LA REVUE DE LITTÉRATURE

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GÉNÉRALITÉS

PLUS HAUT NIVEAU DE PREUVE

FIGURE 1.9 The Evidence Pyramid illustrates a hierarchy of best sources of evidence for searchable clinical questions. Categories of research evidence are ordered from top to bottom; higher levels on the pyramid represent the most likely sources of high-quality research evidence. This pyramid is specific to studies about treatment intervention.

PLUS HAUT NIVEAU DE PREUVE

Tableau 2. Grade des recommandations

Grade des recommandations	Niveau de preuve scientifique fourni par la littérature
A Preuve scientifique établie	Niveau 1 - essais comparatifs randomisés de forte puissance ; - méta-analyse d'essais comparatifs randomisés ; - analyse de décision fondée sur des études bien menées.
B Présomption scientifique	Niveau 2 - essais comparatifs randomisés de faible puissance ; - études comparatives non randomisées bien menées ; - études de cohortes.
C Faible niveau de preuve scientifique	Niveau 3 - études cas-témoins.
	Niveau 4 - études comparatives comportant des biais importants ; - études rétrospectives ; - séries de cas ; - études épidémiologiques descriptives (transversale, longitudinale).

TYPES DE REVUES

DOI: 10.1111/j.1471-1842.2009.00848.x

Review Article

A typology of reviews: an analysis of 14 review types and associated methodologies

Maria J. Grant* & Andrew Booth†, *Salford Centre for Nursing, Midwifery and Collaborative Research (SCNMCR), University of Salford, Salford, UK, †School of Health and Related Research (ScHARR), University of Sheffield, Sheffield, UK

TYPES DE REVUES

Table 1 Main review types characterized by methods used

		Methods used (SALSA)			
Label	Description	Search	Appraisal	Synthesis	Analysis
Critical review	Aims to demonstrate writer has extensively researched literature and critically evaluated its quality. Goes beyond mere description to include degree of analysis and conceptual innovation. Typically results in hypothesis or model	Seeks to identify most significant items in the field	No formal quality assessment. Attempts to evaluate according to contribution	Typically narrative, perhaps conceptual or chronological	Significant component: seeks to identify conceptual contribution to embody existing or derive new theory
Literature review	Generic term: published materials that provide examination of recent or current literature. Can cover wide range of subjects at various levels of completeness and comprehensiveness. May include research findings	May or may not include comprehensive searching	May or may not include quality assessment	Typically narrative	Analysis may be chronological, conceptual, thematic, etc.
Mapping review/ systematic map	Map out and categorize existing literature from which to commission further reviews and/or primary research by identifying gaps in research literature	Completeness of searching determined by time/scope constraints	No formal quality assessment	May be graphical and tabular	Characterizes quantity and quality of literature, perhaps by study design and other key features. May identify need for primary or secondary research
Meta-analysis	Technique that statistically combines the results of quantitative studies to provide a more precise effect of the results	Aims for exhaustive, comprehensive searching. May use funnel plot to assess completeness	Quality assessment may determine inclusion/ exclusion and/or sensitivity analyses	Graphical and tabular with narrative commentary	Numerical analysis of measures of effect assuming absence of heterogeneity
Mixed studies review/mixed methods review	Refers to any combination of methods where one significant component is a literature review (usually systematic). Within a review context it refers to a combination of review approaches for example combining quantitative with qualitative research or outcome with process studies	Requires either very sensitive search to retrieve all studies or separately conceived quantitative and qualitative strategies	Requires either a generic appraisal instrument or separate appraisal processes with corresponding checklists	Typically both components will be presented as narrative and in tables. May also employ graphical means of integrating quantitative and qualitative studies	Analysis may characterise both literatures and look for correlations between characteristics or use gap analysis to identify aspects absent in one literature but missing in the other
Overview	Generic term: summary of the [medical] literature that attempts to survey the literature and describe its characteristics	May or may not include comprehensive searching (depends whether systematic overview or not)	May or may not include quality assessment (depends whether systematic overview or not)	Synthesis depends on whether systematic or not. Typically narrative but may include tabular features	Analysis may be chronological, conceptual, thematic, etc.
Qualitative systematic review/qualitative evidence synthesis	Method for integrating or comparing the findings from qualitative studies. It looks for 'themes' or 'constructs' that lie in or across individual qualitative studies	May employ selective or purposive sampling	Quality assessment typically used to mediate messages not for inclusion/exclusion	Qualitative, narrative synthesis	Thematic analysis, may include conceptual models

TYPES DE REVUES

Table 1 *Continued*

Label	Description	Methods used (SALSA)			
		Search	Appraisal	Synthesis	Analysis
Rapid review	Assessment of what is already known about a policy or practice issue, by using systematic review methods to search and critically appraise existing research	Completeness of searching determined by time constraints	Time-limited formal quality assessment	Typically narrative and tabular	Quantities of literature and overall quality/direction of effect of literature
Scoping review	Preliminary assessment of potential size and scope of available research literature. Aims to identify nature and extent of research evidence (usually including ongoing research)	Completeness of searching determined by time/scope constraints. May include research in progress	No formal quality assessment	Typically tabular with some narrative commentary	Characterizes quantity and quality of literature, perhaps by study design and other key features. Attempts to specify a viable review
State-of-the-art review	Tend to address more current matters in contrast to other combined retrospective and current approaches. May offer new perspectives on issue or point out area for further research	Aims for comprehensive searching of current literature	No formal quality assessment	Typically narrative, may have tabular accompaniment	Current state of knowledge and priorities for future investigation and research
Systematic review	Seeks to systematically search for, appraise and synthesis research evidence, often adhering to guidelines on the conduct of a review	Aims for exhaustive, comprehensive searching	Quality assessment may determine inclusion/exclusion	Typically narrative with tabular accompaniment	What is known; recommendations for practice. What remains unknown; uncertainty around findings, recommendations for future research
Systematic search and review	Combines strengths of critical review with a comprehensive search process. Typically addresses broad questions to produce 'best evidence synthesis'	Aims for exhaustive, comprehensive searching	May or may not include quality assessment	Minimal narrative, tabular summary of studies	What is known; recommendations for practice. Limitations
Systematized review	Attempt to include elements of systematic review process while stopping short of systematic review. Typically conducted as postgraduate student assignment	May or may not include comprehensive searching	May or may not include quality assessment	Typically narrative with tabular accompaniment	What is known; uncertainty around findings; limitations of methodology
Umbrella review	Specifically refers to review compiling evidence from multiple reviews into one accessible and usable document. Focuses on broad condition or problem for which there are competing interventions and highlights reviews that address these interventions and their results	Identification of component reviews, but no search for primary studies	Quality assessment of studies within component reviews and/or of reviews themselves	Graphical and tabular with narrative commentary	What is known; recommendations for practice. What remains unknown; recommendations for future research

TYPES DE REVUES

- 14 type de revues.
  - Dépend de l'objectif recherché
  - Méthodologie proche mais avec des différences
  - Finalités qui varient

- 3 grands types de revues
  - Litterative review
  - Scoping revue
  - Systematic review

TYPES DE REVUES

	Systematic Review	Literature Review
Definition	High-level overview of primary research on a focused question that identifies, selects, synthesizes, and appraises all high quality research evidence relevant to that question.	Qualitatively summarizes evidence on a topic using informal or subjective methods to collect and interpret studies.
Goals	Answer a focused clinical question Eliminate bias	Provide summary or overview of topic
Question	Clearly defined and answerable clinical question Recommend using PICO as a guide	Can be a general topic or a specific question
Components	Pre-specified eligibility criteria Systematic search strategy Assessment of the validity of findings Interpretation and presentation of results Reference list	Introduction Methods Discussion Conclusion Reference list
Number of Authors	Three or more	One or more
Timeline	Months to years Average eighteen months	Weeks to months
Requirements	Thorough knowledge of topic Perform searches of all relevant databases Statistical analysis resources (for meta-analysis)	Understanding of topic Perform searches of one or more databases
Value	Connects practicing clinicians to high quality evidence Supports evidence-based practice	Provides summary of literature on a topic

Kysh, Lynn (2013): Difference between a systematic review and a literature review. [figshare]. Available at: http://dx.doi.org/10.6084/m9.figshare.766364

TYPES DE REVUES

	Traditional Literature Review	Systematic Review
The review question/topic	Topics may be broad in scope; the goal of the review may be to place one's own research within the existing body of knowledge, or to gather information that supports a particular viewpoint.	Starts with a well-defined research question to be answered by the review. Reviews are conducted with the aim of finding all existing evidence in an unbiased, transparent and reproducible way.
Searching for studies	Searches may be ad hoc, and based on what the author is already familiar with. Searches are not exhaustive or fully comprehensive.	Attempts are made to find all existing published and unpublished literature on the research question. The process is well-documented and reported.
Study selection	Often lack clear reasons for why studies were included or excluded from the review.	Reasons for including or excluding studies are explicit and informed by the research question.
Assessing the quality of included studies	Often do not consider study quality or potential biases in study design.	Systematically assess risk of bias of individual studies and overall quality of the evidence, including sources of heterogeneity between study results.
Synthesis of existing research	Conclusions are more qualitative and may not be based on study quality.	Base conclusion on quality of the studies, and provide recommendations for practice or to address knowledge gaps.

Carnegie Mellon University Libraries - https://guides.library.cmu.edu/systematic_reviews

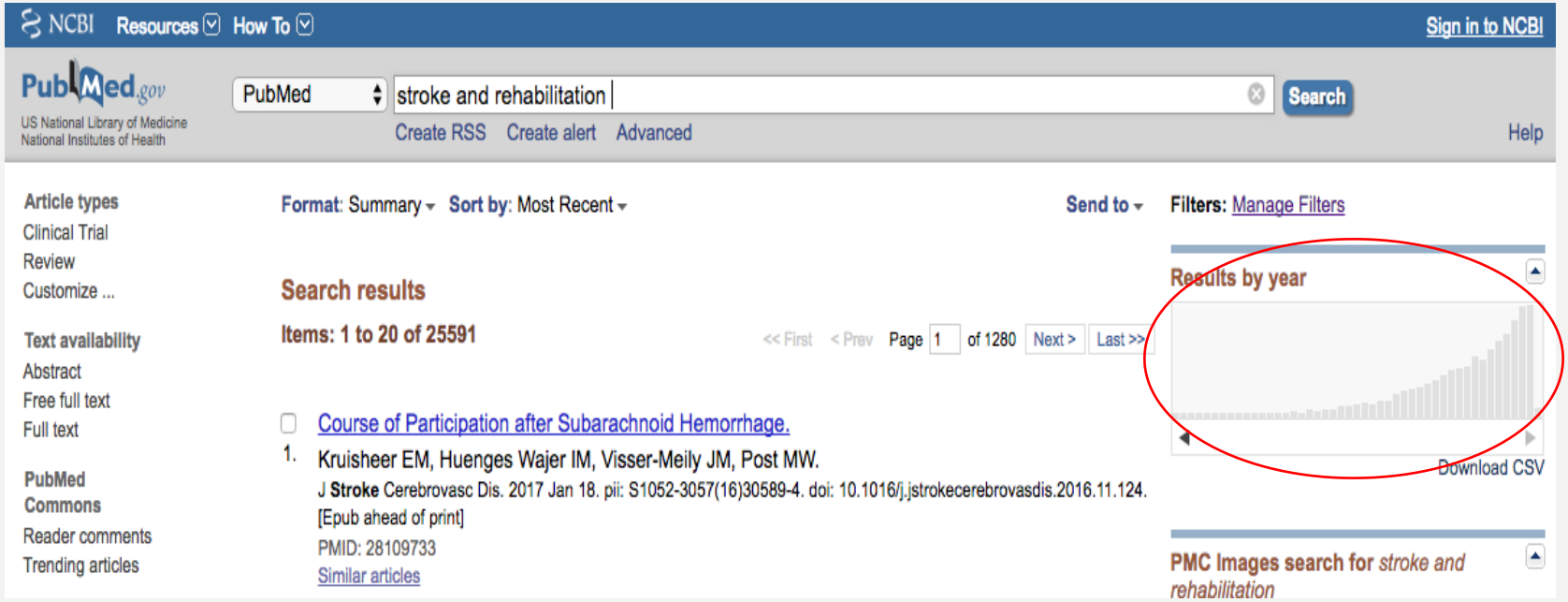
OBJECTIFS

- Rassembler et synthétiser l'ensemble des résultats des études sur un sujet ou une question donné.

- Mais pourquoi ?

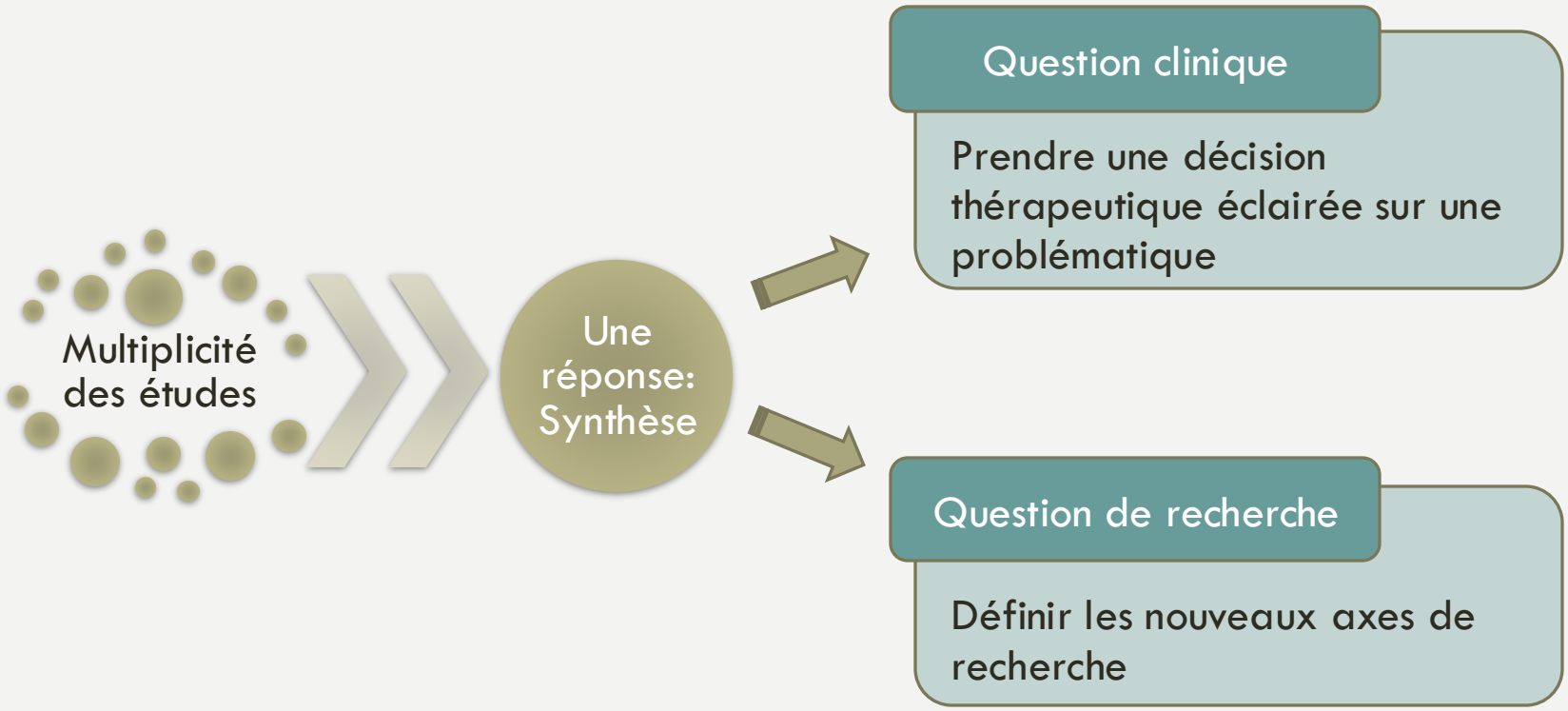
OBJECTIFS

- Rééducation après AVC



  - 2361 études en 2016 ; 2309 en 2015 ; 2038 en 2014 …
  - Inflation (exponentielle) des connaissances

OBJECTIFS



- Quel est l'état des connaissances scientifiques sur …. chez les patients … ?

OBJECTIFS

Mirror therapy for improving motor function after stroke (Review)

Thieme H, Morkisch N, Mehrholz J, Pohl M, Behrens J, Borgetto B, Dohle C

Thieme H, Morkisch N, Mehrholz J, Pohl M, Behrens J, Borgetto B, Dohle C.
Mirror therapy for improving motor function after stroke.
Cochrane Database of Systematic Reviews 2018, Issue 7. Art. No.: CD008449.
DOI: 10.1002/14651858.CD008449.pub3.

OBJECTIVES

To summarise the effectiveness of mirror therapy compared with no treatment, placebo or sham therapy, or other treatments for improving motor function and motor impairment after stroke. We also aimed to assess the effects of mirror therapy on activities of daily living, pain, and visuospatial neglect.

OBJECTIFS

ARTICLE IN PRESS

Meta-analysis

Clinical Outcomes in Revision Anterior Cruciate Ligament Reconstruction: A Meta-Analysis

Rohith Mohan, B.A., Kate E. Webster, Ph.D., Nick R. Johnson, B.S., Michael J. Stuart, M.D., Timothy E. Hewett, Ph.D., and Aaron J. Krych, M.D.

Arthroscopy: The Journal of Arthroscopic and Related Surgery, Vol ■, No ■ (Month), 2017: pp 1-12

We hypothesized that the failure rate would be higher with allograft reconstruction and that overall outcomes for revision ACL surgery would be inferior to previously reported outcomes in primary ACL reconstruction.

OBJECTIFS

Is reconstruction the best management strategy for anterior cruciate ligament rupture? A systematic review and meta-analysis comparing anterior cruciate ligament reconstruction versus non-operative treatment

T.O. Smith [a,*], K. Postle [a], F. Penny [b], I. McNamara [c], C.J.V. Mann [d]

The Knee 21 (2014) 462–470

UN OUTILS AVEC UNE MÉTHODOLOGIE

- Outils indispensable
  - pour la pratique clinique
  - pour la recherche

- Risques de la synthèse
  - Ignorer des études susceptibles de modifier le résultat de la synthèse
  - Ne pas évaluer la qualité des études

ETAPES

- Identification des études
- Sélection des études
- Analyse des résultats des études sélectionnées
- Synthèse et conclusion sous forme de recommandations

ETAPE 1 : IDENTIFICATION DES ÉTUDES

IDENTIFICATION DES ÉTUDES

- Stratégie de recherche
- Sélectionner des bases des données à interroger
- Recherche dans la littérature grise
- Biais de publication

- Revue systématique = exhaustif

STRATÉGIE DE RECHERCHE

- Conception de la méthodologie de la recherche
  - Définir le processus de recherche à mettre en œuvre
  - Question – problématique
  - Définir les concepts de la question
  - Mots-clés et combinaisons en algorithme
  - Critères de sélection
  - Bases de données et littérature grise
  - Explicite et précise

STRATÉGIE DE RECHERCHE

- Deux notions
  - Sensibilité : capacité de la recherche à détecter toutes les études qui répondent à votre sujet
  - Taux de faux négatifs = 1 – Se

$$\text{Sensibilité} = \frac{\text{Nombre de références pertinentes trouvées}}{\text{Nombre de références pertinentes dans la base}}$$

  - Spécificité : capacité de la recherche à ne pas détecter ce qui ne relève pas du sujet
  - Taux de faux positifs = 1 - Sp

$$\text{Spécificité} = \frac{\text{Nombre de références pertinentes trouvées}}{\text{Nombre total de références trouvées}}$$

STRATÉGIE DE RECHERCHE

- Le but de la stratégie de recherche est d'etre :
  - Le plus sensible = identifier tous les études du sujet
    - Mots-clés nombreux et larges
    - Interrogation de plusieurs bases de données
  - Le plus spécifique = éviter la pollution des études d'autres sujets
    - Mots-clés spécifiques et précis
    - Filtres et multiplication des bras dans l'algorithme
- Evolution de la sensibilité et de la spécificité est inverse

LES BASES DE DONNÉES ÉLECTRONIQUES

- MEDLINE (Pubmed)
- EMBASE
- Scopus
- Pascal et Francis
- Biosis
- CINAHL
- PEDro
- Cochrane Library
- Web of science
- Cairn
- Google scholar
- SPORTDiscus
- Banque de données en santé publique

LES BASES DE DONNÉES ÉLECTRONIQUES

- MEDLINE
  - National Library of Medicine, 1964, USA,
  - La plus connue des bases de données électronique
  - plus de 25 millions de références, plus de 5200 revues
  - Moteur de recherche : Pubmed. https://www.ncbi.nlm.nih.gov/pubmed/
  - Thésaurus MeSH : 17000 termes
    - Principes MeSH et Entry terms
    - Hiérarchie et rangs inférieurs : Fonction « explode »
    - Fonction « MeSH Major Topics »

LES BASES DE DONNÉES ÉLECTRONIQUES

- EMBASE
  - Pays-Bas, Elsevier
  - 3700 revues, 6 millions de références
  - Bonne couverture de la littérature européenne,
  - Intégration des nouvelles références très rapide (1 mois)
  - Taux de recouvrement avec MEDLINE : 35-40%
  - Thésaurus : EMTREE avec 38 500 termes
  - Payante - Accessible depuis BU UCBL

LES BASES DE DONNÉES ÉLECTRONIQUES

- SCOPUS
  - Elsevier
  - Depuis 2004
  - La plus grande base de données de citations et de résumés provenant de la documentation examinée par les pairs : revues scientifiques, livres et conférences.
  - 22 800 titres dont 21950 journaux avec revue par les pairs.
  - >69 millions de références
  - Couverture de 100% avec pubmed et Embase (selon Elsevier)
  - Payante

LES BASES DE DONNÉES ÉLECTRONIQUES

- Pascal et Francis
  - Institut national de l'information scientifique et technique, France, 1973-2015
  - Multidisciplinaire : Sciences fondamentales, Sciences appliquées, Technologie, Sciences biomédicales et Sciences humaines et sociales
  - 21 millions de références
  - Langues : 50% anglais, >25% en français
  - 50% de revues européennes, 40 des USA, 7,5% de littérature grise
  - Gratuit. http://pascal-francis.inist.fr/

