



RESEARCH

INFORMATION

Physical rehabilitation to improve function and mobility in people after stroke: Update and expansion of Cochrane systematic review (SPRUCE)



AIMS

A systematic review brings together the findings from research studies to provide a high level of evidence about the effectiveness of healthcare interventions. The Cochrane Collaboration is an international organization which produces high quality systematic reviews to help people make decisions about healthcare treatments.

Our primary aim was to comprehensively update and expand an important Cochrane review of physiotherapy ("physical rehabilitation") to include new trials and address new questions, optimising physiotherapy and functional and walking outcomes for stroke survivors.



KEY FINDINGS

For people who have had a stroke:-

- Physical rehabilitation may be more effective than no physical rehabilitation for improving daily activities, balance, and walking. There may be greater benefits when more than 2.5 hours/week of physical rehabilitation is delivered.
- Extra physical rehabilitation, given in addition to 'usual' physical rehabilitation, may improve outcomes. The greater the amount of extra physical rehabilitation, the greater the benefit may be.
- Physical rehabilitation focused on functional task training (the active practice of real-life tasks with the aim of acquiring - or reacquiring - a movement skill) is likely to be most effective at improving daily activities and movement.





WHAT DID THE STUDY INVOLVE?

We updated a systematic review using the high quality methods developed by Cochrane. We worked in partnership with a stakeholder group throughout.

Methods: We searched for and brought together studies (called randomized controlled trials) in which people who had a stroke received physical rehabilitation with the goal of improving ability to walk and carry out activities of daily living. We were interested in different approaches to physical rehabilitation (i.e. a programme of treatment based on a particular scientific rationale).

Stakeholder group: 4 stroke survivors, 4 carers and 7 physiotherapists from across the UK attended 5 (virtual) meetings and contributed by email. Meetings 1-3 were at the start of the review and focused on clarifying the review methods, in particular how physiotherapy interventions were described and categorised. Meetings 4 and 5 were held towards the end of the review and focussed on interpretation of the review findings and co-production of a plain language summary. Two international stakeholder meetings were held, attended by 124 people from 3 continents.



WHAT WERE THE RESULTS AND WHAT DO THEY MEAN?

We found 267 studies, which included 21,838 people with stroke. Studies were from 36 different countries, but half (133 studies) were carried out in China.

105 studies looked at whether physical rehabilitation was better than no physical rehabilitation. Most of these studies were carried out in hospital in-patient settings in China where physical rehabilitation was not part of routine care, but a few were carried out in out-patient settings after the patient had been discharged from routine physical rehabilitation. These studies showed that physical rehabilitation is more effective than no physical rehabilitation at improving a person's ability to carry out activities of daily living, move the legs, remain balanced, and walk.

56 studies looked at the effect of giving extra, or additional, physical rehabilitation. Everyone in these studies received their usual physical rehabilitation, but one group of stroke survivors received some additional treatment based on a particular physical rehabilitation approach. These studies showed that getting additional physical rehabilitation improved ability to carry out activities of daily living, move the legs, remain balanced, and walk; the greater the amount of additional rehabilitation, the greater the benefit.

92 studies compared different physical rehabilitation approaches. There were many variations in the types and amount of physical rehabilitation, and the types of people (e.g. different time post-stroke), included in the studies. These studies showed that physical rehabilitation which focused on functional task training was likely to be most effective at improving ability to carry out activities of daily living and move the legs (but not balance or walking). Treatments based on “neurophysiological” approaches, focused on handling patients through normal movement patterns, were likely to be less effective than other approaches at improving daily activities (but no different for other outcomes).

Few studies took long-term follow-up measurements, after the physical rehabilitation had stopped, so the current evidence does not support any conclusions about the long term benefits of physical rehabilitation.

Very few studies recorded and reported information about adverse events.





WHAT IMPACT COULD THE FINDINGS HAVE?

Members of the stakeholder group for this review agreed that key implications for practice arising from this evidence are for people involved in planning and delivering stroke rehabilitation to recognise that:

- Where a stroke survivor has limitations in independence in activities of daily living or motor function, in order to maximise that patient's potential, as much physical rehabilitation as possible (taking into account an individual's tolerance and preference) should be delivered. 2.5 hours /week should be considered a minimum amount, with recognition that the greater the amount the greater the potential benefit.
- Selection of physical rehabilitation treatment components should be based on an assessment of the individual stroke survivor, with consideration of the full range of treatment techniques that they have the skills and expertise to administer.
- Physical rehabilitation should comprise clearly defined, well-described, evidence based physical treatments, focused on practice of functional tasks.



HOW WILL THE OUTCOMES BE DISSEMINATED?

The main results will be published in the Cochrane Library (submitted to Cochrane 28-08-23). When this has been published it will be disseminated to key groups of stroke survivors and carers, physiotherapists, policy makers, decision makers and researchers using established networks (including social media). A sub-group from the stakeholder group have co-written a paper focussed on describing and reflecting on their involvement in the review; this paper has been published in the journal Cochrane Evidence Synthesis Methods (DOI: 10.1002/cesm.12032) and a summary presented at the Cochrane Colloquium (05/09/2023).



CONCLUSION

Physical rehabilitation, using a mix of different treatment components, appears effective for recovery of function and mobility after stroke. There are likely to be greater improvements in measures of activities of daily living when more than 2.5 hours/week of physical rehabilitation are delivered.

Additional rehabilitation (i.e. provided in addition to usual rehabilitation) appears to provide added benefit; the greater the amount of additional physical rehabilitation the greater the treatment effect may be.

Physical rehabilitation which focusses on functional task training (the active practice of real-life tasks with the aim of acquiring, or re-acquiring, a skill) appears most effective.



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Additional Information

Project start date: 01/09/2021; Project end date: 31/08/2023

Funding awarded: £182,270

