Supplementary information

This information is supplementary to the Targeted Update 'Intensive speech and language therapy for aphasia following stroke'

The data for the **Targeted Update** is taken from the Cochrane Review:

Brady MC, Kelly H, Godwin J, Enderby P. Speech and language therapy for aphasia following stroke. Cochrane Database of Systematic Reviews 2012, Issue 5. Art. No.: CD000425. DOI: 10.1002/14651858.CD000425.pub3.

and from the 2016 draft review update approved for publication by the Cochrane Stroke Group editorial team, carried out by the review authors.

Contents

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Search methods

The search was carried out by the review authors as part of a full Cochrane review update that has been approved for publication by the Cochrane Stroke Group editorial team. See also 2012 Cochrane review for previous searches.

See the 'Specialized register' section in the Cochrane Stroke Group module. We did not impose any language restrictions.

Electronic searches

We searched the Cochrane Stroke Group Trials Register (last searched 9 September 2015), MEDLINE (1946 to 22 September 2015) (Appendix 1), CINAHL (1982 to 22 September 2015) (Appendix 2), AMED (1985 to 22 September 2015) (Appendix 3), Cochrane Library Databases (CDSR, DARE, CENTRAL, HTA) (last searched 22 September 2015) (Appendix 4), EMBASE (1980 to 22 September 2015) (Appendix 5), LLBA (last searched 22 September 2015), and SpeechBITE (last searched 21 September 2015) using comprehensive search strategies.
We also searched major trials registers for ongoing trials including ClinicalTrials.gov (last searched 21 September 2015) (http://www.clinicaltrials.gov/), the Stroke Trials Registry (last searched 21 September 2015) (www.strokecenter.org/trials/), Current Controlled Trials (www.controlled-trials.com), and WHO ICTRP (last searched 22 September 2015) (http://www.who.int/ictrp/search/en/).

Searching other resources

- We hand-searched the *International Journal of Language and Communication Disorders* (formerly the *International Journal of Disorders of Communication*, the *European Journal of Disorders of Communication,* and the *British Journal of Disorders of Communication*) from 1969 to December 2005. This journal has been indexed in MEDLINE since 2006, so our comprehensive electronic search identified any relevant trials published in the journal after that date.
- We checked reference lists of all relevant articles to identify other potentially relevant randomised studies.
- We contacted all British universities and colleges where SLTs are trained and all relevant 'Special Interest Groups' in the UK to enquire about any relevant published, unpublished, or ongoing studies.
- We approached colleagues and authors of relevant randomised trials to identify additional studies of relevance to this review.

Changes to the original review methods

The following sections of the Cochrane Review methods have been amended to meet the requirements of the Norwegian Health Directorate: Types of interventions, Types of outcome measures.

Types of interventions

Cochrane Review interventions: SLT versus no SLT intervention, social support and stimulation, or an alternative SLT intervention.
Targeted update interventions: High intensity (≥5 times/week) SLT versus no SLT intervention; High intensity (≥5 times/week) SLT versus low intensity (<5 times/week) SLT.

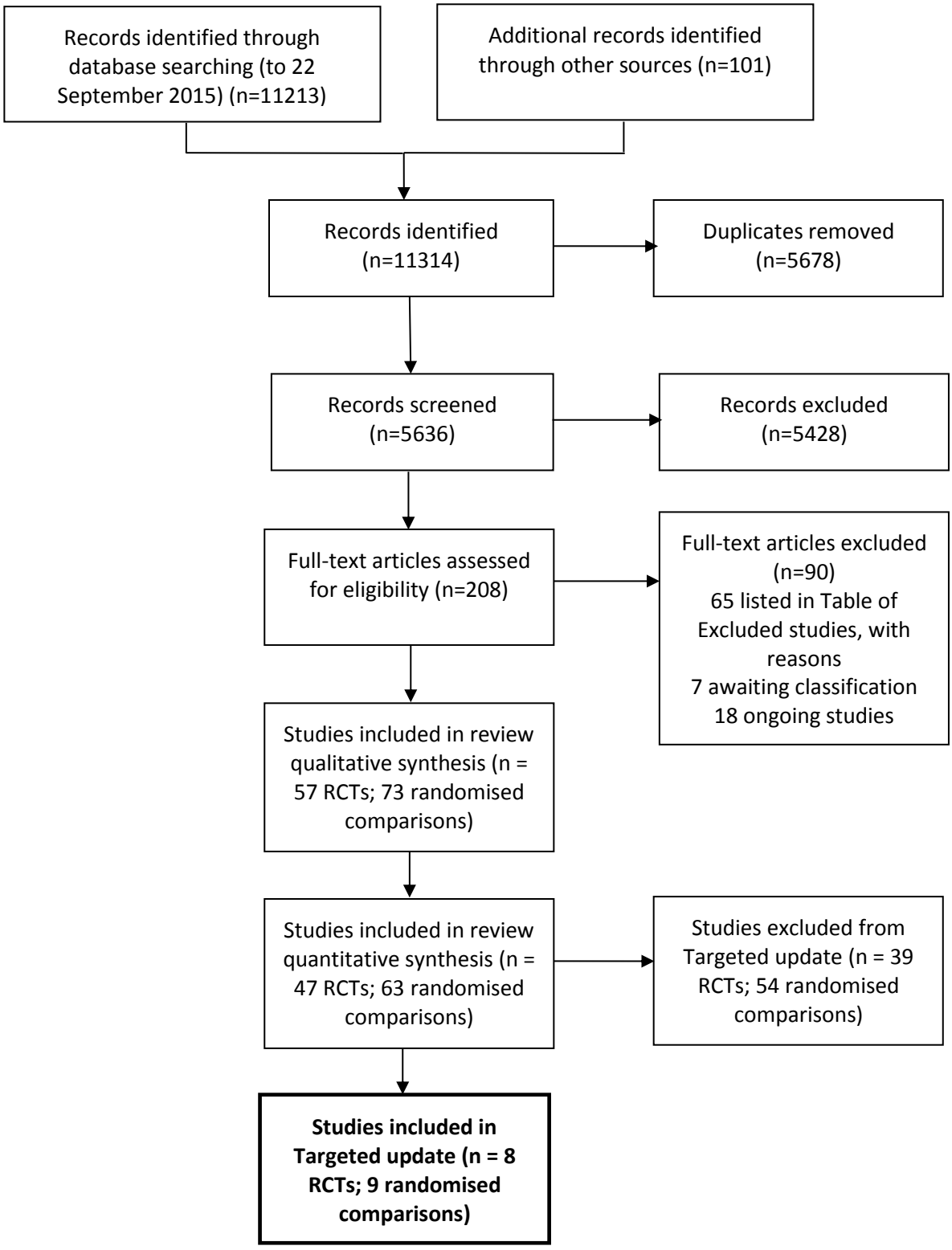
Types of outcome measures

Cochrane Review outcome measures: Functional communication, receptive language (oral, written, and gestural), expressive language (oral, written, and gestural), or overall level of severity of aphasia where receptive and expressive language are measured using language batteries, psychosocial impact (i.e. impact on psychological or social well-being including depression, anxiety and distress), satisfaction with intervention, number of dropouts (i.e. the number of participants dropping out at treatment or follow-up phases for any reason), compliance with allocated intervention (i.e. the number of participants voluntarily withdrawing from their allocated intervention), economic outcomes (such as costs to the patient, carers, families, health service and society), and care-giver and family satisfaction.

Targeted Update outcome measures:
Functional communication, receptive language (oral, written, and gestural), expressive language (oral, written, and gestural).

Screening results (study flow diagram)

The study flow diagram has been amended from the 2016 draft full Cochrane review update that has been approved for publication by the Cochrane Stroke Group editorial team, to show the flow of studies for the Targeted Update.



Included studies: references, characteristics, and risk of bias tables

The list of included studies in the 2016 draft full Cochrane review update that has been approved for publication by the Cochrane Stroke Group editorial team has been amended to meet the requirements of the Norwegian Health Directorate interventions and outcomes.

Included studies in the Targeted Update

High intensity SLT versus no SLT

B.A.Bar 2011i

Nobis-Bosch R, Springer L, Radermacher I, Huber W. Supervised Home Training in Aphasia: Language Learning in Dialogues. Forum Logopadie 2010;24(5):6-13.

Nobis-Bosch R, Springer L, Radermacher I, Huber W. Supervised home training of dialogue skills in chronic aphasia: a randomized parallel group study. J Speech Lang Hear Res 2011;54(4):1118-36.

Characteristics

Methods	RCT crossover, stratified by matched pairs
Participants	Inclusion criteria: moderate to severe aphasia (score on the AAT Naming subtest below a percentile rank of 50; and comprehension on the Repetition and Speech AAT sub-tests exceeding percentile rank of 30 and comprehension on the Repetition and Speech AAT sub-tests exceeding percentile rank of 30), vascular aetiology; stable general, health condition; and duration of aphasia of at least 4 months, severe-to-moderate word finding difficulties, irrespective of fluent or nonfluent language production. The criteria also required the participants to be able to understand and repeat simple word stimuli and the existence of no or only minimal motor speech disorder (dysarthria and/or apraxia of speech). Passed exploratory B.A.Bar training of 60 minutes over 2 weeks. Exclusion criteria: severe semantic disorder or comprehension problems (< 30% rank of the AAT speech comprehension test), severe motor speech disorder or apraxia. Group 1: 9 participants Group 2: 9 participants
Interventions	**1. Supervised intensive language self-training** **Intervention:** Computer SLT. Designed to facilitate dialogue skills in everyday life. Use of adjacency pairs (Schegloff 2007). The turns are functionally related to each other (e.g., greeting– greeting: "Hello"–"Hi"; leave-taking–leave-taking: "Goodbye"–"Bye!") or information acts (e.g., question–answer: "When is the doctor's office open?"–"From two until five p.m."). The guiding principle is "talk-in-interaction" (Schegloff 2004). **Materials:** B.A.Bar equipment. Simple electronic device makes use of barcodes that carry linguistic information suited to language learning. Speech of various levels of complexity (words, phrases, sentences, texts) can be recorded, stored, and replayed as often as needed during learning. When a barcode is scanned, the recorded language is replayed to facilitate reproduction. The learning material consisted of short dialogues composed of three adjacency pairs: a conventional beginning (e.g., greeting–greeting), a main information part (e.g., question–answer, offer–affirmation), and a conventional ending (e.g., leave-taking–leave-taking). Each half-day training of dialogues had to be complemented by corresponding vocabulary drill exercises that required auditory word comprehension (word–picture matching) and oral naming. The items were always related to the topics conveyed by the dialogues. The two tasks were again carried out by means of barcode scanning. Moreover, the drill exercises contained six to eight items for oral naming and six items for comprehension. **Procedures:** Weekly supervision of the home training. B.A.Bar dialogue training. Exercise sheets with dialogues were given to the participants so that the learner with aphasia could place him- or herself in the role of the responding partner. The home training

	material consisted of 48 dialogues that represented characteristic scenes from two different thematic fields of daily living. Half of the dialogues were related to shopping, food, and drinking, the other half to health and illness. For each thematic field, a separate booklet with practice material containing 24 dialogues was prepared. Booklets were separated into four chapters with two subchapters each. The participants were instructed to practice the eight subchapters in sequence, one in the morning and one in the afternoon, 4 days a week. Thus, every half-day, three dialogues had to be practiced. During the 4-week training, the total material was practiced twice: the first thematic field during the 1st and 3rd week and the second thematic field during the 2nd and 4th week. **Provided by:** B.A.Bar Equipment that reads barcodes provided to therapists in private practice for use with randomised patients. Each therapist received 1 hour of training before participant began to use B.A.Bar. **Delivery:** Computer-facilitated, 1 to computer, at home plus 1 hour in clinic. **Regimen:** Practice twice a day for 1 hour per session, 4 days per week (for 4 weeks) plus a 1-hour private session with SLT. **Tailoring:** Yes. **Modification:** SLT focused on items described as difficult by patient and selected dialogues practiced. **Adherence:** Monitored through supervision once a week by SLT in private practice and supported through dialogue, role play, review of difficult items, planning of future sessions, self-evaluation forms from therapists. **2. Visuo-cognitive tasks** **Intervention:** No SLT. Attention control. **Materials**: Non-linguistic cognitive training focused on basic functions of visual exploration and attention. It involved visual–cognitive exercises such as visual matching of a part to the whole, maze games, comparing two pictures to find differences, or searching for target objects in complex pictures. A separate booklet of worksheets was developed for each week of training, again—like the language training—separated into four chapters and eight subchapters. During the 4-week treatment, the total visual–cognitive material was also practiced twice, the first booklet during the 1st and 3rd week and the second booklet during the 2nd and 4th week. Similar to the language training, the participants recorded the practice time after each session on protocol sheets. Each individual training session was based on a subchapter of the booklet containing 15 exercises: five pictures with visual differences, four maze games, three matching exercises, and three searching exercises. The time required to complete one session of cognitive training was calculated to be equal to the time needed for one session of B.A.Bar language training (approximately 30 min each). It should be noted that the B.A.Bar technology was not used during cognitive training, and feedback on correct solutions was given only during supervision but not during the home training. **Procedures:** Visual–cognitive exercises. **Provided by:** Speech and language therapist supervision, professional. **Delivery:** 1 to 1 and self-management, face-to-face and self-management, at home plus 1 hour in clinic. **Regimen:** Practice twice a day for 1 hour per session, 4 days per week (for 4 weeks) plus a 1-hour private clinic session with SLT. Total dose = 36 hours. **Tailoring:** Yes. **Modification:** Cognitive problem-solving strategies were checked, and alternative strategies were shown to the participants. **Adherence:** Monitored through supervision once a week by SLT in private practice and supported through dialogue, role play, review of difficult items, planning of future sessions, self-evaluation forms from therapists.
Outcomes	Primary outcome: dialogue test communicative success and linguistic accuracy Secondary outcome: Regensburg Word Fluency Test (food and animals), spontaneous speech, gathered through a semi-standardised interview, was analysed by a computer-assisted method with regard to basic linguistic parameters (Aachen-Sprach-Analysis). Verbal communicative ability was assessed by the ANELT, AAT and CETI. Other cognitive specific outcome measures were also recorded. Data collection: Baseline, T1, T2, T3, follow-up assessment at 12 weeks
Notes	Germany Single centre trial Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"Randomized, matched-pairs, parallel-group design", "participants were matched pairwise with respect to gender, age, duration of aphasia, and severity and type of aphasia according to performance on the AAT", no details of generation of random sequence
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias)	Low risk	Speech and language therapist blinded
Incomplete outcome data (attrition bias)	Low risk	No drop-outs
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Low risk	Groups comparable at baseline for gender, age, duration of aphasia, and severity and type of aphasia according to performance on the AAT. Power calculation confirmed (unpublished data).

Laska 2011

* Laska AC, Kahan T, Hellblom A, Murray V, von Arbin M. A randomized controlled trial on very early speech and language therapy in acute stroke patients with aphasia. Cerebrovascular Diseases 2011. [DOI: 10.1159/000329835]

Laska AC, Kahan T, Hellblom A, Murray V, von Arbin M. A randomized controlled trial on very early speech and language therapy in patients with acute stroke and aphasia. Cerebrovascular Diseases 2010;29(Suppl 2):Abst. 1.

Laska AC, Kahan T, Hellblom A, Murray V, von Arbin M. Design and methods of a randomised controlled trial on early speech and language therapy in patients with acute stroke and aphasia. Topics in Stroke Rehabilitation 2008;15(3):256-61.

Characteristics

Methods	Parallel group RCT (stratified according to NIHSS result)
Participants	Consecutive admissions to stroke unit Inclusion criteria: first ischaemic stroke with aphasia, can start SLT within 2 days of stroke onset Exclusion criteria: rapid regression, dementia, drug abuse, severe illness, unable to participate in therapy Group 1: 62 participants Group 2: 61 participants
Interventions	**1. SLT (Language Enrichment Therapy)** **Intervention:** "Early Intensive Language Enrichment (Comp) Therapy" (Salonen 1980). Commonly used clinically in Sweden. Mainly comprehension exercises, some naming hierarchy. **Materials:** Pictures divided into eight sections (in hierarchical difficulty) (i) familiar phrases, (ii) compound words, (iii) basis sentences (iv) basic words (v) additional words (vi) descriptive words (vii) standard sentences (viii) sentences. **Procedures:** Protocol. **Provided by:** Five specially trained therapists. **Delivery:** Face-to-face; 1 to 1; location not reported. **Regimen:** 45 minutes therapy 5 days weekly for 3 weeks. Total dose = 11.25 hours (per protocol a min of 600 minutes) therapy. **Tailoring:** Not reported. **Modification:** Not reported. **Adherence:** Recorded deviations from per protocol intervention of min 600 minutes of SLT. SLT per protocol 54/59 randomised; No SLT per protocol 51/56 randomised. **2. No SLT**

	Intervention: No SLT. **Materials:** None. **Procedures:** None. **Delivery:** None over 3 weeks. Could start SLT after 21 days. **Regimen:** None. **Modification:** None. **Adherence:** Not reported.
Outcomes	Primary outcome: ANELT (at day 16) Secondary outcome: NGA (at day 16) Other measures include NIHSS, ADL measured at baseline, 3 weeks and 6 months, NGA, ANELT, NHP, EQ-5D at 3 weeks and 6 months Relatives completed the CETI at 3 weeks and 6 months
Notes	Sweden Funded by the Stockholm County Council Foundation (Expo-95), Karolinska Institutet, Marianne and Marcus Wallenberg Foundation and AFA Insurances Dropouts: 8 participants (1 died, 4 severely ill, 3 declined) Follow-up: 21 participants (10 died, 9 severely ill, 1 declined, 1 missing). Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	"Randomization was performed centrally by an independent statistician using consecutive sealed envelopes."
Allocation concealment (selection bias)	Unclear risk	Consecutively sealed envelopes (opaque not specified)
Blinding (performance bias and detection bias)	Low risk	3 therapists blinded to treatment allocation; a fourth also rated recordings blinded to treatment Outcome measures conducted and assessed by blinded speech and language therapists
Incomplete outcome data (attrition bias)	Low risk	ITT analysis employed
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Unclear risk	SLT group had a more frequent history of myocardial infarction than the non-SLT group. Groups were otherwise comparable at baseline. A-priori sample size was calculated.