LES BASES DE DONNÉES ÉLECTRONIQUES

- Web of science
  - Plateforme créée par Institute for Scientific Information (Thomson Reuters)
  - 7 bases de données.
  - Pluridisciplinaire (sciences et techniques, médecine, sciences humaines et sociales, arts)
  - Couverture depuis 1900. Conférences depuis 2000
  - Articles scientifiques, actes de conférences
  - 10 000 revues, 120 000 actes de congrès
  - 61 millions de références
  - Abonnement. Accessible depuis BU UCBL

LES BASES DE DONNÉES ÉLECTRONIQUES

- Biosis
  - USA,
  - 11 millions de références
  - Multidisciplinaire : sciences de la vie (médecine, biochimie …)
  - Référence aussi les abstracts de congres.
  - http://www.ulb.ac.be/bibliotheques/bst/biosis.html

LES BASES DE DONNÉES ÉLECTRONIQUES

- CINAHL
  - USA,
  - 5,5 millions de références
  - Indexe essentiellement les études anglo-saxonnes sur les soins infirmiers

LES BASES DE DONNÉES ÉLECTRONIQUES

- PEDro
  - Physiothérapeutes australiens
  - Concerne la physiothérapie
  - 37 000 RCT, revues de littérature et guide pratique
  - https://www.pedro.org.au/
  - Echelle d'évaluation de la qualité méthodologique sur 11 points : PEDro Scale

LES BASES DE DONNÉES ÉLECTRONIQUES

- Cochrane Library
  - Initiée en GB en 1995.
  - Coopération internationale pour aider à la prise de décision en santé
  - 6 bases de données dont :
    - Cochrane Database of Systematic Reviews (CDSR) : revues de littérature, environ 10 000 références
    - Cochrane Central Register of Controlled Trials (CENTRAL) : Essais cliniques contrôlés, plus d'un million de références
  - http://www.cochranelibrary.com/

LES BASES DE DONNÉES ÉLECTRONIQUES

- Google Scholar
  - Littérature universitaire depuis 2004
  - Multidisciplinaire
  - Couverture mal connue
  - 389 millions de références (Gusenbauer, 2019)
  - Articles revus par des comités de lecture, thèses, livres, résumés analytiques et articles.
  - Gratuit

LES BASES DE DONNÉES ÉLECTRONIQUES

- Cairn (cairn.info)
  - Groupement d'éditeurs et la BnF
  - Français.
  - Domaine : SHS (Droit, économie et gestion, géographie, histoire, intérêt général, lettres et linguistique, philosophie, psychologie, sciences de l'information, sciences de l'éducation, sciences politiques, sociologie et société, sport et société)
  - 505 revues et 9110 ouvrages indexés
  - Depuis 2000
  - Abonnement par la BU UCBL

LES BASES DE DONNÉES ÉLECTRONIQUES

- SPORTDiscus
  - Sport Information Resource Center (Ontario)
  - Domaine : Sport (sports, handicap, équipements sportifs, physiologie et science du mouvement, rééducation, psychologie, sciences sociales et législation)
  - Depuis 1892
  - >2.4 millions de références
  - Sur abonnement. Accessible depuis BU UCBL

LES BASES DE DONNÉES ÉLECTRONIQUES

Banque de données en santé publique

- Gratuite, en français
- À partir de 1993
- École des hautes études en santé publique (EHESP - Rennes)
- Couvre la littérature scientifique et technique française et étrangère en santé publique
- Articles, thèses, mémoires, rapports, actes de congrès, ouvrages
- Effort particulier sur la littérature grise
- Thésaurus

LA LITTÉRATURE GRISE

- Production non indexée de manière conventionnelle (édition et revues commerciales classiques) : Congrès, documents et rapports institutionnels, études non publiées, thèses, documents techniques et publicitaires, …
- Il existe plusieurs bases de données :
  - Banque de données de santé publique (France)
  - SIGLE : accès par INIST, multipluridisciplinaire
- Consulter les sociétés savantes, les institutions, les associations, les BU, google scholar,

BIAIS DE REPORT

Table 10.1.a: Definitions of some types of reporting biases

Type of reporting bias	Definition
Publication bias	The *publication* or *non-publication* of research findings, depending on the nature and direction of the results
Time lag bias	The *rapid* or *delayed* publication of research findings, depending on the nature and direction of the results
Multiple (duplicate) publication bias	The *multiple* or *singular* publication of research findings, depending on the nature and direction of the results
Location bias	The publication of research findings in journals with different *ease of access* or *levels of indexing* in standard databases, depending on the nature and direction of results.
Citation bias	The *citation* or *non-citation* of research findings, depending on the nature and direction of the results
Language bias	The publication of research findings *in a particular language*, depending on the nature and direction of the results
Outcome reporting bias	The *selective reporting* of some outcomes but not others, depending on the nature and direction of the results

Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org.

BIAIS DE PUBLICATION

- Non publication d'études avec des résultats non significatifs ou une taille d'effet très faible.
- Publication d'études avec des résultats significatifs ou avec une taille d'effet importante

- Entorse à l'exhaustivité de la revue
- Risque de surévaluer les effets positifs et de sous-évaluer les effets négatifs d'une intervention

- Only about half of abstracts presented at conferences were later published in full (63% for randomized trials), and subsequent publication was associated with positive results (Scherer 2007).

Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org.

BIAIS DE PUBLICATION

Table 10.2.a: Publication status of five cohorts of research projects approved by ethics committees or institutional review boards which had been completed and analysed at the time of follow-up. (Adapted from Hopewell et al. (Hopewell 2008).)

	Johns Hopkins University, Baltimore	National Institutes of Health, U.S.A.	Royal Prince Alfred Hospital, Sydney	National Agency for Medicine, Finland	National Institutes of Hea U.S.A., Multi-centre trials HIV/AIDS
Reference	Dickersin 1992	Dickersin 1993	Stern 1997	Bardy 1998	Ioannidis 1998
Period of approval	1980	1979	1979-88	1987	1986-1996
Year of follow-up	1988	1988	1992	1995	1996
Number approved	168	198	130	188	66
Published	136 (81%)	184 (93%)	73 (56%)	68 (36%)	36 (54%)
Positive*	84/96 (87%)	121/124 (98%)	55/76 (72%)	52/111 (47%)	20/27 (75%)
Negative*	52/72 (72%)	63/74 (85%)	3/15 (20%)	5/44 (11%)	16/39 (41%)
Inconclusive/null (if assessed separately)	Not assessed	Not assessed	15/39 (38%)	11/33 (33%)	Not assessed

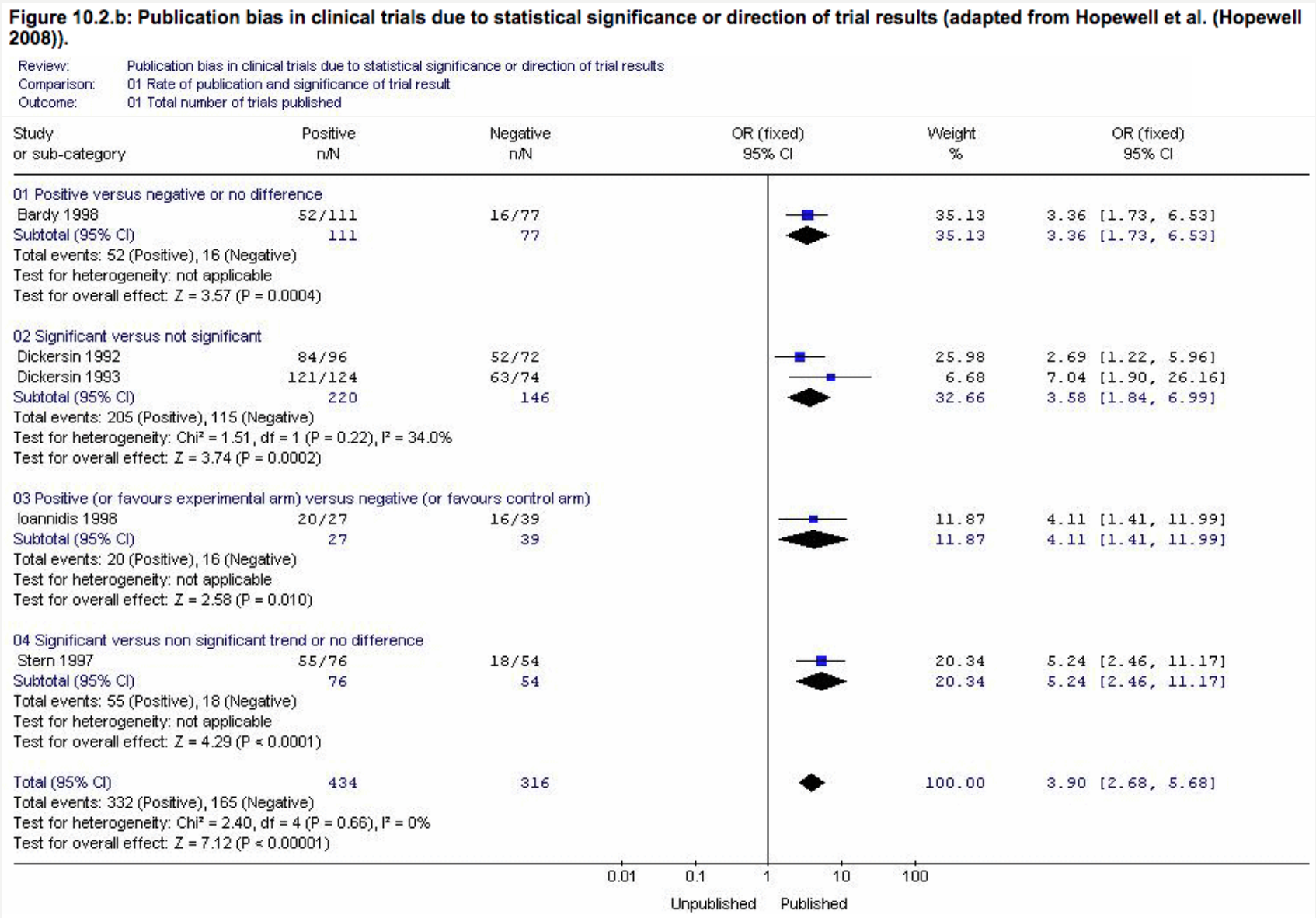
*Definitions differed by study.

- 36% à 93% des recherches soumises à CPP sont publiées
- Les études avec résultats positifs sont plus souvent publiées (47% à 98%) que les études avec résultats négatifs (11% à 85%)

Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org.

BIAIS DE PUBLICATION

Figure 10.2.b: Publication bias in clinical trials due to statistical significance or direction of trial results (adapted from Hopewell et al. (Hopewell 2008)).

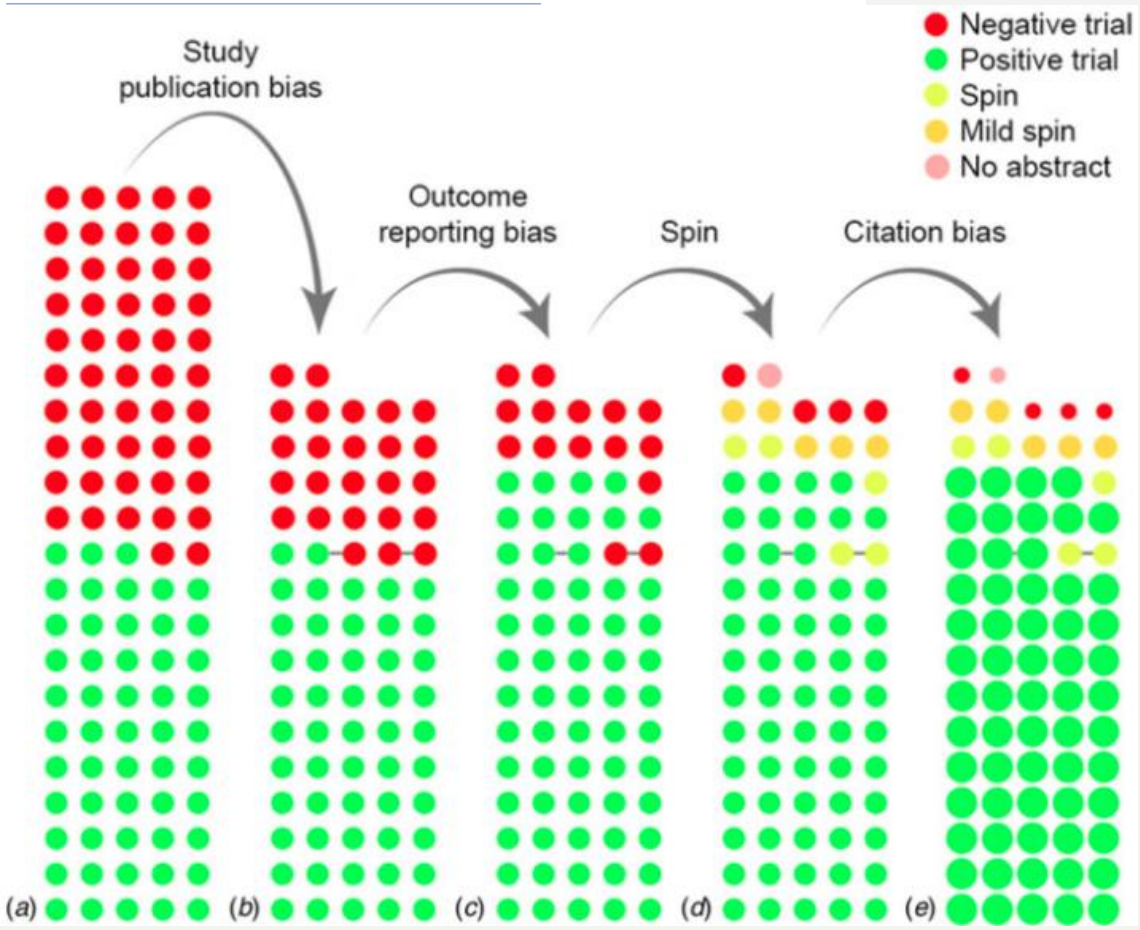


BIAIS DE PUBLICATION

The cumulative effect of reporting and citation biases on the apparent efficacy of treatments: the case of depression

Y. A. de Vries[1,2], A. M. Roest[1,2], P. de Jonge[1,2], P. Cuijpers[3], M. R. Munafò[4,5] and J. A. Bastiaansen[1,6]

Psychological Medicine



- le spin est un article dont la conclusion va au delà des données

Fig. 1. The cumulative impact of reporting and citation biases on the evidence base for antidepressants. (*a*) displays the initial, complete cohort of trials, while (*b*) through (*e*) show the cumulative effect of biases. Each circle indicates a trial, while the color indicates the results or the presence of spin. Circles connected by a grey line indicate trials that were published together in a pooled publication. In (*e*), the size of the circle indicates the (relative) number of citations received by that category of studies.

BIAIS DE PUBLICATION

- Inclure les études non publiées, celles de la littérature grise, pour limiter ou éviter le biais de publication.
- Conférences, mémoire, thèse, colloques, sociétés savantes, google, institutions, associations …
- Expertise, contacter avec les experts du domaine
- Recherche dans les registres d'essais cliniques
  - Australian New Zealand Clinical Trials Registry: www.anzctr.org.au/
  - Chinese Clinical Trial Register: www.chictr.org/Default.aspx
  - ClinicalTrials.gov register: clinicaltrials.gov/
  - European Medicines Agency (EMEA): www.emea.europa.eu/index/indexh1.htm
  - UK Clinical Trials Gateway: www.controlled-trials.com/ukctr/
  - UK National Research Register (NRR) (trials and other research – archived September 2007 – see UK Clinical Trials Gateway): portal.nihr.ac.uk/Pages/NRRArchive.aspx

Higgins JPT, Green S (editors). *Cochrane Handbook for Systematic Reviews of Interventions* Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org.

EXEMPLES

2.1. Search strategy

The primary search strategy was of published literature from the electronic databases: AMED, CINAHL, EMBASE, Pubmed, psycINFO, MEDLINE and the Cochrane Library, searched from their inception to 1st April 2013. Secondary search strategies included reviewing the unpublished and trial registry electronic databases OpenGrey, the WHO International Clinical Trials Registry Platform, Current Controlled Trials and the UK National Research Register Archive. Finally, the reference lists of each included study and review papers on this topic were reviewed.

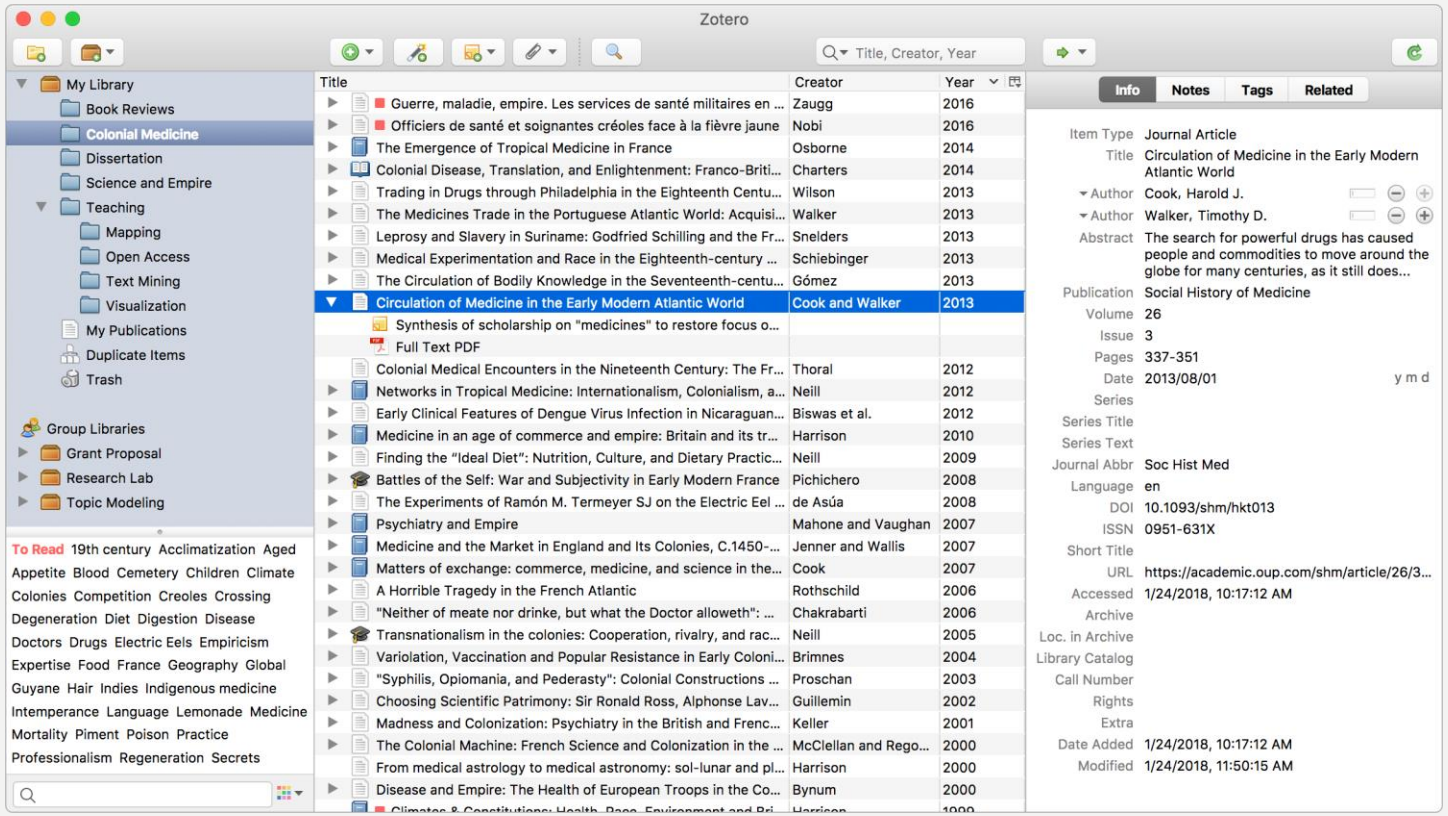
Is reconstruction the best management strategy for anterior cruciate ligament rupture? A systematic review and meta-analysis comparing anterior cruciate ligament reconstruction versus non-operative treatment

T.O. Smith [a,*], K. Postle [a], F. Penny [b], I. McNamara [c], C.J.V. Mann [d]

The Knee 21 (2014) 462–470

ZOTERO

- Logiciel gestionnaire de références
- Stockage, gestion, et citation de références bibliographiques (livres, articles, thèses …)



ETAPE 2 : SÉLECTION DES ÉTUDES

SELECTION DES ETUDES

- Critères de sélection
  - Critère d'inclusion
  - Critère de non inclusion (et d'exclusion)
- Les critères de sélection peuvent porter sur :
  - Le type d'étude
  - La population
  - Le facteur étudié (intervention)
  - Les critères de jugement
  - Mais aussi : langue, géographie des études, année de publication, biais méthodologique, …
  - En fonction de la question

SELECTION DES ETUDES

- Etape stratégique :
  - Définition des critères des sélection en fonction des objectifs et de la problématique
- Conséquence :
  - Pertinence clinique
  - Pertinence scientifique

SELECTION DES ETUDES

2.2. Eligibility criteria

Studies were deemed eligible if they were randomised or non-randomised controlled trials evaluating clinical or health economic outcomes of surgical versus non-surgical management of ACL rupture. Studies were included if they either randomised participants to surgical or non-surgical management, or compared clinical outcomes in a matched-cohort study design.

Surgical management was considered undertaken when participants underwent ligament reconstruction (hamstring/quadriceps/Achilles tendon/bone-patella-tendon-bone grafts or allografts). Studies where an ACL ligament repair was performed were excluded. Conservative (non-surgical) management consisted of any intervention which was non-invasive in nature. Therefore physiotherapy, physical therapy and rehabilitation programmes consisting of exercise, bracing, taping, electrotherapy and muscle stimulation interventions and graded return to exercise and activities were included. Interventions such as diagnostic arthroscopy were considered non-surgical interventions.

Anterior cruciate ligament rupture was defined if the study provided a convincing report of diagnosis based on history, clinical presentation and/or radiological investigation (Magnetic Resonance Imaging (MRI) or arthroscopy. Furthermore, studies where participants sustained a meniscal or collateral ligament injury were included, however studies which included patients who also underwent meniscal repair or collateral ligament reconstruction were excluded. Studies where ACL and posterior cruciate ligaments were ruptured together were excluded. Both childhood and adult populations were included although were planned to be analysed separately.

