



POST POLIO SYNDROME – a challenge of today

COPENHAGEN // AUG 31 – SEP 2 2011

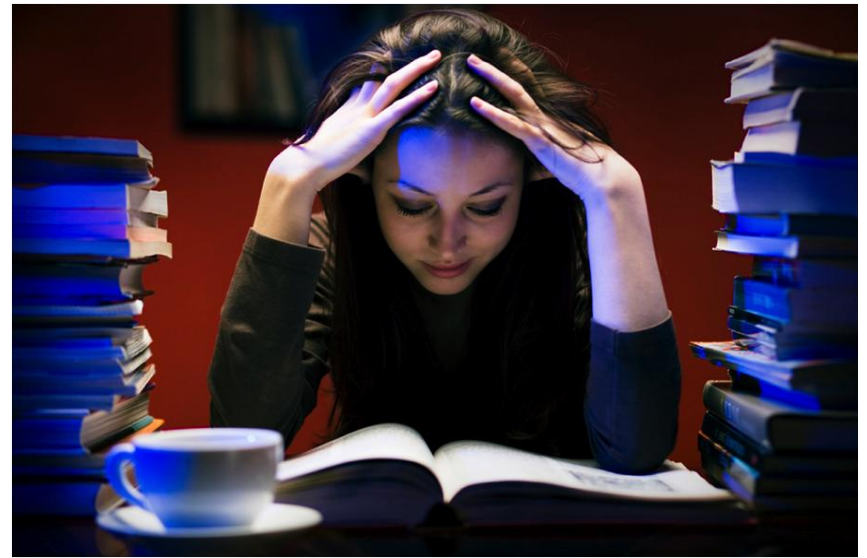
Research methodology

Fieke Koopman, MD
Merel Brehm, PhD
Anita Beelen, PhD
Frans Nollet, MD, PhD

Department of Rehabilitation,
University of Amsterdam,
Academic Medical Centre, Amsterdam,
Netherlands



What is research?



Research for people with PPS



Domains of research in health care

- Diagnostic domain
 - *How accurate can we determine changes in muscle strength over time with manual muscle testing?*
- Prognostic domain
 - *What is 5-year course of fatigue in patients with late effects of poliomyelitis?*
- Therapeutical domain
 - *What is the effectiveness of cognitive behavioural therapy to improve quality of life in PPS?*

Program

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- 1 Why do we need evidence on treatment effects?

 - 2 How to obtain evidence on treatment effects?

 - 3 How to summarize the evidence from different studies?

 - 4 Results of a recent systematic review on treatment for PPS

 - 5 Take home messages

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Why do we need evidence?

- Policy-makers and health insurers: is there enough evidence on effectiveness of that treatment to be reimbursed?
- Patients: will the prescribed treatment help me?
- Doctors: which treatment should I choose for this patient?

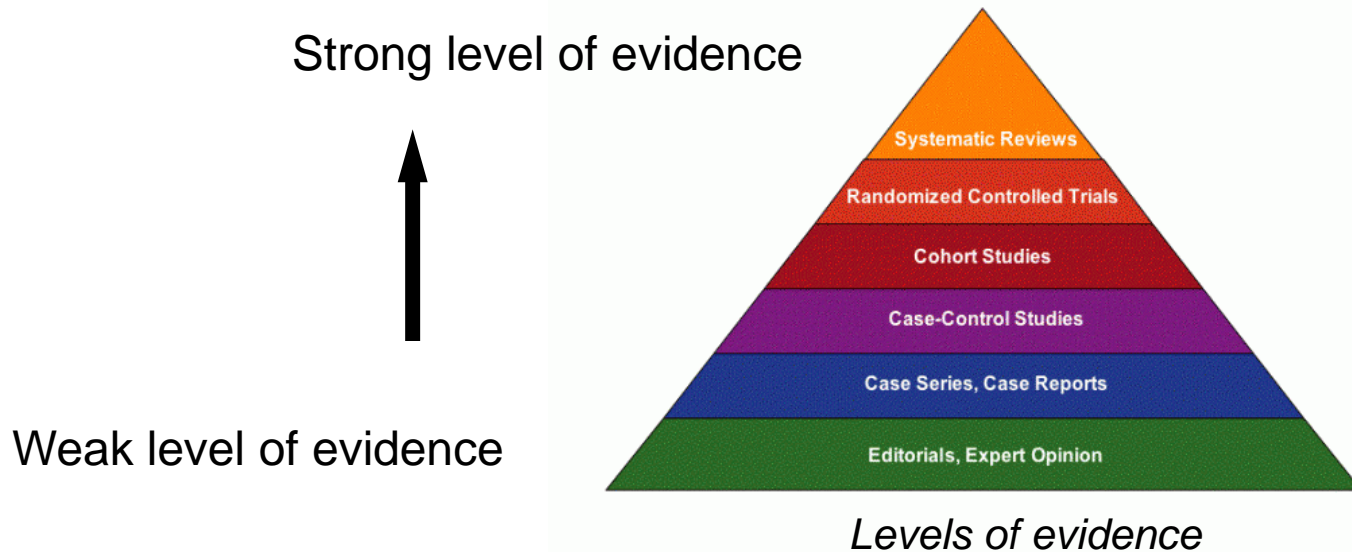
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How to obtain the evidence?