Mattioli 2014

Ambrosi C, Mattioli F, Mascaro L, Biagi L, Tosetti M, Gasparotti R. Functional MR imaging of patients with mild aphasia after stroke: Activation of language network from acute to chronic phase and preliminary results of early rehabilitation effect. Neuroradiology Journal 2010;23:340.

* Mattioli F, Ambrosi C, Mascaro L, Scarpazza C, Pasquali P, Frugoni Marina, Magoni M, Biagi L, Gasparotti R.. Early Aphasia Rehabilitation Is Associated With Functional Reactivation of the Left Inferior Frontal Gyrus A Pilot Study. Stroke 2014;45:545-552.

Characteristics

Methods	RCT
Participants	Inclusion criteria: first ever acute stroke in the territory of the MCA; aphasia with mildly impaired oral comprehension, that is, comprehension sufficient to perform a screening task of the fMRI paradigm; native Italian speakers; right handedness, absence of previous history of other neurological or psychiatric diseases; absence of general contraindications to MRI; age <80 years; absence of hearing deficits; mild/moderate aphasia

	Exclusion criteria: non-native Italian speakers (n=6); age > 80 (n=19); previous diagnosis of dementia or psychiatric disorders (n=8); stroke in the territory other of the MCA (n=21); severe aphasia with severe comprehension impairment (n=7); pacemaker carriers (n=6); claustrophobia (n=2); severe obesity, i.e. impossibility to put the patient in the MRI scanner (n=1) and deafness (n=4). Group 1: 6 participants Group 2: 6 participants
Interventions	**1. Daily language rehabilitation** **Intervention:** SLT. Daily language rehab leads to improved language recovery and improved functional correlates, brain plasticity. **Materials:** Snodgrass and Vanderwart (1980) set (Snodgrass 1980). **Procedures:** Mainly focusing on verbal comprehension and lexical retrieval. In each session, after a short and simple dialogue with the patient, covering his mood and status, as well as any relevant episodes occurred during the day, a naming task was usually conducted, where patients had to spontaneously name items taken from the Snodgrass and Vanderwart (1980) set (Snodgrass 1980). In the case of failure, all the facilitations were given. Single word as well as sentence comprehension was also treated with the help of available common objects and objects pictures. A semi structured rehabilitation setting was used, instead of a rigidly predetermined set of tasks identical for all the subjects, due to the clinical condition of the acute phase and the location (the stroke unit) where the rehabilitation was conducted. Generally, a stimulation of the impaired linguistic functions was conducted by the therapist, according to the deficits shown by the AAT. **Provided by:** Speech and language therapists. Training not reported. **Delivery:** 1 to 1, face-to-face; location not reported. **Regimen:** 1-hour session per day, for 5 days per week for 2 weeks. Total dose = 10 hours therapy. **Tailoring:** Yes. **Modification:** Yes. **Adherence:** Not reported. **2. No SLT** **Intervention:** No SLT. As per usual clinical practice in that centre. But all exposed to the natural speech environment of people they were visited, and this could be considered an unstructured language therapy. **Materials:** None. **Procedures:** None. **Provided by:** None. **Delivery:** None. **Regimen:** None. **Tailoring:** None. **Modification:** None. **Adherence:** None.
Outcomes	Primary outcomes: Aachen Aphasia Test (AAT) Secondary outcomes: AAT subtests of repetition, naming, reading, writing, oral, and written comprehension; a 50-item version of the Token test; and a semi-quantitative scoring of several aspects of spontaneous speech (communicative ability, articulation and prosody, automatic speech, semantic, phonemic, and syntactic structure). Data collection: Baseline (T1: mean (SD), 2.2 (1.3) days after stroke), 2 weeks post-stroke (T2: 16.2(1.3) days after stroke). Follow-up 6 months (T3: 190 (25.5) days after stroke).
Notes	Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random number generator
Allocation concealment (selection bias)	Unclear risk	No details provided
Blinding (performance bias and detection bias)	Low risk	Speech and language therapist blinded
Incomplete outcome data (attrition bias)	Low risk	Drop-outs accounted for
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Low risk	Groups were comparable at baseline in terms of age,

		education, aphasia severity, lesion volume, and NIHSS.

Wertz 1986i

Kurtzke JF, Wertz RT, Weiss DG, Garcia-Bunuel L, Aten JL, Brookshire RH, et al. Comparison of improvement in neurologic severity and language in treated and untreated aphasic patients. Neurology 1985;35(Suppl 1):122.

* Marshall RC, Wertz RT, Weiss DG, Aten J, Brookshire RH, Garcia-Bunuel L, et al. Home treatment for aphasic patients by trained nonprofessionals. Journal of Speech and Hearing Disorders 1989;54:462-70.

Wertz R, Weiss WG, Aten JL, Brookshire RH, Garcia-Bunuel L, Holland AL, et al. Comparison of clinic, home and deferred language treatment. Archives of Neurology 1986;43:653-8.

Characteristics

Methods	Cross-over group RCT (only data collected prior to cross-over treatment included in this review)
Participants	Inclusion criteria: male veteran, maximum 75 years old, 2 to 24 weeks post-onset, single left thromboembolic CVA, no previous or co-existing neurological, serious medical or psychological disorder, no worse than 20/100 corrected vision in better eye, hearing no worse than 40 dB unaided in better ear, sensory/motor ability in 1 upper limb to gesture or write, premorbidly literate in English, maximum 2 weeks between onset and trial entry, language severity 10th to 80th PICA overall, non-institutionalised living environment, outside assistant volunteer available Exclusion: none listed Group 1: 38 participants Group 2: 40 participants
Interventions	**1. Conventional SLT** **Intervention:** Clinic treatment. Rationale not reported. **Materials:** Details not reported. **Procedures:** "stimulus-response treatment, designed to improve language deficits in auditory comprehension, reading, oral-expressive language and writing". Techniques ranged from traditional facilitation methods (picture description, verbal repetition, sentence completion and confrontation naming) to specific programmes such as Melodic Intonation Therapy and PACE) **Provided by:** Speech and language therapist. **Delivery:** 1-to-1, face-to-face, clinic. **Regimen:** 8 to 10 hours weekly for 12 weeks. Total dose = up to 120 hours therapy. **Tailoring:** Individualised. **Modification:** Individualised. **Adherence:** Yes, but method not reported. **2. No SLT** **Intervention:** Deferred SLT. **Materials:** None. **Procedures:** SLT after cross-over at 12 weeks. **Provided by:** None. **Delivery:** None. **Regimen:** Not applicable. **Tailoring:** Not applicable. **Modification:** Not applicable. **Adherence:** Yes, but method not reported.
Outcomes	Primary outcomes: PICA, CADL, RCBA, Token Test Data collection: baseline, 6 and 12 weeks with follow-up at 18 and 24 weeks
Notes	USA over 5 sites Estimated sample size Dropouts: 20 participants (conventional SLT 9; no SLT 11) Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Patients were assigned randomly, no details of generation of random sequence
Allocation concealment (selection bias)	Unclear risk	Not reported

Blinding (performance bias and detection bias)	Low risk	Blinded outcome assessors, intraclass correlation above 0.90
Incomplete outcome data (attrition bias)	High risk	ITT analysis not employed
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Low risk	Groups comparable at baseline

Wertz 1986ii

Kurtzke JF, Wertz RT, Weiss DG, Garcia-Bunuel L, Aten JL, Brookshire RH, et al. Comparison of improvement in neurologic severity and language in treated and untreated aphasic patients. Neurology 1985;35(Suppl 1):122.

* Marshall RC, Wertz RT, Weiss DG, Aten J, Brookshire RH, Garcia-Bunuel L, et al. Home treatment for aphasic patients by trained nonprofessionals. Journal of Speech and Hearing Disorders 1989;54:462-70.

Wertz R, Weiss WG, Aten JL, Brookshire RH, Garcia-Bunuel L, Holland AL, et al. Comparison of clinic, home and deferred language treatment. Archives of Neurology 1986;43:653-8.

Characteristics

Methods	Cross-over group RCT (only data collected prior to cross-over treatment included in this review)
Participants	Inclusion criteria: male veteran, maximum 75 years old, 2 to 24 weeks post-onset, single left thromboembolic CVA, no previous neurological involvement/co-existing serious medical or psychological disorder, no worse than 20/100 corrected vision in better eye, hearing no worse than 40 dB unaided in better ear, sensory/motor ability in 1 upper limb to gesture/write, premorbidly literate in English, maximum 2 weeks between onset and trial entry, language severity 10th to 80th PICA overall, non-institutionalised living environment, outside assistant volunteer available Exclusion: none listed Group 1: 43 participants Group 2: 40 participants Groups comparable at baseline
Interventions	**1. Vol facilitated SLT** **Intervention:** "Home treatment by trained volunteer". Rationale not reported. **Materials:** General treatment principles specified in treatment protocol but specific techniques designed to meet each patient's deficits. Techniques ranged from traditional facilitation methods (picture description, verbal repetition, sentence completion and confrontation naming) to specific programmes such as Melodic Intonation Therapy and PACE). **Procedures:** Planned and directed by SLT, treatment programme "usually stimulus-response treatment, designed to improve language deficits in auditory comprehension, reading, oral-expressive language and writing". **Provided by:** Trained volunteer (family member/friend) - no experience in health care prior to study. Received 6-10 hours of training including information about aphasia, observation of treatment on videotapes and demonstration and practice with treatment techniques volunteers would use with patient. **Delivery:** 1-to-1, face-to-face, home-based. **Regimen:** 8 to 10 hours weekly for 12 weeks. Total dose = up to 120 hours therapy. **Tailoring:** Individualised. **Modification:** Individualised. **Adherence:** Yes, Weekly communication with volunteers to review and answer questions, modify treatment tasks, via weekly face-to-face or

	telephone contact. Every 2 weeks patient and volunteer were videotaped in a half hour session and reviewed and adjustments were suggested when necessary. **2. No SLT** **Intervention:** Deferred SLT. **Materials:** None. **Procedures:** SLT after cross-over at 12 weeks. **Provided by:** None. **Delivery:** None. **Regimen:** Not applicable. **Tailoring:** Not applicable. **Modification:** Not applicable. **Adherence:** Yes, but method not reported.
Outcomes	Primary outcomes: PICA, CADL, RCBA, Token Test Data collection: baseline, 6 and 12 weeks with follow-up at 18 and 24 weeks
Notes	USA over 5 sites Estimated sample size Dropouts: 18 participants (trained volunteer SLT 7; no SLT 11). Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Patients were assigned randomly, no details of generation of random sequence
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias)	Low risk	Outcome assessors blinded
Incomplete outcome data (attrition bias)	High risk	ITT analysis not employed
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Low risk	Groups comparable at baseline

High intensity SLT versus low intensity SLT

Denes 1996

Denes G, Perazzolo C, Piani A, Piccione F. Intensive versus regular speech therapy in global aphasia: a controlled study. Aphasiology 1996;10(4):385-94.

Characteristics

Methods	Parallel group RCT
Participants	Inclusion criteria: global aphasia, left CVA, within first year after stroke, right-handed, native Italian speakers, literate Exclusion criteria: none listed Group 1: 8 participants Group 2: 9 participants
Interventions	**1. High intensity SLT** **Intervention:** "Intensive SLT". Intensity is important. Cost benefit ratio questionable. **Materials:** Not reported. **Procedures:** 'conversational approach' with more focus on comprehension (e.g. picture-matching to understanding complex scenes, short stories, engaging patient in conversation, retelling personally relevant stories). "Ecological" approach based on conversation, comprehension (mostly) and production deficits. Little focus on reading/writing other than in support of the production and

	comprehension. **Provided by:** Qualified therapists. **Delivery:** 1 to 1, face-to-face; mostly outpatient. **Regimen (frequency (sessions weekly) x duration):** 45-60 minutes therapy sessions approximately 5 times weekly for 6 months. Dose = estimated 96.75 to 129 hours therapy **Tailoring:** Not reported. **Modification:** Not reported. **Adherence:** Method not reported. **2. Conventional SLT** **Intervention:** Standard SLT. **Materials:** Not reported. **Procedures:** Based on stimulation approach. **Provided by:** SLTs. **Delivery:** 1 to 1, face-to-face; mostly outpatient. **Regimen:** 45- to 60-minute therapy session approximately 3 times weekly for 6 months. Total dose = 78 hours therapy. **Tailoring:** Not reported. **Modification:** Not reported. **Adherence:** Method not reported.
Outcomes	Primary outcomes: AAT Data collection: Assessed at baseline and 6 months
Notes	Italy Data from an additional 4 non-randomised participants with global aphasia were also reported. They received no SLT intervention but were assessed at 6-monthly intervals and their scores were used to account for spontaneous recovery. They were not included in this review. Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	"The allocation [...] was made randomly", no details of generation of random sequence
Allocation concealment (selection bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias)	Low risk	Outcome assessors blinded
Incomplete outcome data (attrition bias)	Low risk	All randomised participants included in analysis
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Unclear risk	Sample size calculation not reported. Groups comparable at baseline.

Pulvermuller 2001

Pulvermuller F, Neininger B, Elbert T, Mohr B, Rockstroh B, Koebbel P. Constraint-induced therapy of chronic aphasia after stroke. Stroke 2001;32:1621-6.

Characteristics

Methods	Parallel group RCT
Participants	Inclusion criteria: single left MCA stroke, monolingual, competent German speakers Exclusion criteria: severe cognitive or perceptual difficulties affecting participation, left-handed, additional neurological diseases, depression Group 1: 10 participants Group 2: 7 participants
Interventions	**1. Constraint Induced Language Therapy SLT** **Intervention:** "Constraint Induced Language Therapy" (CILT). Enhancing rehabilitation via brain plasticity, adopting model from motor rehabilitation. **Materials:** 32 cards with 16 pictures x 2, barriers preventing participant seeing others' cards. **Procedures:** CILT: small groups (2 to 3 participants) with involving barrier therapeutic games; all communication verbal. Pointing or gestures not permitted. Constraint introduced by material used, verbal instructions and shaping and reinforcement contingencies. **Provided by:** Speech and language therapist **Delivery:** Group, face-to-face, location

	not reported. **Regimen:** 3 to 4 hours daily for 10 days. Total dose = mean 31.5 [23 to 33] hours therapy. **Tailoring:** Yes, variable levels of constraint. **Modification:** Yes, variable levels of constraint. **Adherence:** Methods not reported. All randomised participants included in analysis. **2. Conventional SLT** **Intervention:** "Syndrome-specific standard intervention" e.g. Conventional approaches reflecting current practice (e.g. Schuell 1974, Kotten 1993) **Materials:** Not reported. **Procedures:** Naming, repetition, sentence completion, following instructions, conversation topics of participants' own choice. **Provided by:** SLT. **Delivery:** 1-to-1, face-to-face, location not reported. **Regimen:** 2 to 3 hours daily for 3 to 5 weeks. Total dose = mean 33.9 [20 to 54] hours therapy. **Tailoring:** Individualised. **Modification:** Individualised. **Adherence:** Methods not reported. All randomised participants included in analysis.
Outcomes	Primary outcomes: AAT (Token Test, comprehension, repetition, naming), CAL Data collection: Assessed at baseline and at end of treatment
Notes	Germany Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated. "an individual who did not have patient contact previously used a computer-generated random number (0 or 1) to determine the therapy method to be used."
Allocation concealment (selection bias)	Low risk	Central allocation: "an individual who did not have patient contact previously used a computer-generated random number (0 or 1) to determine the therapy method to be used."
Blinding (performance bias and detection bias)	Low risk	Outcome assessor blinded
Incomplete outcome data (attrition bias)	Low risk	All randomised participants included in analyses
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Unclear risk	Constraint-induced SLT group were longer after stroke (mean 98.2 (SD 74.2) months) than conventional SLT group (mean 24 (SD 20.6) months) at baseline. Sample size calculation not reported.

SP-I-RiT

Lauterbach M, Leal G, Aguiar M, Fonseca I, Farrajota L, Fonseca J, et al. Intensive vs. conventional speech therapy in aphasia due to ischaemic stroke: a randomized controlled trial. In: Proceedings of the British Aphasiology Society 2007 Biennial Conference, Edinburgh, UK. 10-12 September 2007:67-8.

Martins IP, Leal G, Fonseca I, Farrajota L, Aguiar M, Fonseca J, Lauterbach M, Goncalves L, Cary MC, Ferreira JJ, Ferro JM. A randomized, rater-blinded, parallel trial of intensive speech therapy in sub-acute post-stroke aphasia: the SP-I-R-IT study. Int J Lang Commun Disord 2013;48(4):421-31.

