TURKU AMK
TURKU UNIVERSITY OF APPLIED SCIENCES

Systemaattisesta kirjallisuuskatsauksesta - näkökulma

Do aerobic exercises really improve aerobic capacity of stroke survivors? A systematic review and meta-analysis

Mikhail SALTYCHEV, Tuulikki SJöGREN, Esa BäRLUND, Katri LAIMI, Jaana PALTAMAA

Eur J Phys Rehabil Med 2015 Jan 9 [Epub ahead of print]

Effectiveness of myofascial release in treatment of chronic musculoskeletal pain: a systematic review

Clinical Rehabilitation
1–11
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SAGE

Katri Laimi[1], Annika Mäkilä[1], Esa Bärlund[2], Niina Katajapuu[2], Airi Oksanen[1], Valpuri Seikkula[1,3], Jari Karppinen[3] and Mikhail Saltychev[1]

Open Access Research

BMJ Open Progressive resistance training in Parkinson's disease: a systematic review and meta-analysis

Mikhail Saltychev,[1] Esa Bärlund,[2] Jaana Paltamaa,[3] Niina Katajapuu,[4] Katri Laimi[1]

Mikhail Saltychev, Niina Katajapuu, Esa Bärlund & Katri Laimi (2019) Psychometric properties of 12-item self-administered World Health Organization disability assessment schedule 2.0 (WHODAS 2.0) among general population and people with non-acute physical causes of disability – systematic review, Disability and Rehabilitation, DOI: 10.1080/09638288.2019.1643416

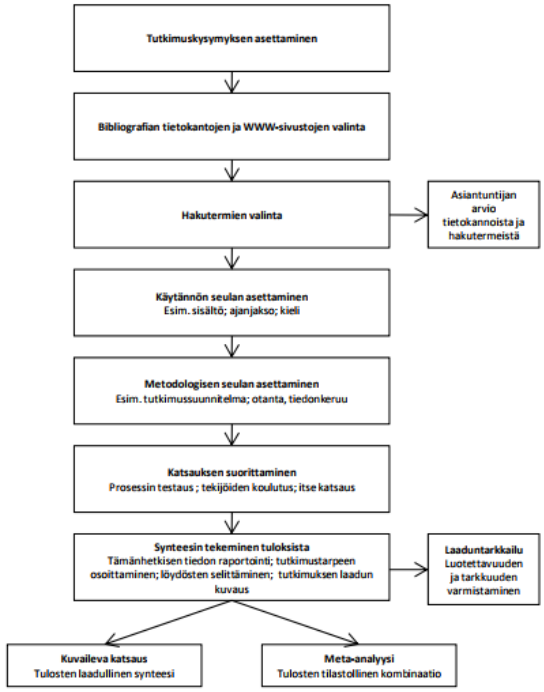
- ICF Turku study group: Fysiatrian prof. Mikhail Saltychev; Fysiatri, dos. Katri Laimi, TYKS

1

Systemaattinen kirjallisuuskatsaus menetelmänä

- Tavoitteena vastata ennalta määritettyyn tutkimuskysymykseen – esim. miten peliteknologia vaikuttaa ihmisen toimintakykyyn
- Määritellään etukäteen mukaan otettavien tutkimusten kelpoisuuskriteerit
- Toistettavissa oleva systemaattinen kirjallisuushaku jolla pyritään löytämään kaikki materiaali joka vastaa kelpoisuuskriteereitä
- Mukaan otettujen tutkimusten laadun arviointi
- Mukaan otettujen tutkimusten systemaattinen esittely ja synteesi tutkimusten tuloksista
- Voidaan edetä myös meta-analyysiin

2



Lähde: Salminen(2011), sovellettuna Finkin malli.

Salminen A. 2011. Mikä kirjallisuuskatsaus? Johdatus kirjallisuuskatsauksen tyyppeihin ja hallintotieteellisiin sovelluksiin. Vaasan yliopiston julkaisuja.