- Different research designs

....can a doctor who has years of experience not just see from daily clinical practice if a treatment works or not....?

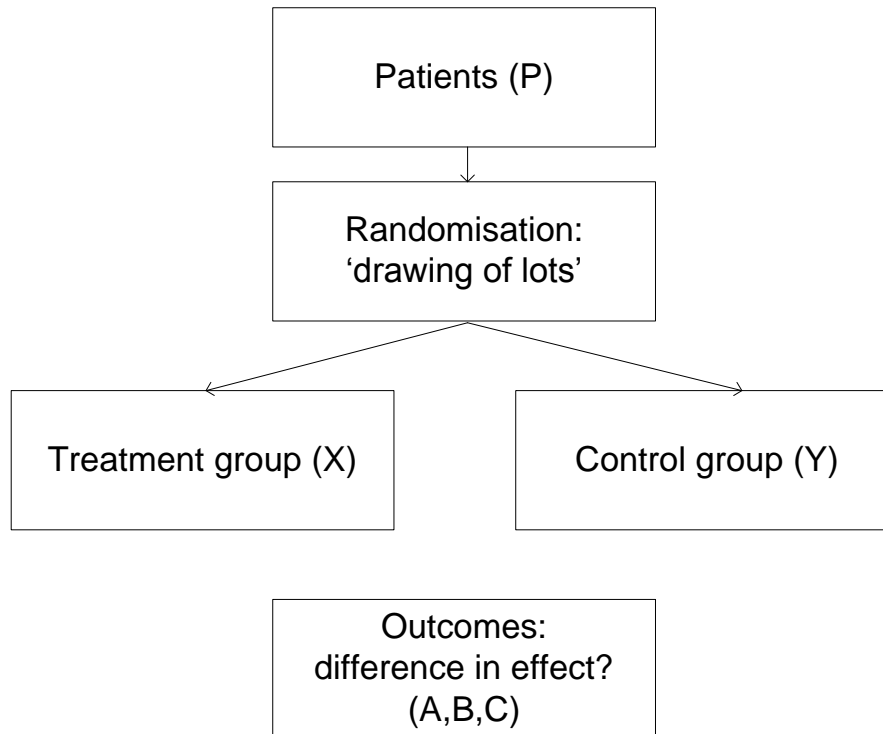


How to obtain the evidence?