Characteristics

Methods	RCT
Participants	Inclusion criteria: age between 40 and 80 years; native Portuguese speaker; brain imaging confirming

	a single left hemisphere infarct of the MCA territory; Aphasia quotient (AQ) (the arithmetic mean of the percentage score obtained in fluency, object naming, word repetition and sentence comprehension subtests of the Lisbon Aphasia Battery (BAAL) (Castro-Caldas 1979) ranging between 6 and 77, comprising mild/moderate (50–77) and severe (6–49) aphasia; willingness to participate; and personal or family member written consent. Exclusion criteria: time post-stroke onset >3 months at screening; inability to attend rehabilitation sessions on a daily basis; clinical evidence of dementia, based on semi-standardized family interviews with questions about functional daily living activities and behaviour; recurrence of stroke while being scheduled to start therapy; very severe or mild aphasia (AQ < 6 or > 77) at the time of randomization; illiteracy and severe medical or psychiatric disorder that would not allow attendance to therapy Group 1: 15 participants Group 2: 15 participants
Interventions	**1. High Intensity SLT** **Intervention:** Intensive SLT. Intensity of therapy thought to be important component of intervention but study controls for amount. **Materials:** All therapists used same materials (not specified). **Procedures:** Multimodal Stimulation Approach (MSA) (Duffy 2001). Based on stimulation, facilitation, and motivation. Each linguistic modality is used to stimulate another following a programme of progressive complexity. Activities: picture confrontation naming, naming from definition and description, description of picture using complete sentences, phrase completion, comprehension of instruction exercises, Y/N questions, WH questions, detection of syntactic and semantic errors in incorrect phrases; interpretation of proverbs, reading and retelling daily news writing to dictation. **Provided by:** Speech and language therapists supervised sessions. 5 professional speech and language therapists. Trained in MSA. Joint meetings to keep approach similar. **Delivery:** 1 to 1, face-to-face, two medical centres (1) SLT rehab outpatients with acute stroke unit and (2) rehab centre with in-and out-patients. **Regimen:** 2 hours per day × 5 days per week, 10 weeks. Total dose = 100 hours of therapy. **Tailoring:** Yes. **Modification:** Yes, individualised to patient needs. **Adherence:** Monitored. If participants missed more than 5 hours of consecutive therapy sessions then they were excluded from study. Unclear whether any were excluded for this reason alone. Also, non-completions were recorded as (i) death, (ii) transport or other logistical problems (iii) ill health. **2. Low intensity SLT** **Intervention:** Low intensity SLT. Conventional SLT. **Materials:** All therapists used same materials (not specified). **Procedures:** Multimodal Stimulation Approach (Duffy 2001). Based on stimulation, facilitation, and motivation. Each linguistic modality is used to stimulate another following a programme of progressive complexity. Activities: picture confrontation naming, naming from definition and description, description of picture using complete sentences, phrase completion, comprehension of instruction exercises, Y/N questions, WH questions, detection of syntactic and semantic errors in incorrect phrases; interpretation of proverbs, reading and retelling daily news writing to dictation. **Provided by:** Speech and language therapists supervised sessions. 5 professional speech and language therapists. Trained in MSA. Joint meetings to keep approach similar. **Delivery:** 1 to 1, face-to-face, two medical centres (1) SLT rehab outpatients with acute stroke unit and (2) rehab centre with in-and out-patients. **Regimen:** 2 hours per week × 50 weeks. Total dose = 100 hours of therapy. **Tailoring:** Yes. **Modification:** Yes, individualised to patient needs. **Adherence:** Monitored. If participants missed more than 5 hours of consecutive therapy sessions then they were excluded from study. Unclear whether any were excluded for this reason alone. Also, non-completions were recorded as (i) death, (ii) transport or other logistical problems (iii) ill health.
Outcomes	Primary outcomes: Aphasia Severity Rating Scale (ASRS) of the BDAE Secondary outcomes: Subtests of Speech fluency, Object naming, Word repetition and Understanding simple commands of the Lisbon Aphasia Assessment Battery (BAAL) (Castro-Caldas 1979) and estimation of AQ and subtests of Aachen Aphasia battery (Portuguese version, PAAT) (Huber 1983; Lauterbach 2008) namely, the Token Test, Reading Comprehension for words and sentences and Writing to dictation. Functional Communication Profile (FCP) (Sarno 1969) and Stroke

	Aphasia Depression Questionnaire—SAD-Q (Portuguese version) (Rodrigues 2006; Stutcliffe 1998) Data collection: baseline, post intensive SLT (10 weeks), post usual SLT (50 weeks). Follow-up 3 months after intervention.
Notes	Portugal Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Computer-generated randomisation code, stratified by baseline severity (AQ mild-mod or severe) and in blocks of 8
Allocation concealment (selection bias)	Low risk	Sequentially numbered opaque sealed envelopes
Blinding (performance bias and detection bias)	Low risk	Neurologist or speech and language therapist blinded to the therapeutic group
Incomplete outcome data (attrition bias)	Low risk	ITT analysis employed
Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Unclear risk	Sample size calculation (n=114) a priori

VERSE I

Godecke E, Ciccone N, Granger A, Hankey G, West D, Cream A, Cartwright J. Aphasia therapy in early stroke recovery. International Journal of Stroke 2011;6:12.

* Godecke E, Hird K, Lalor E, Rai T, Phillips MR. Very early poststroke aphasia therapy: a pilot randomized controlled efficacy trial. International Journal of Stroke 2011. [DOI: 10.1111/j.1747-4949.2011.00631.x]

Godecke E, Hird K, Lalor E. Aphasia therapy in the acute hospital setting: is it justified? Internal Medicine Journal 2008;38(Suppl 4):A88.

Godecke E, Hird K, Lalor EE, Phillips M. Who needs early aphasia therapy? Cerebrovascular Diseases 2010;29(Suppl 2):337 (Abst. 38).

Godecke E, Hird K, Lalor EE, Rai T, Phillips MR. Very early poststroke aphasia therapy: a pilot randomized controlled efficacy trial. International Journal of Stroke 2012;7(8):635-644.

Godecke E, West D, Cartwright J, Cream A, Ciccone N, Granger A, Hankey G, Phillips M. Intensive aphasia therapy in the early poststroke recovery phase: Is group intervention a viable therapy option? International journal of stroke 2009;4:28.

West D, Cream A, Godecke E, Cartwright J, Ciccone N, Granger AS, et al. Intensive aphasia therapy in the early poststroke recovery phase: is group intervention a viable therapy option? International Journal of Stroke 2009;4(Suppl 1):28 (Abst. B30).

Characteristics

Methods	RCT
Participants	Inclusion criteria: acute stroke admission within 5 days of stroke symptoms, CT or MRI confirmed diagnosis of stroke within 24 hours after admission, aphasia as identified using the FAST, conscious, medically stable, can maintain a wakeful and alert state for at least 30 minutes, WAB AQ < 93.8 Exclusion criteria: previous history of aphasia, mental illness, dementia, subarachnoid or subdural haemorrhage or neurosurgical intervention, non-English speaking background, uncorrected hearing

	or vision impairment Group 1: 32 participants Group 2: 27 participants Details of participants are shown in Table 1
Interventions	**1. High intensity SLT** **Intervention:** "High intensity SLT" with intervention chosen from (i) Lexical-sematic SLT (BOX, Visch-Brink 2001) (ii) Mapping SLT (iii) Semantic Feature Analysis "adhered to principles of neurorehab, incorporating repetitious trained activity with facilitation of error free learning" "Picture description task involved planning and execution of verbal communication in supported context". **Materials:** "resources provided to each treating site". **Procedures:** "as per published instructions". Picture description tasks. **Provided by:** Speech and language therapist. **Delivery:** 1-to-1, face-to-face, inpatients in acute hospital. **Regimen:** 30 to 80 minutes 5 days weekly up to 4 weeks (or 20 sessions). Total maximum dose = 26.5 hours therapy (Min of 2.5 hours). **Tailoring:** Therapists were instructed to provide treatment from the above therapy types, according the participant's needs. **Modification:** Therapists were instructed to provide treatment from the above therapy types, according the participant's needs. **Adherence:** Therapist recorded and monitored. Patient compliance monitored. Some self-selected to drop out. **2. Conventional SLT** **Intervention:** "Usual care", with intervention chosen from (i) Lexical-sematic SLT (BOX, Visch-Brink 2001) (ii) Mapping SLT (iii) Semantic Feature Analysis "adhered to principles of neurorehab, incorporating repetitious trained activity with facilitation of error free learning" "Picture description task involved planning and execution of verbal communication in supported context". **Materials:** "resources provided to each treating site". **Procedures:** "as per published instructions". Picture description tasks. **Provided by:** Speech and language therapist. **Delivery:** 1-to-1, face-to-face, inpatients in acute hospital. **Regimen:** Up to 80 minutes, 1 session per week up to 4 weeks. Total maximum dose = 5.3 hours therapy. **Tailoring:** Therapists were instructed to provide treatment from the above therapy types, according the participant's needs. **Modification:** Therapists were instructed to provide treatment from the above therapy types, according the participant's needs. **Adherence:** Therapist recorded and monitored. Patient compliance monitored. Some self-selected to drop out.
Outcomes	Primary outcome measures: AQ and FCP at acute hospital discharge Secondary outcome measures: AQ, FCP and DA scores at 6 months post stroke Data collection: 4 weeks then follow-up at 6 months' post stroke
Notes	Australia 3 acute-care hospitals Groups comparable at baseline in relation to age, gender, previous stroke, stroke type and stroke classification Dropouts: 8 (intensive SLT 7; conventional SLT 1); loss to follow-up: 6 (intensive SLT 4; conventional SLT 2). Statistical data included within the review meta-analyses

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Random number generator
Allocation concealment (selection bias)	Low risk	Sealed envelopes
Blinding (performance bias and detection bias)	Low risk	Assessors blinded (3 SLTs and 3 final year SLT students)
Incomplete outcome data (attrition bias)	Low risk	ITT was employed

Selective reporting (reporting bias)	Low risk	All pre-specified outcomes reported
Other bias	Low risk	Some indication that the 2 groups' severity of stroke and severity of aphasia differed at baseline (P = 0.057) but this was adjusted for in the analysis.

References:

Castro-Caldas A. Diagnostico e Evolucao das Afasias de Causa Vascular. Lisboa: Faculdade de Medicina de Lisboa, 1979.

Duffy J, Coelho C. Schuell's stimulation approach to rehabilitation. In: Chapey R, editor(s). Language Interventions Strategies in Aphasia and Related Neurogenic Communication Disorders. Baltimore: Lippincott Williams & Wilkins, 2001:341–382.

Huber W, Poeck K, Weniger D, Willmes K. Der Aachener Aphasia Test. 1983.

Lauterbach M, Martins IP, Garcia P, Cabeça J, Ferreira AC, Willmes K. Cross linguistic aphasia testing: the Portuguese version of the Aachen Aphasia Test (AAT). Journal of the International Neuropsychological Society 2008;14(6):1046–1056.

Rodrigues I, Santos M, Leal G. Validação de uma escala de depressão para afásicos: 'Stroke Aphasic Depression Questionnaire—SAD-Q. Sinapse 2006;2(6):506-513.

Salonen L. The language enriched individual therapy programme for aphasic patients. In: Sarno M, Höök O, editor(s). Aphasia, Assessment and Treatment. Stockholm: Almqvist and Wiksell, 1980.

Sarno MT. The Functional Communication Profile: Manual of Directions. Vol. 42. New York Institution of Rehabilitation Medicine, 1969.

Schegloff EA. Putting the interaction back intodialogue. Open peer commentory. Behavioral and Brain Sciences 2004;27:207-208.

Schegloff EA. Sequence organization in interaction.A primer in conversation analysis I. Cambridge, England: University Press, 2007.

Snodgrass JG, Vanderwart M. A standardized set of 260 pictures: norms for name agreement, image agreement, familiarity, and visual complexity. Journal of experimental psychology: Human learning and memory 1980;6:174.

Stutcliffe L, Lincoln N. The assessment of depression in aphasic stroke patients: the development of the Stroke Aphasic Depression Questionnaire. Clinical Rehabilitation 1998;2155(98):506-513.

Visch-Brink EG, Bajema IM. BOX:Een semantisch therapie programma. Lisse, the Netherlands: Swets and Zeitlinger, 2001.

Excluded studies: references and reason for exclusion

The list of excluded studies in the 2016 draft full Cochrane review update that has been approved for publication by the Cochrane Stroke Group editorial team has been amended to meet the requirements of the Norwegian Health Directorate interventions and outcomes.

Excluded studies from the Targeted Update

The following studies were included in the 2016 draft full Cochrane review update that has been approved for publication by the Cochrane Stroke Group editorial team, but excluded from the Targeted Update.
Reasons for exclusion from the Targeted update are provided below.

ACTNoW 2011

Published and unpublished data

* Bowen A, Hesketh A, Patchick E, Young A, Davies L, Vail A, et al. Clinical Effectiveness, Cost Effectiveness and Service Users' Perceptions of Early, Intensively-Resourced Communication Therapy Following a Stroke, a Randomised Controlled Trial (The ACT NoW Study). London: Health Technology Assessment, 2011.

Bowen A, Patchick E. Assessing the effectiveness of communication therapy in the North West - the ACT NoW study: a work in progress. In: Proceedings of the 4th UK Stroke Forum, Glasgow, UK. 2009 (Abst. OG01).

Bowen A. Assessing the effectiveness of communication therapy in the North West - ACTNoW study. http://www.controlled-trials.com/mrct/ukctrsearch.html.

Patchick E, Watkins C, Wilkinson M, Bowen A. Attention control within the ACTNoW randomized controlled trial: getting it right? Clinical Rehabilitation 2010;24(958):958.

Young A, Gomersall T, Patchick E, Bowen A. The ACTNoW qualitative study: exploring the perspectives of people with aphasia or dysarthria who participated in the randomised controlled trial (RCT). International Journal of Stroke 2010;5(Suppl 3):59 (Abst. 114).

Reason for exclusion	Not high intensity SLT (3 sessions weekly).

B.A.Bar 2011ii

Nobis-Bosch R, Springer L, Radermacher I, Huber W. Supervised Home Training in Aphasia: Language Learning in Dialogues. Forum Logopadie 2010;24(5):6-13.

Nobis-Bosch R, Springer L, Radermacher I, Huber W. Supervised home training of dialogue skills in chronic aphasia: a randomized parallel group study. J Speech Lang Hear Res 2011;54(4):1118-36.

Reason for exclusion	Not high intensity SLT (early versus delayed SLT).

Bakheit 2007

Published and unpublished data

Bakheit M, Shaw S, Barrett L, Wood J, Carrington S, Griffiths S, et al. A prospective, randomized, parallel group, controlled study of the effect of intensity of speech and language therapy on early recovery from poststroke aphasia. Clinical Rehabilitation 2007;21(10):885-94.

Reason for exclusion	Did not report on relevant outcomes.

CACTUS 2013

Published and unpublished data

Latimer NR, Dixon S, Palmer R. Cost-utility of self-managed computer therapy for people with aphasia. Int J Technol Assess Health Care 2013;29(4):402-9.

Palmer R, Enderby P, Cooper C, Latimer N, Julious S, Paterson G, Dimairo M, Dixon S, Mortley J, Hilton R, Delaney A, Hughes H. Computer therapy compared with usual care for people with long-standing aphasia poststroke: a pilot randomized controlled trial (Structured abstract). Stroke 2012;43(7):1904-1911.

Palmer R, Enderby P, Mortley J, Cooper C, Dixon S, Julious S, Paterson G. Cost effectiveness of aphasia therapy compared with usual stimulation for people with long standing aphasia (CACTUS): results of a pilot study. International Journal of Stroke 2011;6(Suppl 2):4.

* Palmer R, Enderby P, Mortley J, Cooper C, Dixon S, Julious S, et al. Evaluating the cost effectiveness of computer therapy compared with usual stimulation for people with long standing aphasia: a feasibility study. Protocol April 2010.

Palmer R, Enderby P, Mortley J, Cooper C, Dixson S, Julious S, et al. Cost effectiveness of aphasia computer therapy compared with usual stimulation for people with longstanding aphasia: a feasibility study (CACTUS). In: Proceedings of the 4th UK Stroke Forum. UK, Glasgow: (Abst. OG25). 2009.

Palmer R, Paterson G, Delaney A, Hughes H, Enderby P. Independent speech and language practice with aphasia computer software is an acceptable alternative to face to face therapy in the long term post stroke. In: Stroke. Vol. 44. 2013:NS14.

Palmer R, Paterson G, Delany A. Have your say: engaging people with communication disorders in stroke research. In: UK Stroke Forum. 2010.

Palmer R, Paterson G. Do volunteers have a role in the workforce to support long term speech and language rehabilitation? International Journal of Stroke 2013;8:32.

Reason for exclusion	Not high intensity SLT (20 minutes 3 days a week).

Conklyn 2012

Conklyn D, Novak E, Boissy A, Bethoux F, Chemali K. The effects of modified melodic intonation therapy on nonfluent aphasia: a pilot study. J Speech Lang Hear Res 2012;55(5):1463-71.

Reason for exclusion	Not high intensity SLT (only 3 sessions up to 45 minutes each were delivered).

Crerar 1996

Published and unpublished data

* Crerar MA, Ellis AW, Dean EC. Remediation of sentence processing deficits in aphasia using a computer-based microworld. Brain and Language 1996;52:229-75.

Crerar MA. A computer-based microworld for the assessment and remediation of sentence processing deficits in aphasia. Unpublished PhD thesis. Napier University, Edinburgh. 1991.

Reason for exclusion	Not high intensity SLT (1 hour therapy twice weekly for 3 weeks).

Crosson 2014

Unpublished data only

Altmann LJ, Hazamy AA, Carvajal PJ, Benjamin M, Rosenbek JC, Crosson B. Delayed stimulis-specific improvements in discourse following anomia treatment using an intentional gesture. J Speech Lang Hear Res 2014;57(2):439-54.

* Benjamin ML, Towler S, Garcia A, Park H, Sudhyadhom A, Harnish S, McGregor KM, Zlatar Z, Reilly JJ, Rosenbek JC, Gonzalez Rothi LJ, Crosson B. A behavioral manipulation engages right frontal cortex during aphasia therapy. Neurorehabil Neural Repair. 2014;28(6):545-553.

Crosson B, Fabrizio KS, Singletary F, Cato MA, Wierenga CE, Parkinson RB, et al. Treatment of naming in nonfluent aphasia through manipulation of intention and attention: a phase 1 comparison of two novel treatments. Journal of the International Neuropsychological Society 2007;13:582-94.

Crosson B. Treating intention in aphasia: neuroplastic substrates. ClinicalTrials.gov NCT00567242 2007.

Reason for exclusion	Not high intensity SLT (SLT with gestural adjunct versus SLT).

David 1982

Published and unpublished data

David R, Enderby P, Bainton D. Response to Huber W, Poeck K, Springer L, Willmes K. Journal of Neurology, Neurosurgery and Psychiatry 1983;46:692-3.

David R, Enderby P, Bainton D. Response to Marshall RC, Golper LA. Journal of Neurology, Neurosurgery and Psychiatry 1983;46:689-91.