JAMK. Opinnäytetyöohjaajan käsikirja. Kirjallisuuskatsaukset. Luettu 23.10.2017. Saatavilla: https://oppimateriaalit.jamk.fi/yamk-kasikirja/kirjallisuuskatsaukset/ .

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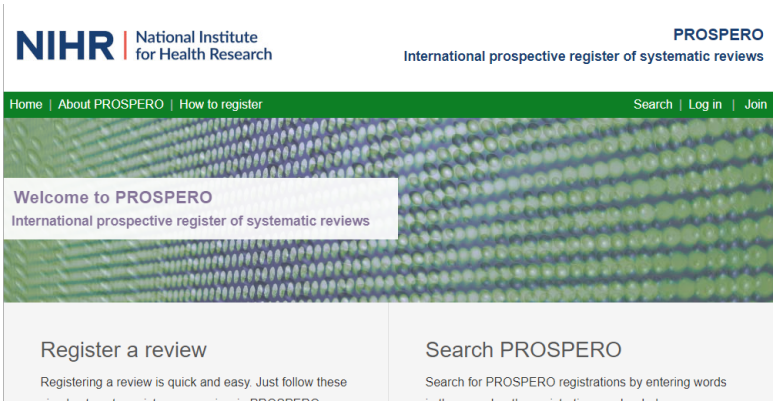
Registration of upcoming review – e.g PROSPERO

ORCID
Connecting research and researchers



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PICOS

Systematic Reviews - Research Guide

https://libguides.murdoch.edu.au/systematic/PICO

Criteria for considering studies for this review were based on the PICO (Population, Intervention, Comparison, and Outcome) framework as follows:

- Patients: Adults with primary/idiopathic Parkinson's disease of any severity, excluding any other concurrent neurological condition.
- Intervention: Progressive resistance training defined as training which (A) consists of a small number of repetitions until fatigue, (B) allows sufficient rest between exercises for recovery and (C) increases the resistance as patient's ability to generate force
- Comparison: Progressive resistance training versus no treatment, placebo or other treatment in randomised controlled or controlled clinical trials.
- Outcome: Any outcome.

nitude of this effect? Criteria for considering studies for this review were based on PICO (Population, Intervention, Comparison, and Outcome) framework as follows:

— population: adult stroke survivors;
— intervention: training defined as aerobic due to submaximal load level during exercises;
— comparison: randomized controlled trials (RCTs) or clinical controlled trials (CCTs) of aerobic training compared to various training types or no training;
— outcome: change in aerobic capacity, measured as VO_2max.

To cite: Saltychev M, Bärlund E, Paltamaa J, *et al.* Progressive resistance training in Parkinson's disease: a systematic review and meta-analysis. *BMJ Open* 2016;**6**:e008756. doi:10.1136/bmjopen-2015-008756

Cite this article as

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Onko muuta kuin PICO?

SPICE or SPIDER for Qualitative or Quantitative Studies

Two other mnemonics may also be used to create protocols for both qualitative and quantitative studies - **SPIDER** and **SPICE**.

SPIDER can be used for both qualitative and quantitative studies:

S	PI	D	E	R
Sample	**Phenomenon of Interest**	**Design**	**Evaluation**	**Research Type**
Sample size may very in qualitative and quantitative studies	**P**henomena of **I**nterest include behaviours, experiences and interventions	**D**esign influences the strength of the study analysis and findings	**E**valuation outcomes may include more subjective outcomes - such as views, attitudes, etc.	**R**esearch types include qualitative, quantitative or mixed method studies

Within social sciences research, **SPICE** may be more appropriate for formulating research questions:

S	P	I	C	E
Setting	**Perspective**	**Intervention**	**Comparison**	**Evaluation**
Setting is the context for the question - ***where***	**P**erspective is the users, potential users, or stakeholders of the service - ***for whom***	**I**ntervention is the action taken for the users, potential users, or stakeholders - ***what***	**C**omparison is the alternative actions or outcomes - ***what else***	**E**valuation is the result or measurement that will determine the success of the intervention - ***what result*** or ***how well***

Lähde: Murdoch University. Systematic Reviews – Research Guide. Luettavissa: <https://libguides.murdoch.edu.au/systematic/PICO>.