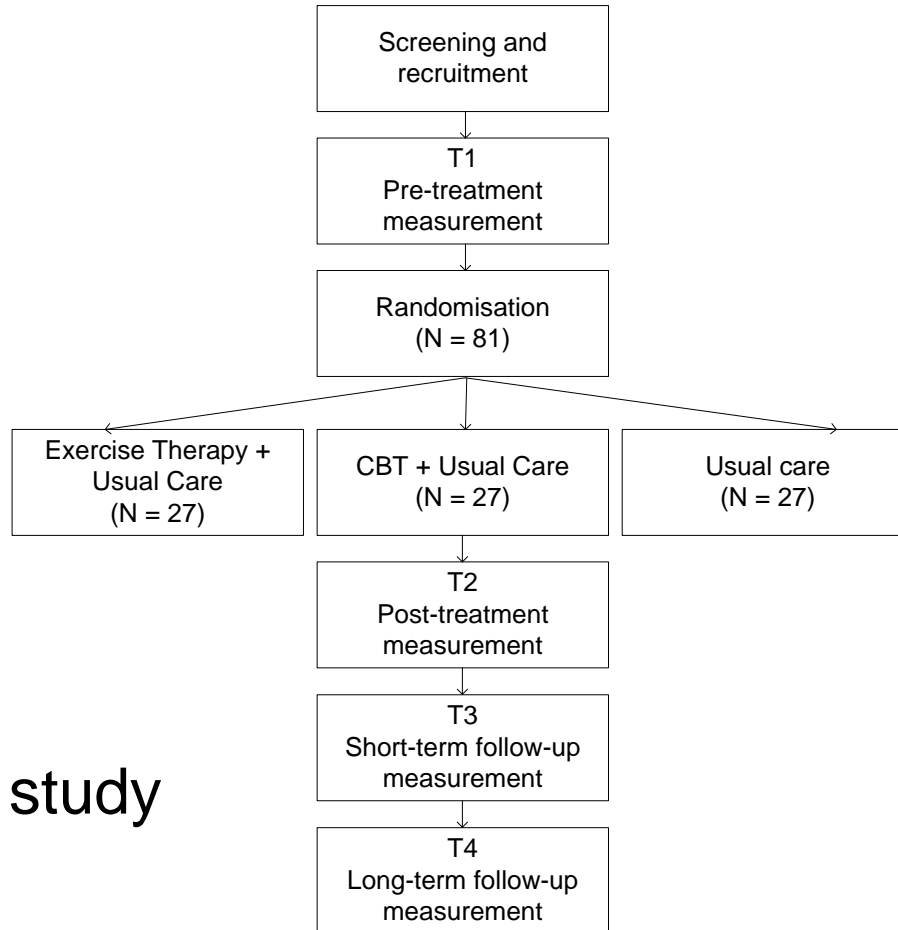
- Factors that might distort true treatment effect
 - Natural course of symptoms
 - External variables: '*placebo effect*'
 - Measurement variability: '*learning effect*'

*...an RCT is the **only** study-design that can put aside these distorting factors....*

How to obtain the evidence?





How to obtain the evidence?



Study design:

FACTS-2-PPS study

How to obtain the evidence?

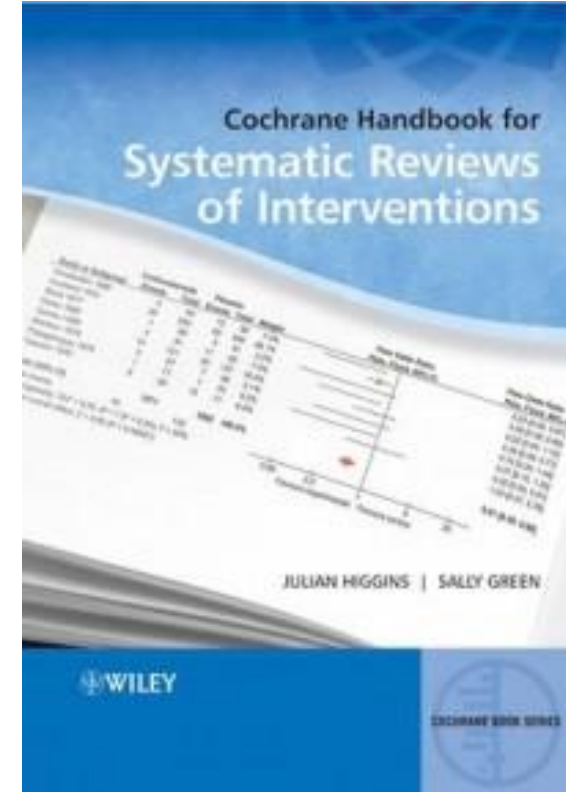
- Methodological quality: *'rules of the game'*
 - Method of randomisation (sequence generation)
 - e.g. throwing a dice or computer random number generator: 
 - e.g. allocation by availability of the intervention: 
 - Blinding > to prevent that persons who are involved in the study can influence (willing or unwilling) the results!
 - Blinding of patients
 - Blinding of administrators of the treatment
 - Blinding of outcome assessors

