reducing caffeine intake during pregnancy on birth weight and length of gestation. Design: Randomised double blind controlled trial. Setting: Denmark. Participants: 1207 pregnant women drinking at least three cups of coffee a day, recruited before 20 weeks' gestation. Interventions: Caffeinated instant coffee (568 women) or decaffeinated instant coffee (629 women). Main outcome measures: Birth weight and length of gestation. Results: Data on birth weight were obtained for 1150 liveborn singletons and on length of gestation for 1153 liveborn singletons. No significant differences were found for mean birth weight or mean length of gestation between women in the decaffeinated coffee group (whose mean caffeine intake was 182 mg lower than that of the other group) and women in the caffeinated coffee group. After adjustment for length of gestation, parity, prepregnancy body mass index, and smoking at entry to the study the mean birth weight of babies born to women in the decaffeinated group was 16 g (95% confidence interval -40 to 73) higher than those born to women in the caffeinated group. The adjusted difference (decaffeinated group-caffeinated group) of length of gestation was -1.31 days (-2.87 to 0.25). Conclusion: A moderate reduction in caffeine intake in the second half of pregnancy has no effect on birth weight or length of gestation.
AB OBJECTIVE: To estimate the effect of reducing caffeine intake during pregnancy on birth weight and length of gestation. DESIGN: Randomised double blind controlled trial. SETTING: Denmark. PARTICIPANTS: 1207 pregnant women drinking at least three cups of coffee a day, recruited before 20 weeks' gestation. INTERVENTIONS: Caffeinated instant coffee (568 women) or decaffeinated instant coffee (629 women). MAIN OUTCOME MEASURES: Birth weight and length of gestation. RESULTS: Data on birth weight were obtained for 1150 liveborn singletons and on length of gestation for 1153 liveborn singletons. No significant differences were found for mean birth weight or mean length of gestation between women in the decaffeinated coffee group (whose mean caffeine intake was 182 mg lower than that of the other group) and women in the caffeinated coffee group. After adjustment for length of gestation, parity, prepregnancy body mass index, and smoking at entry to the study the mean birth weight of babies born to women in the decaffeinated group was 16 g (95% confidence interval -40 to 73) higher than those born to women in the caffeinated group. The adjusted difference (decaffeinated group-caffeinated group) of length of gestation was -1.31 days (-2.87 to 0.25). CONCLUSION: A moderate reduction in caffeine intake in the second half of pregnancy has no effect on birth weight or length of gestation.
Subject headings are database-specific

Medline uses MeSH

Embase uses EMTREE


Birth Weight /physiology
Caffeine /adverse effects
Coffee /adverse effects
Gestational Age
Maternal Exposure
Patient Compliance
Pregnancy
Pregnancy Complications /etiology
Pregnancy Outcome

birth weight
body mass
coffee
Denmark
food intake
gestation period
maternal smoking
Pregnancy
smoking
caffeine

Birth Weight /physiology  
Caffeine /adverse effects  
Coffee /adverse effects  
Gestational Age  
Maternal Exposure  
Patient Compliance  
Pregnancy  
Pregnancy Complications /etiology  
Pregnancy Outcome

birth weight  
body mass  
coffee  
Denmark  
food intake  
gestation period  
maternal smoking  
smoking  
caffeine

Examples of overindexing
<table>
<thead>
<tr>
<th>Keyword</th>
<th>Subject Heading</th>
</tr>
</thead>
<tbody>
<tr>
<td>“natural language”</td>
<td>“controlled vocabulary”</td>
</tr>
<tr>
<td>Database will search <strong>multiple fields</strong></td>
<td>Database will search <strong>descriptor field</strong></td>
</tr>
<tr>
<td>May not be the <strong>focus</strong> of the article</td>
<td>Process involves humans, so results will be <strong>more relevant</strong></td>
</tr>
<tr>
<td>Does not take the <strong>meaning</strong> of the word into account</td>
<td><strong>Meaning</strong> of the word is considered ex. mouse (rodent) vs. mouse (computer mouse)</td>
</tr>
<tr>
<td>Can yield <strong>irrelevant</strong> results</td>
<td><strong>Standard list</strong> of terms defines related synonyms</td>
</tr>
<tr>
<td>Necessary if database does not have a controlled vocabulary, or if subject heading does not exist for your term</td>
<td>Different in each database</td>
</tr>
</tbody>
</table>
Strategies for developing search terms

• Subject headings/controlled vocabulary
  • Databases and articles

• Build from your own knowledge base
  • Use relevant articles you have already found and check their indexing and/or the textwords used by the authors
  • Internal dictionary/vocabulary that you’ve developed

• Reading articles and books
  • Familiarize yourself with terms used
Does leucine combined with resistance training improve muscle mass and function in elderly women?
Identify your key concepts

Does leucine combined with resistance training improve muscle mass and function in elderly women?
Does leucine, combined with resistance training, improve muscle mass and function in elderly women?
## Generating synonyms

