

## Keele Critically Appraised Topic Form

**Specific Question:**

Are there any contraindications to rehabilitation post-stroke in pregnancy?



**Clinical bottom line**

There is insufficient evidence to answer the question as to whether there are any contraindications to rehabilitation post-stroke in pregnancy. There is a requirement for this area to be studied in the future, with robust trials and methodology.

**Why is this important?**

Stroke is estimated to affect approximately 30 out of every 100,000 pregnancies (Swartz et al, 2017). There is a need to understand any contraindications or considerations for active therapy input during pregnancy in the stroke population. This is relevant to the local current clinical caseload; there is potential for other people post-stroke who are pregnant to require rehabilitation in the future.

**Search timeframe (e.g. 2009-2019)**

All available dates up to 21<sup>st</sup> July 2022

**Inclusion Criteria**

|                                 | Description   | Search terms         |
|---------------------------------|---|----------------------|
| <b>Population and Setting</b>   | Adults with stroke in pregnancy                                       | “Stroke” “Pregnancy” |
| <b>Intervention or Exposure</b> | Rehabilitation<br>Physiotherapy<br>Occupational<br>Therapy<br>Therapy | “Rehabilitation”     |
| <b>Comparison, if any</b>       | No Therapy<br>No Rehabilitation                                       |                      |
| <b>Outcomes of interest</b>     | Adverse effects<br>Complications<br>Function                          |                      |
| <b>Types of studies</b>         | Any   |                      |

**Routine Databases Searched**

Clinical Knowledge Summaries, PEDro, BMJ Best Practice, The Cochrane Library, Medline, Cinahl, Embase, Emcare, AMED, British Nursing Index, UpToDate, MAG Online and Google Scholar.

**Date of search-** 21.07.2022

**Results of the search**

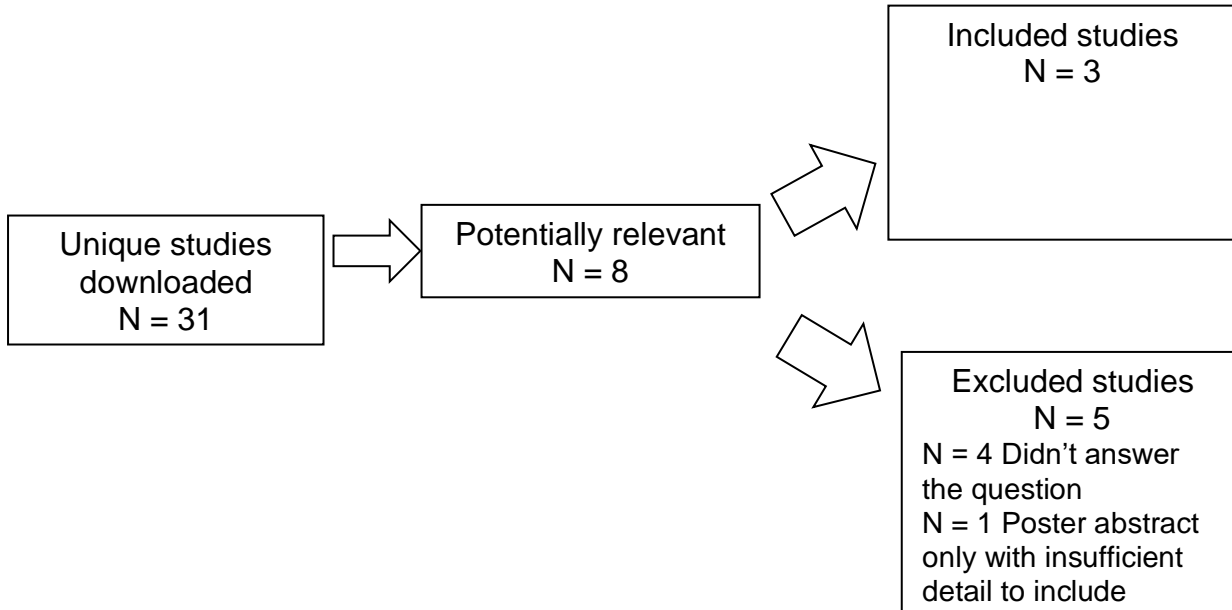


Table 1- Detail of included studies




| First Author, year and type of study   | Population and setting | Intervention or exposure tested   | Study results  | Assessment of quality and comments   |
|--|------------------------|---|--|--|
| <p>Ladhani et al., 2018</p> <p>Best consensus statement -involved a systematic review of the evidence alongside expert opinion</p> | <p>Canadian</p>        | <p>Subsection on post-stroke management with further subsection on rehabilitation</p> | <p>Suggests the same approaches to rehabilitation in the non-pregnant condition can be applied to a woman who is pregnant, with modifications as needed.</p> <ul style="list-style-type: none"> <li>- Rehabilitation should start early</li> <li>- Rehabilitation plans may need to be modified based on patient factors and in consultation with obstetrics, neurology and physical medicine and rehabilitation</li> <li>- Adequate intensity of therapy</li> <li>- Task orientated training</li> </ul> | <p>Vague statements</p> <ul style="list-style-type: none"> <li>-does not state what the modifications are required</li> <li>-does not define what early is</li> <li>-does not define what adequate intensity is</li> </ul> <p>Collaborative effort between an inter-disciplinary group of stroke and maternal –fetal medicine experts) – reviewed available evidence but states that most statements (does not specify which) are based on the expert opinion of the writing group (80% agreement required to include a statement). External reviewers conducted independent reviews and provided feedback; however, this is still only expert opinion although consensus therefore low level evidence</p> <p>Based on the concept that maternal health is vital for fetal well-being, therefore, management should be based on decisions that would be made if the patient was not pregnant. This approach could potentially be applied to rehabilitation post-stroke as the basis for answering the CAT question, but evidence for this approach is unclear in the study report.</p> |