Program

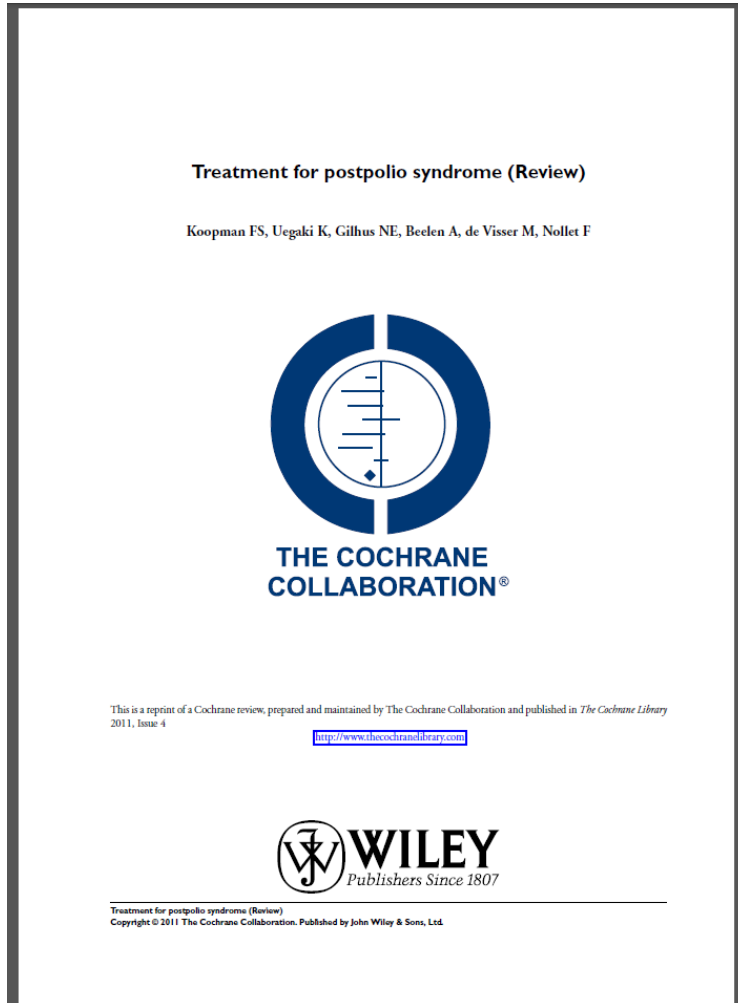
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How to summarize the evidence?

- Number of published RCT's
 - 1964: 16
 - 2000: 35.000
- Literature review
- Systematic review
 - Framing objectives for a review
 - Defining selection criteria
 - Identifying relevant literature
 - Collecting and analysing the data
 - Summarizing the evidence



Framing objectives for a review



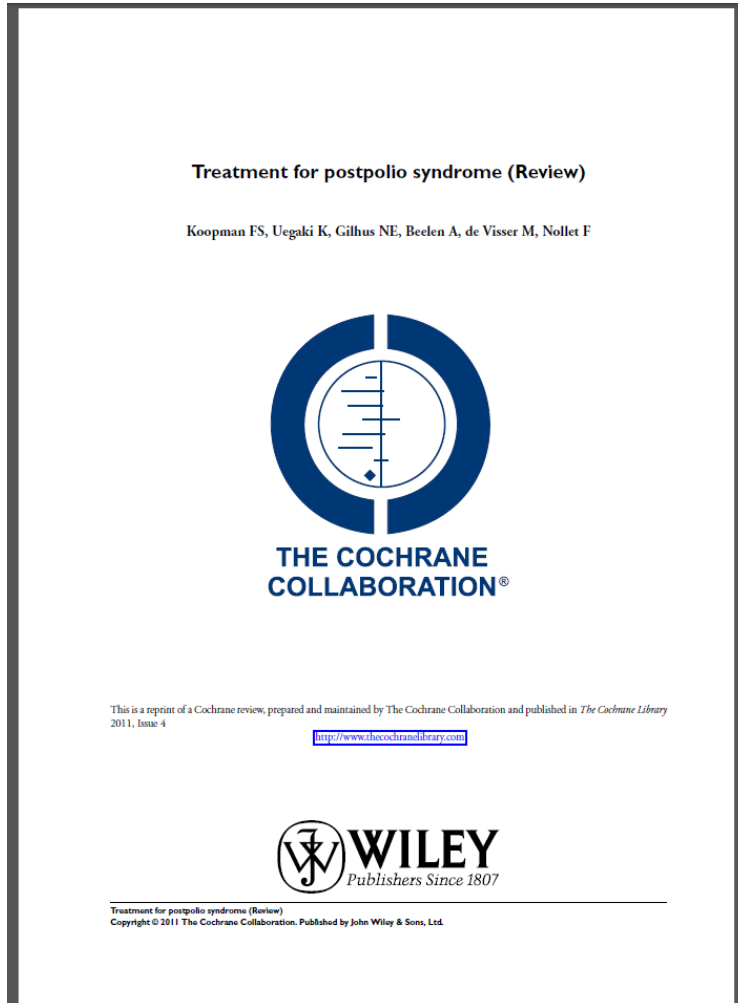
- To systematically review the effects of any treatment for PPS compared to placebo, usual care or no treatment