All studies were included irrespective of publication language, year of publication or quality of the methods. Animal studies or biomechanical cadaveric studies were excluded.

2.5. Outcome measures

The primary outcome measure was functional outcome as measured with reliable and valid patient-reported outcome measures such as the Lysholm Knee Score [7], International Knee Documentation Committee Score [8] or Tegner Activity Score [9] for example. The primary endpoint was the 12 month follow-up assessment for these measures.

Secondary outcomes include: time to return to sport/occupational pursuits; functional performance as measured by tests such as timed agility tests, hop-test or step tests; health economic analysis; and complications including reduced range of motion, muscle atrophy, residual pain, ACL re-rupture and requirement for secondary operations.

Is reconstruction the best management strategy for anterior cruciate ligament rupture? A systematic review and meta-analysis comparing anterior cruciate ligament reconstruction versus non-operative treatment

T.O. Smith [a,*], K. Postle [a], F. Penny [b], I. McNamara [c], C.J.V. Mann [d]

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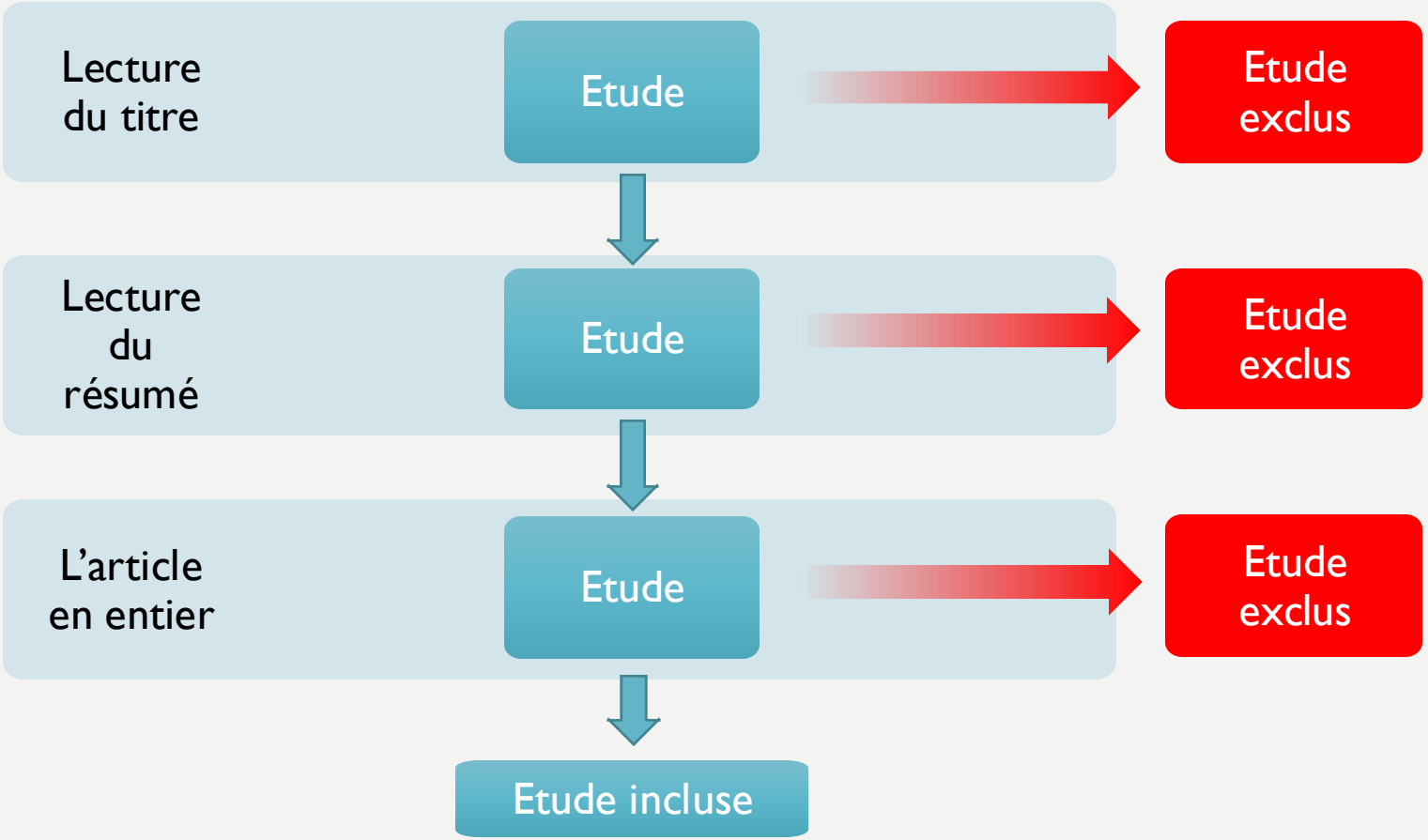
SELECTION DES ETUDES

- Sélection selon 3 étapes

SÉLECTION DES ÉTUDES

- Processus de décision



SELECTION DES ETUDES CHART-FLOW

- Retrace l'ensemble du processus de sélection

- Détaille les études incluses et exclus à chacune des étapes
- Précise les motifs d'exclusion pour la sélection par le résumé et par l'article en entier

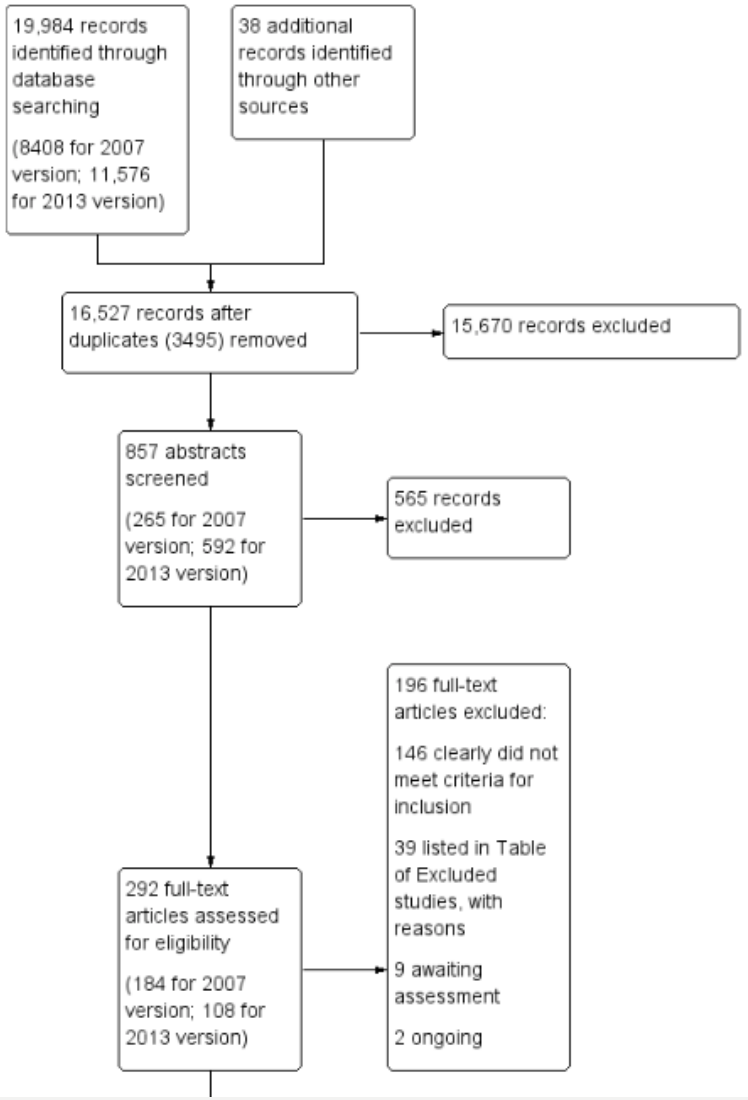
SELECTION DES ETUDES CHART-FLOW

Physical rehabilitation approaches for the recovery of function and mobility following stroke (Review)

Pollock A, Baer G, Campbell P, Choo PL, Forster A, Morris J, Pomeroy VM, Langhorne P

THE COCHRANE COLLABORATION®

Figure 2. Study flow diagram.



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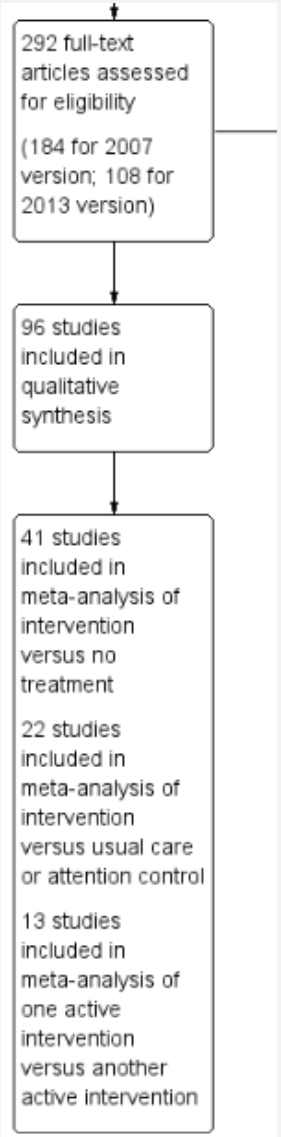

SELECTION DES ETUDES CHART-FLOW

DEVELOPMENTAL MEDICINE & CHILD NEUROLOGY REVIEW

A systematic review of interventions for children with cerebral palsy: state of the evidence

IONA NOVAK[1,2] | SARAH MCINTYRE[1,2] | CATHERINE MORGAN[1,2] | LANIE CAMPBELL[2] | LEIGHA DARK[1] | NATALIE MORTON[1] | ELISE STUMBLES[1] | SALLI-ANN WILSON[1] | SHONA GOLDSMITH[1,2]

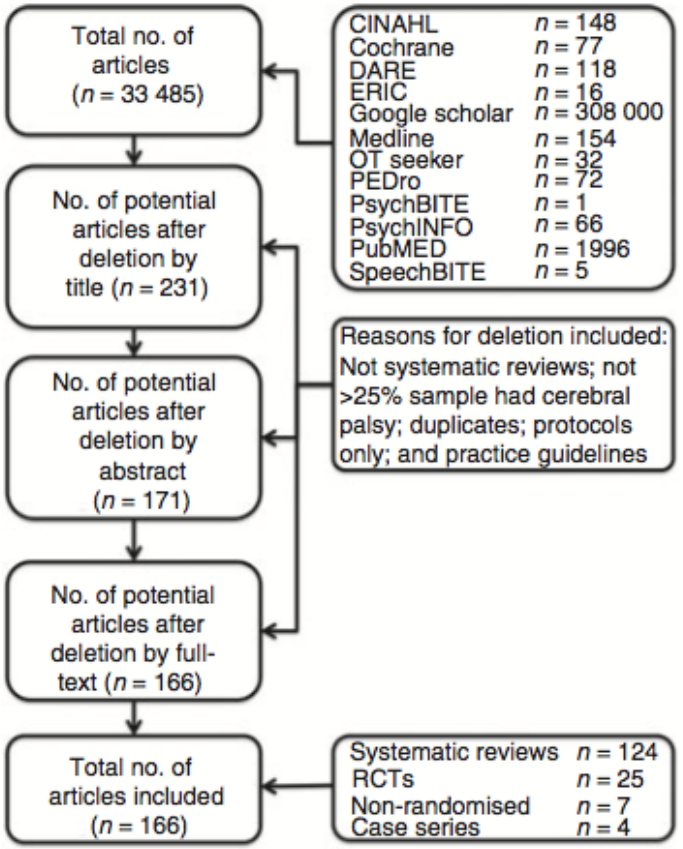

Figure 2: Flow diagram of included articles.

SELECTION DES ETUDES CHART-FLOW

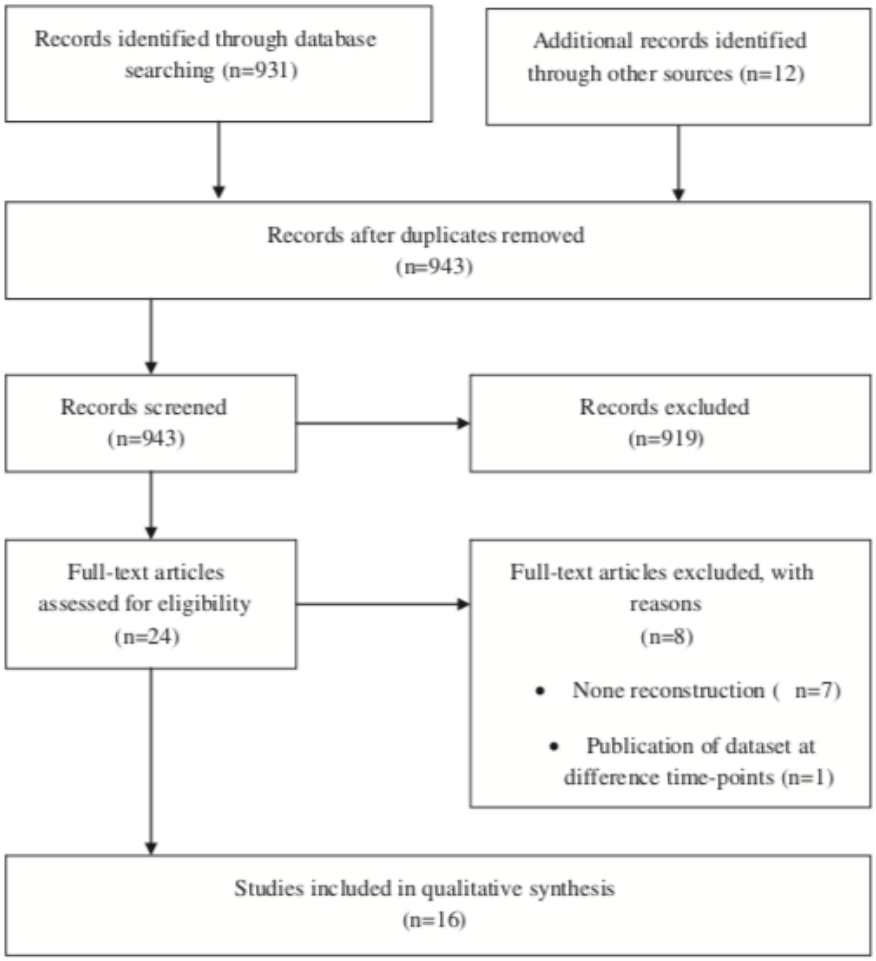

Fig. 1. PRISMA flow-diagram depicting the search strategy results.

Is reconstruction the best management strategy for anterior cruciate ligament rupture? A systematic review and meta-analysis comparing anterior cruciate ligament reconstruction versus non-operative treatment

T.O. Smith [a,*], K. Postle [a], F. Penny [b], I. McNamara [c], C.J.V. Mann [d]

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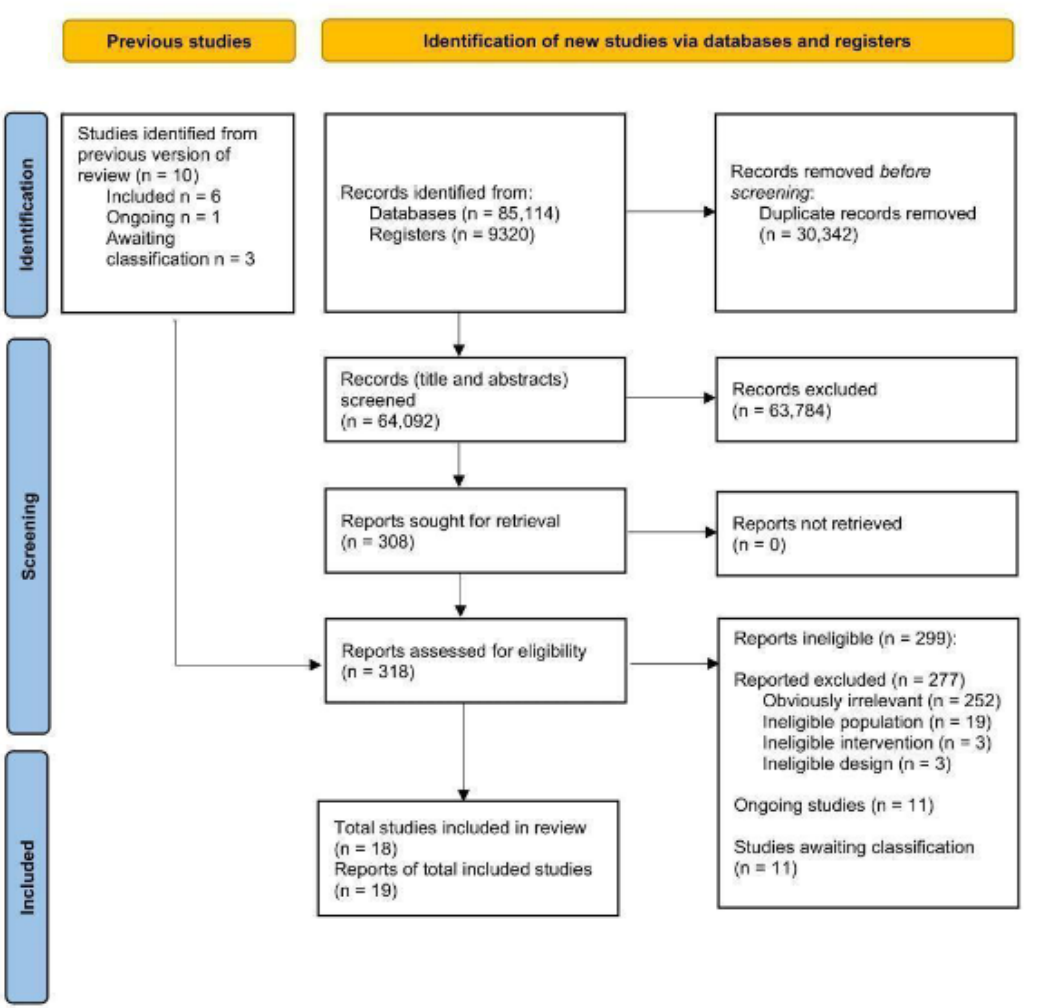
SELECTION DES ETUDES CHART-FLOW

Interventions for perceptual disorders following stroke (Review)

Hazelton C, Thomson K, Todhunter-Brown A, Campbell P, Chung CSY, Dorris L, Gillespie DC, Hunter SM, McGill K, Nicolson DJ, Williams LJ, Brady MC

Cochrane Library

Cochrane Database of Systematic Reviews



ETAPE 3 : ANALYSE DES RÉSULTATS DES ÉTUDES SÉLECTIONNÉES

ANALYSE DES RÉSULTATS

- Matériel obtenu : des études

- Extraction des données.
- Analyse :
  - Première étape : Description du matériel
  - Seconde étape : Analyse selon la question posée
    - Sur les critères de jugement préalablement définis

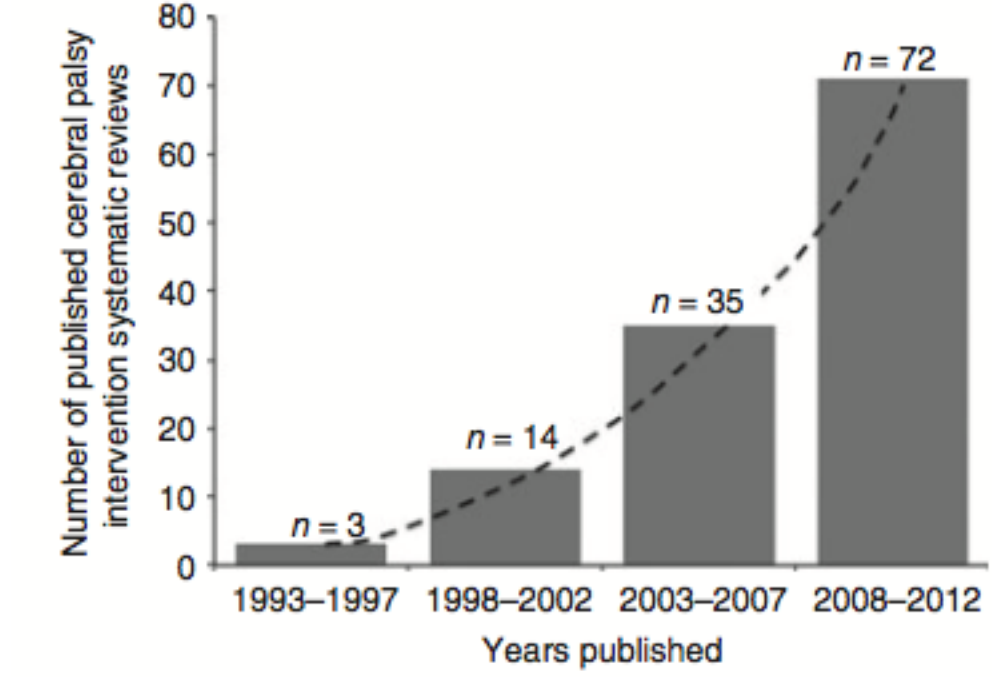
ANALYSE DES RÉSULTATS

- Analyse descriptive des études
  - Nombre d'études
  - Année de publication, géographie, langue,
  - Design des études
  - Caractéristiques des populations incluses dans les études : Effectif, âge, genre, caractéristiques de la pathologie,
  - Caractéristiques des interventions évaluées : Type/nature, modalités d'intervention, durée (sessions, fréquence, nb de sessions …
  - Critères de jugement

- Utilisation de statistiques descriptives
  - Quantitative : Moyenne+/-écart-type ou erreur-type, médiane et IQR, min, max
  - Qualitative : Nombre, fréquence, proportion

ANALYSE DES RÉSULTATS DES ÉTUDES SÉLECTIONNÉES

- Analyse descriptive des années de publication



A systematic review of interventions for children with cerebral palsy: state of the evidence. NOVAK et al. 2013