|  |   |  |   |  |
|--|---|--|---|--|
| <p>Flanagan (2017)</p> <p>Case report</p>  | <p>35-year old woman</p> <p>17 weeks pregnant</p> <p>Diagnosis of left intracranial haemorrhage and right cerebellar arteriovenous malformation (AVM) resection with impairments consistent with cerebellar stroke</p> <p>United States</p> | <p>Task-specific approach to rehabilitation</p> <ul style="list-style-type: none"> <li>-pushing a weighted wheelchair to act as a stroller</li> <li>-activities to model floor play carrying laundry or holding her child</li> </ul> <p>+ body weight support training</p> | <p>Improved functional independence from admission to discharge</p> <ul style="list-style-type: none"> <li>-FIM initial scores 3 for bed/chair/ wheelchair transfers and 1 for walking and stairs; increased to 4 for all tasks</li> <li>-STREAM 38/70 increased to 54/70</li> <li>-Berg Balance 13/56 increased to 30/56</li> </ul>  | <p>Limited detail. This was a poster abstract only</p> <p>No details given about intensity and timing of intervention offered or who completed outcome measures</p> <p>Case report was, therefore, low level evidence</p> <p>No comment on adverse effects/complications/ outcome of pregnancy</p> |
| <p>Werner and Priebe, 1994</p> <p>Retrospective review over 10-year period 1979 - 1989</p> | <p>Five women diagnosed with cerebrovascular accident during pregnancy</p> <p>Two case studies presented post intracranial haemorrhage (ICH)</p> <p>United States</p>   |  | <p>Case 1: Eight weeks of rehabilitation prior to discharge – ultrasound showed normal fetal development at time of discharge but fetal demise two weeks after discharge.</p> <p>Case 2 – Ultrasound showed fetal growth retardation – evacuation performed. Describes successful rehabilitation of mother from assistance with bed mobility and standing to being able to ambulate independently.</p> <p>Draws conclusions: Therapeutic modalities such as ultrasound to back /abdomen and hydrotherapy that requires submersion of the abdomen should be avoided.</p> | <p>Case studies – low level evidence</p> <p>No detail re: rehabilitation offered</p> <p>Case 2 – Does not specify timings of rehabilitation in comparison to loss of baby</p> <p>Unclear where conclusions re: appropriate rehabilitation came from.</p>   |

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  | <p>Posture and positioning should be considered – supine lying for prolonged periods should be avoided</p> <p>Functional mobility goals may need to be modified as the patient’s centre of gravity changes</p> <p>Safe transfers and wheelchair mobility need to be emphasised</p> <p>Training in self-care and activities of daily living should also address the specific needs of parenting skills and new infant care.</p> |  |
|--|--|--|--|--|

### Summary

There is no high-quality evidence surrounding the rehabilitation of people post-stroke who are pregnant. Evidence predominantly consisted of case reports or expert opinion and lacked sufficient detail in order to draw any appropriate conclusions.

|   |  |                                     |
|---|--|-------------------------------------|
|  | Good quality evidence to support use....   | <input type="checkbox"/>            |
|  | Insufficient or poor quality evidence OR substantial harms suggest intervention used with caution after discussion with patient...                         | <input type="checkbox"/>            |
|  | <b>No good quality evidence</b> , do not use until further research is conducted OR Good quality evidence to indicate that harms outweigh the benefits.... | <input checked="" type="checkbox"/> |

### Implications for Practice/research

Further research is required around rehabilitation post-stroke of people who are pregnant, specifically associated contraindications and considerations for rehabilitation should be explored.

**What would you tweet? (140 characters)**

There is a lack of evidence regarding rehabilitation of people post-stroke who are pregnant. Further research is required to inform practice.

**References**

Evidence search: Stroke rehabilitation in pregnancy. Pam Collins. (21st July, 2022).  
WOLVERHAMPTON, UK: The Royal Wolverhampton NHS Trust RWT Knowledge Hub.

Flanagan. (2017) Task-Specific Approach to Rehabilitation for Patient with Pregnancy Related Intracranial Hemorrhage: Case Study. *Journal of Women's Health Physical Therapy*, Jan 41(1), pp. 49-50.

Ladhani, et al. (2018a) Canadian Stroke Best Practice Consensus Statement: Acute Stroke Management during Pregnancy. *International Journal of Stroke*, 13(7), pp. 743-758.

Werner, R and Priebe, M. (1994) Stroke during Pregnancy. *Topics in Stroke Rehabilitation*, 1(1), pp. 41-47.