A systematic review of gesture treatments for post-stroke aphasia

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CRD summary
The authors concluded that there was some evidence of a benefit from combined gesture plus verbal treatment for some individuals with aphasia after a stroke. It was unclear whether this benefit was greater than that produced by verbal treatment alone. The authors' cautious conclusions reflect the quality and amount of evidence presented.

Authors' objectives
To evaluate the effects of gesture training for patients with aphasia after a stroke.

Searching
MEDLINE, CINAHL, PsycINFO, EMBASE, Cochrane Database of Systematic Reviews, and Clinical Aphasiology Conference archives were searched to September 2012; search terms were reported. Google Scholar was used to search the Internet. Reference lists of retrieved studies were checked.

Study selection
Non-randomised controlled studies or single-case experimental studies of gesture-based methods (including symbolic or non-symbolic intentional gestures), for adults with aphasia after a stroke, were eligible for inclusion. Studies had to be published in English in a peer-reviewed journal. Brief facilitation studies, and studies focused on partner training, rather than training for the person with aphasia, were excluded.

Most participants had some form of non-fluent aphasia. Some studies included patients three to six months after the onset of aphasia, but most included patients more than a year after their stroke. All but four studies used symbolic gestures, such as pantomimes and iconic gestures. Most studies used a gesture plus verbal protocol, contrasted with a verbal only protocol. Gesture therapy was typically administered two or three times per week, lasting from 6.5 to 32 hours. Studies were conducted in Australia, the UK, the USA, or Germany.

Two reviewers independently selected studies for inclusion, with any disagreements resolved through discussion.

Assessment of study quality
Single-case experimental studies were evaluated using the single-case experimental design scale. Studies with a control group were evaluated using the PEDro scale. Two further criteria for behavioural treatment studies were added: treatment fidelity and reliability, and treatment replicability.

Two reviewers independently assessed study quality, with any disagreements resolved through discussion.

Data extraction
For studies with a control group, initial and post-treatment scores, with standard deviations, were extracted to calculate Cohen's $d$, and paired Student's $t$-test results were extracted to estimate Pearson's $r$. For single-case experimental studies, the means of the initial and treatment phases, with baseline phase standard deviations, were extracted to calculate Cohen's $d$.

It was unclear how many reviewers extracted the data.

Methods of synthesis
A narrative synthesis was presented.

Results of the review
Twenty-three studies (134 participants) were included; four had group controls, and 19 were single-case experimental studies. The group-control studies were judged to be lacking in methodological rigour; most of the single-case experimental studies were judged to be rigorous.
Symbolic: Gesture plus verbal training was found to have a positive impact on the trained items for spoken language measures, such as picture naming for both nouns and verbs. It had mixed effects on untrained words and contexts (high-quality single-case experimental studies). Gestures alone, without verbal training, had limited impact on verbal language measures. The outcomes were generally comparable for gesture plus verbal training and verbal training alone.

Non-symbolic: The results for non-symbolic gesture training were limited. One group-controlled study found improvements in trained and untrained picture training in people with moderate-to-severe aphasia. In single-case studies, improvements were reported in trained words (six of 11 participants) and untrained words (three of seven participants).

Authors’ conclusions
The comparison of effect sizes supported a benefit from combined gesture plus verbal treatment, for noun and verb production, for some individuals with aphasia after a stroke. It was unclear whether this benefit was greater than that produced by verbal treatment alone.

CRD commentary
The review question and inclusion criteria were clear. Several relevant databases were searched. The restriction to studies published in English may have excluded some relevant data. Study selection and quality assessment were undertaken by two reviewers independently, which reduced the potential for error and bias, but it was unclear whether the same was true for data extraction. The results of the quality assessment were clearly reported. A narrative synthesis was appropriate given the differences in study design and interventions.

The authors’ relatively cautious conclusions reflect the quality and amount of evidence presented.

Implications of the review for practice and research
Practice: The authors stated that clinicians should choose items for training carefully to reflect the client’s needs and interests.

Research: The authors stated that there was a need for large-scale studies of gesture training for aphasia, taking into account the considerable variation between patients. The comparative effects of gesture plus verbal versus verbal only treatment, and symbolic versus non-symbolic gesture treatment, and the predictors of response to gesture plus verbal training, required further study.

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