David R, Enderby P, Bainton D. Response to TR Pring. British Journal of Disorders of Communication 1983;18(2):73-7.

* David R, Enderby P, Bainton D. Treatment of acquired aphasia: speech therapists and volunteers compared. Journal of Neurology, Neurosurgery and Psychiatry 1982;45:957-61.

David RM, Enderby P, Bainton D. Progress report on an evaluation of speech therapy for aphasia. British Journal of Disorders of Communication 1979;14(2):85-8.

David RM. A comparison of speech therapists and volunteers in the treatment of acquired aphasia. Unpublished thesis, University of London, UK. 1982.

Enderby P. Proposed evaluation of speech therapy for acquired aphasia. British Journal of Disorders of Communication 1976;11(2):144-8.

Reason for exclusion	Not high intensity SLT (Up to 2 hours therapy weekly).

Di Carlo 1980

Published data only (unpublished sought but not used)

Di Carlo L. Language recovery in aphasia: effect of systematic filmed programed instruction. Archives of Physical Medicine and Rehabilitation 1980;61:41-4.

Reason for exclusion	Not high intensity SLT (SLT of long versus short duration).

Doesborgh 2004

Published and unpublished data

Doesborgh SJC, Van de Sandt-Koenderman MWME, Dippel DWJ, Van harskamp F, Koudstaal PJ, Visch-Brink EG. Cues on request: the efficacy of Multicue, a computer program for wordfinding therapy. Aphasiology 2004;18(3):213-22.

Reason for exclusion	Not high intensity SLT (2 to 3 sessions weekly).

Drummond 1981

Unpublished data only

Drummond SS, Rentschler GJ. The efficacy of gestural cueing in dysphasic word-retrieval responses. Journal of Communication Disorders 1981;14(4):287-98.

Reason for exclusion	Both study arms delivered intensive SLT (15 to 30 minutes daily for 2 weeks).

Elman 1999

Published data only (unpublished sought but not used)

Elman RJ, Bernstein-Ellis E. Psychosocial aspects of group communication treatment. Seminars in Speech and Language 1999;20(1):65-72.

* Elman RJ, Bernstein-Ellis E. The efficacy of group communication treatment in adults with chronic aphasia. Journal of Speech, Language and Hearing Research 1999;42(2):411-9.

Reason for exclusion	Not high intensity SLT (2.5-hour session twice weekly for 4 months).

FUATAC

Unpublished data only

Küst J, Kuhn D, Wadehn J, Karbe H. Communication oriented forced -use therapy for aphasic patients [Kommunikationsorientierte forced-use Therapie bei Aphasikern]. http://www.refonet.de/veranstaltungen/documents/05004Posterrefonetupdate2007.pdf (last accessed 25 March 2012).

* Küst J. Forced Use Aphasia Therapy in the ACute phase (FUATAC). ISRCTN Register ISRCTN26390986 2007.

Reason for exclusion	Both study arms delivered intensive SLT (5 sessions per week).

Hinckley 2001

Published and unpublished data

Hinckley JJ, Patterson JP, Carr TH. Differential effects of context- and skill-based treatment approaches: preliminary findings. Aphasiology 2001;15(5):463-76.

Reason for exclusion	Both study arms delivered intensive SLT (20 hours weekly for 5 weeks).

Katz 1997i

Published and unpublished data

Katz RC, Wertz RT, Lewis SM, Esparza C, Goldojarb MA. A comparison of computerized reading treatment, computer stimulation, and no treatment for aphasia. In: Prescott TE, editor(s). Clinical Aphasiology. Vol. 19. Austin, Texas: Pro-Ed, 1991:243-54.

Katz RC, Wertz RT. Computerized hierarchical reading treatment in aphasia. Aphasiology 1992;6(2):165-77.

* Katz RC, Wertz RT. The efficacy of computer-provided reading treatment of chronic aphasic adults. Journal of Speech, Language and Hearing Research 1997;40(3):493-507.

Reason for exclusion	Not high intensity SLT (3 hours weekly).

Katz 1997ii

Published and unpublished data

Katz RC, Wertz RT, Lewis SM, Esparza C, Goldojarb MA. A comparison of computerized reading treatment, computer stimulation, and no treatment for aphasia. In: Prescott TE, editor(s). Clinical Aphasiology. Vol. 19. Austin, Texas: Pro-Ed, 1991:243-54.

Katz RC, Wertz RT. Computerized hierarchical reading treatment in aphasia. Aphasiology 1992;6(2):165-77.

* Katz RC, Wertz RT. The efficacy of computer-provided reading treatment of chronic aphasic adults. Journal of Speech, Language and Hearing Research 1997;40(3):493-507.

Reason for exclusion	Not high intensity SLT (3 hours weekly).

Leal 1993

Published and unpublished data

Ferro JM, Leal G, Farrajota L, Fonseca J, Guerreiro M, Castro-Caldas A. Speech therapy or home training for stroke aphasics? Journal of Neurology 1992;239(Suppl 3):20.

Leal MG, Farrajota L, Fonseca J, Guerriero M, Castro-Caldas A. The influence of speech therapy on the evolution of stroke aphasia. Journal of Clinical and Experimental Neuropsychology 1993;15(3):399.

* Leal MG, Farrajota L, Fonseca J, Santos ME, Guerriero M, Ferro JM, et al. The influence of speech therapy on the evolution of stroke aphasia. Unpublished report. Language Research Laboratory, Lisbon, Portugal, 1994.

Reason for exclusion	Not high intensity SLT (Volunteer-facilitated SLT versus Professional SLT).

Lincoln 1982i

Published and unpublished data

* Lincoln NB, Pickersgill MJ, Hankey AI, Hilton CR. An evaluation of operant training and speech therapy in the language rehabilitation of moderate aphasics. Behavioural Psychotherapy 1982;10(2):162-78.

Lincoln NB. An Investigation of the Effectiveness of Language Retraining Methods with Aphasic Stroke Patients. [PhD thesis] 1980.

Reason for exclusion	No relevant comparison (both arms included 30-minute sessions 4 times weekly).

Lincoln 1982ii

Published and unpublished data

* Lincoln NB, Pickersgill MJ, Hankey AI, Hilton CR. An evaluation of operant training and speech therapy in the language rehabilitation of moderate aphasics. Behavioural Psychotherapy 1982;10(2):162-78.

Lincoln NB. An Investigation of the Effectiveness of Language Retraining Methods with Aphasic Stroke Patients. [PhD thesis] 1980.

Reason for exclusion	No relevant comparison (both arms included 30-minute sessions 4 times weekly).

Lincoln 1982iii

Published and unpublished data

* Lincoln NB, Pickersgill MJ, Hankey AI, Hilton CR. An evaluation of operant training and speech therapy in the language rehabilitation of moderate aphasics. Behavioural Psychotherapy 1982;10(2):162-78.

Lincoln NB. An Investigation of the Effectiveness of Language Retraining Methods with Aphasic Stroke Patients. [PhD thesis] 1980.

Reason for exclusion	No relevant comparison (both arms included 30-minute sessions 4 times weekly).

Lincoln 1984a

Published and unpublished data

Berman A, Rowntree P, Smith L, Chambers C, Russell R, Chipperfield E, et al. Speech therapy for the stroke patient. Lancet 1984;2(8394):104.

Howard D. Speech therapy for aphasic stroke patients. Lancet 1984;1(8391):1413-4.

Lendrem W, Lincoln NB. Spontaneous recovery of language in patients with aphasia between 4 and 34 weeks after stroke. Journal of Neurology, Neurosurgery and Psychiatry 1985;48:743-8.

Lendrem W, McGuirk E, Lincoln N. Factors affecting language recovery in aphasic stroke patients receiving speech therapy. Journal of Neurology, Neurosurgery and Psychiatry 1988;51:1103-10.

* Lincoln N, Mulley GP, Jones AC, McGuirk E, Lendrem W, Mitchell JRA. Effectiveness of speech therapy for aphasic stroke patients. Lancet 1984;1(8388):1197-200.

Lincoln NB, Jones AC, Mulley GP. Psychological effects of speech therapy. Journal of Psychosomatic Research 1985;29(5):467-74.

Lincoln NB, McGuirk E. Speech therapy for the stroke patient. Lancet 1984;2(8394):104.

Lincoln NB. Psychological effects of speech therapy. International Journal of Rehabilitation Research 1985;8(Suppl 4):22.

Williams J, Wenden F, Jenkins DG. Speech therapy for aphasic stroke patients. Lancet 1984;1(8391):1413.

Reason for exclusion	Not high intensity SLT (1 hour session 2 times weekly).

Lincoln 1984b

Published and unpublished data

* Lincoln NB, Pickersgill MJ. The effectiveness of programmed instruction with operant training in the language rehabilitation of severely aphasic patients. Behavioural Psychotherapy 1984;12:237-48.

Lincoln NB. An Investigation of the Effectiveness of Language Retraining Methods with Aphasic Stroke Patients. [PhD thesis] 1980.

Reason for exclusion	No relevant comparison (both arms included 30-minute session twice weekly).

Liu 2006

Published data only (unpublished sought but not used)

Liu Y, Zhang L. The TCM-combined treatment for aphasia due to cerebrovascular disorders. Journal of Traditional Chinese Medicine 2006;26(1):19-21.

Reason for exclusion	This study did not report on any outcome relevant for the Targeted Update. The study did not report on intensity of treatment. Interventions: Conventional SLT plus acupuncture versus no SLT.

Lyon 1997

Published and unpublished data

Lyon JG, Cariski D, Keisler L, Rosenbek J, Levine R, Kumpula J, et al. Communication partners: enhancing participation in life and communication for adults with aphasia in natural settings. Aphasiology 1997;11(7):693-708.

Reason for exclusion	Not high intensity SLT (Phase A: 1 to 1.5 hours twice weekly for 6 weeks; Phase B: 1- to 2-hour session (clinic) plus 2- to 4-hour session (community) once weekly for 14 weeks).

MacKay 1988

Published data only (unpublished sought but not used)

Mackay S, Holmes DW, Gersumky AT. Methods to assess aphasic stroke patients. Geriatric Nursing 1988;May/June:177-9.

Reason for exclusion	Not high intensity SLT (3 to 6 hours once weekly for 1 year).

Meikle 1979

Published data only (unpublished sought but not used)

Meikle M, Wechsler E, Tupper A, Benenson M, Butler J, Mulhall D, et al. Comparative trial of volunteer and professional treatments of dysphasia after stroke. BMJ 1979;2(6182):87-9.

Reason for exclusion	Not high intensity SLT (Volunteer-facilitated versus professional SLT).

Meinzer 2007

Published and unpublished data

Meinzer M, Streiftau S, Rockstroh B. Intensive language training in the rehabilitation of chronic aphasia - effective training by laypersons. Journal of the International Neuropsychological Society 2007;13:846-53.

Reason for exclusion	Both arms received therapy of same intensity: 3 hours therapy daily for 10 consecutive working days; volunteer-facilitated versus professional SLT.

MIT 2014i

Unpublished data only

Van der Meulen AC, Van de Sandt-Koenderman WME, Visch-Brink EG, Smits M, Duivenvoorden HJ, Ribbers GM. The efficacy of melodic intonation therapy (MIT) in aphasia rehabilitation: Research Protocol Version 2. Nederlands Trial Register. www.trialregister.nl 2009.

Van der Meulen AC. The efficacy of melodic intonation therapy (MIT) in aphasia rehabilitation. Nederlands Trial Register. www.trialregister.nl 2009.

Van der Meulen I, Van de Sandt-Koenderman ME, Ribbers GM. Melodic Intonation Therapy: present controversies and future opportunities. Archives of Physical Medicine and Rehabilitation 2012;93(Suppl 1):S46-52.

* van der Meulen, I., Van de Sandt-Koenderman ME, Heijenbrok-Kal MH, Visch-Brink EG, Ribbers GM. The Efficacy and Timing of Melodic Intonation Therapy in Subacute Aphasia. Neurorehabil Neural Repair 2014;28(6):536-544.

Reason for exclusion	Both arms received therapy of same intensity: 6 weeks; 5 h/wk; Melodic intonation SLT versus other SLT.

MIT 2014ii

Unpublished data only

* Van der Meulen AC, Van de Sandt-Koenderman WME, Visch-Brink EG, Smits M, Duivenvoorden HJ, Ribbers GM. The efficacy of Melodic Intonation Therapy (MIT) in aphasia rehabilitation: Research Protocol Version 2. Nederlands Trial Register. www.trialregister.nl 2009.

Van der Meulen AC. The efficacy of Melodic Intonation Therapy (MIT) in aphasia rehabilitation. Nederlands Trial Register, www.trialregister.nl 2009.

Van der Meulen I, Van de Sandt-Koenderman ME, Ribbers GM. Melodic Intonation Therapy: present controversies and future opportunities. Archives of Physical Medicine and Rehabilitation 2012;93(Suppl 1):S46-52.

Reason for exclusion	Both arms received therapy of same intensity: 6 weeks; 5 h/wk.

NARNIA 2013

* Whitworth A, Leitão S, Cartwright J, Webster J, Hankey GJ, Zach J, Howard D, Wolz V. NARNIA: a new twist to an old tale. A pilot RCT to evaluate amultilevel approach to improving discourse in aphasia. Aphasiology 2015;29(11):1345-1382.

Whitworth A. For people with aphasia following stroke, is a manualised narrative intervention programme aimed at improving discourse in everyday communication situations more effective than usual speech pathology intervention as measured by improved language ability across the different levels of language (i.e. words, sentences, discourse) in everyday communication activities? http://www.anzctr.org.au/ACTRN12613001263785.aspx 2013. [Other: ACTRN12613001263785]

Reason for exclusion	Both arms received therapy of same intensity: four times weekly, over five weeks; Interventions: Experimental SLT versus conventional SLT.

ORLA 2006

Published and unpublished data

* Cherney LR, Babbitt EM, Cole R, van Vuuren S, Hurwitz R, Ngampatipatpong M. Computer treatment for aphasia: efficacy and treatment intensity. Poster presentation, ACRM-ASNR Joint Educational Conference 2006.

Cherney LR, Lee J, Babbit E, Hurwitz R. Is more better? Preliminary results from a computer treatment study for aphasia. In: Clinical Aphasiology Conference, Scottsdale Arizona. 2007.

Cole R, Cherney L. ORLA (Oral Reading for Language in Aphasia with Virtual Therapist). www.bltek.com/virtual-teachers/orla.html.

Reason for exclusion	This study did not report on any outcome relevant for the Targeted Update. Interventions: High intensity SLT (10 hours therapy weekly for 6 weeks) versus low intensity SLT (4 hours weekly for 6 weeks).

ORLA 2010

Published and unpublished data

Cherney LR. Oral Reading for Language in Aphasia (ORLA): evaluating the efficacy of computer-delivered therapy in chronic nonfluent aphasia. Topics in Stroke Rehabilitation 2010;17(6):423-31.

Reason for exclusion	Both arms received therapy of same intensity: one hour therapy, 2-3 times week; Interventions: Computer-mediated versus professional SLT.

Prins 1989

Published and unpublished data

* Prins RS, Schoonen R, Vermuelen J. Efficacy of two different types of speech therapy for aphasic patients. Applied Psycholinguistics 1989;10:85-123.

Prins RS. Aphasia: classification, treatment and recovery [Afasie: classificatie, behandeling en herstelverloop]. Unpublished doctoral dissertation, University of Amsterdam 1987.

Reason for exclusion	Both arms received therapy of same intensity: 2 sessions weekly for 5 months. Interventions: Experimental SLT versus conventional SLT.

RATS

Published and unpublished data

* Doesborgh SJC, Van de Sandt-Koenderman MWE, Dippel DWJ, Koudstaal PJ, Visch-Brink EG. Effects of semantic treatment on verbal communication and linguistic processing in aphasia after stroke: a randomized controlled trial. Stroke 2004;35:141-6.

Van de Sandt-Koenderman MWE, Harskamp F, Duivenvoordend HJ, Remerie SC, Van der Voort-Klees YA, Wielaert SM, et al. MAAS (Multi-axial Aphasia System): realistic goal setting in aphasia rehabilitation. International Journal of Rehabilitation Research 2008;31(4):314-20.

Reason for exclusion	Both arms received therapy of same intensity: 1.5 to 3 hours weekly, 2 or 3 sessions up to 40 weeks. Interventions: Semantic SLT versus other SLT.

RATS-2

Published and unpublished data

* De Jong-Hagelstein M, Van de Sandt-Koenderman WME, Prins ND, Dippel DW, Koudstaal PJ, Visch-Brink EG. Efficacy of early cognitive-linguistic treatment and communicative treatment in aphasia after stroke: a randomised controlled trial (RATS-2). Journal of Neurology, Neurosurgery and Psychiatry 2011;82(4):399-404.

De Jong-Hagelstein M. Word finding deficits in aphasia: diagnosis and treatment. Erasmus Universiteit, Rotterdam 2011.

Hagelstein M, Rotterdam EMC. The effectiveness of cognitive linguistic therapy in the acute phase of aphasia: a randomised controlled trial. Afasiologie 2006;4 (Special Issue):62-4.

Visch-Brink EG.. The efficacy of cognitive linguistic therapy in the acute stage of aphasia: a randomized controlled trial. The Rotterdam Aphasia Therapy Study-2. Nederlands Trial Register (http://www.trialregister.nl) 2006.

Reason for exclusion	Both arms received therapy of same intensity: 2 to 5 hours weekly for 6 months. Interventions: Semantic SLT versus other SLT.

Rochon 2005

Published and unpublished data

Rochon E, Laird L, Bose A, Scofield J. Mapping therapy for sentence production impairments in nonfluent aphasia. Neuropsychological Rehabilitation 2005;15(1):1-36.

Reason for exclusion	Both arms received therapy of same intensity: 1-hour session twice weekly for approximately 2.5 months. Interventions: SLT versus social support and stimulation.

SEMaFORE

Morris J. SemaFoRe: Semantic feature & Repetition therapy in aphasia: A pilot RCT. UK Clinical Research Network Portfolio Database (UKCRN) 2012.