Methley *et al. BMC Health Services Research* (2014) 14:579
DOI 10.1186/s12913-014-0579-0

BMC Health Services Research

RESEARCH ARTICLE **Open Access**

PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews

Abigail M Methley[1*], Stephen Campbell[1,4], Carolyn Chew-Graham[2], Rosalind McNally[3] and Sudeh Cheraghi-Sohi[1,4]

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Tiedonhaun tärkein tavoite – hyvä kattavuus <- hyvä hakustrategia

Table 3. Search strategy (online content)

Database	Search conditions
CENTRAL	• #1 MeSH descriptor: [Exercise] explode all trees • #2 MeSH descriptor: [Physical Fitness] explode all trees • #3 MeSH descriptor: [Hemiplegia] explode all trees • #4 MeSH descriptor: [Paresis] explode all trees • #5 MeSH descriptor: [Stroke] explode all trees • #6 MeSH descriptor: [Intracranial Hemorrhages] explode all trees • #7 MeSH descriptor: [Intracranial Embolism and Thrombosis] explode all trees • #8 MeSH descriptor: [Brain Infarction] explode all trees • #9 MeSH descriptor: (#1 or #2) and (#3 or #4 or #5 or #6 or #7 or #8) • #10 "aerobic":ti,ab,kw or "exercise" or "treadmill" or "jogging" or "walking" or "running" or "dancing" or "climbing" or "rower" or "stair*" or "bicycl*" or "cycling" or "skiing" or "skating" or "swimming" or "rowing" or "circuit":ti or ("heart rate" and ("maxim*" or "submax*")) (Word variations have been searched) 26059 • "11 "hemip*" or "stroke" or "cerebral hemorrhage":ti (Word variations have been searched) • #12 #10 and #11 • #13 #9 or #12 in Trials
MEDLINE	• #1 ("Exercise"[Mesh] OR "Physical Fitness"[Mesh]) AND ("Hemiplegia"[Mesh] OR "Stroke"[Mesh] OR "Cerebrovascular Disorders"[MeSH] OR "cerebral hemorrhage"[MeSH] OR "Intracranial Embolism and Thrombosis"[Mesh]) • #2 aerobic [TI/AB/OT] OR exercise*[TI] OR treadmill[TI] OR jogging[TI] OR walking[TI] OR climbing[TI] OR rower[TI] OR stair*[TI] OR bicycl*[TI] cycling[TI] OR skiing[TI] OR skating[TI] OR swimming[TI] OR rowing[TI] OR circuit[TI] OR running[TI] OR dancing[TI] OR ("heart rate" [TI] AND (maxim*[TI] OR submaxim*[TI] OR sub-maxim*[TI])) • #3 hemip*[TI] OR stroke[TI] OR "cerebral hemorrhage" [TI] • #4 #1 OR (#2 AND #3) AND (Clinical Trial[ptyp] OR Randomized Controlled Trial[ptyp] AND hasabstract[text] AND "adult"[MeSH Terms]))
EMBASE	• #1: ('aerobic exercise'/exp OR 'fitness'/exp) AND ('hemiplegia'/exp OR 'cerebrovascular accident'/exp) AND ('brain hemorrhage'/de OR 'brain ischemia'/de OR 'cerebrovascular accident'/de OR 'cerebrovascular disease'/de OR 'hemiparesis'/de OR 'hemiplegia'/de OR 'paresis'/de) • #2: aerobic:ti OR aerobic:ab OR exercise:ti OR treadmill:ti OR jogging:ti OR walking:ti OR running:ti OR dancing:ti OR climbing OR rower:ti OR stair*:ti OR bicycl*:ti OR cycling:ti OR skiing:ti OR skating:ti OR swimming:ti OR rowing:ti OR circuit:ti OR ('heart rate' NEXT maximum):ti AND (hemip*:ti OR stroke:ti OR 'cerebral hemorrhage':ti) • #3: #1 OR #2 • #4 : #3 AND ('controlled clinical trial'/de OR 'randomized controlled trial'/de) AND ('brain infarction'/de OR 'brain ischemia'/de OR 'cerebrovascular accident'/de OR'cerebrovascular disease'/de OR 'hemiparesis'/de OR 'hemiplegia'/de) AND 'article'/it
	• S1: ((MM "Aerobic Exercises+") OR (MH "Physical Fitness+")) AND ((MM "Hemiplegia+") OR (MH "Stroke+") OR (MH "Intracranial Hemorrhage+") OR (MH "Intracranial Embolism and Thrombosis+"))