ANALYSE DES RÉSULTATS

- Analyse descriptive des effectifs des études

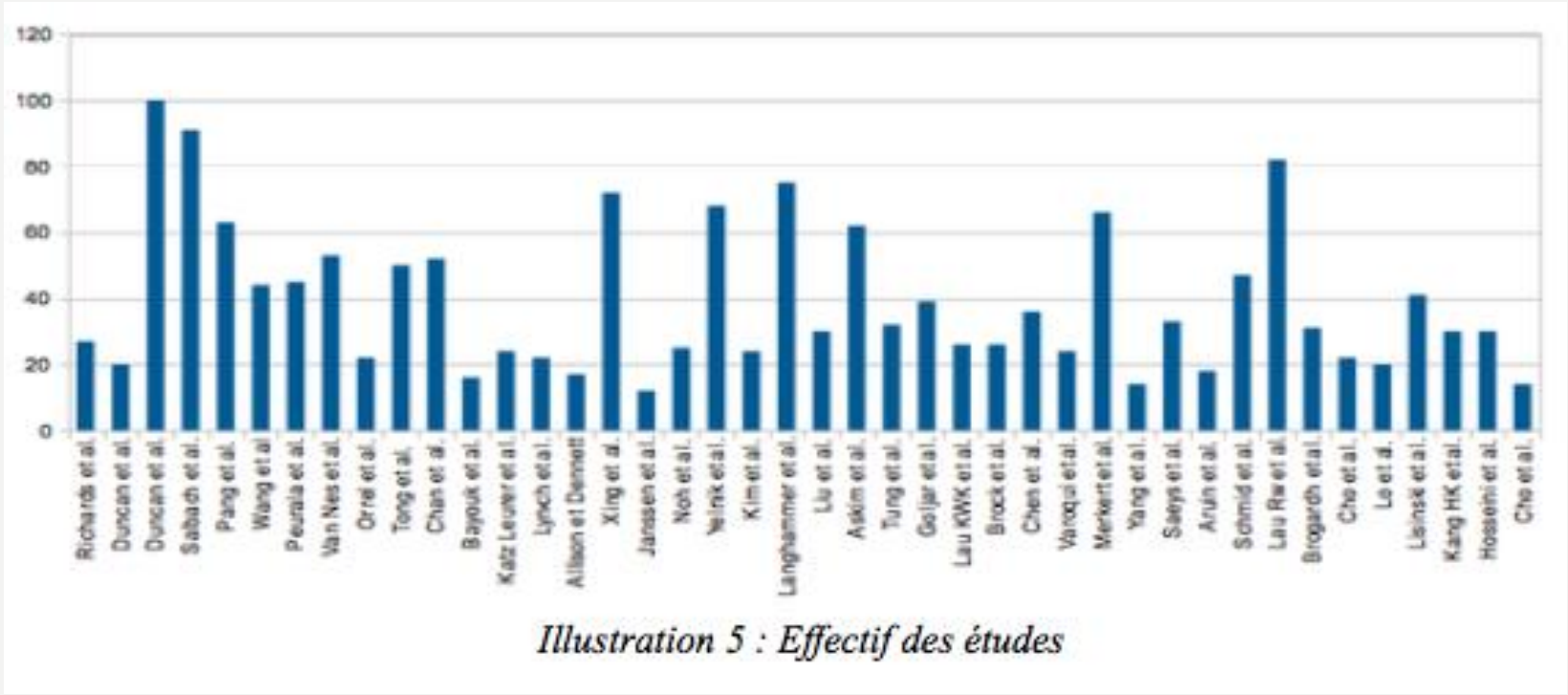


Illustration 5 : Effectif des études

ANALYSE DES RÉSULTATS

- Analyse descriptive des interventions

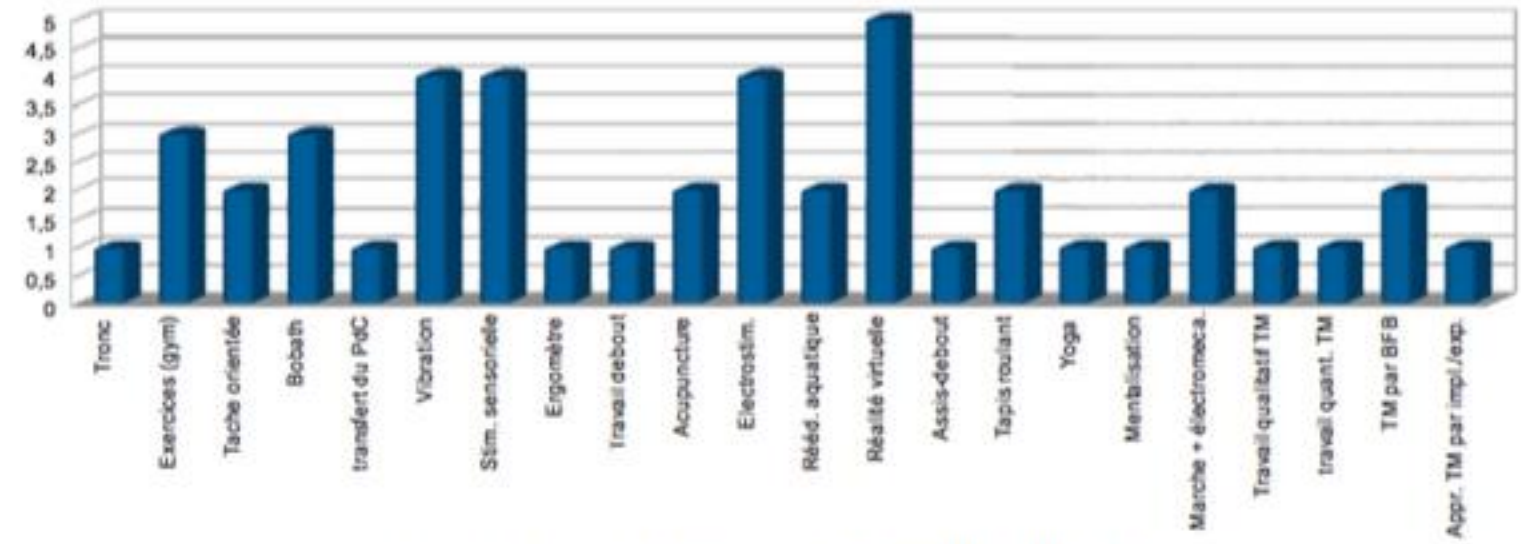


Illustration 6 : Répartition des techniques utilisées

ANALYSE DES RÉSULTATS

- Analyse descriptive des critères de jugement

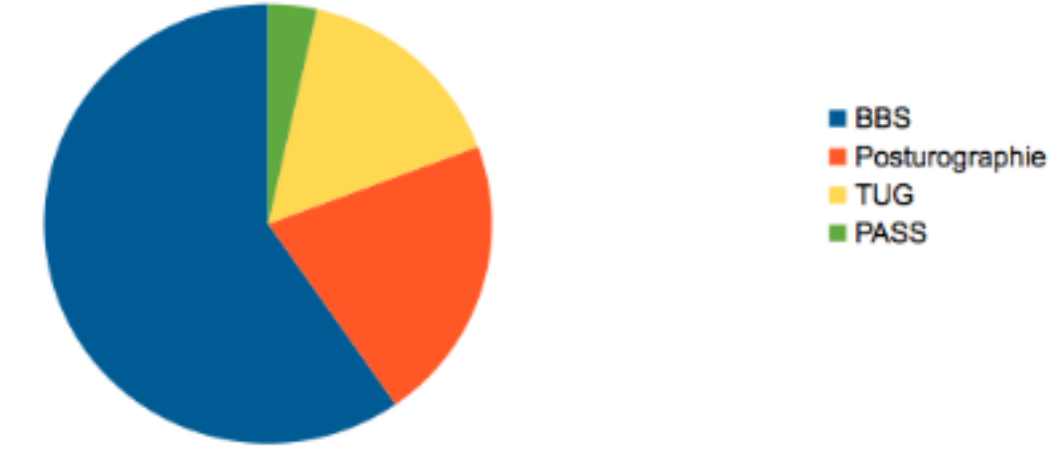


Illustration 11 : Méthodes d'évaluation de la posture utilisées

ANALYSE DES RÉSULTATS

- Analyse des biais des études
- Lecture critique en fonction des objectifs de la revue

- Différentes échelles existent :
  - PEDro : 11 items. Cotation sur 10 points (10 des 11 items sont cotés)
  - Cochrane : 7 items
    - Higgins JPT, Green S (editors). Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]. The Cochrane Collaboration, 2011. Available from www.handbook.cochrane.org.
    - Versions 1 ou 2
  - Adaptation d'échelle en fonction des besoins de la revue

ANALYSE DES RÉSULTATS

Table 1| **Cochrane Collaboration's tool for assessing risk of bias (adapted from Higgins and Altman13)**

Bias domain	Source of bias	Support for judgment	Review authors' judgment (assess as low, unclear or high risk of bias)
Selection bias	Random sequence generation	Describe the method used to generate the allocation sequence in sufficient detail to allow an assessment of whether it should produce comparable groups	Selection bias (biased allocation to interventions) due to inadequate generation of a randomised sequence
	Allocation concealment	Describe the method used to conceal the allocation sequence in sufficient detail to determine whether intervention allocations could have been foreseen before or during enrolment	Selection bias (biased allocation to interventions) due to inadequate concealment of allocations before assignment
Performance bias	Blinding of participants and personnel*	Describe all measures used, if any, to blind trial participants and researchers from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective	Performance bias due to knowledge of the allocated interventions by participants and personnel during the study
Detection bias	Blinding of outcome assessment*	Describe all measures used, if any, to blind outcome assessment from knowledge of which intervention a participant received. Provide any information relating to whether the intended blinding was effective	Detection bias due to knowledge of the allocated interventions by outcome assessment
Attrition bias	Incomplete outcome data*	Describe the completeness of outcome data for each main outcome, including attrition and exclusions from the analysis. State whether attrition and exclusions were reported, the numbers in each intervention group (compared with total randomised participants), reasons for attrition or exclusions where reported, and any reinclusions in analyses for the review	Attrition bias due to amount, nature, or handling of incomplete outcome data
Reporting bias	Selective reporting	State how selective outcome reporting was examined and what was found	Reporting bias due to selective outcome reporting
Other bias	Anything else, ideally prespecified	State any important concerns about bias not covered in the other domains in the tool	Bias due to problems not covered elsewhere

*Assessments should be made for each main outcome or class of outcomes.

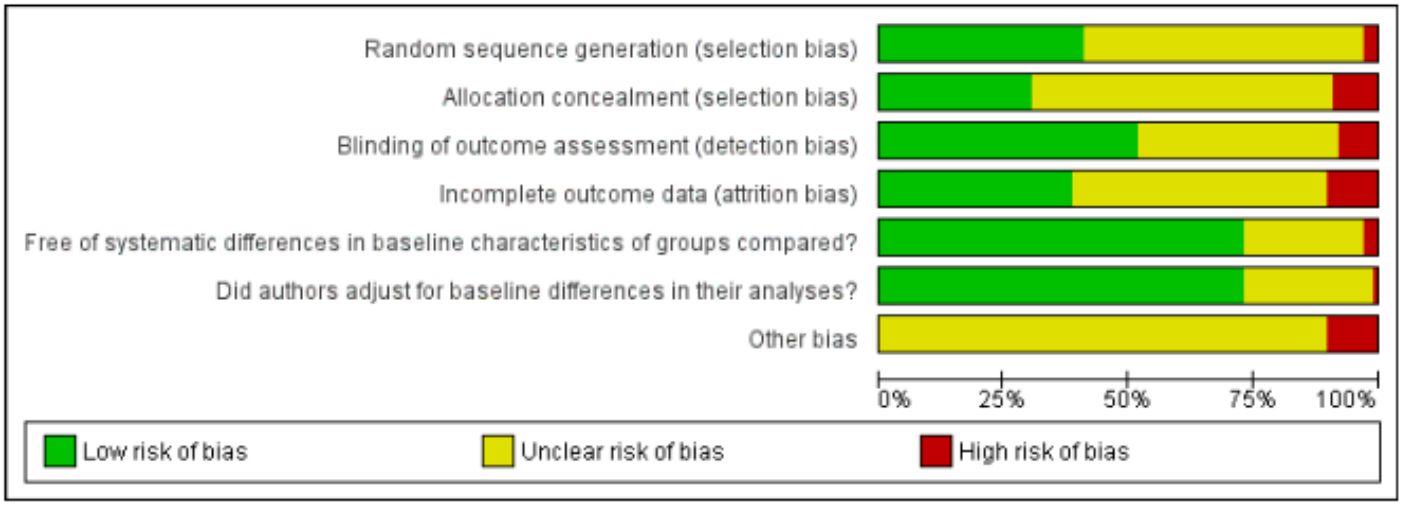
BMJ

The Cochrane Collaboration's tool for assessing risk of bias in randomised trials

Julian P T Higgins *senior statistician*[1], Douglas G Altman *director*[2], Peter C Gøtzsche *director*[3], Peter Jüni *head of division*[4], David Moher *senior scientist*[5,6], Andrew D Oxman *senior researcher*[7], Jelena Savović *postdoctoral fellow*[8], Kenneth F Schulz *vice president*[9], Laura Weeks *research associate*[5], Jonathan A C Sterne *professor of medical statistics and epidemiology*[8], Cochrane Bias Methods Group, Cochrane Statistical Methods Group

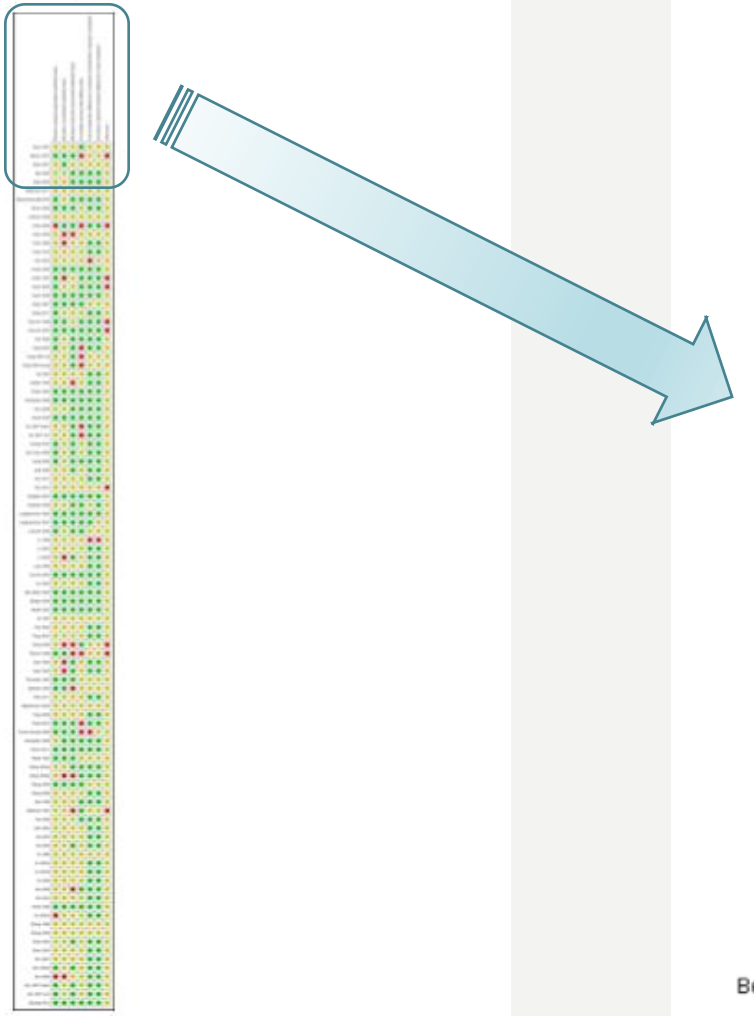
ANALYSE DES RÉSULTATS

Figure 3. Risk of bias graph: review authors' judgements about each risk of bias item presented as percentages across all included studies.



ANALYSE DES RÉSULTATS

Figure 4. Risk of bias summary: review authors' judgements about each risk of bias item for each included study.



ANALYSE DES RÉSULTATS

- Analyse des résultats sur les critères de jugement

- Différentes comparaisons possibles
  - Comparaisons versus aucun traitement,
  - Comparaisons versus versus placebo ou soins conventionnels,
  - Intervention A versus Intervention B

Efficacité

Supériorité

- Selon la question posée

ANALYSE DES RÉSULTATS

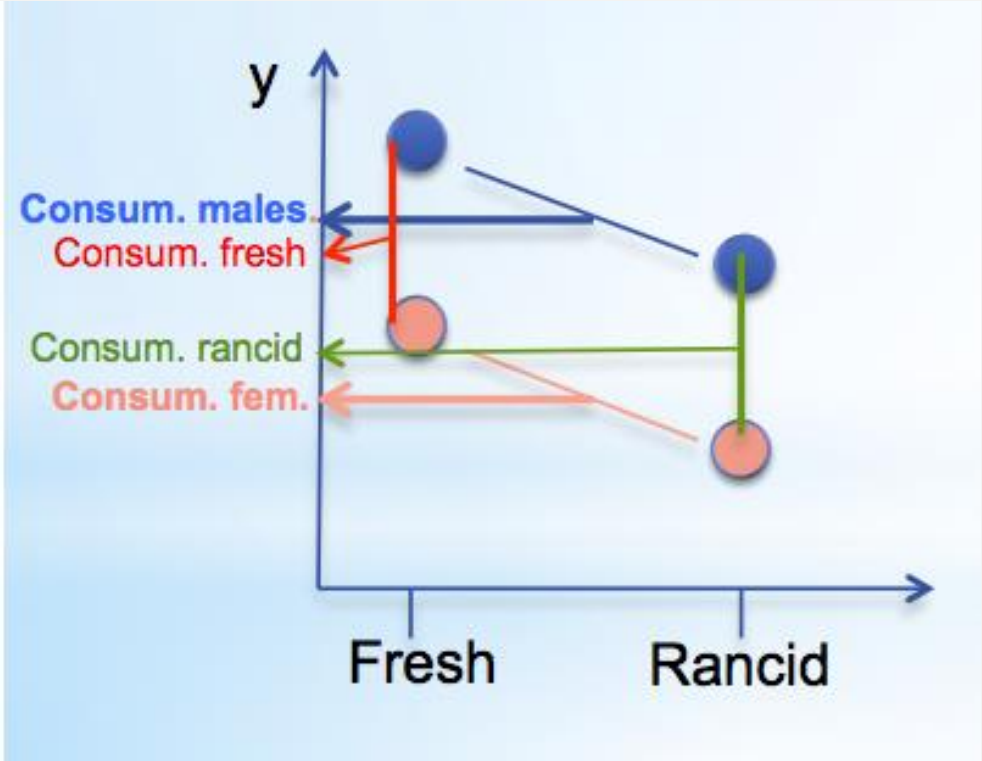
- Comprendre les analyse statistiques pour déterminer les effets
  - Effet intra-groupe (avant vs après) dans chaque groupe
    - Groupe expérimental
    - Groupe contrôle (référence)

    = variation temporelle
  - Effet inter-groupe : comparaison à chaque temps de mesure

  ➔Effet inter-groupe des changements intra-groupes = Effet traitement

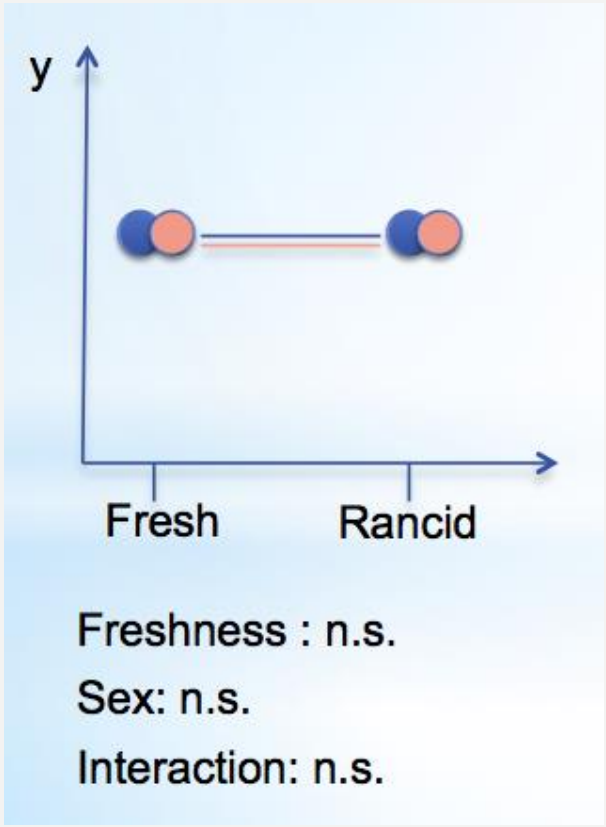
- Pour chacun des critères de jugement de notre revue
- Etre synthétique et précis.