Reason for exclusion	Both arms received therapy of same intensity: 2 sessions per week of 45 minutes over 6 weeks. Interventions: Semantic feature analysis versus Repetition in the presence of a picture.

Shewan 1984i

Published and unpublished data

Shewan CM, Bandur DL. Treatment of Aphasia: A Language-oriented Approach. San Diego: College-Hill Press, 1986.

* Shewan CM, Kertesz A. Effects of speech and language treatment on recovery from aphasia. Brain and Language 1984;23:272-99.

Reason for exclusion	Both arms received therapy of same intensity: 1-hour session 3 times weekly for 1 year. Interventions: Experimental versus conventional SLT.

Shewan 1984ii

Published and unpublished data

Shewan CM, Bandur DL. Treatment of Aphasia: A Language-oriented Approach. San Diego: College-Hill Press, 1986.

* Shewan CM, Kertesz A. Effects of speech and language treatment on recovery from aphasia. Brain and Language 1984;23:272-99.

Reason for exclusion	Both arms received therapy of same intensity: 1-hour session 3 times weekly for 1 year. Interventions: SLT versus social support and stimulation.

Shewan 1984iii

Published and unpublished data

Shewan CM, Bandur DL. Treatment of Aphasia: A Language-oriented Approach. San Diego: College-Hill Press, 1986.

* Shewan CM, Kertesz A. Effects of speech and language treatment on recovery from aphasia. Brain and Language 1984;23:272-99.

Reason for exclusion	Both arms received therapy of same intensity: 1-hour session 3 times weekly for 1 year. Interventions: SLT versus social support and stimulation.

Sickert 2014

Sickert A, Anders LC, Munte TF, Sailer M. Constraint-induced aphasia therapy following sub-acute stroke: a single-blind, randomised clinical trial of a modified therapy schedule. J Neurol Neurosurg Psychiatry 2014;85(1):51-5.

Sickert AA. Constraint-Induced Aphasia Therapy Following Sub-acute Stroke: A Modified Therapy Schedule. http://clinicaltrials.gov/show/NCT01625676 2012. [Other: NCT01625676]

Reason for exclusion	Both arms received therapy of same intensity: 2 hours of training over 15 days. Interventions: Constraint-induced aphasia therapy versus other SLT.

Smania 2006

Published and unpublished data

Smania N, Aglioti SM, Girardi F, Tinazzi M, Fiaschi A, Cosentino A, et al. Rehabilitation of limb apraxia improves daily life activities in patients with stroke. Neurology 2006;67:2050-2.

Smania N, Girardi F, Domenicali C, Lora E, Aglioti S. The rehabilitation of limb apraxia: a study in left-brain-damaged patients. Arch Phys Med Rehabil 2000;81(4):379-88.

Reason for exclusion	Both arms received therapy of same intensity: 50 minutes 3 times weekly for 10 weeks. Interventions: SLT versus no SLT.

Smith 1981i

Published and unpublished data

* Duffy FR. Speech therapy after stroke: a randomised controlled trial - an interim report. Demonstration Centres in Rehabilitation Newsletter, Volume 28, 1982.

Smith DS, Goldenberg E, Ashburn A, Kinsella G, Sheikh K, Brennan PJ, et al. Remedial therapy after stroke: a randomised controlled trial. BMJ 1981;282:517-20.

Reason for exclusion	This study did not report on any outcome relevant for the Targeted Update. Interventions: High intensity SLT (1 hour 4 times weekly for up to 12 months) versus no SLT.

Smith 1981ii

Published and unpublished data

* Duffy FR. Speech therapy after stroke: a randomised controlled trial - an interim report. Demonstration Centres in Rehabilitation Newsletter, Volume 28, 1982.

Smith DS, Goldenberg E, Ashburn A, Kinsella G, Sheikh K, Brennan PJ, et al. Remedial therapy after stroke: a randomised controlled trial. BMJ 1981;282:517-20.

Reason for exclusion	Not high intensity SLT (40 minutes twice weekly for up to 12 months).

Smith 1981iii

Published and unpublished data

* Duffy FR. Speech therapy after stroke: a randomised controlled trial - an interim report. Demonstration Centres in Rehabilitation Newsletter, Volume 28, 1982.

Smith DS, Goldenberg E, Ashburn A, Kinsella G, Sheikh K, Brennan PJ, et al. Remedial therapy after stroke: a randomised controlled trial. BMJ 1981;282:517-20.

Reason for exclusion	This study did not report on any outcome relevant for the Targeted Update. Interventions: High intensity SLT (1 hour 4 times weekly for up to 12 months) versus conventional SLT (40 minutes twice weekly for up to 12 months).

Szaflarski 2014

Published data only (unpublished sought but not used)

* Szaflarski J, Allendorfer J, Ball A, Banks C, Dietz A, Hart K, Lindsell C, Martin A, Vannest J. Randomized controlled trial of constraint-induced aphasia therapy in patients with chronic stroke. In: Neurology. Vol. 82. 2014:S21.001.

Reason for exclusion	No relevant comparison: Constraint-induced aphasia therapy (10 daily sessions each 4 hours long) versus no SLT. Insufficient data available at present, complete trial data report not yet published.

Van Steenbrugge 1981

Published and unpublished data

Van Steenbrugge WJ, Prins RS. Word finding difficulties and efficacy of systematic language therapy in aphasic patients. Logopedie en Foniatrie 1981;53:622-37.

Reason for exclusion	Not high intensity SLT (Phase 1: 1 hour twice weekly for 6 weeks. Phase 2: 3 weeks 'free therapy').

Varley 2011

Published and unpublished data

Varley R, Windsor F, Whiteside S. Whole word therapy for acquired apraxia of speech. In: 35th Clinical Aphasiology Conference, Sanibel Island, Florida, USA. 2005.

Reason for exclusion	Not high intensity SLT (Average of 3.3 hours/week delivered over 6 weeks).

VERSE II

Unpublished data only

* Ciccone NA, West DK, Cream A, Cartwright J, Rai T, Granger AS, Hankey GJ, Godecke E. A randomised controlled trial comparing individual therapy and constraint induced aphasia therapy (CIAT) in very early recovery following stroke.. (manuscript in draft).

Godecke E, Cowan E, Rai T, Ciccone NA, Granger A S, Cream A, West DK, Cartwright J, Hankey GJ. Does the amount of aphasia therapy in the first 4-5 weeks after stroke improve outcome? Very Early Rehabilitation in SpEech-II (VERSE II). Cerebrovascular Diseases 2012;33:42.

Reason for exclusion	Both arms received therapy of same intensity (45-60 minutes, 5 days a week for 20 sessions over five weeks). Interventions: Constraint-induced aphasia therapy versus other SLT.

Wertz 1981

Published and unpublished data

Avent JR, Wertz RT. Influence of type of aphasia and type of treatment on aphasic patients' pragmatic performance. Aphasiology 1996;10(3):253-65.

* Wertz R, Collins MJ, Weiss D, Kurtzke JF, Friden T, Brookshire RH, et al. Veterans administration cooperative study on aphasia: a comparison of individual and group treatment. Journal of Speech and Hearing Research 1981;24:580-94.

Reason for exclusion	Both arms received therapy of same intensity (4 hours in group with therapist plus 4 hours of group activities weekly for up to 44 weeks). Interventions: Group SLT versus conventional SLT.

Wertz 1986iii

Published and unpublished data

Kurtzke JF, Wertz RT, Weiss DG, Garcia-Bunuel L, Aten JL, Brookshire RH, et al. Comparison of Improvement in neurologic severity and language in treated and untreated aphasic patients. Neurology 1985;35(Suppl 1):122.

* Marshall RC, Wertz RT, Weiss DG, Aten J, Brookshire RH, Garcia-Bunuel L, et al. Home treatment for aphasic patients by trained nonprofessionals. Journal of Speech and Hearing Disorders 1989;54:462-70.

Wertz R, Weiss WG, Aten JL, Brookshire RH, Garcia-Bunuel L, Holland AL, et al. Comparison of clinic, home and deferred language treatment. Archives of Neurology 1986;43:653-8.

Reason for exclusion	Both arms received therapy of same intensity (8 to 10 hours weekly for 12 weeks). Interventions: Volunteer-facilitated versus professional SLT.

Wilssens 2015

Wilssens I, Vandenborre D, van Dun K, Verhoeven J, Visch-Brink E, Marien P. Constraint-Induced aphasia therapy versus intensive semantic treatment in fluent aphasia. American Journal of Speech-Language Pathology 2015;24(2):281-294.

Reason for exclusion	Both arms received therapy of same intensity (2- to 3-hr sessions per day on nine or 10 consecutive working days). Interventions: Constraint-induced aphasia therapy versus other SLT.

Woolf 2015i

Published and unpublished data

* Woolf C, Caute A, Haigh Z, Galliers J, Wilson S, Kessie A, Hirani S, Hegarty B, Marshall J. A comparison of remote therapy, face to face therapy and an attention control intervention for people with aphasia: A quasi-randomised controlled feasibility study. Clinical Rehabilitation 2015;April 24:pii: 0269215515582074. [Epub ahead of print].

Reason for exclusion	Not high intensity SLT (1 hour sessions of therapy delivered twice a week over 4 weeks).

Woolf 2015ii

* Woolf C, Caute A, Haigh Z, Galliers J, Wilson S, Kessie A, Hirani S, Hegarty B, Marshall J. A comparison of remote therapy, face to face therapy and an attention control intervention for people with aphasia: A quasi-randomised controlled feasibility study. Clinical Rehabilitation 2015;April 24:pii: 0269215515582074. [Epub ahead of print].

Reason for exclusion	Not high intensity SLT (1 hour sessions of therapy delivered twice a week over 4 weeks / Eight remote conversations, scheduled twice a week).

Woolf 2015iii

* Woolf C, Caute A, Haigh Z, Galliers J, Wilson S, Kessie A, Hirani S, Hegarty B, Marshall J. A comparison of remote therapy, face to face therapy and an attention control intervention for people with aphasia: A quasi-randomised controlled feasibility study. Clinical Rehabilitation 2015;April 24:pii: 0269215515582074. [Epub ahead of print].

Reason for exclusion	Not high intensity SLT (1 hour sessions of therapy delivered twice a week over 4 weeks / Eight remote conversations, scheduled twice a week).

Wu 2004

Published data only (unpublished sought but not used)

Wu X. Analysis of the effect of 'two-step method' on aphasia in patients with acute cerebrovascular disease. Chinese Journal of Clinical Rehabilitation 2004;8(22):4422-3.

Reason for exclusion	Intensity of therapy not reported. No outcomes were available.

Wu 2013

Wu Z. A community applied research of traditional Chinese medicine rehabilitation scheme on Brocaís aphasia after stroke. Journal of Head Trauma Rehabilitation 2013;http://www.chictr.org/en/proj/show.aspx?proj=5661.

Reason for exclusion	No outcomes were available. Interventions: SLT (30mins/day, once a day, 5 days/week) versus no SLT.

Xie 2002

Xie SL, Zhu MG, Zhang XL, Xue ZJ. The role of community nursing in family rehabilitation of stroke patients with impaired spoken language. Chinese Journal of Clinical Rehabilitation 2002;6(21):3289.

Reason for exclusion	No outcomes relevant for Targeted Update. Interventions: SLT(6 times a week, one hour each time delivered over 12 months) versus no SLT.

Yao 2005i

Published data only (unpublished sought but not used)

Yao J, Xue Y, Li F. Clinical application research on collective language strengthened training in rehabilitation nursing of cerebral apoplexy patients with aphasia. Chinese Nursing Research 2005;19(3B):482-4.

Reason for exclusion	No outcomes relevant for Targeted update. Interventions: Group SLT (daily for 28 days) versus no SLT.

Yao 2005ii

Published data only (unpublished sought but not used)

Yao J, Xue Y, Li F. Clinical application research on collective language strengthened training in rehabilitation nursing of cerebral apoplexy patients with aphasia. Chinese Nursing Research 2005;19(3B):482-4.

Reason for exclusion	No outcomes relevant for Targeted update. Interventions: Conventional SLT (daily for 28 days) versus no SLT.

Yao 2005iii

Published data only (unpublished sought but not used)

Yao J, Xue Y, Li F. Clinical application research on collective language strengthened training in rehabilitation nursing of cerebral apoplexy patients with aphasia. Chinese Nursing Research 2005;19(3B):482-4.

Reason for exclusion	Both arms received therapy of same intensity (daily for 28 days). Interventions: Group SLT versus conventional SLT.

Zhang 2007i

Zhang H-M. Clinical treatment of apoplectic aphemia with multi-needle puncture of scalp-points in combination with visual-listening-speech training. Acupuncture Research 2007;32(3):190-4.

Reason for exclusion	Not high intensity SLT. Interventions SLT (intensity not reported) versus no SLT.

Zhang 2007ii

Published data only (unpublished sought but not used)

Zhang H-M. Clinical treatment of apoplectic aphemia with multi-needle puncture of scalp-points in combination with visual-listening-speech training. Acupuncture Research 2007;32(3):190-4.

Reason for exclusion	Not high intensity SLT. Interventions SLT plus acupuncture (intensity not reported) versus no SLT.

Zhao 2000

Published data only (unpublished sought but not used)

Zhao H, Ying B, Shen C. Clinical study on the effect of combined therapy of medicine acupuncture and speech training on aphasia from ischemic apoplexy. Henan Traditional Chinese Medicine 2000;20(5):31-2.

Reason for exclusion	Not high intensity SLT. Interventions SLT plus acupuncture (intensity not reported) versus no SLT.

Excluded studies from the Cochrane review

The following studies were excluded from the 2016 draft full Cochrane review update, approved for publication by the Cochrane Stroke Group editorial team, in full text screening, and from the Targeted Update. Reasons for exclusion are provided below.

Albert 1973

Albert ML, Sparks RW, Helm NA. Melodic intonation therapy for aphasia. Arch Neurol 1973;29(2):130-1.

Reason for exclusion	Non-RCT.

Avent 2004

Avent J. Group Treatment for Aphasia Using Cooperative Learning Principles. Topics in Language Disorder 2004;24(2):118-124.

Reason for exclusion	Non-RCT.

Basso 1975

Basso A, Faglioni P, Vignolo LA. Controlled study of language re-education in aphasia: comparison between treated and untreated aphasics. Revue neurologique 1975;131(9):607-614.

Reason for exclusion	Non-RCT.

Beukelman 1980

Beukelman DR, Yorkston KM, Waugh PF. Communication in severe aphasia: effectiveness of three instruction modalities. Archives of Physical Medicine and Rehabilitation 1980;61(6):248-252.

Reason for exclusion	Non-RCT.

Bloom 1962

Bloom LM. A rationale for group treatment of aphasic patients. J Speech Hear Disord 1962;27:11-16.

Reason for exclusion	Non-RCT.

Breitenfeld 2005

Breitenfeld T, Jergovi K, Vargek Solter V, Demarin V. Music therapy in aphatic [sic] stroke patients - a pilot study. European Journal of Neurology 2005;12(Suppl 2):55 (P1060).

Reason for exclusion	Non-SLT intervention (music therapy).

Caute 2013

Caute A, Pring T, Cocks N, Cruice M, Best W, Marshall J. Enhancing communication through gesture and naming therapy. Journal of Speech, Language, and Hearing Research 2013;51(6):337-351.

Reason for exclusion	Non-RCT.

Cherney 2007

* Cherney LR, Small SL. Intensive language therapy for nonfluent aphasia with and without surgical implantation of an investigational cortical stimulation device: preliminary language and imaging results.. In: Clinical Aphasiology Conference; 2007 May 22-26; Arizona, TN. 2007.

Reason for exclusion	Experimental and control groups had same SLT intervention with experimental group also receiving cortical stimulation.

Cherney 2010

* Cherney LR, Erickson RK, Small SL. Epidural cortical stimulation as adjunctive treatment for non-fluent aphasia: preliminary findings. Journal of Neurology, Neurosurgery and Psychiatry 2010;81:1014-21.
Northstar Neuroscience. Assessment of cortical stimulation combined with rehabilitation to enhance recovery in Broca's aphasia. ClinicalTrials.gov ID: NCT00170703 2005.

Reason for exclusion	Non-SLT intervention (epidural cortical stimulation).

Cherney 2011
Cherney LR, Halper AS, Kaye RC. Computer-based script training for aphasia: emerging themes from post-treatment interviews. J Commun Disord 2011;44(4):493-501.

Reason for exclusion	Non-RCT.

Cherney 2014
Cherney LR, Kaye RC, van Vuuren S. Acquisition and maintenance of scripts in aphasia: a comparison of two cuing conditions. Am J Speech Lang Pathol 2014;23(2):S343-60.
Cherney LR. Aphasia Rehabilitation: Modulating Cues, Feedback & Practice. http://clinicaltrials.gov/show/NCT01597037 2014 2014.

Reason for exclusion	Quasi-randomised trial.

Cohen 1992
Cohen NS. The effect of singing instruction on the speech production of neurologically impaired persons. Journal of Music Therapy 1992;XXIX(2):87-102.

Reason for exclusion	Included conditions other than stroke. Unable to obtain aphasia-specific data.

Cohen 1993
Cohen NS, Masse R. The application of singing and rhythmic instruction as a therapeutic intervention for persons with neurogenic communication disorders. Journal of Music Therapy 1993;XXX(2):81-99.

Reason for exclusion	Included conditions other than stroke. Unable to obtain aphasia-specific data.

Cupit 2010
Cupit J, Rochon E, Leonard C, Laird L. Social validation as a measure of improvement after aphasia treatment: Its usefulness and influencing factors. Aphasiology 2010;24(11):1486-1500.

Reason for exclusion	Single-subject, multiple baseline across behaviours design.

Ding 1995
Ding H, Lin L, Wu G, Liu Y, Xiao H. Computer-aided speech therapy system. Chinese Journal of Biomedical Engineering 1995;14(1):39-44.

Reason for exclusion	Non-RCT.

Dubner 1972
Dubner H. The role of the speech pathologist in the early treatment of the aphasic patient. Rehabil Lit 1972;33(11):330-1 passim.