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Suomeksi löytyy selkeä ja havainnollinen info: Isojärvi, J. 2011. Tutkimuskysymyksestä hakustrategiaksi: PICO-asetelma informaatikon työkaluna.

https://docplayer.fi/16355927-Tutkimuskysymyksesta-hakustrategiaksi-pico-asetelma-informaatikon-tyokaluna.html

Esa Bärlund, Turkuamk/fysioterapeuttikoulutus
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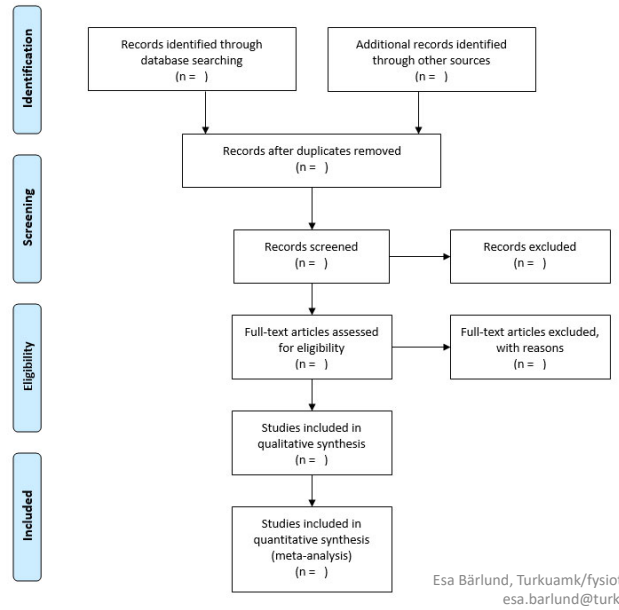
PRISMA 2009 Flow Diagram



Follow the PRISMA guideline!

http://www.prisma-statement.org/

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Katsausta tekemisen vaiheita voidaan tehdä sähköisesti, oiva työkalu on

covidence

Löytyy osoitteessa: https://www.covidence.org/home ja Youtubessa löytyy opetusvideoita kanavalla ”Cochrane Training”.

Covidencesta on saatavilla ilmaisversio, joka on riittävä perustyökalu.

Kts: https://youtu.be/PB3V4BRV1jg

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Critical appraisal, evaluating bias – harhaako vain?

Table 2 Risk of bias of included studies

Study	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective reporting	Other sources of bias	Total risk of bias
Allen *et al*[11]	Low	Low	High	Low	Low	Low	Low	Low
Bloomer *et al*[12]	Low	Unclear	High	Low	Low	Low	Low	Low
Bridgewater *et al*[13]	High	Unclear	High	High	Low	Low	Low	High
Combs *et al*[14]	Low	Low	High	Low	Low	Low	Low	Low
Corcos *et al*[15]	Low	Low	High	Low	Low	Low	Low	Low
Cruise *et al*[16]	High	Unclear	High	High	Low	Low	Low	High
DiFrancisco-Donoghue *et al*[17]	Low	Unclear	High	High	Low	Low	Low	Low
Hass *et al*[18]	Low	Unclear	High	High	Low	Low	Low	Low
Hirsch *et al*[19]	High	Unclear	High	High	Low	Low	Low	High
Paul *et al*[20]	Low	Unclear	High	Low	Low	Low	Low	Low
Schilling *et al*[21]	Low	Unclear	High	High	Low	Low	Low	Low
Shulman *et al*[22]	Low	Low	Low	Low	Low	Low	Low	Low

Cochrane:

