Database Searching
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Following instruction students will be able to:

- **Evidence Based Practice:**
  - formulate a focused, searchable question using the PICO(T) model
  - search for the highest level of quantitative evidence to resolve their information need

- **Databases:**
  - understand the common features and strengths of databases for finding research evidence
Clinical Scenario

- A 58 year-old woman has loss of motor control due to hemiplegia following a severe stroke. You want to know if constraint induced therapy is an effective treatment to help her regain motor control, compared to standard OT.
- Use the PICO model to create a focused, searchable clinical question.

<table>
<thead>
<tr>
<th>P</th>
<th>Population/Patient/Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Intervention/Exposure</td>
</tr>
<tr>
<td>C</td>
<td>Comparison</td>
</tr>
<tr>
<td>O</td>
<td>Outcome</td>
</tr>
<tr>
<td>(T)</td>
<td>Type of Question</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P</th>
<th>adults / hemiplegia / stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>constraint induced therapy</td>
</tr>
<tr>
<td>C</td>
<td>occupational therapy</td>
</tr>
<tr>
<td>O</td>
<td>improved motor control</td>
</tr>
<tr>
<td>(T)</td>
<td>therapy</td>
</tr>
</tbody>
</table>

**THERAPY Question Template**

In (P) adults with hemiplegia, what is the effect of (I) constraint induced therapy on (O) motor control compared with (C) standard OT?
EBP Step 2: ACCESS (studies, hierarchies) track down the best evidence

match your question to the **best** medical information resource for this question
Hierarchy of Evidence
Medical Literature

access at the level that will give you the best evidence

most clinically relevant (at the top) least clinically relevant (at the bottom)
Access Databases via OT Subject Guide

**Occupational Science and Occupational Therapy: Article Databases**

The following databases have been selected due to their inclusion of occupational therapy topics, or other relevant material. Please note that many other databases are also available to assist you in your search:

- **PubMed@USC**
  Customized for USC users to find the full-text of articles from library holdings.

- **PubMed Clinical Queries**
  Limited to clinical studies, systematic reviews, and medical genetics. For comprehensive searches, use PubMed directly.

- **CINAHL Complete**
  CINAHL with Full Text is a rich collection of full text for nursing & allied health journals.

- **Cochrane Database of Systematic Reviews**
  The Cochrane Database of Systematic Reviews provides access to full-text systematic reviews.

- **Joanna Briggs Institute EBP Database**
  Evidence-based practice database with a global focus. Find systematic reviews, protocols, recommended practices, evidence summaries, best practice and consumer information sheets, and technical Reports.

- **ProQuest Nursing and Allied Health**
  This database includes journals, video, dissertations, reference books and more.

- **Social Sciences (ProQuest)**
  Searches a number of ProQuest social science databases (including ERIC, GenderWatch, PsycInfo, and Sociological Abstracts).

- **AnthroSource**
  Provides full text access to publications from the American Anthropological Association. Some coverage on medical anthropology and ethnoarchaeology. Good for sociocultural and linguistic anthropology.

- **AGELINE**
  Content focus on social gerontology, which is the study of aging in psychological, health-related, social, and economic contexts. Includes abstracts of over 200 academic journals, books, book chapters, and dissertations from 1978 to present.

- **Embase**
  Embase provides access to over more than 29 million citations for biomedical articles and conference proceedings. This version has been customized for USC users to find the full-text of articles from library holdings.

- **Scopus**
  A multidisciplinary database that includes literature from the fields of science, technology, medicine, social sciences, and Arts & Humanities.

- **Web of Science**
  A multidisciplinary database, with searchable author abstracts, covering the journal literature of the sciences.

- **Health and Psychosocial Instruments (HAPI)**
# Database Summary

<table>
<thead>
<tr>
<th>Database</th>
<th>Special Features</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cochrane Database of Systematic Reviews</td>
<td>summarizes the results of many RCTs</td>
<td>each review identifies an intervention for a specific problem and summarizes the results of many RCTs</td>
</tr>
<tr>
<td>PubMed</td>
<td>largest, freely available biomedical database in the world</td>
<td>guidelines, systematic reviews, RCTs, cohort studies, case control studies, case series/reports etc.</td>
</tr>
<tr>
<td>CINAHL Complete</td>
<td>allied health specific</td>
<td>allied health, biomedicine, alternative medicine, consumer health</td>
</tr>
<tr>
<td>ProQuest Social Sciences</td>
<td>multidisciplinary index searches many databases at once i.e. ERIC and PsycINFO</td>
<td>broad range of subjects including arts, humanities, social science, and the sciences</td>
</tr>
<tr>
<td>Scopus</td>
<td>multidisciplinary database</td>
<td>includes science, technology, medicine, social sciences, and Arts &amp; Humanities literature</td>
</tr>
<tr>
<td>Embase</td>
<td>multidisciplinary database</td>
<td>international biomedical literature, drug, medical device and disease-related information</td>
</tr>
<tr>
<td>Joanna Briggs Institute (JBI) EBP Database</td>
<td>EBP database with a global focus</td>
<td>contains abstracts of systematic reviews, protocols, recommended practices, evidence summaries, best practice and consumer information sheets, and technical reports</td>
</tr>
<tr>
<td>OT Seeker</td>
<td>specific to OT interventions; most items critically appraised</td>
<td>contains abstracts of systematic reviews, RCTs and other resources relevant to OT</td>
</tr>
</tbody>
</table>