www.facts2nmd.nl

> FACTS-2-PPS

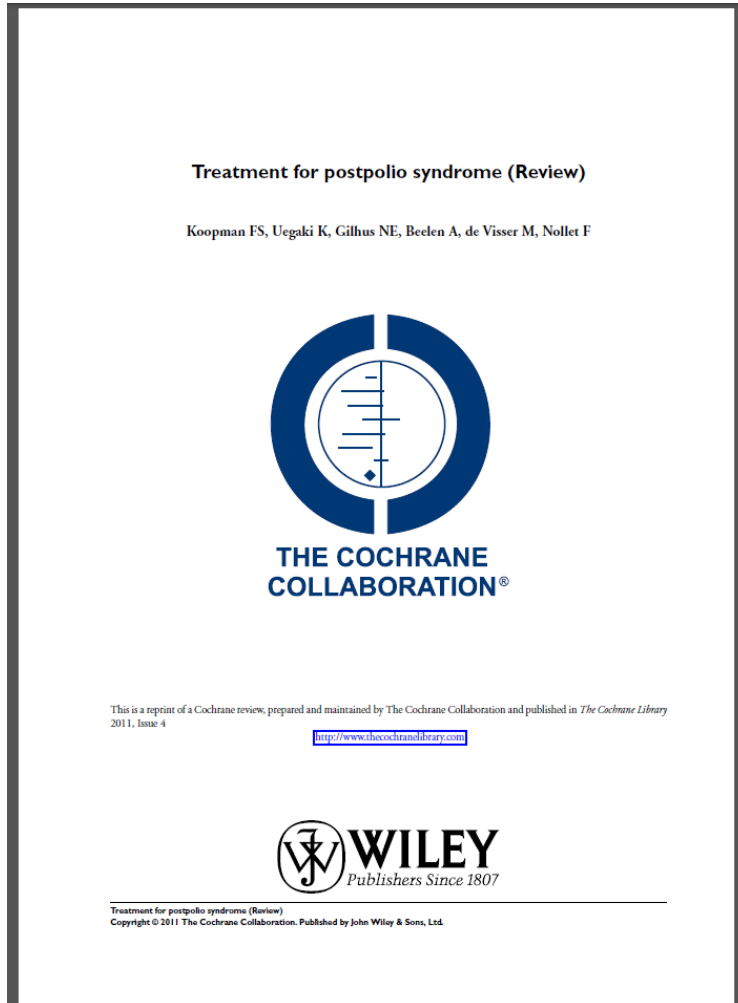
> ‘nieuwsbrieven en publicaties’