- https://handbook-5-1.cochrane.org/chapter_8/8_assessing_risk_of_bias_in_included_studies.htm
- https://www.ncbi.nlm.nih.gov › books › bin › appf-fm1

Lisää työkaluja löytyy esim. : https://joannabriggs.org/critical_appraisal_tools

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Data extraction – building tables

Table 1 Descriptive characteristics of included studies

Study/year/country	Cases/controls, N (% men) Baseline	Follow-up	Age *	Case treatment	Intensity and duration	Control treatment	Response to treatment
Allen 2010 Australia	24 (54)/24 (54)	21/24	66/68	Progressive lower limb strengthening and balance exercises (a monthly exercise class, remaining exercise sessions at home). Standardised falls prevention advice (booklet)	40–60 min 3 times per week for 6 months	Usual care. Standardised falls prevention advice (booklet)	Insignificant difference
Bloomer 2008 USA	8 (50)/8 (50)	6/7	61/57	Three sets of 5–8 repetitions: leg press, leg curl and calf press. Increased weight by 5–10% when 8 repetitions were completed for all 3 sets	Two times per week for 2 months	Usual activity	Positive
Bridgewater 1997 Australia	13 (69)/13 (54)	13/13	67/66	15 min warm-up. Trunk muscles (back extensors and abdominals): 10 repetitions of 7 s isometric contractions with 7 s rest. Progression: as individual ability and improvement allowed	Two times per week for 3 months	Usual activity and 'interest talks' on health issues Once every 3 weeks	Positive
Combs 2013	17 (65)/14 (71)	11/11	67/68	15 min warm-up. Boxing circuit, endurance. Progression: self-progressed by completing	24–36×90 min for 3 months	Strengthening, endurance and balance exercises	Positive

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Lopuksi: Ja kun tehdään systemaattista katsausta, toivotaan saatavan vastaus myös sille että kannattaako …

Table 3 Results of meta-analyses

	Cases, mean (SD)			Controls, mean (SD)			Effect size			Egger's regression	
Outcome (units), study	Baseline	Follow-up	N	Baseline	Follow-up	N	Raw mean difference	95% CI	I^2 (%)	Intercept	95% CI
Fast walking speed (ms)							0.06	0.02 to 0.11	61	−3.27	−69.0 to 62.4
Allen *et al*[11]	1.47 (0.38)	1.61 (0.35)	21	1.54 (0.35)	1.48 (0.43)	24	0.2	−0.001 to 0.40			
Paul *et al*[20]	–	0.02 (0.16)*	6	–	0.01 (0.19)*	9	0.01	−0.18 to 0.2			
Shulman *et al*[22]†	0.84 (0.05)	0.84 (0.05)	22	0.85 (0.05)	0.79 (0.05)	22	0.06	0.03 to 0.09			
Comfortable walking speed (ms)							0.03	0.01 to 0.05	15	−1.34	−13.8 to 11.2

Huomioidaan etukäteen tutkimuskysymyksiä määritettäessä

Kuten aikaisemmin jo mainittu: Ja jotta asia ei näyttäisi liian synkältä, systemaattisen kirjallisuuskatsauksen vaiheet voidaan työstää sähköisessä järjestelmässä (Covidence), muutaman katsauksen voi tehdä ilmaiseksi. Löytyy osoitteessa: <https://www.covidence.org/home>.

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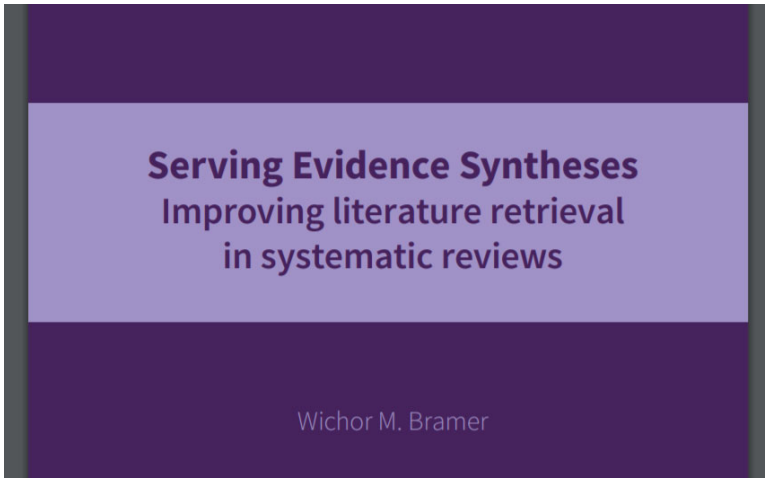