For all databases, always access full-text through: [Find it at USC](#)
Database Strengths & Common Features

- basic / advanced search
- Search by
  - keyword
  - controlled vocabulary
    - organized list of terms used to index and retrieve content
      - MeSH, CINAHL Headings
- Boolean terms
  - AND/OR/NOT
  - Combine concepts
- Limits / Filters
  - language
  - time frame - last 5 years
  - publication type
    - (systematic reviews, RCTs)
- See related results
Quotations

Put phrases in quotations ‘”’ to search for the words in that exact order:

- “occupational therapy”
- “constraint induced therapy”
- “blood pressure”

Note: quotes may turn off other database features
Truncation

- Replace the end of a word with a truncation symbol, i.e. **usually** asterisk: *

- This instructs the database to search for any ending, or different spelling to the word.
  - behavio*r = behavior, behaviour
  - occupational therap* = therapy, therapies, therapist, therapists
  - experien* = experience, experienced, experiences, experiencing, experiential (and more)

Notes:
- symbol may differ by database
- truncation may turn off other database features
Boolean Operators

• Boolean operators:
  o connector words that combine concepts
  o narrow or broaden your search
  o enter in upper case letters

• AND – **narrow**s search / includes all terms / limit to 3 concepts

• OR – **broadens** search / includes any term / use for concepts that have a lot of synonyms

• NOT- **narrow**s search / eliminates articles with unwanted terms / use sparingly risk eliminating relevant articles!

(hemiplegia OR paralysis) **AND** (constraint induced therapy OR CIT OR CIMT) **AND** (motor control)
PUBMED@USC

SEARCHING

FUNDAMENTALS
Learning Objectives – PubMed@USC

- **PubMed@USC:**
  - search PubMed using keywords and MeSH terms in order to retrieve the most relevant articles possible
  - broaden or refine search results
  - use Find It @ USC in order to retrieve the full-text or print article, or to order it via ILL (covered in library intro)

- **MyNCBI:**
  - use MyNCBI to save search strategies and article citations, and set up filters including Clinical Queries therapy filters
PubMed Database

• free resource produced by National Library of Medicine
• primarily includes full MEDLINE database, plus current articles, and more
• largest biomedical database in the world
• through PubMed@USC you can get access to full-text
Keyword Search

- automatic term mapping (ATM)
- searches both newest and indexed (MeSH) articles

narrower / 17 articles
broader / 45 articles
### Search Results – Filters

[![PubMed interface with filters highlighted](image)](image)

- **Clear filters between searches**
- **Do not use Full text filters while at USC**
Systematic review and meta-analysis of constraint-induced movement therapy in the hemiparetic upper extremity more than six months post stroke.

McIntyre A, Viana R, Janzen S, Mehta S, Pereira S, Teasell R.

Abstract

OBJECTIVE: To conduct a systematic review and meta-analysis of the available evidence on the effectiveness of constraint-induced movement therapy (CIMT) in the hemiparetic upper extremity (UE) among individuals who were more than 6 months post stroke.

METHODS: A literature search of multiple databases (PubMed, CINAHL, and EMBASE) was conducted to identify articles published in the English language up to and including July 2012. Studies were included for review if (1) ≥50% of the sample had sustained a stroke, (2) the research design was a randomized controlled trial (RCT), (3) the mean time since stroke was ≥6 months for both the treated and control groups, (4) the treatment group received CIMT, (5) the control group received a form of traditional rehabilitation, and (6) functional improvement was assessed both pre and posttreatment. Methodological quality was assessed using the PEDro tool with a score out of 10.

RESULTS: Sixteen RCTs (PEDro scores 4-8) met inclusion criteria and included a pooled sample size of 572 individuals with a mean age of 58.2 years (range, 30-87). The meta-analysis revealed a significant treatment effect on the amount of use and quality of movements subscales of the Motor Activity Log (P = .001, for both), Fugl-Meyer Assessment (P = .014), and Action Research Arm Test (P = .001); however, there was no significant treatment effect demonstrated by the Wolf Motor Function Test (P = .120) or FIM (P = .700).