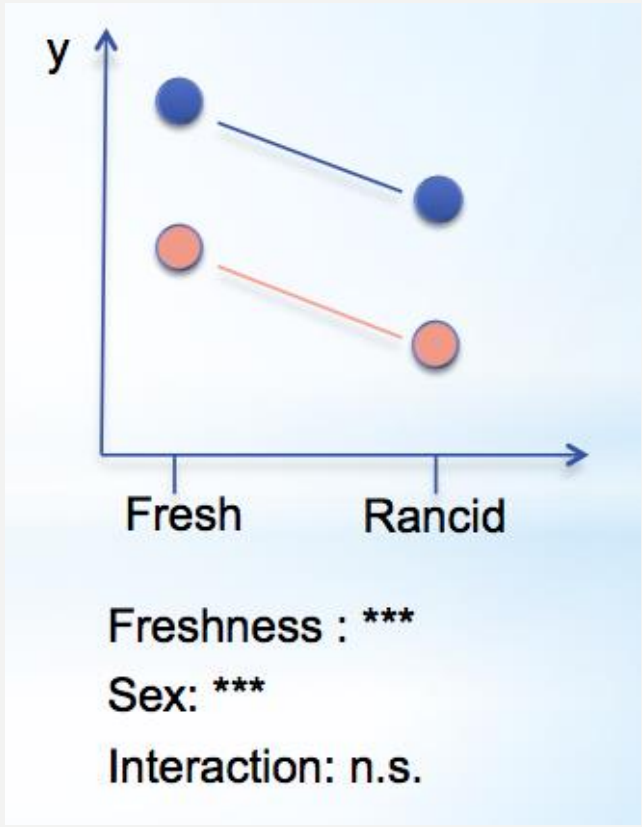
ANALYSE DES RÉSULTATS



ANALYSE DES RÉSULTATS

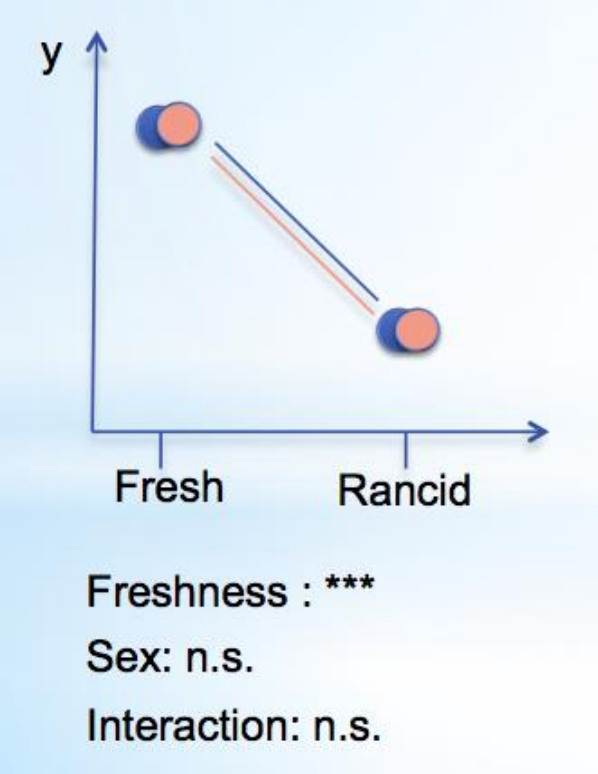
- Effets sans interaction

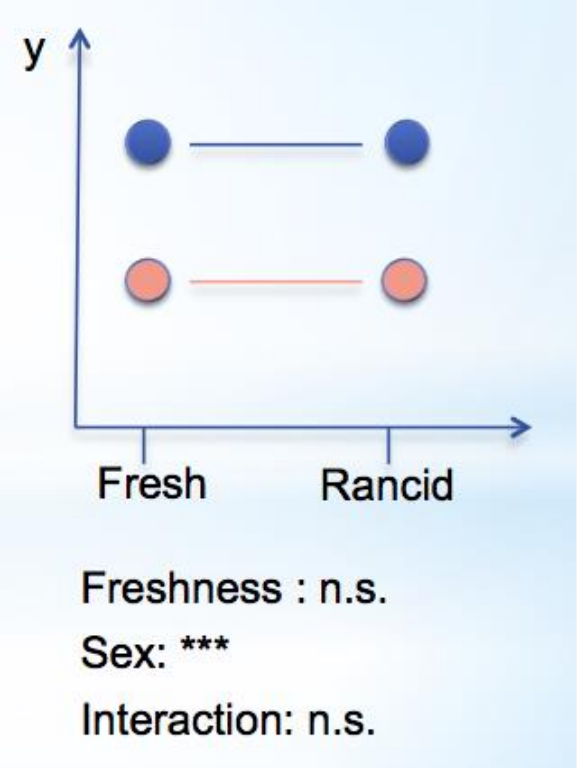




ANALYSE DES RÉSULTATS

- Effets sans interaction



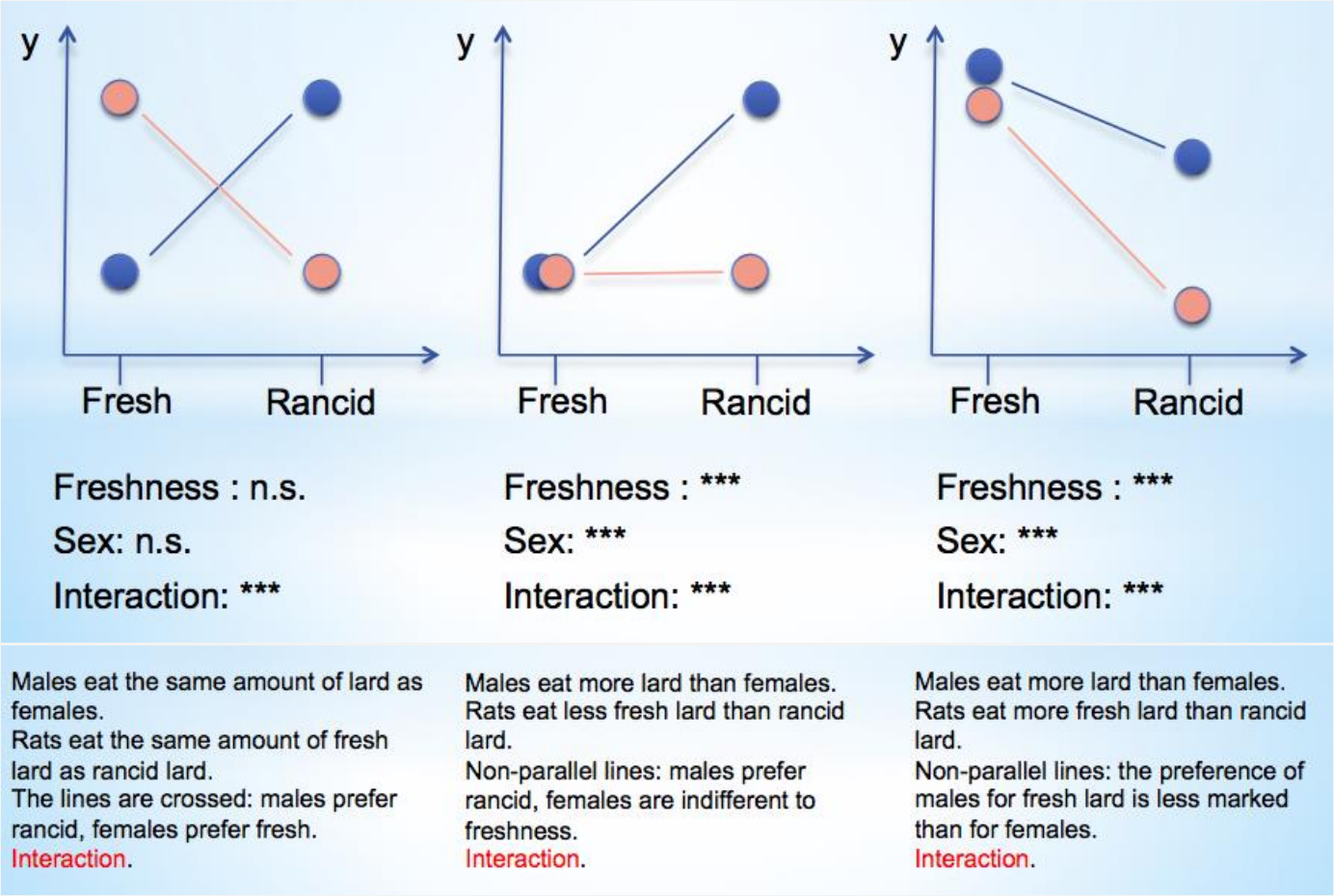


= males

= females

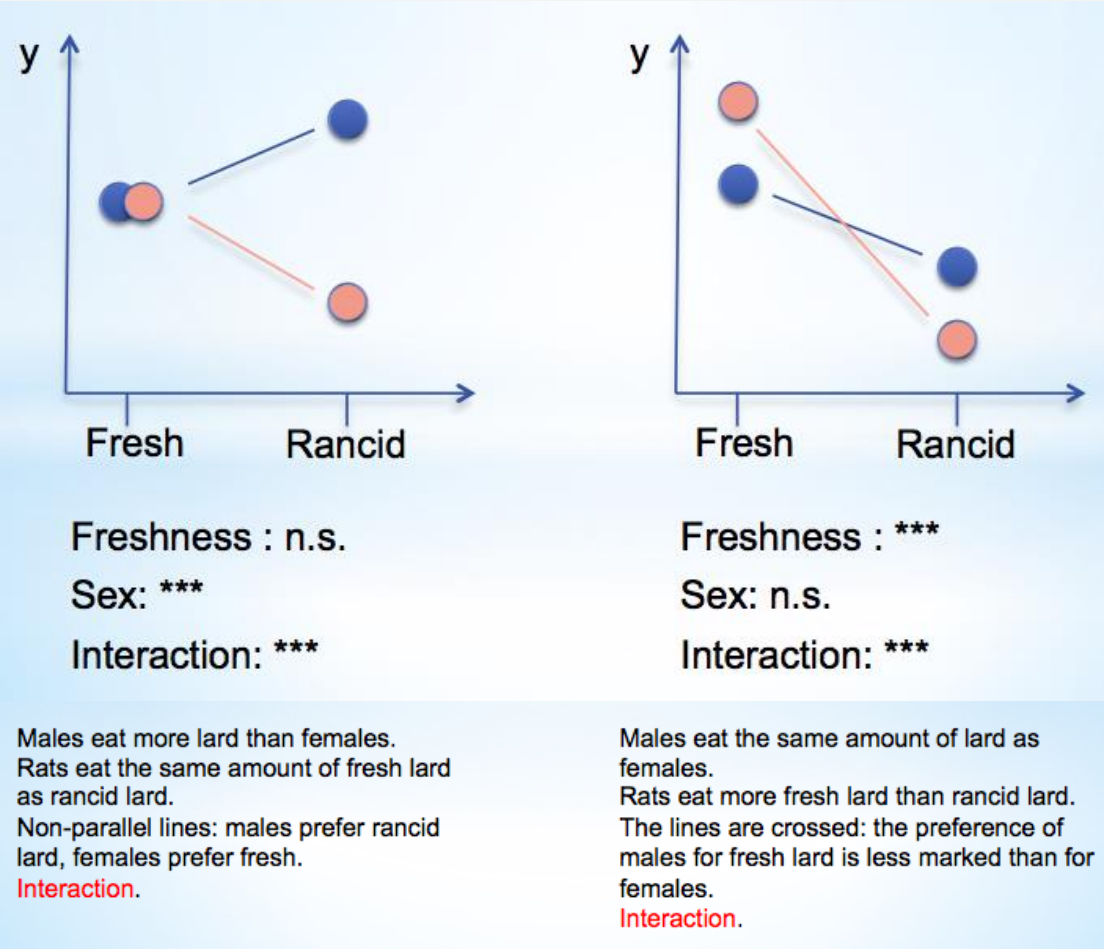
ANALYSE DES RÉSULTATS

- Effets avec interaction



ANALYSE DES RÉSULTATS

- Effets avec interaction



ANALYSE DES RÉSULTATS

- En cas d'interaction significative, les effets principaux (sexe / fraicheur de la nourriture) ne peuvent pas être interprétés globalement.
- L'effet principal d'un facteur varie en fonction de l'état de l'autre facteur

➔ L'analyse d'un facteur doit être faite en prenant compte de l'autre facteur.

- Dans essai thérapeutique (ex : RCT), analyser l'interaction group x time

ANALYSE DES RÉSULTATS

Table 3. Effects of a 12-Week Caregiver-Mediated, Home-Based Intervention on Walking Velocity, 6MWT, Berg Balance Scale, and Barthel Index in Patients With Chronic Stroke.

	Control Group (n = 26)[a]			Intervention Group (n = 25)[a]				
Item	Baseline	Endpoint	Net Change[b]	Baseline	Endpoint	Net Change[b]	Between-Group Difference[b]	P[c]
FWV, cm/s	47.4 ± 31.1	46.0 ± 31.7	−1.4 (−3.5, 1.4)	43.2 ± 29.2	51.0 ± 30.0[d]	7.5 (4.8, 10.1)	8.9 (2.1, 15.7)	.006
MWV, cm/s	55.4 ± 36.1	56.8 ± 37.3	1.5 (0.3, 2.6)	51.6 ± 36.3	61.3 ± 35.1[d]	9.3 (5.9, 12.6)	7.8 (0.8, 14.8)	.052
6MWT, m	167.2 ± 121.8	156.7 ± 117.3	−10.5 (−16.3, −5.4)	152.6 ± 119.8	168.4 ± 114.8[d]	15.8 (14.5, 41.9)	26.3 (8.2, 44.4)	.003
BBS score[e]	31.9 ± 13.0	31.1 ± 12.1	−0.8 (−1.7, 0.1)	32.1 ± 10.0	36.6 ± 6.7[d]	4.5 (3.1, 5.9)	5.3 (2.0, 8.6)	.006
Barthel Index[f]	77.1 ± 23.8	77.7 ± 23.0	0.6 (−0.9, 2.1)	82.4 ± 16.3	89.6 ± 12.4[d]	7.2 (5.3, 9.1)	6.6 (1.8, 11.5)	.008

Abbreviations: 6MWT, 6-Minute Walk Test; BBS, Berg Balance Scale; FWV, free-walking velocity; MWV, maximum walking velocity.
[a]Mean ± SD.
[b]Mean (95% confidence interval).
[c]On the basis of Mann-Whitney *U* test.
[d]Significant ($P < .05$) within-group (time) effect according to Wilcoxon signed-rank test.
[e]Score range, 0-56.
[f]Score range, 0-100.

Différence inter-groupe des effets intra-groupes

- Effet temps = vert
- Interaction group x time = rouge ➔ Effet traitement

ANALYSE DES RÉSULTATS

Ada 2013

Methods	Design: randomised trial of cardiorespiratory training vs no intervention – after UC Randomised: computer-generated randomisation stratified on walking disability by independent researcher Allocation concealment: not applicable Blinding: assessors blind to group allocation ITT: yes Measurements: end of interventions (2 and 4 months) and 6- and 12-month follow-up Withdrawals: 2 months treadmill training group: 1 participant withdrew; control group: 3 participants withdrew - reasons unclear
Participants	Randomised: 102 participants Intervention: treadmill training 2-month group: 34 participants: 28 men and 6 women; mean age 64 years (SD 12); 20 months post-stroke (SD 15). Treadmill training 4-month group: 34 participants; 24 men and 10 women; mean age 70 years (SD 11); 22 months post-stroke (SD 16) Control: 34 participants; 19 men and 15 women; mean age 63 years (SD 13); 19 months post-stroke (SD 13) Inclusion criteria: within first 5 years post-stroke; MMSE score of > 23; discharged from rehabilitation; community-dwelling; 10-m unaided walking speed > 9 seconds Exclusion criteria: unstable cardiac status; severe cognitive and/or aphasia
Interventions	Invention group: both 2-month and 4-month treadmill training group received 30 min treadmill walking 3 times/week for 8 or 16 weeks respectively Progressive in nature. Both groups also received overground walking training (20% of intervention during week 1, increasing to 50% at week 8; for those in 4-month group, overground walking reduced to 20% of intervention increasing again to 50% at week 16) Control group: no intervention Setting: rehabilitation centre
Outcomes	Included outcomes: 6-MWT; EuroQol Health Status; Adelaide Activities Profile; walking and falls self-efficacy

ANALYSE DES RÉSULTATS

- Tableau d'extraction des données

Table 2
Characteristics of included studies.

Study	Design	Methods	Partici-pants	Intervention	Control	Inclusion criteria low back pain	Primary outcomes	Secondary outcomes	Results	Risk of bias score
Chen et al., 2014	Treatment	RCT, 2 groups, Follow-up: 2, 4 and 6 months	127 nurses	Stretching exercise program: warming-up, stretching (back, neck and lower legs) and automobilisation exercises (flexion, extension, rotation of back) (50 min), performed 3×/ week, duration of 6 months	Perform usual activities	1) low back pain > 6 months; 2) low back pain with > 4/10 on VAS	Pain intensity in past 12 weeks (VAS, 0–10)	None	Stretching exercise program had significant improvements in pain ($p = 0.040$, $p = 0.011$, $p = 0.002$) and self-efficacy at all follow-up measures.	6/12
Ewert et al., 2009	Treatment	RCT, 2 groups, Follow-up: 3 and 12 months	183 nurses or professionals with comparable professional status (same professional task load and status)	Multidimensional program (17 sessions of 1.75 h, 1 session of 45 min): *1) 11 physical exercise program units* (warm-up, strengthening- and stretching exercises, low impact aerobics and relaxation exercises), *2) 5 psychological units* (cognitive behavioural therapy), *3) 7 segmental stabilization units* (focusing on co-contraction of multifidi, pelvic floor muscles and transverses abdominis) and *4) 8 ergonomic and workplace units* (focusing on advice and practice of proper lifting techniques and work-related postures)	General physical exercises program (same as intervention) and instructions for a home-training program (strengthening- and stretching exercises), 11 sessions of 1 h program	At least one low back pain episode in the previous 2 years	1) Pain intensity (WHYMPI, pain subscale, 0–6); 2) Pain interference (WHYMPI, pain interference subscale, 0–6)	None	A multidimensional intervention is not superior to a general exercise program in reducing low back pain intensity, interference and improving general health.	7/12

The efficacy of interventions for low back pain in nurses: A systematic review. Van Hoo et al. 2017

ANALYSE DES RÉSULTATS

- Tableau d'extraction des données

Table 3
Table of study characteristics.

Study; origin; design	*N* (Op vs Non-Op)	Mean age	Gender (m/f)	Duration Injury to Intervention (months)	Diagnosis	Co-comittent injury	Operative intervention	Non-operaitve intervention	Mean follow-up period (years)
Ageberg et al. [30]; Sweden; RCT	54 (36/18)	30	39/15	<4 weeks	MRI	25 meniscal injuries	Arthroscopic BTPB or hamstring	Not specified	3
Diekstall and Rauhut [28]; Germany; nRCT	270 (160/110)	Op: 27.9 Non-Op: 23.8	248/22	Op: 207 days Non-Op: 17 days	Arthroscopy	48% meniscal injury; 49% chondral lesion	Arthroscopic-assisted BPTB	Braced 6 weeks followed by exercise-based rehab	51 months
Fink et al. [24]; Austria; nRCT	75 (47/28)	Op: 34.7 Non-Op: 38.3	47/28	12	Arthroscopy	Not specified	Open BPTB	Not specified	74/81 months
Fink et al. [25]; Austria; nRCT	66 (44/22)	Op: 34.7 Non-Op: 38.3	Not specified	3.3	Arthroscopy	Not specified	Open BPTB	Not specified	77.9 months
Fink et al. [26]; Austria; nRCT	84 (52/32)	Op: 34.7 Non-Op: 38.3	Not specified	12	Arthroscopy	52% meniscal injury	Open BPTB	Brace 6 weeks	5–7
Fink et al. [37]; Austria; nRCT	71 (46/25)	Op: 33.6 Non-Op: 32.3	55/16	3.3	Arthroscopy	48% meniscal injury; 15% MCL	Open BPTB	Hamstring strengthning, cycling, swimming	10–13
Frobell et al. [21]; Sweden; RCT	121 (62/59)	26	88/32	>4 weeks	MRI	51% meniscal injury; 31% chondral lesion	Arthroscopic BPTB or hamstring	Not specified.	5
Karanikas et al. [22]; Germany; nRCT	33 (21/12)	31	Not specified	6–16	Arthroscopy	Not specified	Arthroscopic BPTB (10) or hamstring (11)	24 week exercise-based rehab programme.	16 months
Kessler et al. [36]; Switzerland; nRCT	109 (60/49)	30.7	68/41	Not specified	Arthroscopy	35% MM/cartilage injury	Arthroscopic-assisted BPTB	Brace 6 weeks; graduated return to sports.	11.1
Meuffels et al. [23]; Netherlands; nRCT	50 (25/25)	Op: 37.6 Non-Op: 37.8	38/12	6 (2–258)	Arthroscopic or MRI	74% meniscal injury; 38% chondral lesion	Open BPTB	Active rehab of strengthening and ROM exercise	10
Mihelic et al. [32]; Croatia; nRCT	54 (36/18)	Op: 25.3 Non-Op: 25.5	44/10	19	Arthroscopy	28% MM; 5% MM and Lat Meniscus	Open BPTB	POP 3 weeks; rehab (ROM and strength)	17–20
Moksnes and Risberg [27]; Norway; nRCT	102 (52/50)	27.2	Not specified	82 days	MRI	31% meniscal injury; 9% minor chondral lesion	No specific details.	Static bike, quadriceps strengthening, closed kinetic chain exercises	1
Seitz et al. [33]; Austria ; nRCT	111 (92/39)	Op: 27 Non-Op: 28	64/67	Op: 146 days Non-Op: 163 days	Arthroscopy	Not specified	Open BPTB	Bracing for 6 weeks, progressive WB and active/passive exercise and electrotherapy	8.5
Streich et al. [35]; Germany; nRCT	80 (40/40)	Op: 26 Non-Op: 24	56/24	Op-7.3 Non-Op: 5.8	Arthroscopy	24% partial meniscectomy	Arthroscopic BTPB	Graduated close-kinetic chain exercises.	15
Swirtun et al. [31]; Sweden; nRCT	57 (22/35)	32	30/27	9	Arthroscopy or MRI	37% meniscal or chondral lesion.	Arthroscopic BPTB	Not specified	5.6
Wittenberg et al. [29]; Germany; nRCT	60 (30/30)	34	32/28	35 (0–54)	Arthroscopy	18.3% MCL	Arthroscopic-assisted BPTB	Not specified.	39 months

BPTB — bone–patella–tendon–bone; f — females; Lat — lateral; m — males; MCL — medial collateral ligament; MM — medial meniscus; MRI — magnetic resonance imaging; Non-Op — non-operative; nRCT — non-randomised controlled trial; Op — operative; POP — Plaster of Paris; RCT — randomised controlled trial; ROM — range of motion; WB — weight-bearing.