Reason for exclusion	Non-RCT.

Gu 2002
Gu Y, Li SL. The effect of 3-month rehabilitation therapy for the speech function of aphasiacs. Chinese Journal of Clinical Rehabilitation 2002;6(7):956-957.

Reason for exclusion	Unable to obtain aphasia-specific data.

Gu 2003

Gu Y, Wang S, Li S. The method and therapy effect of the early speech therapy on aphasia. Zhongguo Linchuang Kangfu 2003;7(3):382-3.

Reason for exclusion	Unable to obtain aphasia-specific data.

Hagen 1973

Hagen C. Communication abilities in hemiplegia: effect of speech therapy. Archives of Physical Medicine and Rehabilitation 1973;54:454-63.

Reason for exclusion	Quasi-randomised trial.

Harnish 2014

* Harnish SM, Morgan J, Lundine JP, Bauer A, Singletary F, Benjamin ML, Gonzalez-Rothi LJ, Crosson B. Dosing of a cued picture-naming treatment for anomia. Am J Speech Lang Pathology 2014 May;23(2):S285-99.

Reason for exclusion	Non-RCT.

Hartman 1987

Albert ML, Helm-Estabrooks N. Aphasia therapy works. Archives of Neurology 1988;42:372-3.
* Hartman J, Landau W. Comparison of formal language therapy with supportive counselling for aphasia due to acute vascular accident. Archives of Neurology 1987;44:646-9.
Landau WM, Hartman JS. In reply to Wertz and Albert. Archives of Neurology 1988;45:373.
Wertz RT. Comparison of treatment with counselling is not a test of treatment for aphasia. Archives of Neurology 1988;45:371-2.

Reason for exclusion	Quasi-randomised trial.

Hinckley 2005

Hinckley J, Carr T. Comparing the outcomes of intensive and non-intensive context-based aphasia treatment. Aphasiology 2005;19(10):965-74.

Reason for exclusion	Non-RCT.

Holmqvist 1998

Thorsén A-M, Widén Holmqvist L, De Pedro-Cuesta J, Von Koch L. A randomised controlled trial of early supported discharge and continued rehabilitation at home after stroke. Stroke 2005;36:297-302.
* Widén Holmqvist L, Von Koch L, Kostulas V, Holm M, Widsell G, Tegler H, et al. A randomised controlled trial of rehabilitation at home after stroke in southwest Stockholm. Stroke 1998;29:591-7.

Reason for exclusion	Unable to obtain aphasia-specific data.

IHCOP 2014

* Woolf C, Panton A, Rosen S, Best W, Marshall J. Therapy for auditory processing impairment in aphasia: An evaluation of two approaches. Aphasiology 2014;28(12):1481-1505.
Woolf C. The effects of phoneme discrimination and semantic therapies for speech perception deficits in aphasia. National Research Register.

Reason for exclusion	Non-RCT.

Ji 2011

Ji X, Li HB. Simple motor aphasia caused by cerebral infarction treated with blood-pricking at Yamen (GV 15) combined with language training. Zhongguo zhen jiu [Chinese acupuncture & moxibustion] 2011;31(11):979-982.

Reason for exclusion	Non-SLT intervention (acupuncture).

Jungblut 2004
Jungblut M, Aldridge D. Effects of a specific music therapy approach in the treatment of patients suffering from chronic nonfluent aphasia. Neurologie und Rehabilitation 2004;10(2):69-78.

Reason for exclusion	Randomisation to groups inadequate; group allocation could be predicted.

Kagan 2001
Kagan A, Black SE, Duchan JF, Simmons-Mackie N, Square P. Training volunteers as conversation partners using 'supported conversation for adults with aphasia' (SCA): a controlled trial. Journal of Speech, Language and Hearing Research 2001;44(3):624-38.

Reason for exclusion	Quasi-randomised trial.

Kalra 1993
Kalra L, Dale P, Crome P. Improving stroke rehabilitation: a controlled study. Stroke 1993;24(10):1462-7.

Reason for exclusion	Not all participants had aphasia. Unable to obtain aphasia-specific data.

Kendall 2015
Kendall DL, Oelke M, Brookshire CE, Nadeau SE. The influence of phonomotor treatment on word retrieval abilities in 26 individuals with chronic aphasia: an open trial. Journal of Speech Language and Hearing Research 2015;58(3):798-812.

Reason for exclusion	Non-RCT.

Kinsey 1986
Kinsey C. Microcomputer speech therapy for dysphasic adults: a comparison with two conventionally administered tasks. British Journal of Disorders of Communication 1986;21:125-33.

Reason for exclusion	Randomisation dictated order of task presentation. Aimed to establish impact of task delivery on performance. Not a therapeutic intervention.

Kurt 2008
Kurt T, Kizilisik O, Satici SB, Akhan G. The efficacy of the short-term language therapy in aphasic patients without comprehension deficit during the subacute stage of stroke. European Journal of Neurology 2008;15(Suppl 3):374 (P2694).

Reason for exclusion	Quasi-randomised trial.

Lara 2009
Lara JP, Barbancho MA, Berthier ML, Green C, Navas P, wid-Milner MS, Davila G, Garcia-Alberca JM, Pulvermuller F, Gonzalez-Baron S. ERPs correlates of recovery from chronic post-stroke aphasia in patients treated with memantine and constraint-induced aphasia therapy. European Journal of Neurology 2009;16(S3):457.

Reason for exclusion	Pharmacological intervention evaluation.

Lara 2011
Lara JP, Barbancho MA, Berthier ML, Green C, Navas P, wid-Milner MS, Garcia-Alberca JM, Ruiz-Cruces R, Pulvermuller F, Davila G, Gonzalez-Baron S. ERP evidence of therapy-related reorganization of language of patients with post stroke chronic aphasia. Clinical Neurophysiology 2011;122:S172.

Reason for exclusion	Pharmacological intervention evaluation.

Li 2005
Li QW, Chen ZM, Huang SS, Li LJ, Tang GH, Luo DM, Weng XP. Outcome evaluation of language disorder diagnosis apparatus ZM2.1 in treatment of Broca's aphasia. Chinese Journal of Clinical Rehabilitation 2005;9(25):14-16.

Reason for exclusion	Non-RCT.

Lincoln 1986
Lincoln, NB, McGuirk E. Prediction of Language Recovery in Aphasic Stroke Patients Using the Porch Index of Communicative Ability. The British Journal of Disorders of Communication 1986;21(1):83-88.

Reason for exclusion	Non-RCT.

Liu 2006a
Liu X, Dai R, Cheng L. Correlation between the design of aphasia rehabilitative program and the diseased sites of cerebrum. Chinese Journal of Clinical Rehabilitation 2006;10(14):7-9.

Reason for exclusion	Stroke specific data unavailable.

Loeher 2007
Loeher KE. Spaced versus massed practice in aphasia therapy. WAYNE STATE UNIVERSITY [PhD Thesis] 2007.

Reason for exclusion	Non-RCT.

Luo 2008
Luo W, Tan J, Huang H. Clinical observation on treatment of cerebral infarction-induced Broca aphasia by tiaoshen fuyin acupuncture therapy combined with language training. Chinese Acupuncture and Moxibustion 2008;28(3):171-5.

Reason for exclusion	Non-SLT comparison (SLT + acupuncture versus SLT).

Maher 2008
* Maher L, DeBakey ME. An investigation of constraint induced language therapy for aphasia. NCT00223847.
Wu S. An investigation of constraint induced language therapy for treatment of aphasia. www.rorc.research.va.gov/Project_Template.cfm?Project_ID=2141693285 (accessed 25 March 2012).

Reason for exclusion	Non-RCT.

Marcotte 2013
Marcotte K, Perlbarg V, Marrelec G, Benali H, Ansaldo AI. Default-mode network functional connectivity in aphasia: Therapy-induced neuroplasticity. Brain and Language 2013;124(1):45-55.

Reason for exclusion	Non-RCT.

Marshall 2001
Marshall RC, Freed DB, Karow CM. Learning of subordinate category names by aphasic subjects: a comparison of deep and surface-level training methods. Aphasiology 2001;15(6):585-98.

Reason for exclusion	Intervention did not aim to improve communication skills but learning of non-words.

Mattioli 2010
Mattioli F, Magoni M, Ambrosi C, Gasparotti R. fMRI correlates of early aphasia rehabilitation after stroke: Preliminary results. Journal of Neurology 2010;257:S19.

Reason for exclusion	Non-RCT.

McCall 2007
McCall D, Linebarger MC, Berndt RS. Predicting effects of computer-based intervention on structure and content of aphasic patients' spoken language. Brain and Language 2007;103(1-2):207-208.

Reason for exclusion	Non-RCT.

Meinzer 2005
Meinzer M, Djundja D, Barthel G, Elbert T, Rockstroh B. Long-term stability of improved language functions in chronic aphasia after constraint-induced aphasia therapy. Stroke 2005;36:1462-6.

Reason for exclusion	Randomisation to groups inadequate; group allocation could be predicted.

Pistarini 1989
Pistarini C, Guarnaschelli C, Bazzini A, Zonca G. Evaluation of efficacy of a logopedic rehabilitation method. Riabilitazione 1989;22(1):47-55.

Reason for exclusion	Non-RCT.

Popovici 1992
Popovici M, Mihailescu L. Melodic intonation in the rehabilitation of Romanian aphasics with bucco-lingual apraxia. Rom J Neurol Psychiatry 1992;30(2):99-113.

Reason for exclusion	Included conditions other than stroke (mixed aetiology - stroke and TBI) Unable to obtain aphasia-specific data.

Qiu 2003
Qiu HY, Gao C, Liu YC. Treatment of basal segmental aphasia by acupuncture and programmed musical electro-acupuncture apparatus. New Journal of Traditional Chinese Medicine 2003;35(12):48-49.

Reason for exclusion	Non-SLT intervention (acupuncture).

Quinteros 1984
Quinteros B, Williams DRR, White CAM, Pickering M. The costs of using trained and supervised volunteers as part of a speech therapy service for dysphasic patients. British Journal of Disorders of Communication 1984;19:205-12.

Reason for exclusion	Quasi-randomised trial.

Rasmussen 2013
Rasmussen RS, Overgaard K, Ostergaard A, Kjaer P, Skerris A, Skou C, Christoffersen J, Seest LS, Poulsen MB. Post-stroke rehabilitation at home reduced disability and improved quality of life: A randomized controlled trial. Cerebrovascular Diseases 2013;35:94-95.

Reason for exclusion	Non-SLT intervention

Raymer 2008
Raymer AM. Treatment for word retrieval impairments in aphasia. ClinicalTrials.gov 2008.
* Raymer, A. M.McHose, B.Smith, K. G.Iman, L.Ambrose, A.Casselton, C.. Contrasting effects of errorless naming treatment and gestural facilitation for word retrieval in aphasia. Neuropsychol Rehabil 2011;22(2):235-66.

Reason for exclusion	Non-RCT.

Reinvang 1976

Reinvang IR, Hjeltnes N, Guvaag SP. Aphasia treatment in stroke patients. Results achieved in 18 patients 3-6 months after accident. Tidsskr Nor Laegeforen 1976;96(27):1421-3.

Reason for exclusion	Non-RCT.

Rudd 1997

Rudd AG, Wolfe CDA, Tilling K, Beech R. Randomised controlled trial to evaluate early discharge scheme for patients with stroke. BMJ 1997;315:1039-44.

Reason for exclusion	Unable to obtain aphasia-specific data.

Stoicheff 1960

Stoicheff M. Motivating instructions and language performance of dysphasic subjects. Journal of Speech and Hearing Research 1960;3(1):75-85.

Reason for exclusion	Included conditions other than stroke. Unable to obtain aphasia-specific data.

Thompson 2010

Thompson CK, Choy JJ, Holland A, Cole R. Sentactics®: Computer-automated treatment of underlying forms. Aphasiology 2010;24(10):1242-66.

Reason for exclusion	Quasi-randomised trial.

Tseng 2014

Tseng CE, Lin CP, Tsai PC, Yip BS, Lin CM, Yang FP. Melodic intonation therapy in stroke patients with aphasia: A DTI study. Cerebrovascular Diseases 2014;38:40.

Reason for exclusion	Non-RCT. Unclear whether any post-intervention assessment of language function is available.

Van Lancker 1997

Van Lancker D, Hall E, Goldojarb M. An interactive video system to test and treat nonliteral language disorders. Rehabilitation R&D Progress Reports 1997;34:255-6.

Reason for exclusion	Study was not completed.

Vauth 2008

Vauth F, Hampel P, Scibor M, Handschu R, Richter J, Keidel M. Synchronic telepractise: a new (additional) form of aphasia therapy [German]. Forum Logopadie 2008;224(4):12-19.

Reason for exclusion	Non-RCT.

Vines 2007

Vines BW, Norton AC, Schlaug G. Applying transcranial direct current stimulation in combination with melodic intonation therapy facilitates language recovery for Broca's aphasic patients. Stroke 2007;38(2):519 (Abst. P150).

Reason for exclusion	Non-SLT intervention (transcranial direct current stimulation).

Wang 2004

Wang D, Lu Y, Xie R, Yao J. Effect of different intensities of rehabilitation therapy on the prognosis of patients with stroke. Chinese Journal of Clinical Rehabilitation 2004;8(22):4410-1.

Reason for exclusion	Not all participants had aphasia. Unable to obtain aphasia-specific data.

Weiduschat 2011

Weiduschat N, Thiel A, Rubi-Fessen I, Hartmann A, Kessler J, Merl P, et al. Effects of repetitive transcranial magnetic stimulation in aphasic stroke: a randomized controlled pilot study. Stroke 2011;42(2):409-15.

Reason for exclusion	Non-SLT intervention (transcranial magnetic stimulation).

Wenke 2014

Wenke R, Lawrie M, Hobson T, Comben W, Romano M, Ward E, Cardell E. Feasibility and cost analysis of implementing high intensity aphasia clinics within a sub-acute setting. International journal of speech-language pathology 2014;16(3):250-259.

Reason for exclusion	Non-RCT (two cohort comparison study design).

West 1973

West JA. Auditory comprehension in aphasic adults: improvement through training. Archives of Physical Medicine and Rehabilitation 1973;54:78-86.

Reason for exclusion	Non-RCT (matched controls).

Wolfe 2000

Wolfe CDA, Tilling K, Rudd AG. The effectiveness of community-based rehabilitation for stroke patients who remain at home: a pilot randomized trial. Clinical Rehabilitation 2000;14:563-9.

Reason for exclusion	Unable to obtain aphasia-specific data.

Wood-Dauphinee 1984

Wood-Dauphinee S, Shapiro S, Bass E, Fletcher C, Georges P, Hensby V, et al. A randomized trial of team care following stroke. Stroke 1984;15:864-72.

Reason for exclusion	Included conditions other than stroke. Unable to obtain aphasia-specific data.

Xu 2005

Xu Y, Li Q, Hao Y. Observation on the efficacy of acupuncture plus rehabilitation composite treatment for apoplectic aphasia. Shanghai Journal of Acupuncture and Moxibustion 2005;24(8):30-31.

Reason for exclusion	Mixed aetiology (18 traumatic brain injury, 18 brain infarct, 6 brain ischaemia, 6 brain poisoning, 12 brain haemorrhage).

Zhang 2004

Zhang T, Li LL, Bi S, Mei YW, Xie RM, Luo ZM, et al. Effects of three-stage rehabilitation treatment on acute cerebrovascular diseases: a prospective randomized controlled multicenter study. Chinese Medical Journal 2004;84(23):1948-54.

Reason for exclusion	Unable to obtain aphasic-specific data.

Ongoing studies: references and characteristics

The following list of ongoing studies from the 2016 draft full Cochrane review update, approved for publication by the Cochrane Stroke Group editorial team, has been amended to meet the requirements of the Norwegian Health directorate interventions and outcomes.

COMPARE

* Rose M, Attard M, Mok Z, Lanyon L, Foster A. Multi-modality aphasia therapy is as efficacious as a constraint-induced aphasia therapy for chronic aphasia: A phase 1 study. Aphasiology 2013;27(8):938-971.

Rose M, Attard MC, Mok Z, Katthagen S. Variability in treatment responsiveness to constraint and multi-modal aphasia therapy calls for larger well-powered trials in chronic aphasia. International Journal of Stroke 2014;9(Suppl 1):9.

Rose M, Mok Z, Katthagen S. The comparative impact of Multi-modality and Constraint Induced Aphasia Therapy on discourse in aphasia. In: The 16th International Aphasia Rehabilitation Conference. 2014:8.

Study name	Constraint induced or multi-modal aphasia rehabilitation: An RCT of therapy for stroke-related chronic aphasia (COMPARE)
Methods	3-arm RCT
Participants	198 (66 participants in each arm) Patients with chronic post-stroke aphasia will be eligible for this trial Inclusion criteria: documented single stroke resulting in aphasia at least 6 months and not more than 3 years prior to assessment; aphasia of any type (<93.8 WAB-AQ); normal or corrected hearing and vision Exclusion criteria: previous stroke or neurological event/diagnosis (head injury, neurosurgery, dementia, epilepsy), severe apraxia of speech or dysarthria, diagnosed major clinical depression or other mental health condition, English as a second language
Interventions	1. Multi-modal aphasia rehabilitation (M-MAT) 2. Constraint induced aphasia therapy (CIAT Plus) 3. Usual care (standardised, limited aphasia therapy) For both CIAT and M-MAT, 30 hours of treatment (3 hrs/day, 5 days/week, for 2 weeks) and a daily home practice communication task (15 mins) will be given to each participant, consistent with previous CIAT and M-MAT studies. All aphasia therapy will be delivered in a small group setting (3 participants per group) by a qualified speech pathologist.
Outcomes	Primary outcomes: Western Aphasia Battery- Aphasia Quotient (AQ) Secondary outcomes: Stroke and Aphasia Quality of Life Scale (SAQOL-39), Communicative Effectiveness Index (CETI), Connected speech measures and Resource utilisation Data collection: baseline, immediately after treatment and at 12 weeks post-treatment
Starting date	2015 (trial set-up); 2016 (recruitment)
Contact information	Assoc Prof Miranda Rose, La Trobe University, Melbourne, Australia m.rose@latrobe.edu.au
Notes	Expected completion: 2018 Clinical trials registration number currently being organised

FCET2EC

* Baumgaertner, A.Grewe, T.Ziegler, W.Floel, A.Springer, L.Martus, P.Breitenstein, C.. FCET2EC (From controlled experimental trial to = 2 everyday communication): How effective is intensive integrative therapy for stroke-induced chronic aphasia under routine clinical conditions? A study protocol for a randomized controlled trial. Trials 2013;14(1):308 doi:10.1186/1745-6215-14-308.