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Kirjallisuuden systemaattisen hakustrategian vaiheet (Bramer 2019)

1. Determining a clear and focused question
2. Describing the articles that can answer the question
3. Deciding which key concepts address the different elements of the question
4. Deciding which elements should be used for the best results
5. Choosing an appropriate database and interface to start with
6. Documenting the search process in a text document
7. Identifying appropriate index terms in the thesaurus of the first database
8. Identifying synonyms in the thesaurus
9. Adding variations in search terms
10. Using database-appropriate syntax, with parentheses, Boolean operators, and field codes
11. Optimizing the search
12. Evaluate the initial results
13. Checking for errors
14. Translating to other databases
15. Testing and reiteration

Bramer, W. 2019. Serving Evidence Syntheses. Improving literature retrieval in systematic reviews. Erasmus University Rotterdam. Luettavissa osoitteessa: < https://repub.eur.nl/pub/120107>.

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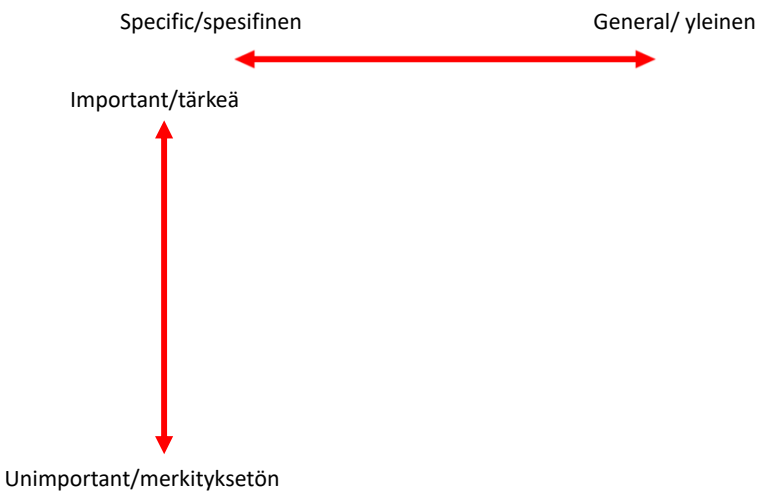
Spesifisyys vs. tärkeys (Bramer 2019)



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5. Choosing an appropriate database and interface to start with

Bramer (2019) ehdottaa lääketieteeseen orientoivissa hauissa seuraavaa järjestystä

1. Embase -> MEDLINE; parempi systemaattinen hakusanaluettelo (tesaurus) kuin itse MEDLINEssa(MeSH); Embase hakusanojen spesifisyys parempi
2. MEDLINE (MeSH)

Lisäksi käytännön syy: Embasessa haut helpompi ”kääntää” MeSH.n hauiksi, toisinpäin toteutettuna vaikeampaa.

Bramer(2019) ehdottaa myös oman hakutyötavan kehittämistä jossa aloitetaan ja edetään aina samalla tavalla hakutietokannasta toiseen.