ANALYSE DES RÉSULTATS DES ÉTUDES SÉLECTIONNÉES

- Ecueils potentiellement rencontrés en rééducation :
  - Hétérogénéité des populations (pathologie …)
  - Hétérogénéité des modalités d'intervention et des techniques
  - Hétérogénéité des critères de jugement et des méthodes de mesures

- En lien avec :
  - la problématique
  - les critères de sélection des études

ETAPE 4 : SYNTHÈSE ET CONCLUSION SOUS FORME DE RECOMMANDATIONS

SYNTHÈSE ET CONCLUSION

Etape 3

- Analyse des études

Etape 4

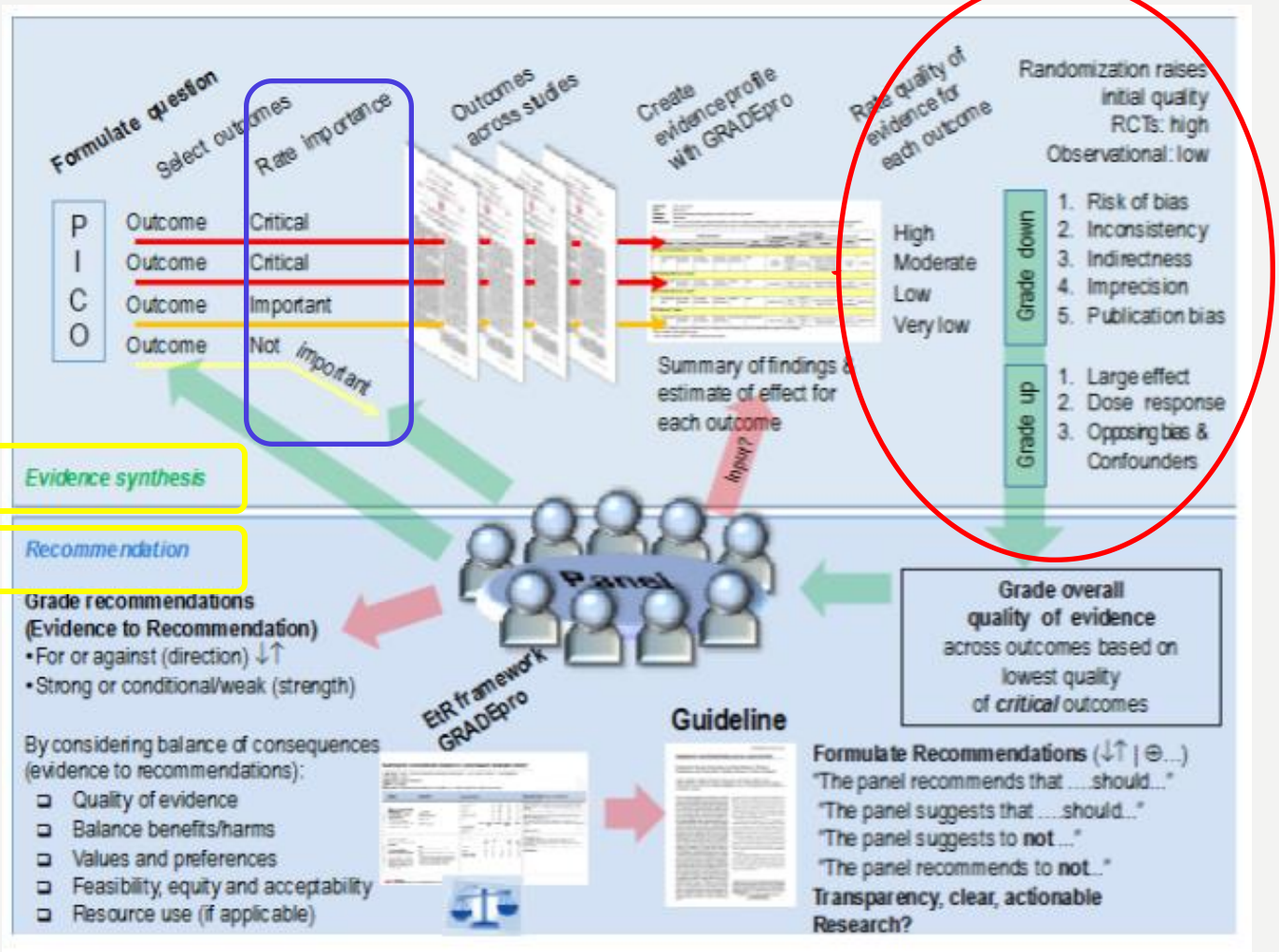
- Synthèse
- Recommandations

SYNTHÈSE ET CONCLUSION

- Traduire les analyses des résultats en une synthèse claire et précise, directement utilisable pour la pratique clinique
- Donner sens aux résultats
- Editer des recommandations pour la pratique clinique
- Editer des pistes de réflexion pour des recherches futures

- Utilisation des échelles de recommandations
- Etre imaginatif
- Représentation graphique (data vision)

NIVEAU DE PREUVE



A schematic view of the GRADE approach for synthesizing evidence and developing recommendations

https://gdt.gradepro.org/app/handbook/handbook.html

NIVEAU DE PREUVE

- Qualité de la preuve reflète la mesure dans laquelle nous sommes convaincus qu'une estimation de l'effet est correcte.

- Approche GRADE (Grading of Recommendations, Assessment, Development and Évaluation) : https://gdt.gradepro.org/app/handbook/handbook.html
  - Pour chaque cdj,
  - En fonction du design d'étude et des biais méthodologiques et les résultats (GRADE)

NIVEAU DE PREUVE

Table 5.1: Quality of Evidence Grades

Grade	Definition
High	We are very confident that the true effect lies close to that of the estimate of the effect.
Moderate	We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low	Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect.
Very Low	We have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect

Quality of evidence is a continuum; any discrete categorisation involves some degree of arbitrariness. Nevertheless, advantages of simplicity, transparency, and vividness outweigh these limitations.

- RCT = High
- Observational study = Low

NIVEAU DE PREUVE

- Facteurs diminuant le niveau de preuve
  - Risque de biais : -1 ou 2
  - Inconsistance : hétérogénéité non expliquée des résultats (-1 ou 2)
  - Caractère indirect des preuves (preuves directes = comparaison d'interventions qui nous intéressent, chez des participants qui sont directement concernés et qui mesure des cdj important pour les patients) : -1 ou 2
  - Imprécision des résultats : largeur des intervalle de confiance (-1 ou 2)
  - Biais de publication : -1 ou 2

NIVEAU DE PREUVE

- Facteurs augmentant le niveau de preuve
  - Largeur de la taille d'effet (force de l'association) : +1 ou 2
  - Présence de facteur(s) de confusion potentiel(s) qui aurai(en)t réduit l'effet mesuré ou qui serait susceptible d'augmenter l'effet si celui-ci n'est pas mesuré : +1 ou 2
  - Relation dose-effet : +1 ou 2

NIVEAU DE PREUVE

Summary of findings 1. Antifibrinolytic therapy for aneurysmal subarachnoid haemorrhage

Antifibrinolytic therapy compared with standard care for aneurysmal subarachnoid haemorrhage				
Patient or population	adults with aneurysmal subarachnoid haemorrhage (SAH)			
Setting	hospital			
Intervention	antifibrinolytic (AF) therapy			
Comparison	standard care			
Outcomes	**Relative effect (95% CI)**	**No of participants (studies)**	**Quality of the evidence (GRADE)**	**Comments**
Poor outcome	RR 1.03 (0.94 to 1.13)	2359 (5)	++++ (high)	At a range of three to six months; low heterogeneity (I^2 = 0%) between studies and and subgroups
All cause mortality	RR 1.02 (0.90 to 1.16)	2717 (11)	++++ (high)	At a range of three weeks to six months; low heterogeneity (I^2 = 4%) between studies and and subgroups
Rebleeding	RR 0.65 (0.47 to 0.91)	2717 (11)	+++ (moderate)[a]	Heterogeneity (I^2 = 59%) between studies and and subgroups
Delayed cerebral ischemia	RR 1.27 (1.00 to 1.62)	2484 (7)	+++ (moderate)[b]	Heterogeneity (I^2 = 52%) between studies is largely based on early studies that did not implement ischemia preventive therapy. This resulted in a relatively high OR. Recent studies have implemented ischemia prevention as standard SAH care. It is likely that future research will result in a lower OR for DCI
Hydrocephalus	RR 1.09 (0.99 to 1.20)	1992 (6)	++++ (high)	Low heterogeneity (I^2 = 0%) between studies and and subgroups

SYNTHÈSE ET CONCLUSION

Physiotherapy intervention compared with usual care or attention control for recovery after stroke

Patient or population: adults with stroke
Intervention: physiotherapy intervention
Comparison: usual care or attention control

Outcomes	Standardised mean difference (95% CI)	No. of participants (studies)	Quality of the evidence (GRADE)	Comments
Independence in ADL scales Immediate outcome	0.04 (-0.27 to 0.35)	6 studies 260 participants	⊖⊖⊖○ **moderate**	
Independence in ADL scales Persisting outcome				No data
Motor function scales Immediate outcome	**0.42 (0.24 to 0.61)**	13 studies 967 participants	⊖⊖⊖○ **moderate**	Removing all studies that were judged as unsure or high risk of bias for random sequence generation or allocation concealment left 7 studies (377 participants) demonstrating no significant effect (SMD 0.17, 95% CI -0.04 to 0.38)
Motor function scales Persisting outcome	-0.10 (-0.42 to 0.23)	3 studies 160 participants	⊖⊖○○ **low**	
Balance (Berg Balance Scale) Immediate outcome	**0.31 (0.05 to 0.56)**	5 studies 246 participants	⊖⊖⊖○ **moderate**	

GRADE Working Group grades of evidence.
High quality: Further research is very unlikely to change our confidence in the estimate of effect.
Moderate quality: Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.
Low quality: Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.
Very low quality: We are very uncertain about the estimate.

Physical rehabilitation approaches for the recovery of function and mobility following stroke (Review). Pollock et al. 2014

SYNTHÈSE ET CONCLUSION

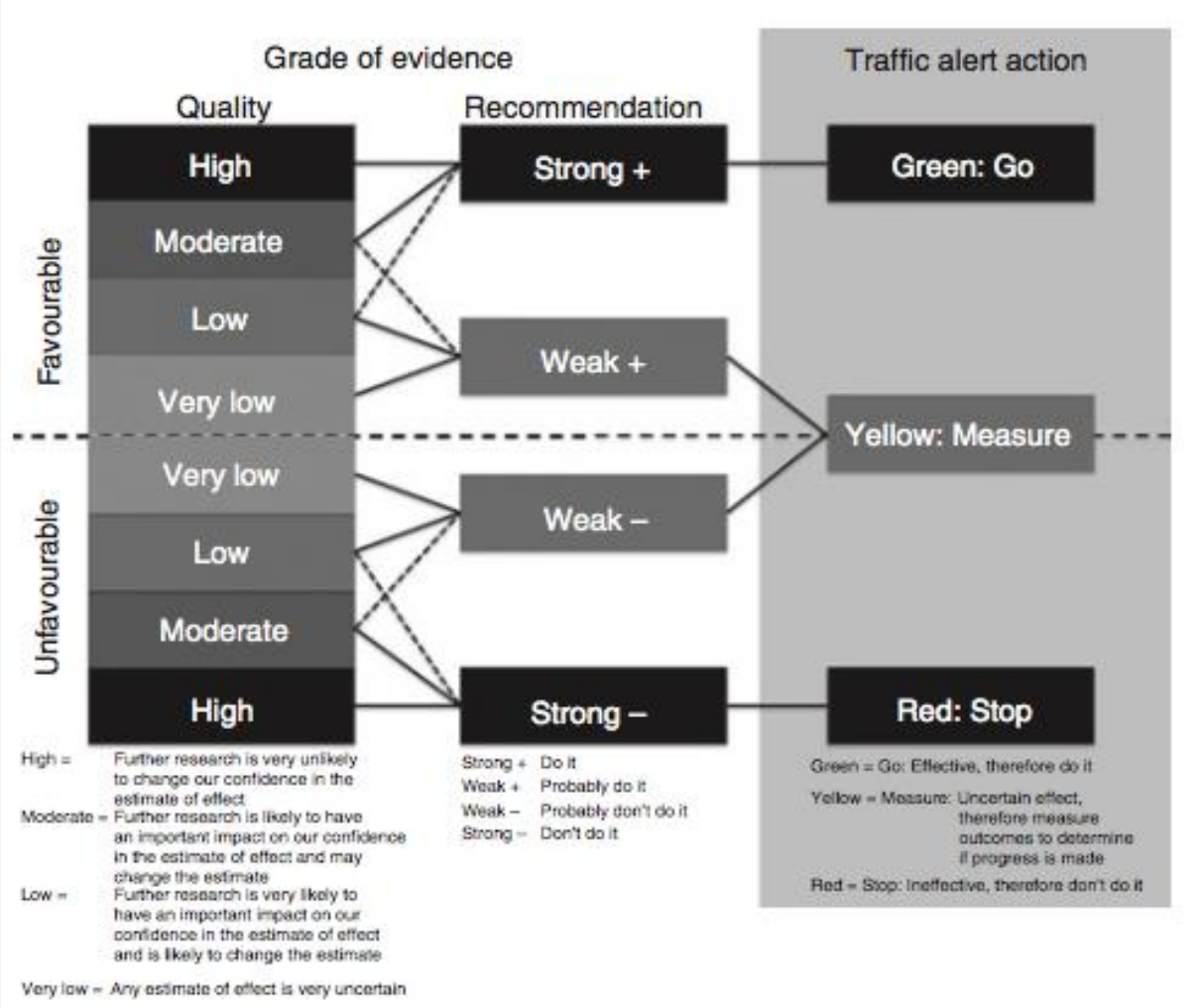
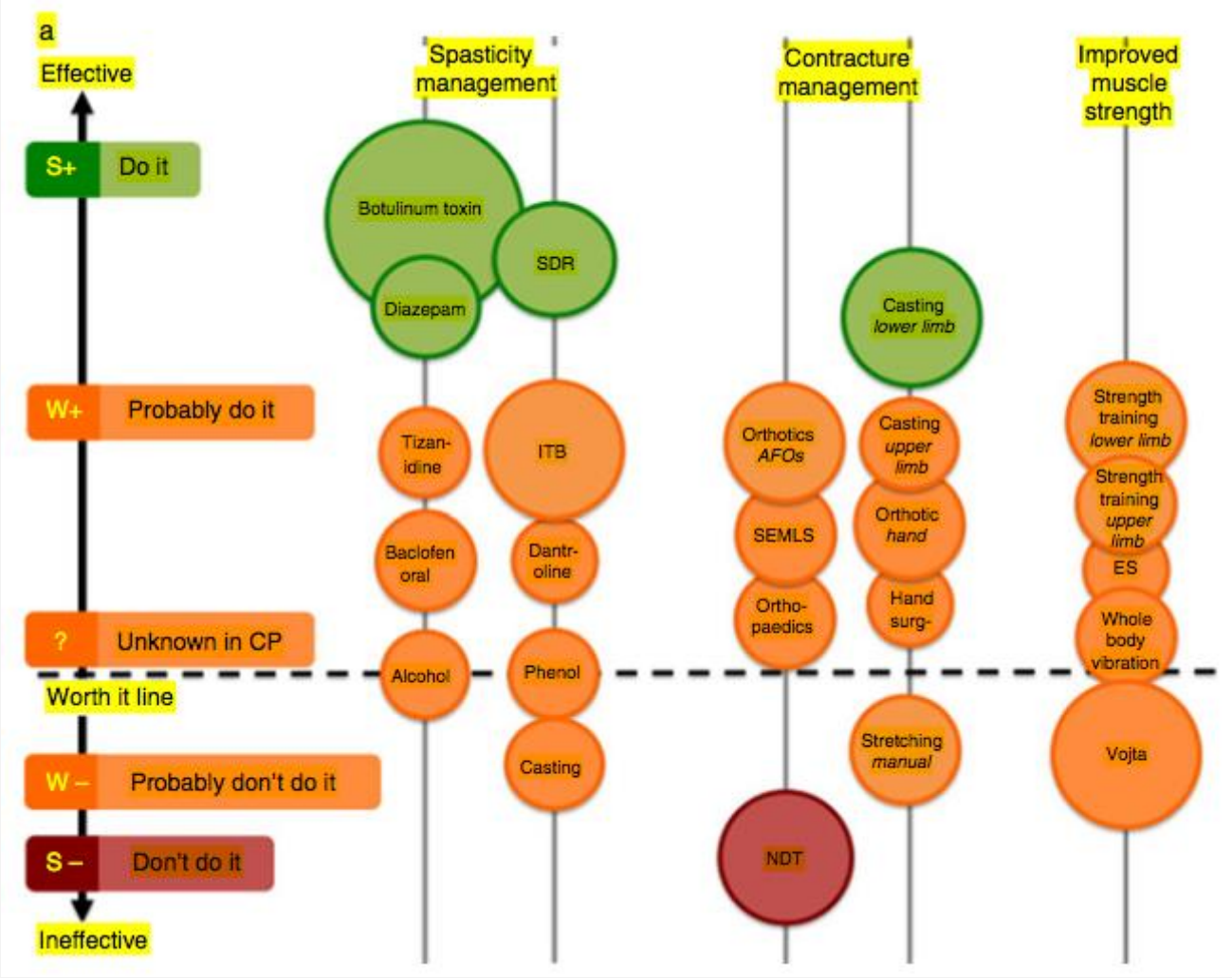


Figure 1: Relationship between the GRADE and Traffic Light System.

A systematic review of interventions for children with cerebral palsy: state of the evidence. NOVAK et al. 2013

SYNTHÈSE ET CONCLUSION

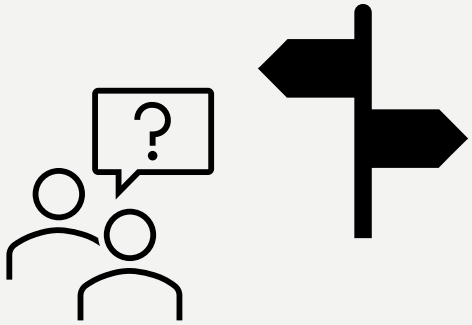


A systematic review of interventions for children with cerebral palsy: state of the evidence. NOVAK et al. 2013

LES LIMITES DES REVUES DE LA LITTERATURE

LES LIMITES DES REVUES

- Les résultats peuvent être contradictoires : le sens des effets
- La taille des effets dans les différentes études peut être différente



- Pas d'approche quantitative des effets mais seulement qualitative
  - Quelle taille de l'estimation de l'effet ?
  - Quelle précision de l'estimation de l'effet ?

LES LIMITES DES REVUES

- Les erreurs statistiques des essais
  - Les essais avec une différence statistiquement significative
    - Permettent de conclure quant aux effets du facteur étudié
    - Question du risque alpha ? Adapté et correct ?
  - Les essais sans différence statistiquement significative
    - Ne permettent pas de conclure quant aux effets du facteur étudié
    - Par manque de puissance statistique
    - **Ou** par absence de différence statistique

- La synthèse des résultats des études devient difficile et risqué.

LES LIMITES DES REVUES

- Les biais de publication influencent les résultats
  - Les essais avec des résultats positifs sont plus publiés que les essais avec des résultats négatifs
  - Importance d'une méthodologie rigoureuse (rechercher toutes les études publiées et non publiées).

LES LIMITES DES REVUES

- Les revues ne corrigent pas les biais méthodologiques des études biaisées incluses
- Les biais des études incluses entrainent des biais dans les revues.

- Importance d'une méthodologie rigoureuse
  - Evaluation de la qualité méthodologie des études et sélection des études avec le moins de biais.

LES LIMITES DES REVUES

- Risque des synthèses d'information : mélanger des informations trop différentes
- Perte de sens et d'intérêt
- Ne permet plus d'utiliser les résultats dans la pratique clinique

- Importance d'une question bien définie et précise

LES MÉTA-ANALYSES

LES MÉTA-ANALYSES

- Revue systématique + analyse statistique
- Analyse qualitative et quantitative des résultats des études

- Les objectifs
  - Synthétiser l'information parfois discordantes
  - Augmenter la précision de l'estimation
  - Augmenter la puissance statistique
  - Augmenter la représentativité de la population (échantillon plus large)
  - Réaliser des analyses en sous-groupes
  - Rechercher les causes de variabilités des résultats

LES MÉTA-ANALYSES

- Estimation de l'effet de traitement commun (Overall effect)
  - Calcul d'une moyenne **pondérée** des effets « individuels » (cad de chaque étude) en fonction du poids des études

$$\text{weighted average} = \frac{\text{sum of(estimate} \times \text{weight)}}{\text{sum of weights}} = \frac{\sum Y_i W_i}{\sum W_i},$$

  - Méthode de la variance inverse : Pondération par la précision des effets

$$\text{generic inverse-variance weighted average} = \frac{\sum Y_i (1/\text{SE}_i^2)}{\sum (1/\text{SE}_i^2)},$$

➔ Les études avec plus fort effectif (donc plus grande précision = plus petit incertitude) ont un poids plus important dans la moyenne pondérée que les études avec plus faible effectif (donc plus petite précision = plus grande incertitude)

LES MÉTA-ANALYSES

Interventions for promoting smoke alarm ownership and function (Review)

DiGuiseppi C, Goss CW, Higgins JPT

Cochrane Library

- Estimation de l'effet de traitement commun (Overall effect)

  ➔ Moyenne pondérée avec son intervalle de confiance

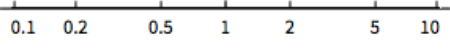
Analysis 1.1. Comparison 1 Smoke alarm promotion versus control, Outcome 1 Final smoke alarm ownership.

Study or subgroup	Intervention n/N	Control n/N	Odds Ratio M-H, Random, 95% CI	Weight	Odds Ratio M-H, Random, 95% CI
Barone 1988	32/34	26/29		2.53%	1.85[0.29,11.89]
Clamp 1998	82/83	71/82		2.07%	12.7[1.6,100.84]
Davis 1987	221/314	195/299		29.01%	1.27[0.9,1.78]
DiGuiseppi 2002	37/95	34/89		16.67%	1.03[0.57,1.87]
Jenkins 1996	45/62	46/61		10.87%	0.86[0.39,1.93]
Kelly 1987	8/55	6/54		6.26%	1.36[0.44,4.23]
Kendrick 1999	254/274	248/277		16.6%	1.49[0.82,2.7]
King 2001	460/479	454/465		12.03%	0.59[0.28,1.25]
Mathews 1988	10/12	9/12		2.21%	1.67[0.22,12.35]
Thomas 1984	27/28	21/25		1.75%	5.14[0.53,49.5]
Total (95% CI)	**1436**	**1393**		**100%**	**1.21[0.89,1.64]**

Total events: 1176 (Intervention), 1110 (Control)

Heterogeneity: $Tau^2=0.05$; $Chi^2=11.95$, df=9(P=0.22); $I^2=24.67\%$

Test for overall effect: Z=1.2(P=0.23)



Favours control — Favours intervention

LES MÉTA-ANALYSES

- Modèle à effet fixe
  - Chaque essai i représente une estimation d'un unique « vrai » effet du traitement $\acute{\theta}_i = \theta$
  - L'estimation du degré d'incertitude (intervalle de confiance) de l'effet traitement ne tient compte que de la variabilité intra-étude.