Baumgartner A, Breitenstein C, Floel A, Ziegler W, Grewe T. Effectiveness of Intensive Aphasia Therapy Under Routine Clinical Conditions (FCET2EC). www.clinicaltrials.gov/ct2/show/NCT01540383 2012. [Other: NCT01540383]

Breitenstein C, Baumgaertner A, Grewe T, Floel A, Ziegler W, Martus P, Springer L.. From controlled experimental trial to=2 everyday communication (FCET2EC): How effective is intensive speech and language therapy in chronic aphasia? In: 16th International Aphasia Rehabiliation Conference. 2014:20.

Study name	FCET2EC (From controlled experimental trial to = 2 everyday communication): How effective is intensive integrative therapy for stroke-induced chronic aphasia under routine clinical conditions
Methods	Prospective randomised open blinded end-point (PROBE) design
Participants	126 Inclusion criteria: non-haemorrhagic or haemorrhagic cortical, subcortical, or subcortico-cortical stroke; presence of aphasia for at least 6 months; age between 18 years and 70 years; German as (the first) native language; score of at least 1 (between 0 and 5) on the communicative ability scale of the Aachen Aphasia Test/AAT; less than the maximum score of 10 error points on the first of five sub-tests of the AAT Token Test (securing basic comprehension of spoken instructions) Exclusion criteria: no verifiable aphasia according to the criteria of the AAT; aphasia due to traumatic brain injury or neurodegenerative diseases; severe uncontrolled medical problems; severe uncorrected-to-normal visual or auditory impairment
Interventions	1. Intensive integrative aphasia therapy. Intensive language therapy (3 weeks, 5 days/week >= 10 hours/week) provided in regular clinical setting and consisting of a combination of language systematic and communicative-pragmatic treatment. Group starts intensive language therapy within 3 workdays (or as soon as possible) after baseline exam 2. Waiting list control group. Control group starts intensive language therapy after a 3-week waiting period with assessments prior to and after the waiting period.
Outcomes	Primary outcome: ANELT-A Secondary outcomes: specially devised screening measures for language systematic and communicative-pragmatic communication ability; the German version of the Stroke and Aphasia Quality of Life Scale-39/SAQOL-39; German Version of the Communicative Effectiveness Index/CETI; B-scale (intelligibility) of the ANELT scenarios; ratings of the syntactic complexity of the ANELT scenarios using the AAT scoring system for spontaneous speech; ratings of non-verbal communication skills on the ANELT scenarios (based on the Scenario test, measures of general cognitive functioning Data collection: baseline, 3 weeks and at 6 months post-treatment. A subgroup from both conditions will also be assessed 5 weeks post-treatment.
Starting date	Trial started in February 2012; patient recruitment started April 1, 2012
Contact information	Annette Baumgaertner, PhD

	Faculty of Health and Social Sciences, Fresenius University of Applied Sciences, Alte Rabenstrasse 2, 20148 Hamburg, Germany, Email: Email: baumgaertner@hs-fresenius.de Caterina Breitenstein, PhD Dept. of Neurology, University of Muenster, Albert-Schweitzer-Campus 1, bldg. A1 48149 Muenster, Germany E-mail: caterina.breitenstein@uni-muenster.de
Notes	Last patient enrolled in June 2014 (last patient out after 6-month follow-up: January 2015). n=156 patients enrolled (n=78 per group); no patients lost to immediate follow-up; n=2 patients lost at the 6-months follow-up

IMITATE

* Lee J, Fowler R, Rodney D, Cherney L, Small SL. IMITATE: An intensive computer-based treatment for aphasia based on action observation and imitation. Aphasiology 2010;24(4):449-65.

Schmah T, Strother SC, Zemel RS, Yourganov G, Schiel M, Buchholz B, Small SL. Complexity of functional connectivity in aphasia treatment. Stroke 2011;42(11):e619.

Small S. Speech and language therapy after stroke. ClinicalTrials.gov NCT00713050 2010.

Study name	IMITATE: an intensive computer-based treatment for aphasia based on action observation and imitation
Methods	57 participants with aphasia randomised into 2 groups
Participants	Inclusion criteria: single ischaemic infarction in the MCA territory involving the cerebral cortex, aphasia, visual attention and language comprehension sufficient to perform imitation fMRI tasks, right-handed prior to stroke Exclusion criteria: cardiac pacemakers, claustrophobia, neurosurgical clips, significant cognitive impairment likely to impair co-operation on cognitive tasks
Interventions	1. IMITATE: home-based, 30 minutes 3 times daily 6 days weekly (total of 9 hours weekly) for 6 weeks' observation of audio-visual presentations of words and phrases followed by oral repetition of the stimuli 2. Control: not reported
Outcomes	Primary outcome: WAB Secondary outcome measures: subtests from the Apraxia Battery for Adults, the BNT, the 'cookie theft' picture description task from the BDAE, the SAQoL Data collection: not reported
Starting date	August 2007
Contact information	Professor Steven Small small@uchicago.edu
Notes	Expected completion: 2013 NCT00713050

Kukkonen 2007

Kukkonen T, Korpijaakko-Huuhka AM. How much is enough and when is the right time? What do we know about the good practice and timing of aphasia rehabilitation? In: British Aphasiology Society Biennial Conference. September 10-12 2007, Edinburgh, UK.

* Kukkonen T, Molnár G, Korpijaakko-Huuhka A-M. How much is enough and when is the right time? Developing strategies for assessing aphasia rehabilitation. In: 27th World Congress of the International Association of Logopedics and Phoniatrics, Copenhagen, Denmark. August 5-9 2007.

Study name	Timing and intensity of SLT services among people with aphasia
Methods	40 participants with aphasia randomised into 4 groups that vary in the intensity of SLT allocated and in the onset of therapy Participants have also been stratified by age: younger group (50 to 60 years) and older group (65 to 80 years)
Participants	Inclusion criteria: 50 to 80 years old, first CVA in the left hemisphere, living locally, diagnosis in university hospital, diagnosis confirmed by CT/MRI, availability of a relative; therapy sessions stating 4 weeks after onset
Interventions	1. High-intensity SLT group: 45 minutes 2 times per day, 5 days per week for 6 weeks 2. Moderate-intensity SLT group: 45 minutes 2 times per day, 2 days per week for 6 weeks 3. Conventional SLT: 45 minutes twice a week for 6 weeks 4. Control group: SLT-services on the waiting list for first 20 weeks and then like high-intensity SLT group if needed Spouses or carer(s) received support and information from the speech and language therapists twice (1 hour per meeting)
Outcomes	Primary outcome measure: Functional communicative skills (CETI) (People with aphasia and their carer(s) complete the forms separately Secondary outcome measures: Speech comprehension (Token Test, Pizzamigglio Sentence Test, Token Test and subtests from the BDAE); Speech production (BDAE subtests) and BNT, Quick Aphasia Screening Test,and time to complete tests is also measured. Emotional well being: Montgomery & Åberg Depression scale (people with aphasia) and with Beck's Depression scale (carers) Data collection: assessments were administered at 1 , 4, 10, 14, 20, 32 and 52 weeks post-stroke . Each participant had a over a 1 year (56 weeks) follow-up
Starting date	October 2002 - May 2007 (data collection completed) No drop-outs, but four participants died within 2 months post onset
Contact information	Tarja Kukkonen, Speech and Language Therapist Ph, MEsc, MSc Lecturer in Logopedics, Department of Speech, Communication and Voice Research, 33014 University of Tampere, Finland Tel. +358 44 3455033 Tarja.Kukkonen@uta.fi
Notes	No dropouts from study

LIFT 2014

Rodriguez AD, Worrall L, Brown K, Grohn B, McKinnon E, Pearson C, Van Hees S, Roxbury T, Cornwell P, Macdonald A, Angwin A, Cardell E, Davidson B, Copland D. Aphasia LIFT: Exploratory investigation of an intensive comprehensive therapy program. Aphasiology 2013;27(11):1339-1361.

Wenke R, Lawrie M, Hobson T, Comben W, Romano M, Cardell E, Ward EC. High Intensity Aphasia Clinics: Embedding the evidence into Queensland Health Project Completion Report. Brisbane Australia: Queensland Health 2012.

Worrall L. Can a new intensive model of aphasia rehabilitation achieve better outcomes than usual care with chronic aphasia resulting from stroke? https://www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=364926 2013. [Other: ACTRN12613001182785]

Study name	A stratified randomised control trial of an intensive, comprehensive aphasia program to compare patient outcomes post stroke with usual care. Short title: Can a new intensive model of aphasia rehabilitation achieve better

	outcomes than usual care?
Methods	Parallel single blinded two arm stratified block randomisation pragmatic trial Stratified randomisation will be used in order to ensure balance between LIFT and usual care groups with respect to severity of aphasia (mild/moderate, severe) using the Language Screening Test (LAST) screening assessment
Participants	People with aphasia (n=234) Family members/carers of people with aphasia (n=234) Treating speech pathologists (n=up to 50): Stakeholders (n=30) Inclusion criteria: 1. Participants with aphasia: confirmed stroke (medical chart) and confirmed aphasia using the Language Screening Test; score above cut-off on the cognitive subtest of the Comprehensive Aphasia Test; willing to forego other speech therapy for the duration of the study and during follow-up; able to toilet independently or with the assistance of an accompanying caregiver; requires at least 7 more weeks of therapy as reported by the referring speech pathologist; English language, hearing and vision sufficient for therapy as judged by the referring speech pathologist and the research assistant. 2. Family members/carers of participants with aphasia: able to speak English; 3. Treating speech pathologists: qualified practising speech pathologists, employed by either UQ or the partner hospitals, who are providing either LIFT or usual care to the people with aphasia in this study. 4. Speech pathology stakeholders: speech pathology managers, speech pathologists and consumers (i.e. people with aphasia and their family members/carers) Exclusion criteria: 1. Participants with aphasia: a co-existing neurological or mental health condition (e.g., dementia, severe depression); severe apraxia of speech or severe dysarthria; global aphasia preventing completion of assessments tasks; transition care patients who receive aphasia services at home on discharge from hospital; 2. Family members/carers of people with aphasia: must not have dementia or other cognitive impairments; must not have uncorrected vision or hearing impairments that will prevent participation. 3. Treating speech pathologists: no exclusion criteria; 4. Speech pathology stakeholders: no exclusion criteria.
Interventions	1. LIFT: 3 week intensive program + 4 weeks maintenance, delivered by trained speech pathologists at The UQ CCRE Aphasia Clinic and other rehabilitation centres of our Partner Organisations. Participants in LIFT attend 60 minute sessions 10 times a week for individual therapy, 60 minute sessions 5 times each week of computer-based therapy and 60 minute sessions twice per week of group therapy 2. Usual care: Any aphasia therapy up to 12 months post stroke, delivered by typical speech pathology service providers in outpatient hospital setting or community based rehabilitation setting in the patients' homes or centres
Outcomes	Primary outcome: Content Information Units (CIUs) and Assessment for Living with Aphasia (ALA) Secondary outcomes: Comprehensive Aphasia Test (CAT), the Philadelphia Naming Test (Short Forms A and B), participant satisfaction (measured using a semi-structured interview), Assessment of Quality of Life (AQoL-4D). Secondary outcomes for use with family members of people with aphasia include: Communicative Effectiveness Index (CETI), Bakas Caregiver Outcomes Scale and participant satisfaction. Secondary outcomes for use with treating SLT include: Australian Therapy Outcome Measure (AUSTOMs). Secondary

	outcomes for use with Speech Language Stakeholders include Semi-structured stakeholder interviews Data collection: baseline, post-treatment and 12 months post-onset of stroke
Starting date	01/01/2014
Contact information	Professor Linda Worrall Address: CCRE in Aphasia Rehabilitation, School of Health and Rehabilitation Sciences, Level 8, Therapies Building 84a, The University of Queensland, St Lucia, QLD 4072 Australia l.worrall@uq.edu.au
Notes	www.anzctr.org.au/trial/registration/trialreview.aspx?ACTRN=12613001182785 Expected completion: 31/08/2019

MIT USA

Schlaug G, Marchina S, Norton A. From singing to speaking: why singing may lead to recovery of expressive language function in patients with Broca's aphasia. Music Perception 2008;25(4):315-23.

Schlaug G, Norton A, Marchina S, Zipse L, Wan CY. From singing to speaking: facilitating recovery from nonfluent aphasia. Future Neurology 2010;5(5):657-65.

Schlaug G, Norton A. Behavioral and neural correlates of melodic intonation therapy versus speech repetition therapy in patients with non-fluent aphasia. In: Proceedings of the International Stroke Conference 2009. February 18-20 2009. San Diego, CA. 2009 (Abst. CT P37).

* Schlaug G. Melodic Intonation Therapy (MIT). Stroke Trials Registry, Internet Stroke Center: www.strokecenter.org/trials/ 2009.

Schlaug G. Singing to speaking: observations in healthy singers and patients with Broca's aphasia. In: , editor(s). American Association for the Advancement of Science Annual Meeting, 18-22nd February 2010, San Diego. http://aaas.confex.com/aaas/2010/webprogram/Paper1481.html. (last accessed 25 March 2012).

Study name	Melodic Intonation Therapy USA
Methods	Interventional, randomised, active control, efficacy study, parallel assignment, single blind (outcomes assessor) treatment
Participants	Inclusion criteria: first ischaemic left-hemisphere stroke, minimum of 12 months post-onset, right-handed prior to stroke, diagnosis of non-fluent or dysfluent aphasia Exclusion criteria: > 80 years of age; > 1 stroke; presence of metal, metallic or electronic devices (cannot be exposed to MRI environment); terminal health condition; history of major neurological or psychiatric disease (e.g. epilepsy, meningitis, encephalitis); use of psychoactive drugs/medications (e.g. antidepressants, antipsychotic, stimulants); active participation in other stroke recovery trials testing experimental interventions
Interventions	1. 75 sessions of MIT (approximately 16 weeks) 2. 75 sessions of speech repetition therapy (developed for this study - verbal treatment method of equal intensity) (approximately 16 weeks) 3. No therapy (16 weeks)
Outcomes	Primary outcome: number of correct information units per minute produced during spontaneous speech Secondary outcomes: standard picture naming test, timed automatic speech, linguistically based measures of phrase and sentence analysis, functional and structural imaging measures Data collection at baseline (x 2), midpoint of therapy, end of therapy, 4 weeks after end of therapy
Starting date	2008

Contact information	Gottfried Schlaug (PI): gschlaug@bidmc.harvard.edu Andrea Norton, Music and Neuroimaging Laboratory, Stroke Recovery Laboratory, Beth Israel Deconess Medical Centre and Harvard Medical School, 330 Brookline Avenue_palmer 127, Boston MA 02215 Tel: +1 617 6328926 nossorc1@phhp.ufl.edu www.muscianbrain.com
Notes	ClinicalTrials.gov ID: NCT00903266 Expected completion: 2012

RATS-3

Nouwens F. Rotterdam Aphasia Therapy Study-3: The efficacy of early, intensive cognitive-linguistic therapy in aphasia after stroke (a randomized controlled trial). - RATS-3. http://www.trialregister.nl/trialreg/admin/rctview.asp?TC=3271 2014.

RATS-3. http://www.eso-stroke.org/pdf/dtd2009/Rotterdam%20University%20Hospital.pdf (accessed 25 March 2012).

Study name	The efficacy of cognitive linguistic therapy in the acute stage of aphasia: a RCT
Methods	Parallel group RCT Cognitive linguistic SLT versus no SLT Massed practice: 2 weeks post-onset up to 2 months post-onset
Participants	150 participants with aphasia following stroke, acute stroke of less than 2 weeks duration
Interventions	1. Cognitive linguistic therapy: BOX (semantic therapy) or/and FIKS (phonological therapy) for 7 hours per week for 4 weeks (at least 2 hours each week is 1-to-1 SLT with the therapist) 2. No SLT: (deferred)
Outcomes	Primary outcome: ANELT-A Secondary outcomes: Verbal SAT, semantic word fluency, non-words repetition (PALPA), Auditory Lexical Decision (PALPA), Letter Fluency Data collection: 4 weeks (end of therapy), 3 months after randomisation, 6 months after randomisation
Starting date	January 2011
Contact information	EG Visch-Brink e.visch-brink@erasmusmc.nl M de Jong-Hagelstein m.hagelstein@erasmusmc.nl
Notes	Expected completion: July 2014

VERSE III

Godecke E, Armstrong E, Bernhardt J, Middleton S, Rai T, Cadilhac D, Whitworth A, Rose M, Ciccone N, Hankey GJ, Holland A. Multidisciplinary clinical rehabilitation very early rehabilitation in speech (verse): Progress report on an australian randomized controlled trial of aphasia therapy after stroke. International Journal of Stroke 2014;9:223.

Godecke E, Armstrong E, Bernhardt J, Middleton S, Rai T, Holland A, Cadilhac DA, Whitworth A, Rose M, Ciccone N, Hankey GJ. Very Early Rehabilitation in SpEech (VERSE): The development of an Australian randomised controlled trial of aphasia therapy after stroke. International Journal of Stroke 2013;8:44-45.

Godecke, E. A three armed, prospective multicentre randomised controlled speech therapy trial comparing usual care, usual care plus and Very Early Rehabilitation in Speech (VERSE) with blinded outcome assessment of the Aphasia Quotient score in patients with aphasia following acute stroke. Australian New Zealand Clinical Trials Registry 2013;ACTRN12613000776707.