Defining selection criteria



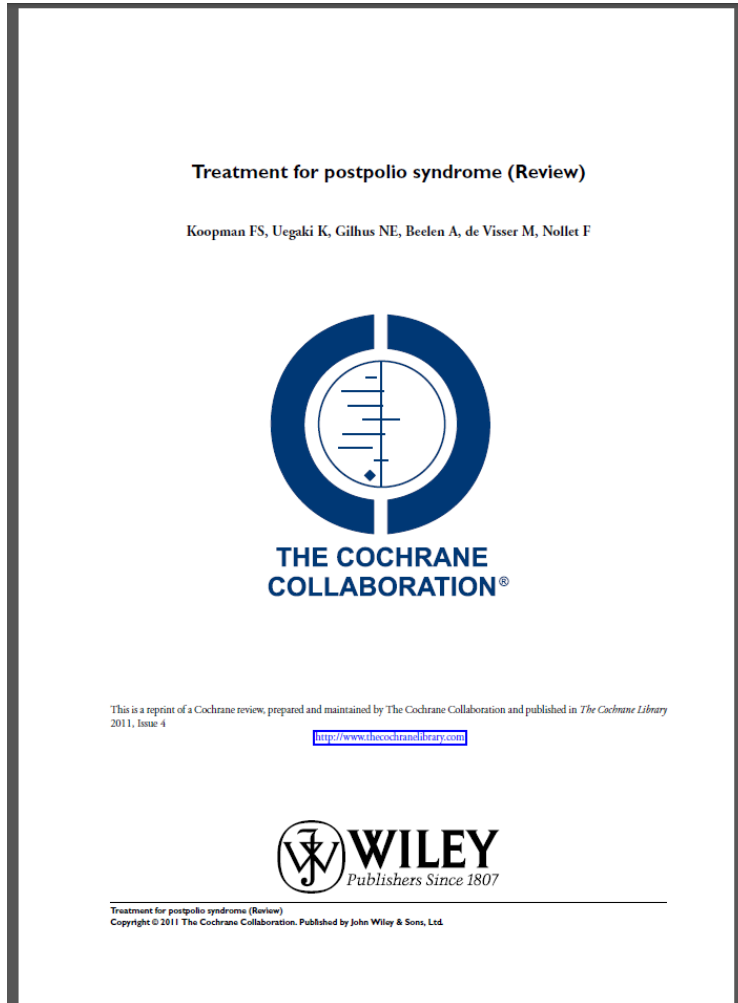
- Study design: RCT
- Patients: diagnosis of PPS
- Intervention: any form of pharmacological or non-pharmacological treatment
- Comparison: placebo, usual care or no treatment
- Outcomes: activity limitations, muscle strength, muscle endurance, fatigue, pain, adverse events

Identifying relevant literature



- Cochrane Neuromuscular Disease Group Specialized Register
- Cochrane Central Register of Controlled trials
- MEDLINE
- EMBASE
- PsychINFO
- CINAHL

Collecting and analysing the data



- 2 researchers independently:
 - selected eligible studies (5 selection criteria)
 - Assessed methodological quality
 - Extracted data

Program

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- 1 Why do we need evidence on treatment effects?

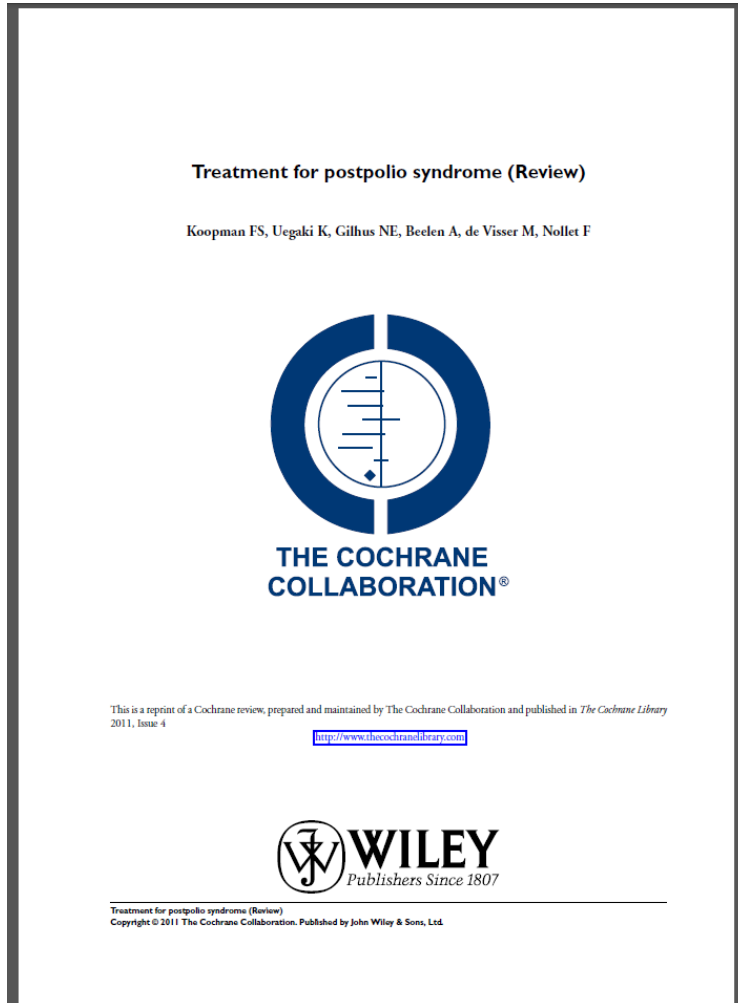
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Results of the review