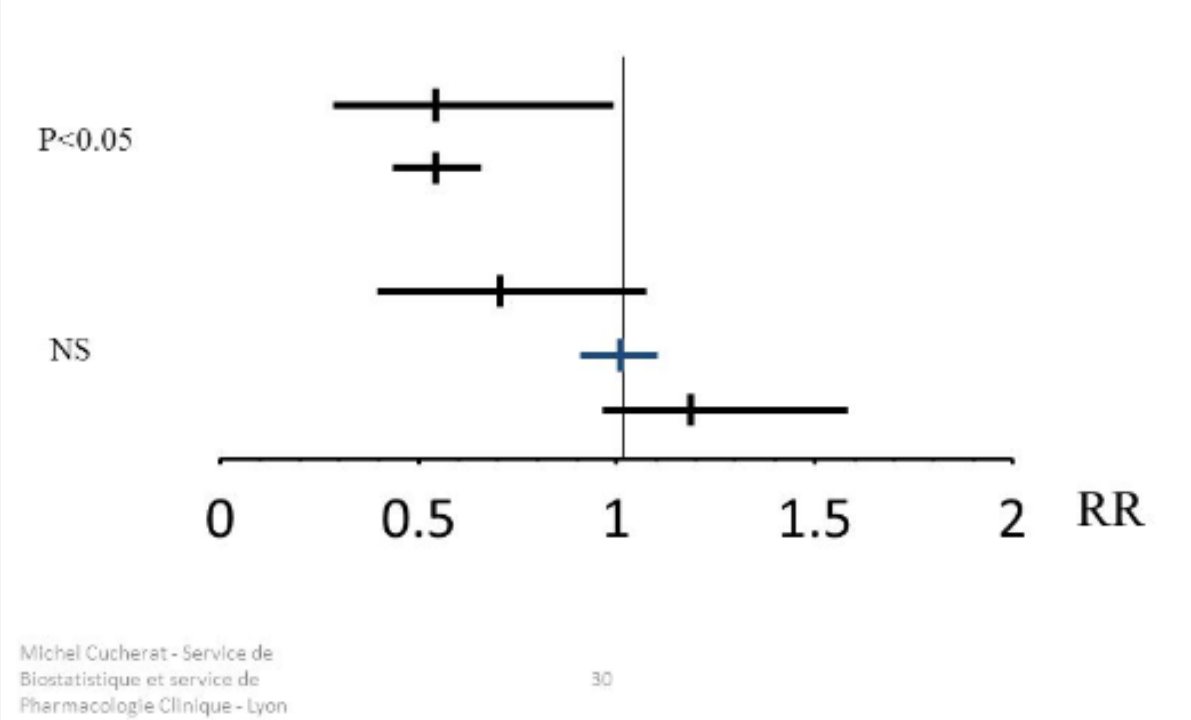
- Modèle à effet variable
  - Chaque essai représente une estimation d'un effet traitement, qui est une variable aléatoire normalement distribuée autour de l'effet global constant de moyenne et de variance.
  - Variabilité totale = variabilité inter-essai (variation des patients, des traitements ou des mesures …) + variabilité intra-essai

LES MÉTA-ANALYSES

- Variable continue
  - Ex : amplitude articulaire
  - Mean, SD et effectif pour chaque groupe
  - Mean difference ou Standard Mean Difference
    - Par rapport à 0
- Variable discontinue
  - Ex : mortalité
  - Evènements, effectif total pour chaque groupe
  - Risque relatif (RR) mais le plus fréquent : Odd ratio (OR)
    - Par rapport à 1

LES MÉTA-ANALYSES

- Estimation de l'effet de traitement et son intervalle de confiance 95%
  - Taille de l'effet
  - Précision de la taille d'effet



LES MÉTA-ANALYSES

- Test de l'existence d'un effet traitement = test d'association
  - Significativité statistique de la différence entre les deux traitements (p)

- Test d'hétérogénéité I^2
  - Proportion de la variabilité totale due à l'hétérogénéité entre les études
  - Hypothèse d'homogénéité : Test Chi^2 et I^2
  - $I^2 \geq 50\%$ alors hétérogénéité importante

  ➔ Expliquer l'hétérogénéité (analyses en sous-groupes, méta-régression) et modèle à effet aléatoire

LES MÉTA-ANALYSES

- Analyses en sous-groupes (Méta-régression avec covariable catégorielle)

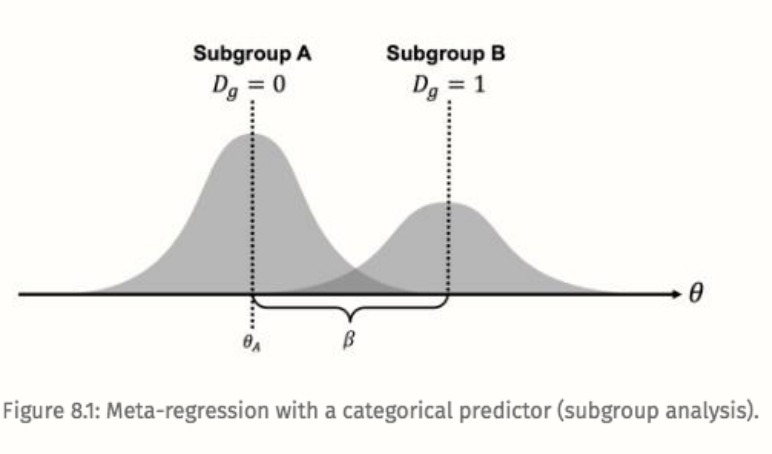


Figure 8.1: Meta-regression with a categorical predictor (subgroup analysis).

- Méta-régressions (variable continue)

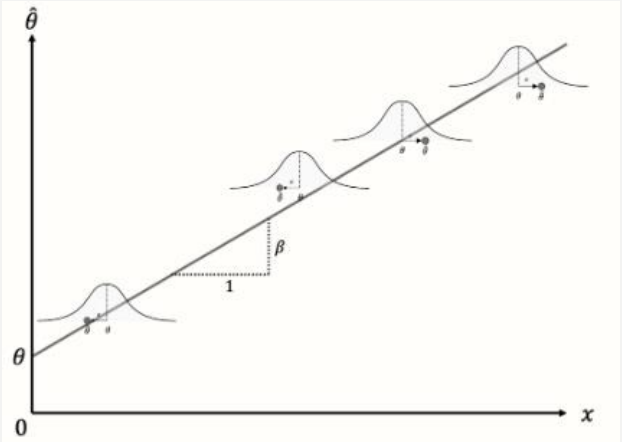


Figure 8.2: Meta-regression with a continuous predictor and four studies.

Harrer, M., Cuijpers, P., Furukawa, T.A., & Ebert, D.D. (2021). Doing Meta-Analysis with R: A Hands-On Guide. Boca Raton, FL and London: Chapman & Hall/CRC Press. ISBN 978-0-367-61007-4.

LES MÉTA-ANALYSES

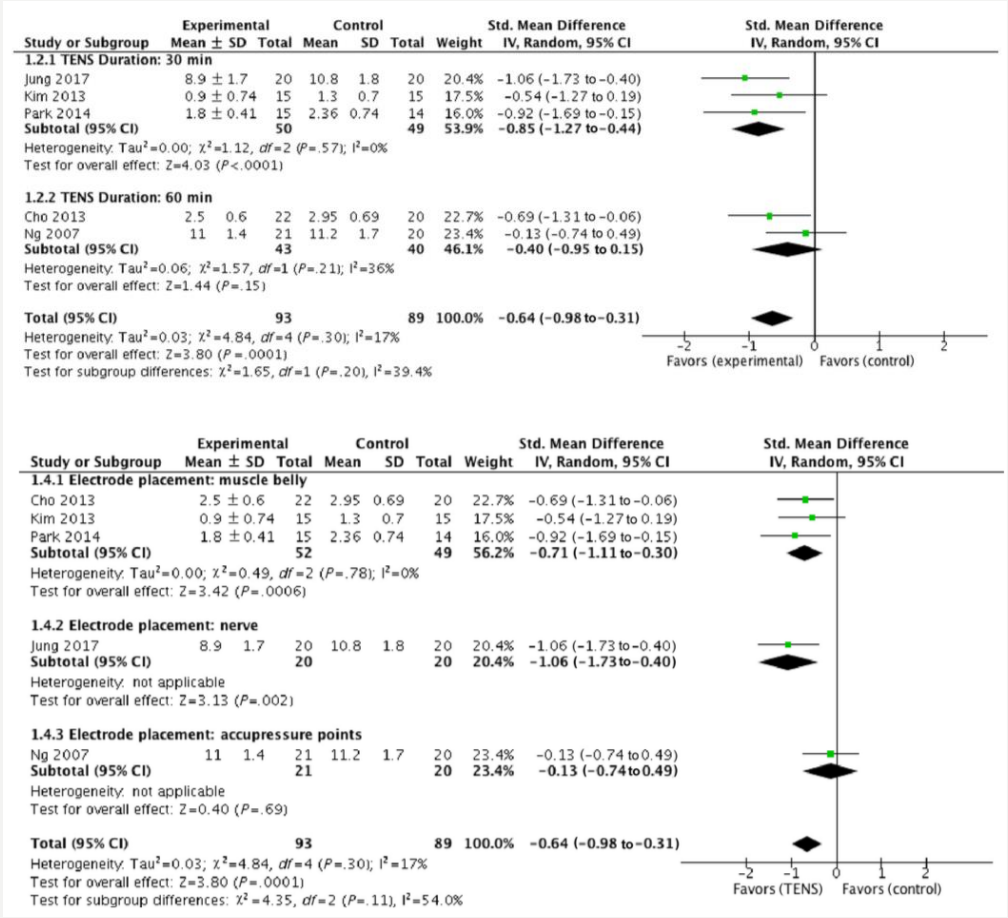
REVIEW ARTICLE (META-ANALYSIS)

ACRM
AMERICAN CONGRESS OF REHABILITATION MEDICINE

Effect of Transcutaneous Electrical Nerve Stimulation on Spasticity in Adults With Stroke: A Systematic Review and Meta-analysis

Amreen Mahmood, PhD,[a] Sundar Kumar Veluswamy, PhD,[b] Aditi Hombali, MPT,[c] Aditi Mullick, PhD,[d,e] Manikandan N, PhD,[a] John M. Solomon, PhD[a,f]

- Adultes, AVC
- TENS seul ou en combinaison avec d'autre intervention (dont chirurgie)
  - versus NT, ST/UC, autre intervention
- 10 RCTs + 5 non-RCTs
- Analyses en sous-groupes
  - Durée de intervention
  - Modalités d'intervention



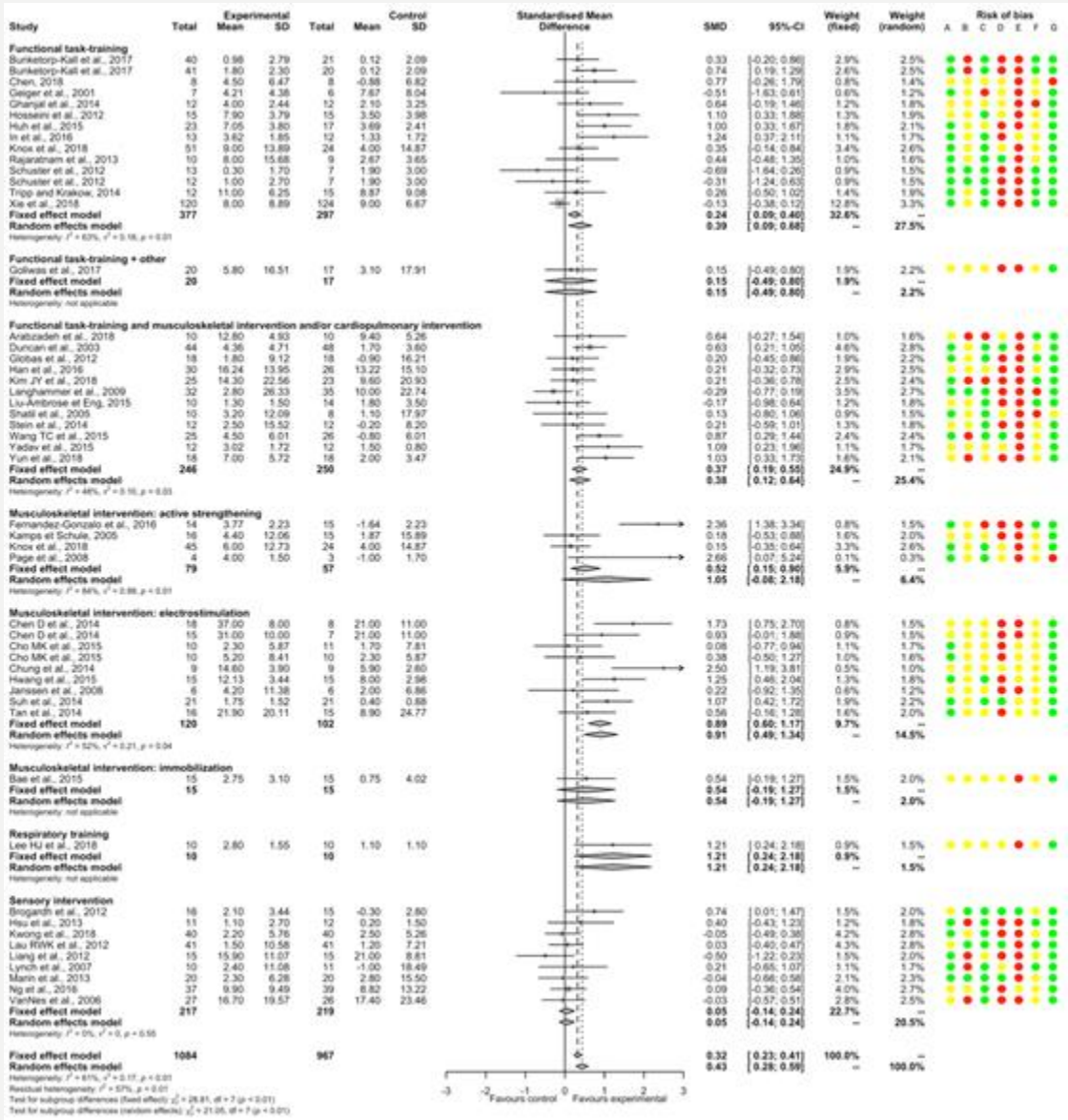
LES MÉTA-ANALYSES

PLOS ONE

RESEARCH ARTICLE

Limited evidence of physical therapy on balance after stroke: A systematic review and meta-analysis

Aurélien Hugues[1,2,3]*, Julie Di Marco[4], Shams Ribault[1,2], Hugo Ardaillon[1,2], Perrine Janiaud[5], Yufeng Xue[6], Jin Zhu[7], Jennifer Pires[8,9], Hooman Khademi[10], Laura Rubio[11], Paloma Hernandez Bernal[12], Yeliz Bahar[13], Hadrien Charvat[14], Pawel Szulc[15], Carolina Ciumas[16,17,18], Heiwon Won[19,20], Michel Cucherat[5,21], Isabelle Bonan[22,23], François Gueyffier[5,21], Gilles Rode[1,2,3]



LES MÉTA-ANALYSES

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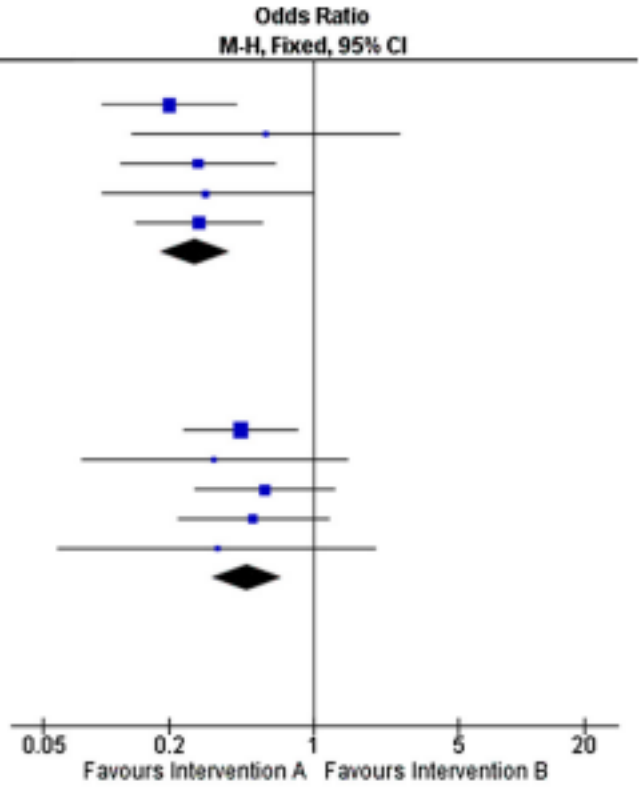
journal homepage: www.elsevier.com/locate/cegh

Interpretation of subgroup analyses in systematic reviews: A tutorial

Marty Richardson[a,*], Paul Garner[a], Sarah Donegan[b]

[a] Centre for Evidence Synthesis in Global Health, Department of Clinical Sciences, Liverpool School of Tropical Medicine, Liverpool, UK
[b] Department of Biostatistics, Block F Waterhouse Building, University of Liverpool, Liverpool, UK

Study or Subgroup	Intervention A Events	Total	Intervention B Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
1.2.1 Males						
Study A	9	345	40	342	35.3%	0.20 [0.10, 0.42]
Study B	3	58	5	59	4.2%	0.59 [0.13, 2.59]
Study C	7	286	24	290	21.0%	0.28 [0.12, 0.66]
Study D	4	91	13	99	10.7%	0.30 [0.10, 0.97]
Study E	13	116	36	116	28.8%	0.28 [0.14, 0.56]
Subtotal (95% CI)		**896**		**906**	**100.0%**	**0.27 [0.18, 0.40]**
Total events	36		118			
Heterogeneity: Chi² = 1.71, df = 4 (P = 0.79); I² = 0%						
Test for overall effect: Z = 6.58 (P < 0.00001)						
1.2.2 Females						
Study F	15	441	32	437	41.2%	0.45 [0.24, 0.84]
Study G	3	45	6	34	8.5%	0.33 [0.08, 1.44]
Study H	11	255	18	250	23.1%	0.58 [0.27, 1.26]
Study I	9	180	17	182	21.3%	0.51 [0.22, 1.18]
Study J	2	23	5	23	6.1%	0.34 [0.06, 1.99]
Subtotal (95% CI)		**944**		**926**	**100.0%**	**0.48 [0.32, 0.70]**
Total events	40		78			
Heterogeneity: Chi² = 0.69, df = 4 (P = 0.95); I² = 0%						
Test for overall effect: Z = 3.71 (P = 0.0002)						



Test for subgroup differences: Chi² = 4.08, df = 1 (P = 0.04), I² = 75.5%

Fig. 1. Subgroup analysis 1: Statistically significant, quantitative subgroup effect.

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[b] Department of Biostatistics, Block F Waterhouse Building, University of Liverpool, Liverpool, UK

Study or Subgroup	Intervention A Events	Total	Intervention B Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
1.7.1 Males						
Study A	45	345	60	344	24.3%	0.71 [0.47, 1.08]
Study B	14	76	16	54	15.3%	0.54 [0.24, 1.22]
Study C	26	260	26	272	20.7%	1.05 [0.59, 1.86]
Study D	30	115	59	115	21.1%	0.33 [0.19, 0.58]
Study E	33	90	22	70	18.6%	1.26 [0.65, 2.45]
Subtotal (95% CI)		**886**		**855**	**100.0%**	**0.70 [0.44, 1.11]**
Total events	148		183			
Heterogeneity: Tau² = 0.18; Chi² = 12.19, df = 4 (P = 0.02); I² = 67%						
Test for overall effect: Z = 1.52 (P = 0.13)						
1.7.2 Females						
Study F	41	114	35	113	22.1%	1.25 [0.72, 2.18]
Study G	89	650	96	648	27.1%	0.91 [0.67, 1.25]
Study H	7	36	8	36	11.8%	0.84 [0.27, 2.64]
Study I	44	289	16	294	21.2%	3.12 [1.72, 5.67]
Study J	20	100	13	100	17.8%	1.67 [0.78, 3.58]
Subtotal (95% CI)		**1189**		**1191**	**100.0%**	**1.40 [0.85, 2.31]**
Total events	201		168			
Heterogeneity: Tau² = 0.21; Chi² = 13.94, df = 4 (P = 0.008); I² = 71%						
Test for overall effect: Z = 1.32 (P = 0.19)						

Test for subgroup differences: Chi² = 4.02, df = 1 (P = 0.04), I² = 75.1%

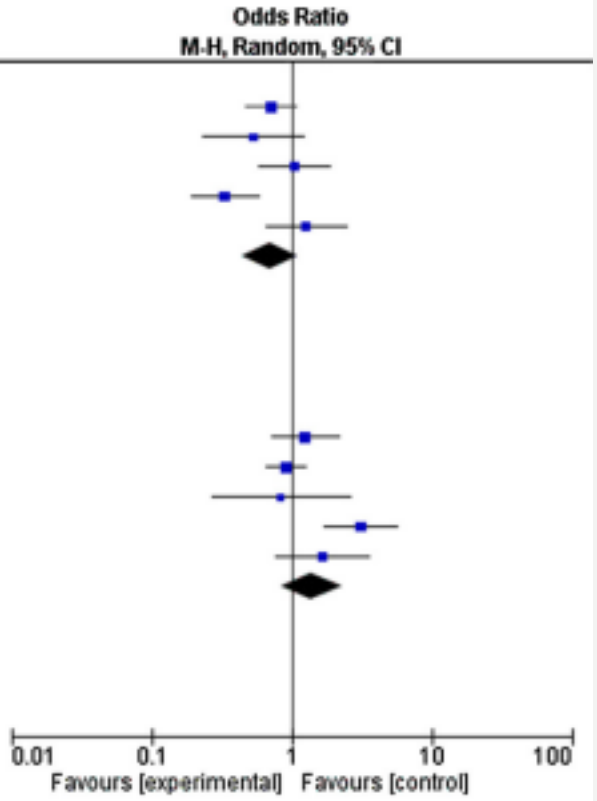

Fig. 2. Subgroup analysis 2: Statistically significant, qualitative subgroup effect, substantial unexplained heterogeneity.