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
<th>Concept 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>Leucine</td>
<td>Resistance training</td>
<td>Aged</td>
</tr>
<tr>
<td>OR</td>
<td>Exercise</td>
<td>Aging</td>
<td>Female</td>
</tr>
<tr>
<td>OR</td>
<td>Weight training</td>
<td>Elderly</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Weight lifting</td>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Strength training</td>
<td>Old</td>
<td></td>
</tr>
</tbody>
</table>
### Generating synonyms

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Concept 3</th>
<th>Concept 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR</td>
<td>Leucine</td>
<td>Resistance training</td>
<td>Women</td>
</tr>
<tr>
<td>OR</td>
<td>Exercise</td>
<td>Aging</td>
<td>Female</td>
</tr>
<tr>
<td>OR</td>
<td>Weight training</td>
<td>Elderly</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Weight lifting</td>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Strength training</td>
<td>Old</td>
<td></td>
</tr>
</tbody>
</table>
### Example of the search in Ovid MEDLINE

<table>
<thead>
<tr>
<th>#</th>
<th>Searches</th>
<th>Results</th>
<th>Type</th>
<th>Actions</th>
<th>Annotations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>leucine/</td>
<td>26063</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>leucine.mp.</td>
<td>73256</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1 or 2</td>
<td>73256</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Resistance Training/</td>
<td>5504</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>exp Exercise/</td>
<td>151084</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>(weight training or resistance training or strength training).mp.</td>
<td>12037</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>4 or 5 or 6</td>
<td>155601</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>aging/</td>
<td>206588</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>exp aged/</td>
<td>2674725</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>(aging or aged or elder* or senior$1 or old*).mp.</td>
<td>5494779</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>8 or 9 or 10</td>
<td>5494779</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>3 and 7 and 11</td>
<td>99</td>
<td>Advanced</td>
<td>Display Results</td>
<td></td>
</tr>
</tbody>
</table>
Limiting your search

**Age groups**
- Neonates, babies
- Elderly people

**Publication date**
- Last 5 years
- From 1990 –

**Languages**
- English only
- French, German...

**Publication Type**
- Systematic Reviews
- Case histories
Recap: Steps to searching

1. Define your question and break it down into its separate concepts

2. Identify database(s) to search

3. Develop a search strategy and run your search
   • Search each concept separately
   • Combine search terms (AND/OR)
   • Apply limits

4. Evaluate your results and modify your search
Activity!

- Choose an Ovid database
- Find subject headings (if applicable)
- Construct a search using subject headings and keywords (if applicable)
- Try a second database if you have time
Keeping up with your research

- Set up email alerts
- Set up RSS feeds
Keeping up with your research

- Set up email alerts
- Set up RSS feeds
Keeping up with your research: database alerts

• Most databases allow you to set up alerts based on the searches you create

• Receive results as an email
Sample email alert from an OVID database

<table>
<thead>
<tr>
<th>Set</th>
<th>Search</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>Happiness</td>
<td>512</td>
</tr>
<tr>
<td>002</td>
<td>limit to updaterange=&quot;medl(20080721111103-20080728123030)&quot;</td>
<td>5</td>
</tr>
</tbody>
</table>

Unique Identifier
18485989

Status
MEDLINE

Authors
Alam M, Barrett KD, Hodapp RM, Arndt KA.

Authors Full Name
Alam, Murad. Barrett, Karen C. Hodapp, Robert M. Arndt, Kenneth A.

Institution
Section of Cutaneous and Aesthetic Surgery, Department of Dermatology, Northwestern University, Chicago, IL 60611, USA. m-alam@northwestern.edu

Title
Botulinum toxin and the facial feedback hypothesis: can looking better make you feel happier? [Review] [90 refs]

Source

Abstract
The facial feedback hypothesis suggests that muscular manipulations which result in more positive facial expressions may lead to more positive emotional states in affected individuals. In this essay, we hypothesize that the injection of botulinum toxin for upper face dynamic creases might
<table>
<thead>
<tr>
<th>Search Name</th>
<th>Comment</th>
<th>Type</th>
<th>AutoAlert (SDI)</th>
</tr>
</thead>
</table>

### AutoAlert Options

#### Scheduling Options
- On Database Update
- Quarterly
- Monthly - on day 1
- Every other week - on Monday
- Weekly - on Monday

#### Deduping Options
- 90 Days

#### Delivery Options
- Email
- RSS
- My Projects

#### Email Address & Subject
Separate multiple email addresses with commas. Do not use any spaces between the addresses.
- Recipient's Email Address: genevieve.gore@mcgill.ca
- Email Subject: Ovid Results
Keeping up with your research

BrowZine allows you to:

• Read complete scholarly journals in a browsable format on your tablet.

• Create a personal bookshelf of your favourite journals for which McGill has a subscription.

• Get alerts when new issues of journals are published.

• Available for iPads and Android tablets

http://www.mcgill.ca/library/services/computers/mobile
Create a bookshelf with your favorite journals
Read and share the articles directly from the app
Module 4 – Getting Your Research Out

- Find where to publish
- Impact factors and citation analysis
- Open access and institutional repositories
- Copyright transfer agreement
- Academic integrity and intellectual property

Thurs Feb 16 @ 10:00am (2 hrs)
Schulich Library Room 313