CONCLUSIONS: CIMT to improve UE function is an appropriate and beneficial therapy for individuals who have sustained a stroke more than 6 months previously.

PMID: 23192715 [PubMed - indexed for MEDLINE]
Benefits of MeSH:

- MeSH searches word variations

- searching with the same MeSH terms used to index articles about your topic can help get more specific results

- narrow / broaden search

Note: if you search using only Mesh terms it will exclude new articles about your topic that are still waiting to be indexed.

Also, you CAN”T make up MeSH terms!!!
Filter for MeSH indexed articles

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

Filter your results:
- All (19)
- Case Reports (1)
- Clinical Trial (9)
- Guideline (0)
- HINARI (11)
- Historical Article (0)
- MEDLINE (16)
- Meta-analysis (1)
- Practice Guideline (0)
- Qualitative Research/Broad (12)
- Qualitative Research/Narrow (0)
- Randomized Controlled Trial (8)
- Review (2)
- Systematic Reviews (2)

Search results

Items: 16

1. Improvement of upper extremity motor control and function after home-based constraint induced therapy in children with unilateral cerebral palsy: immediate and long-term effects.
   Chen HC, Chen CL, Kang LJ, Wu CY, Chen FC, Hong WH.
   PMID: 24742939
   Similar articles

   PMID: 23605556 Free PMC Article
   Similar articles

3. Systematic review and meta-analysis of constraint-induced movement therapy in the hemiparetic upper extremity more than six months post stroke.
   McIntyre A, Viana R, Janzen S, Mehta S, Pereira S, Teasell R.
   PMID: 23192715
   Similar articles

Find related data

University of Southern California
MeSH – Medical Subject Headings

- Change dropdown to MeSH to access the MeSH database
Sample MeSH Record

**Definition:**
Severe or complete loss of motor function on one side of the body. This condition is usually caused by BRAIN DISEASES that are localized to the cerebral hemisphere opposite to the side of weakness. Less frequently, BRAIN STEM lesions, cervical SPINAL CORD DISEASES, PERIPHERAL NERVOUS SYSTEM DISEASES, and other conditions may manifest as hemiplegia. The term hemiparesis (see PARESIS) refers to mild to moderate weakness involving one side of the body.

**Subheadings:**
- anatomy and histology
- blood
- cerebrospinal fluid
- chemically induced
- classification
- complications
- congenital
- cytology
- diagnosis
- diet therapy
- drug therapy
- economics
- embryology
- enzymology
- epidemiology
- etiology
- genetics
- history
- immunology
- metabolism
- microbiology
- mortality
- nursing
- organization and administration
- parasitology
- pathology
- physiology
- physiopathology
- prevention and control
- psychology
- radiography
- radionuclide imaging
- radiotherapy
- rehabilitation
- statistics and numerical data
- surgery
- therapy
- ultrasonography
- urine
- veterinary

**Synonyms:**
- Hemiplegias
- Hemiplegia, Transient
- Hemiplegias, Transient
- Transient Hemiplegia
- Transient Hemiplegias
- Monoplegia
- Monoplegias
- Hemiplegia, Post-ictal
- Hemiplegias, Post-ictal
- Post-ictal Hemiplegia
- Post-ictal Hemiplegias
- Hemiplegia, Crossed
- Crossed Hemiplegia
- Crossed Hemiplegias
- Hemiplegias, Crossed
- Hemiplegia, Flaccid
- Flaccid Hemiplegia
- Flaccid Hemiplegias
- Hemiplegias, Flaccid
- Hemiplegia, Infantile
- Hemiplegias, Infantile
- Infantile Hemiplegia
- Infantile Hemiplegias
- Hemiplegia, Spastic
- Hemiplegias, Spastic
- Spastic Hemiplegia
- Spastic Hemiplegias

To narrow your search check subheadings, or the Major Topic or Do not include boxes.
Mesh – Broaden/Narrow

Mesh Record: hemiplegia

Mesh Record: paralysis

Broaden your search by moving up the MeSH tree.
From Hemiplegia up to Paralysis.