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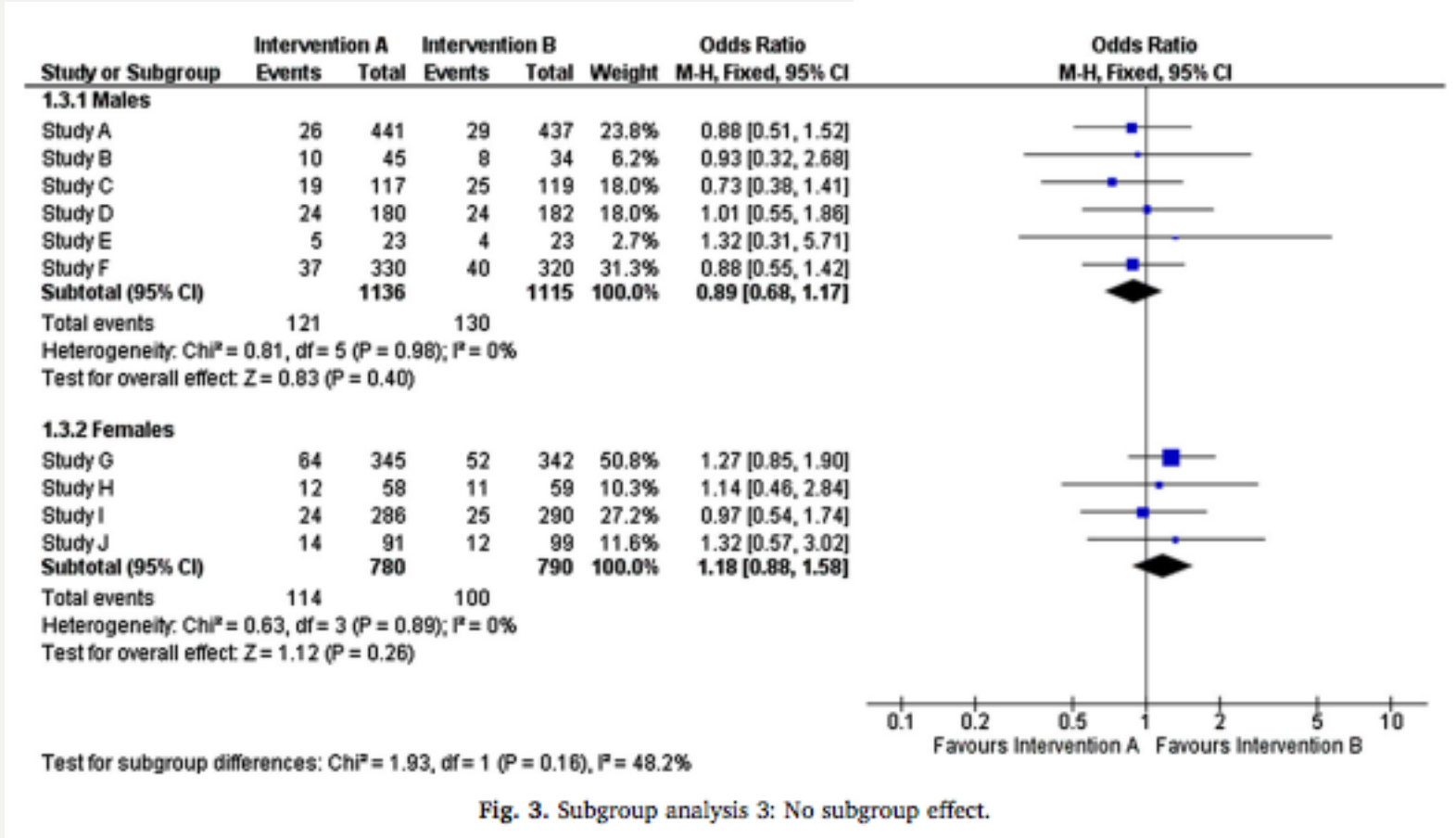

Fig. 3. Subgroup analysis 3: No subgroup effect.

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Study or Subgroup	Intervention A Events	Total	Intervention B Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
1.4.1 Males						
Study A	46	345	44	342	49.1%	1.04 [0.67, 1.62]
Study B	22	58	18	59	14.2%	1.39 [0.65, 3.00]
Study C	66	286	33	290	32.3%	2.34 [1.48, 3.68]
Study D	8	91	4	99	4.5%	2.29 [0.67, 7.88]
Subtotal (95% CI)		**780**		**790**	**100.0%**	**1.57 [1.18, 2.08]**
Total events	142		99			
Heterogeneity: Chi² = 6.67, df = 3 (P = 0.08); I² = 55%						
Test for overall effect: Z = 3.12 (P = 0.002)						
1.4.2 Females						
Study E	66	441	54	437	32.3%	1.25 [0.85, 1.84]
Study F	23	45	16	34	6.2%	1.18 [0.48, 2.87]
Study G	12	117	9	119	5.6%	1.40 [0.57, 3.45]
Study H	29	180	33	182	19.3%	0.87 [0.50, 1.50]
Study I	7	23	3	23	1.5%	2.92 [0.65, 13.12]
Study J	80	330	65	320	35.0%	1.26 [0.87, 1.82]
Subtotal (95% CI)		**1136**		**1115**	**100.0%**	**1.21 [0.97, 1.50]**
Total events	217		180			
Heterogeneity: Chi² = 2.90, df = 5 (P = 0.72); I² = 0%						
Test for overall effect: Z = 1.65 (P = 0.10)						

Test for subgroup differences: Chi² = 2.04, df = 1 (P = 0.15), I² = 50.9%

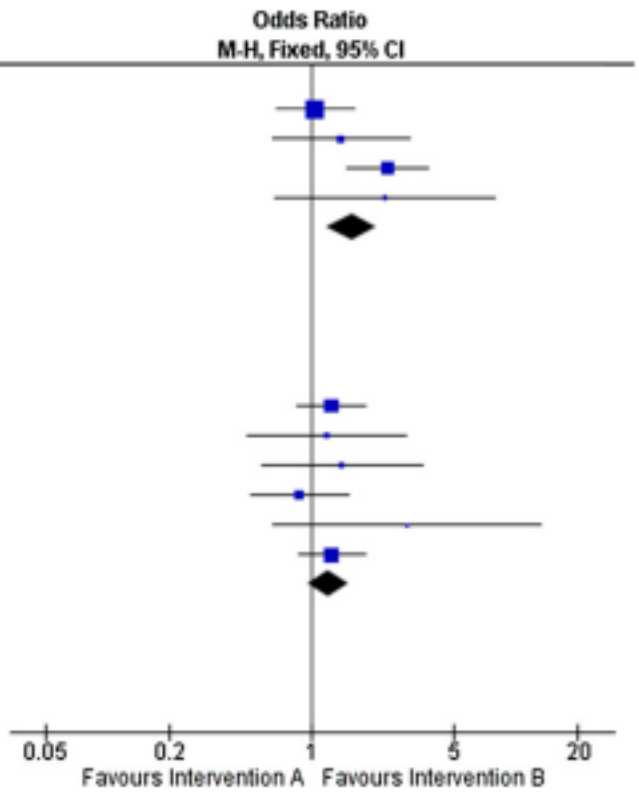

Fig. 4. Subgroup analysis 4: No subgroup effect, moderate unexplained heterogeneity.

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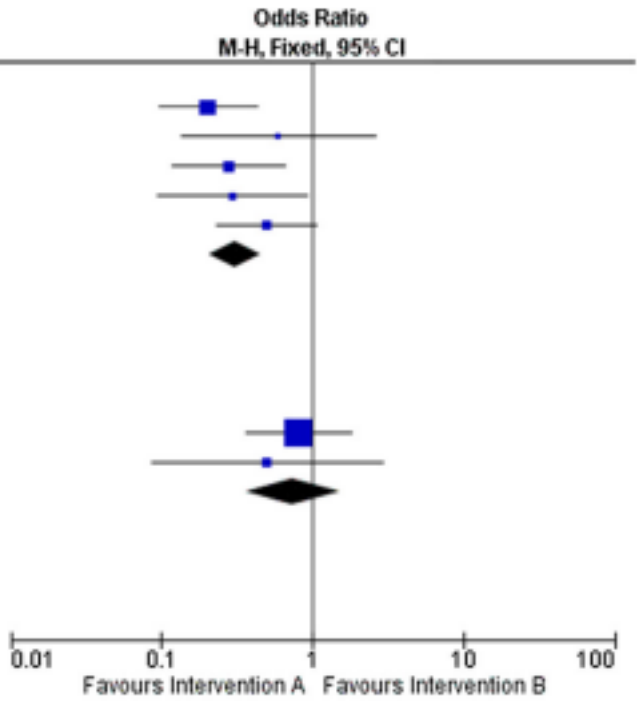
Study or Subgroup	Intervention A Events	Total	Intervention B Events	Total	Weight	Odds Ratio M-H, Fixed, 95% CI
1.6.1 Males						
Study A	9	345	40	342	39.3%	0.20 [0.10, 0.42]
Study B	3	58	5	59	4.7%	0.59 [0.13, 2.59]
Study C	7	286	24	290	23.4%	0.28 [0.12, 0.66]
Study D	4	200	13	200	12.8%	0.29 [0.09, 0.92]
Study E	12	116	22	116	19.8%	0.49 [0.23, 1.05]
Subtotal (95% CI)		**1005**		**1007**	**100.0%**	**0.31 [0.21, 0.46]**
Total events	35		104			
Heterogeneity: Chi² = 3.53, df = 4 (P = 0.47); I² = 0%						
Test for overall effect: Z = 5.82 (P < 0.00001)						
1.6.2 Females						
Study F	15	55	20	63	78.8%	0.81 [0.36, 1.79]
Study G	2	33	4	35	21.2%	0.50 [0.09, 2.93]
Subtotal (95% CI)		**88**		**98**	**100.0%**	**0.74 [0.36, 1.53]**
Total events	17		24			
Heterogeneity: Chi² = 0.23, df = 1 (P = 0.63); I² = 0%						
Test for overall effect: Z = 0.81 (P = 0.42)						



Test for subgroup differences: Chi² = 4.37, df = 1 (P = 0.04), I² = 77.1%

Fig. 5. Subgroup analysis 5: Statistically significant subgroup effect, uneven covariate distribution.

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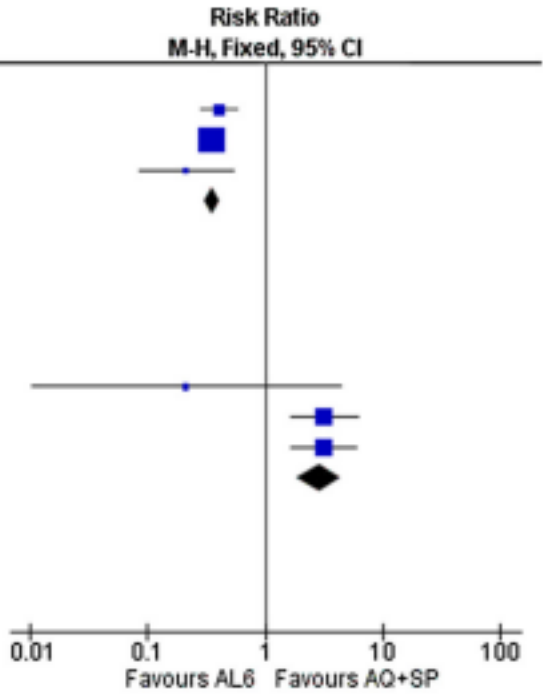
Study or Subgroup	AL6 Events	AL6 Total	AQ+SP Events	AQ+SP Total	Weight	Risk Ratio M-H, Fixed, 95% CI	Year
11.1.1 East Africa							
Fanello 2004 RWA	36	246	89	247	22.1%	0.41 [0.29, 0.57]	2004
Mutabingwa 2004 TZA	103	485	282	463	71.8%	0.35 [0.29, 0.42]	2004
Dorsey 2006 UGA	5	100	25	105	6.1%	0.21 [0.08, 0.53]	2006
Subtotal (95% CI)		**831**		**815**	**100.0%**	**0.35 [0.30, 0.41]**	
Total events	144		396				
Heterogeneity: Chi² = 1.88, df = 2 (P = 0.39); I² = 0%							
Test for overall effect: Z = 12.61 (P < 0.00001)							
11.1.2 West Africa							
Faye 2003 SEN	0	147	2	156	9.7%	0.21 [0.01, 4.38]	2003
Zongo 2005 BFA	37	245	11	233	45.2%	3.20 [1.67, 6.12]	2005
Zongo 2007 BFA	36	178	11	171	45.0%	3.14 [1.65, 5.97]	2007
Subtotal (95% CI)		**570**		**560**	**100.0%**	**2.88 [1.86, 4.47]**	
Total events	73		24				
Heterogeneity: Chi² = 3.02, df = 2 (P = 0.22); I² = 34%							
Test for overall effect: Z = 4.72 (P < 0.00001)							

Test for subgroup differences: Chi² = 77.31, df = 1 (P < 0.00001), I² = 98.7%



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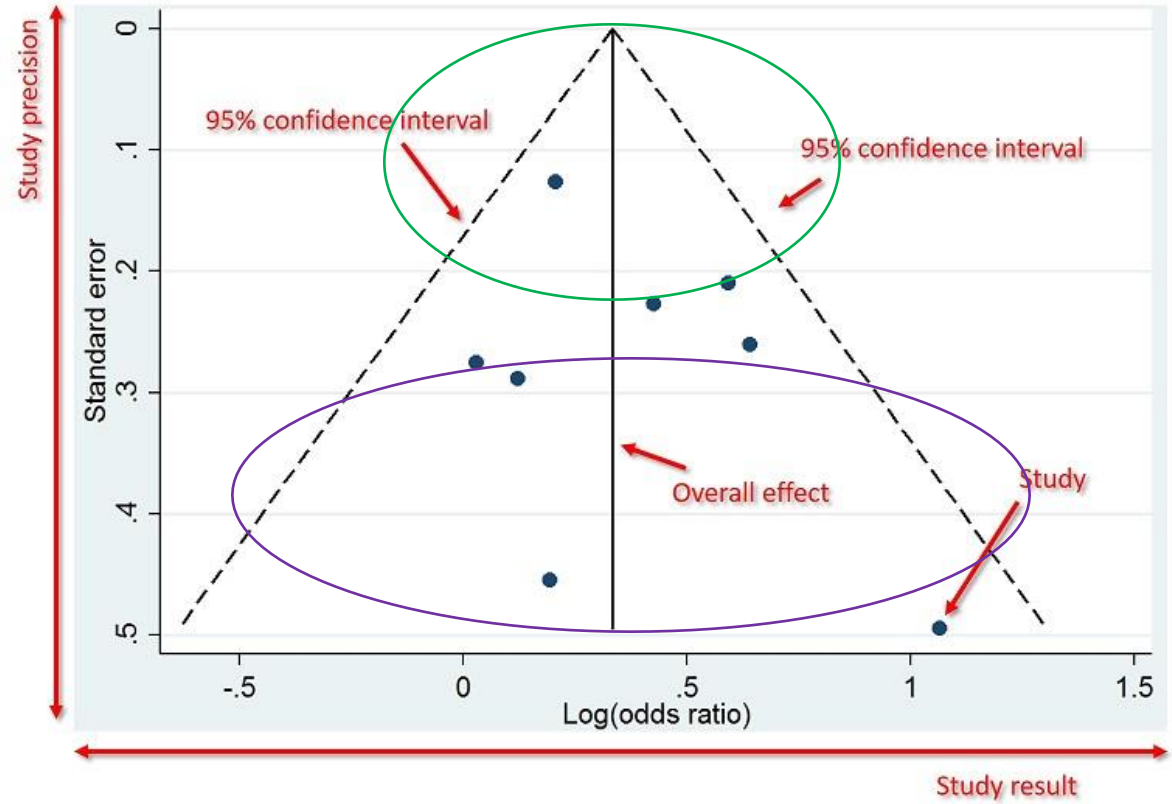
- Évaluation des risques de biais de publication selon les résultats : « funnel plot »



Etude à plus grand effectif ➔ Meilleure précision, proche de overall effect

Etude à plus petit effectif ➔ plus faible précision, dispersion de part et d'autre de overall effect

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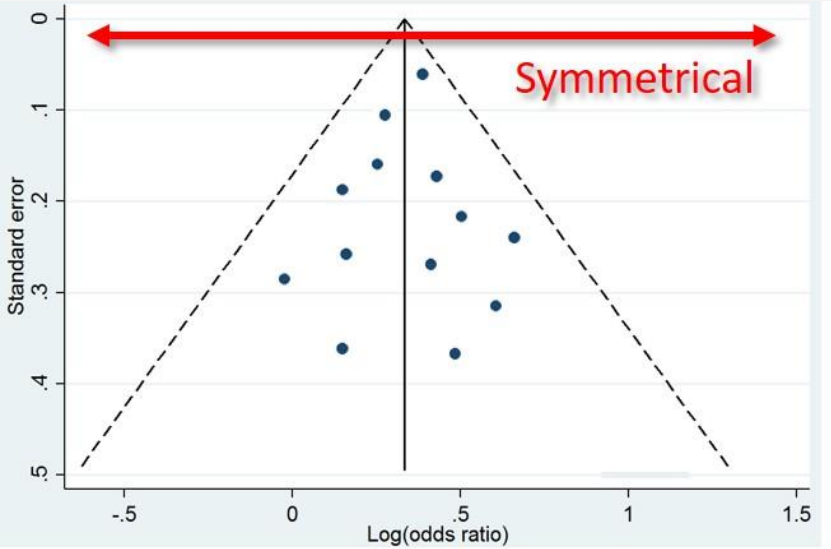
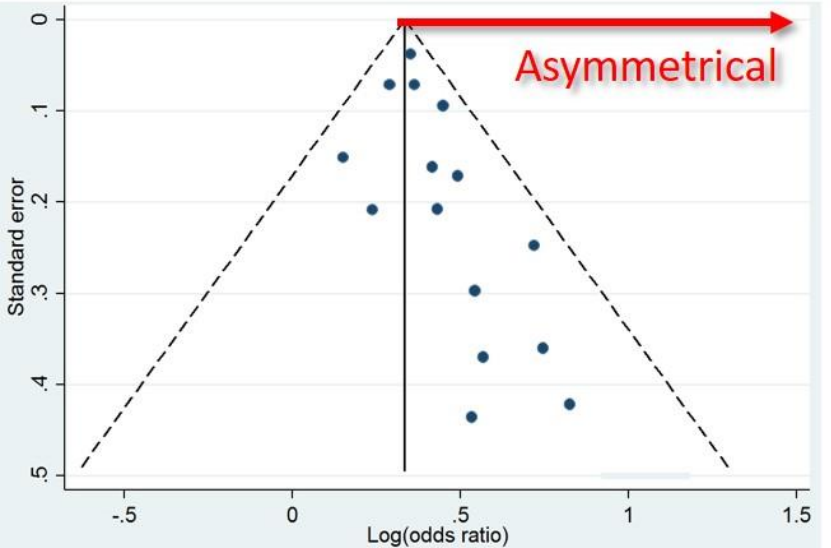
- Symétrie : bas risque de biais de publication



- Asymétrie : haut risque de biais de publication



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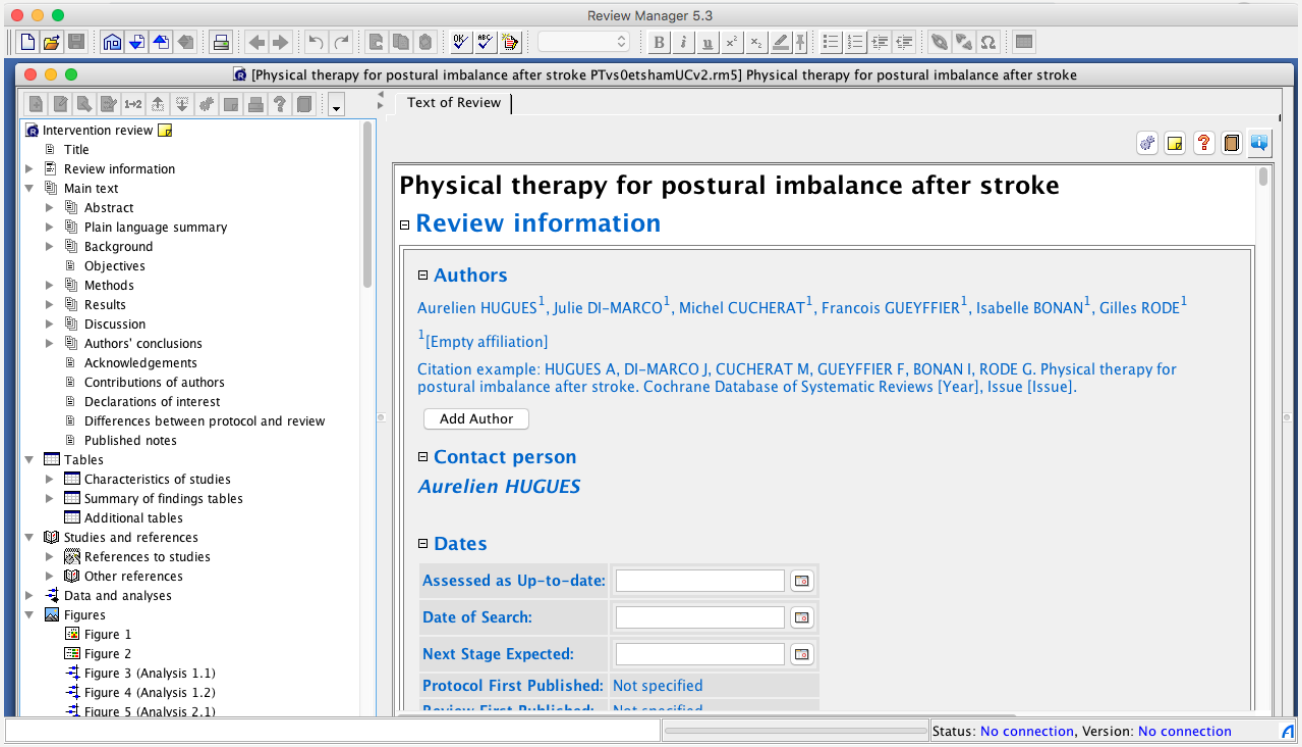

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