The effectiveness of the Bobath Concept in stroke rehabilitation: what is the evidence?

CRD summary
This review found that the Bobath Concept was not superior to other approaches for stroke rehabilitation and no evidence was available for the superiority of any other approach. Limitations in the analysis mean that the results should not be considered to be reliable but the authors’ cautious conclusions may be reasonable given the limitations of the evidence presented.

Authors' objectives
To evaluate the effectiveness of the Bobath Concept in stroke rehabilitation.

Searching
MEDLINE and Cochrane Central Register of Controlled Trials (CENTRAL) were searched in 2008 for papers published in English or Dutch. No search terms were presented. Reference lists of relevant papers (including reviews) were searched.

Study selection
Only randomised controlled trials that compared the Bobath Concept to an alternative method for stroke rehabilitation were eligible for inclusion. Patients had to be adults with a cerebrovascular accident. Rehabilitation had to be assessed using one of the domains: sensorimotor function of upper or lower extremity, balance control, mobility, dexterity, activities of daily living and health-related quality of life.

The average age of patients ranged from 55 to 78 years. Typical time since the stroke occurred ranged from under one month to over two years. Rehabilitation periods ranged from two weeks to 32 weeks. A wide range of comparator approaches were used.

Two reviewers independently selected studies for inclusion.

Assessment of study quality
Study quality was assessed using the PEDro scale. The maximum score was 10. Scores of 4 or more were taken to indicate high quality.

Two reviewers independently performed the quality assessment; disagreements were resolved by a third reviewer.

Data extraction
It appeared that no numerical data were extracted; instead, whether results were reported as being statistically significant was determined.

The authors did not state how many reviewers performed this process.

Methods of synthesis
A formal meta-analysis was not deemed feasible due to heterogeneity across studies. The authors performed what they described as a best evidence synthesis, where the number of studies with statistically significant results was reported for each outcome.

Results of the review
Sixteen trials (813 patients, range 20 to 120) were included in the review. All trials were judged to be of high quality. PEDro scores ranged from 4 to 8 out of 10.

Seven studies reported on sensorimotor control of the upper extremity: three found a statistically significant improvement for other (not Bobath) approaches and four found no differences between approaches.
Four studies reported on sensorimotor control of the lower extremity: two found statistically significant differences between approaches, one favoured Bobath and one favoured a motor relearning programme.

Four studies reported on balance control: two found positive results that favoured the Bobath Concept.

None of six studies that reported on dexterity found any benefit for Bobath; two found superior effects with alternative approaches.

Five studies reported sufficient data on mobility. Results appeared to depend on how mobility was assessed but generally most studies found statistically significant benefits with alternative approaches (not Bobath).

Limited results were presented for activities of daily living (four studies) and quality of life (one study).

**Authors' conclusions**
The Bobath Concept was not superior to other approaches for stroke rehabilitation. No evidence was available for the superiority of any other approach.

**CRD commentary**
This review addressed a relevant review question using appropriate inclusion criteria. A search was performed but there were language limitations and there was no search for unpublished material so relevant studies may have been missed. Some action was taken to avoid reviewer error or bias; whether this applied to data extraction was unclear. Study quality was assessed and all trials were deemed to be of high quality but low PEDro scores and other issues highlighted by the authors suggested that trials were not of particularly high quality.

Limited data were presented on the type of patients included. Very limited information was provided on the comparator assessments. This made the validity and generalisability of the results difficult to judge. No meta-analysis was conducted; counting numbers of statistically significant results is not generally considered to be appropriate and is prone to error and bias.

The results of the review should not be considered reliable but the authors’ cautious conclusions may be reasonable given the limitations of the evidence presented.

**Implications of the review for practice and research**
**Practice:** The authors suggested that evidence-based guidelines rather than therapist preference should serve as a framework for treatment.

**Research:** The authors recommended that future high quality randomised controlled trials should analyse the content of therapy and consider the intensity of the intervention in relation to the outcomes. The most up-to-date Bobath theory and practice should be used.

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