To narrow your search move down the tree.
From Paralysis down to Hemiplegia.
PubMed search terms

<table>
<thead>
<tr>
<th>keywords</th>
<th>controlled vocabulary</th>
</tr>
</thead>
<tbody>
<tr>
<td>hemiplegia</td>
<td>&quot;Hemiplegia&quot;[Mesh]</td>
</tr>
</tbody>
</table>

- natural language
- quick answer (i.e. clinic)
- automatic term mapping
- returns most current & unindexed articles

- MeSH/controlled vocab
- all relevant yet specific results (i.e. research)
- searches synonyms & word variations
- combine w keywords for inclusion of current & unindexed articles
SEARCH STRATEGY
# Brainstorm keyword & MeSH terms

<table>
<thead>
<tr>
<th>Concept</th>
<th>keywords (broad &amp; narrow, acronyms)</th>
<th>controlled vocab (MeSH terms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem</td>
<td>Hemiplegia</td>
<td>&quot;Hemiplegia&quot;[Mesh]</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Paralysis&quot;[Mesh]</td>
</tr>
<tr>
<td>Intervention</td>
<td>constraint induced therapy OR constraint induced movement therapy OR CIT OR CIMT</td>
<td>No MeSH term for CIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Restraint, Physical&quot;[Mesh]</td>
</tr>
<tr>
<td>Comparison</td>
<td>occupational therapy</td>
<td>“Occupational Therapy&quot;[Mesh]</td>
</tr>
<tr>
<td>Outcome</td>
<td>motor control OR stroke rehabilitation</td>
<td>&quot;Functional Laterality&quot;[Mesh]</td>
</tr>
</tbody>
</table>
Select & Combine Terms

Problem terms
Hemiplegia OR “paralysis”[Mesh]

Intervention terms
Constraint induced therapy OR constraint induced movement therapy OR CIT OR CIMT OR "Restraint, Physical"[Mesh] OR occupational therapy

Outcome terms
motor control OR stroke rehabilitation
Search each concept separately and combine in Advanced mode.

Parentheses placement matters! 5(2+3) is not equal to (5)(2)+3
Filter Results

Search results
Items: 19

1. Trunk restraint therapy: the continuous use of the harness could promote feedback dependence in poststroke patients: a randomized trial.
   PMID: 25816031 Free PMC Article
   Similar articles

2. Goal setting, using goal attainment scaling, as a method to identify patient selected items for measuring arm function.
   PMID: 24934806
   Similar articles

3. Driver rehabilitation: a systematic review of the types and effectiveness of interventions used by occupational therapists to improve on-road fitness-to-drive.
   PMID: 24906164
   Similar articles

4. Improvement of upper extremity motor control and function after home-based constraint induced therapy in children with unilateral cerebral palsy: immediate and long-term effects.
   PMID: 24742939
   Similar articles
Tips for Searching PubMed

- clearly define your PICO concepts
- use a mix of keywords and MeSH terms (when possible)
  - use both keywords & MeSH for disease or common healthcare terms
  - OR together keywords for OT intervention terms
  - consider broader and narrower terms (MeSH trees)
- combine 3 concepts at most (i.e. problem, intervention, outcome)
  - include occupational therapy within intervention concept
- use filters to refine results (study type, 5 yrs, age, etc)
- use MyNCBI custom filters (MeSH terms & publication types)
## Tips to Narrow / Broaden the Search

<table>
<thead>
<tr>
<th>Narrow Your Search</th>
<th>Broaden Your Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>- use Boolean operator <strong>AND</strong></td>
<td>- use Boolean operator <strong>OR</strong></td>
</tr>
<tr>
<td>- use filters</td>
<td>- reduce the number of concepts</td>
</tr>
<tr>
<td>- use subheadings</td>
<td>- remove filters</td>
</tr>
<tr>
<td>- check the Major Topic box</td>
<td>- remove subheadings</td>
</tr>
<tr>
<td>- check Do not include box</td>
<td>- uncheck the Major Topic box</td>
</tr>
<tr>
<td>- move down the MeSH tree</td>
<td>- uncheck Do not include box</td>
</tr>
<tr>
<td></td>
<td>- move up the MeSH tree</td>
</tr>
</tbody>
</table>
PUBMED’S MYNCBI
Register for My NCBI account
Save your search strategy and get email alerts
Save and share citation collections
Customize filters
Saving PubMed Search Strategies

1. Run a search in PubMed
2. Click on “Create Alert”
3. Select options
4. Click “Save”
Saving PubMed Citations

Creating Collections and Adding to an Existing Collection

To save search results to a new collection:

1. Make sure you are signed into My NCBI. Run a search.

2. From the search results page, click the check box next to **items you want to save**. If you do not select any items all results up to 1,000 items will be sent to collections. An automated message will confirm "Add the first 1,000 items."

3. After selecting the items you wish to save, select **Collections** from the **Send to** pull-down menu (as shown in the image below). Click **Add to Collections**.
4. The **My NCBI- Collections** page will display. Select **Create new collection** (A in the image below).