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Step 9: Adding variations in search terms (e.g., truncation, spelling differences, abbreviations, opposites)

- * saadaan hakusana katkaistua esim therapy -> therap* (hakee therapy, therapies, therapeutic ja kaikki sanat jotka alkavat therap

- sanat saattavat olla eri tavoin kirjoitettuna amerikanenglanniksi kuin brittienglanniksi; molemmat sanat pitää hakea esim. paeditrics vs pediatrics; voidaan korvata joskus p**?**diatrics

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Table 2.1: Field codes in five most used interfaces for biomedical literature searching

	PubMed	Ovid	EBSCOhost	Embase.com	ProQuest
Title/abstract	[tiab][1]	().ab,ti.	TI () OR AB ()[2]	():ab,ti	AB,TI()
All fields	[All Fields]	.af.	[3]		ALL
Thesaurus term	[mesh:noexp]	…/	MH "…"	'…/de	MESH(…)
Including narrower	[mesh]	exp …/	MH "…+"	'…/exp	MESH#(…)
Combined subheading	…/sh[mesh]	exp …/sh	MH "…+/sh"	'…/exp/dm_sh[4]	MESH(… LNK ..)
Free subheading	[sh][5]	.xs. or .fs.[5]	MW	:lnk[5]	
Publication type	[pt][6]	.pt. or exp …/[6]	PT	:it[6]	RTYPE
Proximity	[7]	ADJn	Nn	NEAR/n - NEXT/n	N/n
Exact phrase	"double quotes"	No quotes needed	"double quotes"	'single quotes'	"double quotes"
Truncated phrase	Use-hyphen*	No quote*	No quote*	'single quote*'	"Double quote*"
Truncation	End	End/ mid	End/ mid	End/ mid	End / mid / start
Infinite	*	* or $	*	*	*
0 or 1 character	-	?	#	-	$1
1 character	-	#	?	?[8]	?
Added to database since	yyyy/mm/dd:yyyy/mm/dd [edat][9] (or [mhda])	limit #N to rd=yyyymmdd-yyyymmdd[10]	EM yyyymmdd-yyyymmdd	[dd-mm-yyyy]/sd	LUPD (yyyymmdd)
Publication period (years)	yyyy:yyyy[dp]	limit #N to yr=yyyy-yyyy[10]	PY yyyy-yyyy	[yyyy-yyyy]/py	YR (yyyy-yyyy)
Record sets	#1	1[11]	S1	#1	S1

1 In PubMed, [tiab] should be placed after each search term.
2 EBSCOhost does not allow a combination of fields; all search terms for the title field need to be repeated for the abstract field.
3 EBSCOhost and Embase.com do not use an 'all fields' code; a term without a field code is searched in all fields.
4 Subheadings in Embase.com are only applied to diseases (/dm_), drugs (/dd_), or devices (/dv_).
5 [sh] and .xs. include narrower terms for subheadings; .fs. and :lnk do not.
6 [pt] and exp …/ includes narrower publication types; .pt. and :it do not.
7 In PubMed, proximity searching is not available; search the exact phrase (truncated or between double quotes) or use the Boolean AND combination.
8 The question mark does not work in combination with field codes.
9 The field [edat] refers to the entry date, when the record was added to PubMed. [mhda] refers to the MeSH date, when the record was last edited.
10 Adding a date limit can only be applied in a separate record set.
11 If a number is to be searched in the text, it should be put between double quotes (e.g., "1").

Lähde: Bramer, W. 2019. Serving Evidence Syntheses. Improving literature retrieval in systematic reviews. Erasmus University Rotterdam. Luettavissa osoitteessa: < https://repub.eur.nl/pub/120107>.

Cochrane – verkosto

1. Starting a review
2. Determining the scope and questions
3. Inclusion criteria and grouping for synthesis
4. Searching & selecting studies
5. Collecting data
6. Effect measures
7. Bias and conflicts of interest
8. Risk of bias in randomized trials
9. Preparing for synthesis
10. Meta-analyses
11. Network meta-analyses
12. Synthesis using other methods
13. Bias due to missing results
14. 'Summary of findings' tables & GRADE
15. Interpreting results

https://www.cochrane.org/
https://finland.cochrane.org/fi/tervetuloa

Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). Cochrane Handbook for Systematic Reviews of Interventions version 6.1 (updated September 2020). Cochrane, 2020. Available from www.training.cochrane.org/handbook.

Miksi pitäisi ymmärtää itse tiedonhakua?

Miksi pitäisi tehdä itse omaa tiedonhakuaan?

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