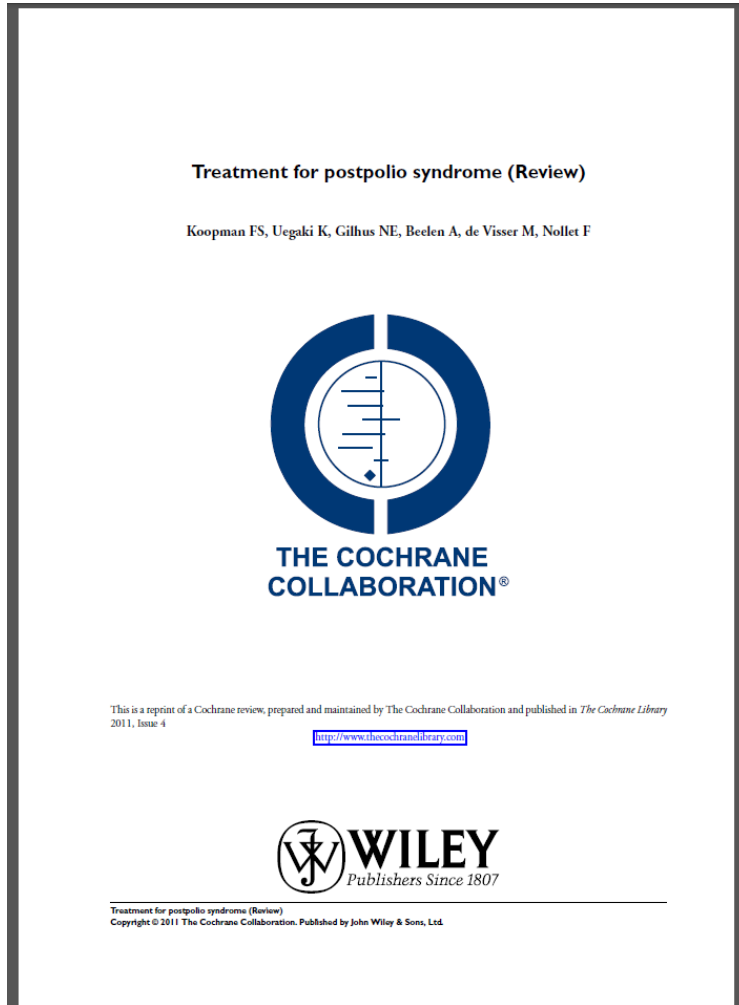


- 12 included studies
 - Pharmacological
 - Modafinil (2x)
 - Intravenous Immunoglobulin (2x)
 - Pyridostigmine (2x)
 - Lamotrigine
 - Amantadine
 - Prednisone
 - Non-pharmacological
 - Muscle strengthening
 - Rehabilitation in warm climate and cold climate
 - Static magnetic fields

Summarizing the evidence

Treatment	Outcomes	Strength of Evidence	Recommendations
Intravenous Immunoglobulin	Muscle strength Pain	Inconsistent ?	More studies needed to validate results
Lamotrigine	Activity Limitations Pain Fatigue	Very low +	- Placebo controlled studies with adequate blinding - Longer follow-up period
Muscle Strengthening of thumb muscles	Muscle Strength	Very low +	- Effects on larger muscle groups - Effects on activity limitations - Effects on long term
Static Magnetic fields	Pain	Moderate +++	- Effects on activity limitations - Effects on long term

Summarizing the evidence



- There is evidence varying from very low quality to high quality that....
 - Modafinil (- - - -)
 - Pyridostigmine (- - -)
 - Amantadine (-)
 - Prednisone (-)
 - Rehabilitation in warm or cold climate (- -)

.....are not beneficial in PPS.

Discussion

- Absence of evidence \neq absence of effectiveness
- Evidence based medicine: use the **current best available evidence** in making decisions about the care of individual patients

Take Home messages

- To value the conclusions of a scientific study, the **methodological quality** needs to be taken into account.
- A **systematic review** is a powerful tool to provide a quality appreciation of carefully selected studies on a specific topic.
- A recent systematic review on treatment for PPS concluded that **no definite conclusions** can be drawn on the effectiveness of treatment for PPS.
- Future **high-quality therapeutic studies are needed** to find effective treatment for PPS!



Fieke S Koopman

S.Koopman@amc.uva.nl

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