5. My NCBI will create a default collection name using the number of items you are saving in a collection (B). You should rename your collection using a short, yet meaningful, title. Identical names for different **Collections** are allowed and may cause confusion. Collection names have a limit of 100 alphanumeric characters. Click Save to finish.
Add Citations to an Existing Collection

As you continue to build data collections, you may want to add new items to an existing collection. To add search results to an existing collection:

1. Follow steps 1 – 3 under Creating Collections.

2. The My NCBI- Collections page will display. Append to an existing collection will be selected by default (A in the image below).

3. Choose the collection into which you want to save your new items (B). Click Save to finish.
Customizing Filters for PubMed

- Click on MyNCBI
- Click on Manage Filters
- most common filters will be under “Popular” and “Properties”
- Click on the box next to filter name to apply
- must be signed into MyNCBI for filters to activate

in **Clinical Queries** select:
1. Therapy/Broad
2. Therapy/Narrow
to quickly filter for Evidence-based practice literature

in **Subsets** select:
1. MEDLINE – articles w/ Mesh terms
2. Systematic Reviews
1. Run a keyword search
2. Click on “MEDLINE” link
3. All of these articles will be indexed with Mesh terms
Now you try!

For children with autism spectrum disorders, what is the effect of a weighted vest in improving attention?

- Use PICO(T) template
- Share 2 key articles and the strategy used to find them.
CINAHL Complete
Cumulative Index to Nursing and Allied Health

- ~5 million records dating back to 1937
- focus on allied health
- CINAHL headings
  - MeSH
  - OT specific terms
CINAHL – Search Options / Limits

- Check "peer reviewed" to limit results to academic information

- English Language

- Peer Reviewed
Search Results: 1 - 9 of 9

1. The effects of a weighted vest on aggressive and self-injurious behavior in a child with autism.

   (Includes abstract). Davis, Tonia N.; Dacus, Sharon; Strickland, Erica; Copeland, Dealynn; Chan, Jeffrey Michael; Blendon, Kara; Scatton, Rachel; Ottenbom, Net; Wells, Kellye; Christian, Kristan; Developmental Neuropsychiatry, Jun 2011; 16(3): 210-215. (Sp) Journal Article - case study, research, tables/figures) ISSN: 1751-9842 PMID: 23278339 AN: 104288101

   Abstract: Objective: Analyze the effects of a weighted vest on the aggressive and self-injurious behavior of a young boy with autism. Methods: The effects of the weighted vest were examined during a functional analysis utilizing an ABAB design with an embedded multielement design, in which the participant wore a five pound weighted vest or no vest. Results: The results do not suggest the existence of a functional relationship between the use of a weighted vest and challenging behavior, as the weighted vest had no marked effect on levels of aggression and self-injurious behavior. Conclusion: Weighted vests are commonly implemented forms of sensory integration therapy, frequently used as a treatment for disruptive behaviors associated with autism spectrum disorder [Stephenson J. Carter M. The use of weighted vests with children with autism spectrum disorders and other disabilities. Journal of Autism and Developmental Disabilities 2009;39:105-114]. However, the current findings support previous literature which states that the use of weighted vests does not appear to decrease challenging behavior.

   Subjects: Autistic Disorder Complications; Aggression Therapy, Injuries, Self-Inflicted Therapy, Clothing; Sensory Motor Integration; Child: 6-12 years, Male

2. Weighted vests did not improve competing behaviours or joint attention of 2 year olds with Autism Spectrum Disorder (ASD)


   Abstract: Objective: An examination of the effect of the use of weighted vests on competing behaviors and joint attention in children 2 years of age with autism spectrum disorder. Methods: A group of children aged 2 years 6 months to 3 years 11 months with autism spectrum disorder were randomly assigned to a control or intervention group. The intervention group wore a weighted vest over their clothing daily for 5 weeks. Results: The use of weighted vests did not improve competing behaviors or joint attention in children aged 2 years 6 months to 3 years 11 months with autism spectrum disorder. Conclusion: There was no evidence to support the use of weighted vests over at least a 3-month period as a treatment intervention to improve competing and joint attention behaviors in young children with autism spectrum disorder.

   Subjects: Autistic Disorder Rehabilitation; Sensory Motor Integration; Pediatric Physical Therapy

   Cited References: (5)
1. Click on “CINAHL Headings” link to access controlled vocabulary.

2. Enter keyword into search box. Click on “Browse”.

- autism
Click on box to open subheadings & add to Search Box.

Click on blue link to access tree for hierarchy of terms.
Click on **Explode** to search narrower terms.
thank you