Study name	Very Early Rehabilitation in Speech (VERSE): the development of an Australian randomised controlled trial of aphasia therapy after stroke
Methods	Three arm prospective multicentre RCT

Participants	Inclusion criteria: acute stroke with resultant acute aphasia of any type and score < 93.7 of the Aphasia Quotient (no TIA, SAH or SDH), medical stability at recruitment, ability to maintain a wakeful alert state for 30 consecutive minutes within 14 days of stroke onset, normal or corrected hearing and vision Exclusion Criteria: pre-existing aphasia, patients who have suffered a head injury, have had or require neurosurgery, pre-existing clinical diagnosis of dementia or major depression, concurrent progressive neurological disorders, patients unable to participate in English-based therapy due to English being a second language
Interventions	1. Usual care (ward based aphasia therapy at discretion of therapist likely to include non standardised aphasia therapy, counselling and patient/family education) likely to be 1-3 sessions of 30 minutes a week 2. Usual care plus (daily 1 to 1 ward based aphasia therapy; non standardised aphasia therapy, counselling, patient/family education) 20 sessions of 45-60 minutes (min 3 - max 5 sessions per week) 3. Very Early Rehabilitation in Speech (VERSE) (daily 1 to 1 ward based prescribed aphasia therapy; standardised intervention prescribed by expert advisory committee to meet goals based on patient needs) 20 sessions of 45-60 minutes (min 3 - max 5 sessions per week) SLT starts before day 14 post-aphasia onset. 20 sessions
Outcomes	Primary Outcome: Western Aphasia Battery Aphasia Quotient Score Secondary Outcome: Western Aphasia Battery Aphasia Quotient Score, Discourse Analysis (correct information units), Anxiety Depression Rating Score, Stroke and Aphasia Quality of Life (SAQoL), Resources Utilisation Questionnaire Data collection: baseline, 12 and 26 weeks post stroke. Blinded outcome assessment
Starting date	23-09-2013
Contact information	Dr Erin Godecke School of Psychology and Social Sciences, Edith Cowan University, Australia e.godecke@ecu.edu.au
Notes	Trial Reg No: ACTRN12613000776707

Data and analyses tables and forest plots

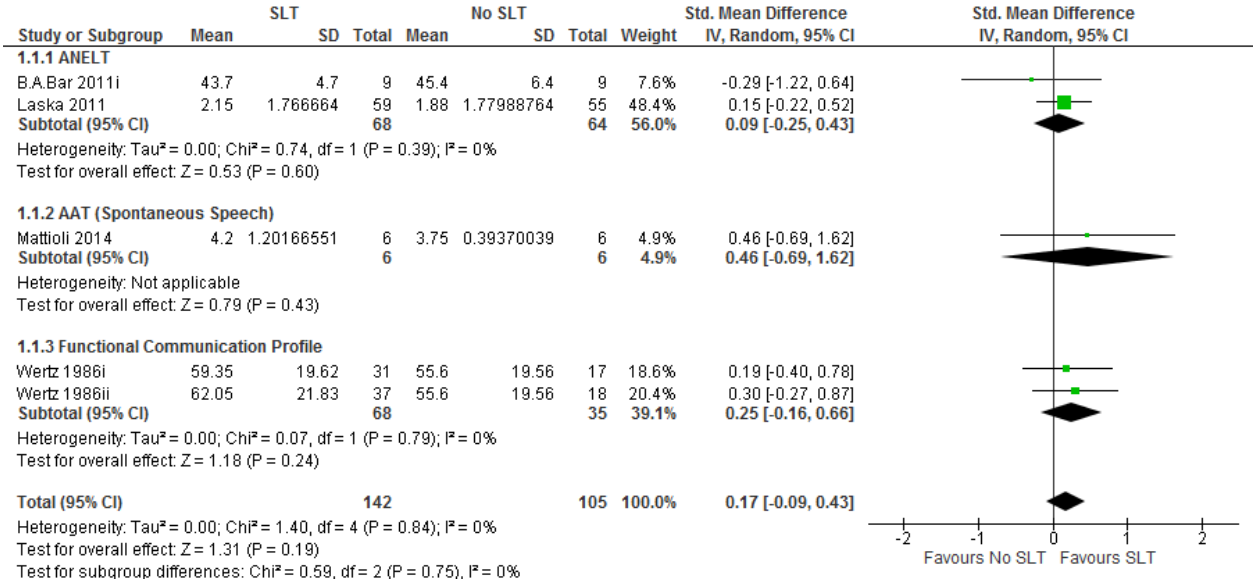
These tables have been amended from the 2016 draft full Cochrane review update, approved for publication by the Cochrane Stroke Group editorial team, to meet the requirements of the Norwegian Health Directorate interventions and outcomes.

1 Intensive SLT versus no SLT

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 Functional communication	5	247	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.09, 0.43] *
1.2 Receptive language: auditory comprehension	4	229	Std. Mean Difference (IV, Random, 95% CI)	0.03 [-0.23, 0.30] *
1.3 Receptive language: reading comprehension	3	115	Std. Mean Difference (IV, Random, 95% CI)	0.17 [-0.21, 0.56] *
1.4 Expressive language: naming	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.39 [-0.62, 1.40] *
1.5 Expressive language: written	3	115	Std. Mean Difference (IV, Random, 95% CI)	0.40 [-0.11, 0.90] *
1.6 Expressive language: repetition	2	126	Std. Mean Difference (IV, Random, 95% CI)	0.21 [-0.56, 0.97] *
1.7 Expressive language: fluency	1	18	Mean Difference (IV, Fixed, 95% CI)	4.00 [-0.53, 8.53]

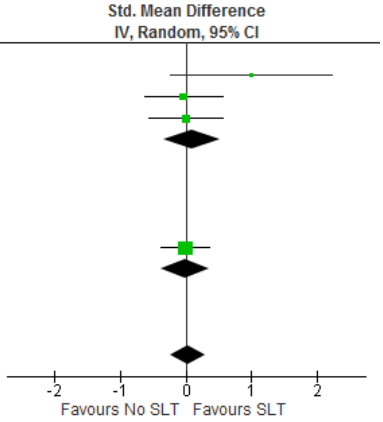
* Back-estimated to mean difference in the summary of findings table to enable interpretation. See footnotes in summary of findings table for details.

1.1 Functional communication



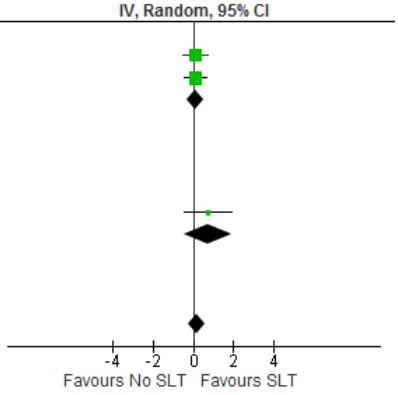
1.2 Receptive language: auditory comprehension

Study or Subgroup	SLT Mean	SD	Total	No SLT Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.2.1 Token Test								
Mattioli 2014	40.83333	10.45785	6	26.83333	15.07868	6	4.7%	1.00 [-0.24, 2.23]
Wertz 1986i	118.39	41.95	31	119.91	38.48	17	20.3%	-0.04 [-0.63, 0.55]
Wertz 1986ii	119.89	45.06	37	119.91	38.48	18	22.4%	-0.00 [-0.56, 0.56]
Subtotal (95% CI)			**74**			**41**	**47.3%**	**0.10 [-0.33, 0.53]**
Heterogeneity: Tau² = 0.02; Chi² = 2.35, df = 2 (P = 0.31); I² = 15%								
Test for overall effect: Z = 0.45 (P = 0.65)								
1.2.2 Norsk Grunntest for Afasi								
Laska 2011	17.19	9.595874	58	17.27	9.65347606	56	52.7%	-0.01 [-0.38, 0.36]
Subtotal (95% CI)			**58**			**56**	**52.7%**	**-0.01 [-0.38, 0.36]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.04 (P = 0.96)								
Total (95% CI)			**132**			**97**	**100.0%**	**0.03 [-0.23, 0.30]**
Heterogeneity: Tau² = 0.00; Chi² = 2.46, df = 3 (P = 0.48); I² = 0%								
Test for overall effect: Z = 0.26 (P = 0.80)								
Test for subgroup differences: Chi² = 0.14, df = 1 (P = 0.71), I² = 0%								



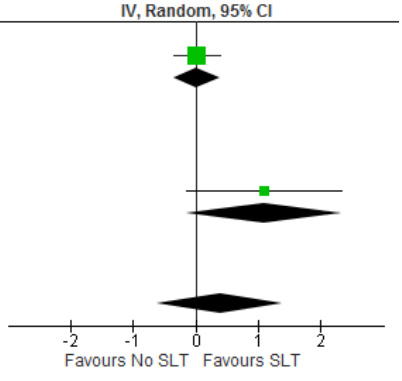
1.3 Receptive language: reading comprehension

Study or Subgroup	SLT Mean	SD	Total	No SLT Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.3.1 Reading Comprehension Battery for Aphasia								
Wertz 1986i	76.9	16.97	31	75.03	18.06	17	42.5%	0.11 [-0.49, 0.70]
Wertz 1986ii	77.24	20.79	37	75.03	18.06	18	46.9%	0.11 [-0.45, 0.67]
Subtotal (95% CI)			**68**			**35**	**89.4%**	**0.11 [-0.30, 0.52]**
Heterogeneity: Tau² = 0.00; Chi² = 0.00, df = 1 (P = 0.99); I² = 0%								
Test for overall effect: Z = 0.52 (P = 0.61)								
1.3.2 AAT subtest								
Mattioli 2014	52.5	6.862944	6	44.33333	12.81666	6	10.6%	0.73 [-0.45, 1.92]
Subtotal (95% CI)			**6**			**6**	**10.6%**	**0.73 [-0.45, 1.92]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 1.21 (P = 0.23)								
Total (95% CI)			**74**			**41**	**100.0%**	**0.17 [-0.21, 0.56]**
Heterogeneity: Tau² = 0.00; Chi² = 0.95, df = 2 (P = 0.62); I² = 0%								
Test for overall effect: Z = 0.88 (P = 0.38)								
Test for subgroup differences: Chi² = 0.95, df = 1 (P = 0.33), I² = 0%								

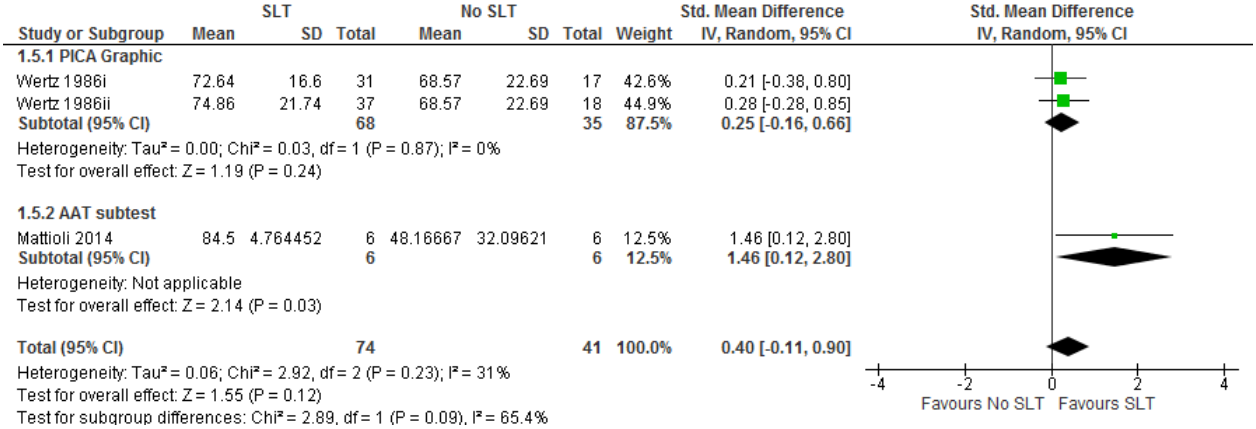


1.4 Expressive language: naming

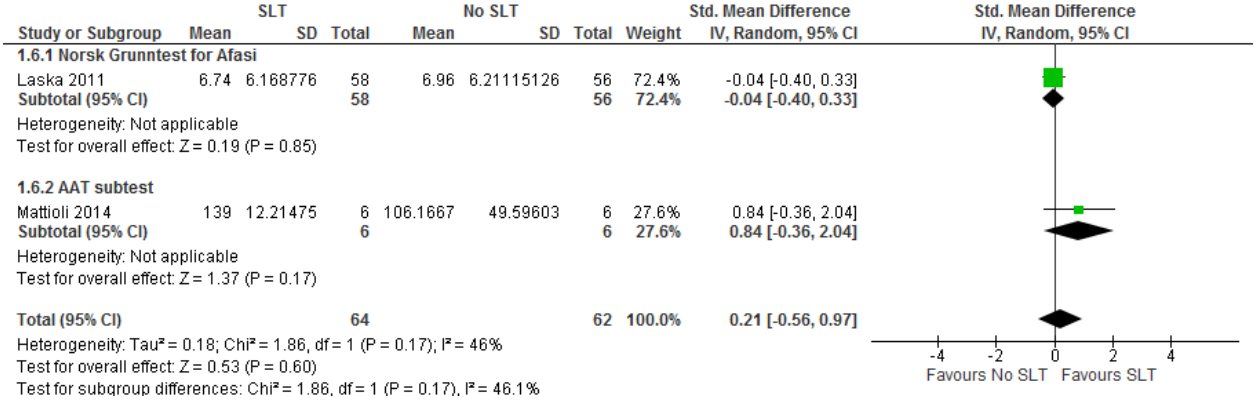
Study or Subgroup	SLT Mean	SD	Total	No SLT Mean	SD	Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.4.1 Norsk Grunntest for Afasi								
Laska 2011	6.74	6.397249	58	6.6	6.36081756	56	65.9%	0.02 [-0.35, 0.39]
Subtotal (95% CI)			**58**			**56**	**65.9%**	**0.02 [-0.35, 0.39]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 0.12 (P = 0.91)								
1.4.2 AAT subtest								
Mattioli 2014	110.5	13.48703	6	79.5	34.06318	6	34.1%	1.10 [-0.15, 2.36]
Subtotal (95% CI)			**6**			**6**	**34.1%**	**1.10 [-0.15, 2.36]**
Heterogeneity: Not applicable								
Test for overall effect: Z = 1.73 (P = 0.08)								
Total (95% CI)			**64**			**62**	**100.0%**	**0.39 [-0.62, 1.40]**
Heterogeneity: Tau² = 0.36; Chi² = 2.64, df = 1 (P = 0.10); I² = 62%								
Test for overall effect: Z = 0.76 (P = 0.45)								
Test for subgroup differences: Chi² = 2.64, df = 1 (P = 0.10), I² = 62.1%								



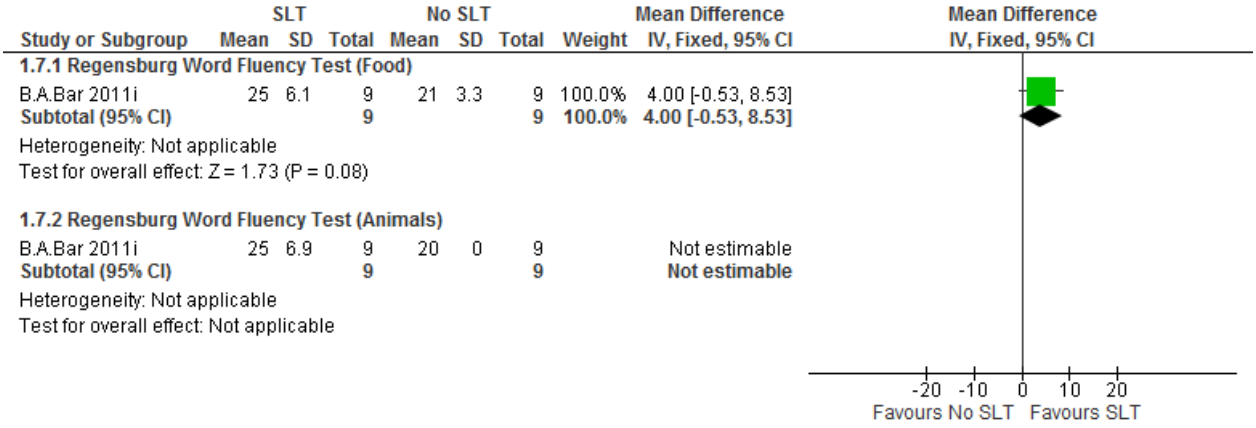
1.5 Expressive language: written



1.6 Expressive language: repetition



1.7 Expressive language: fluency



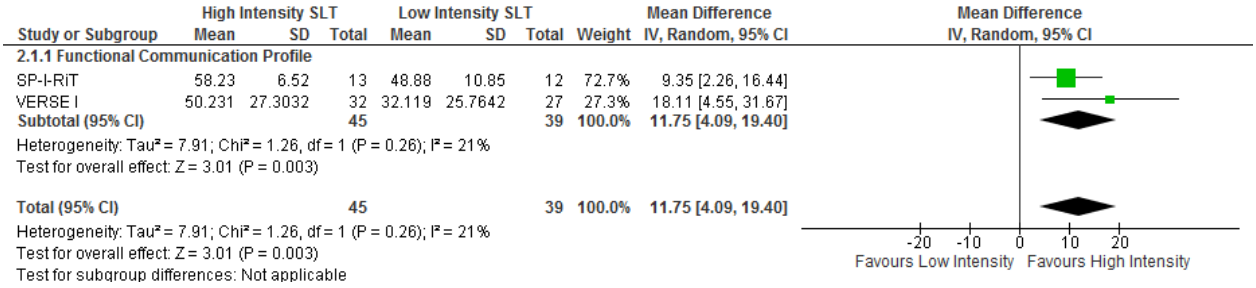
2 High intensity SLT versus low intensity SLT

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
2.1 Functional communication	2	84	Mean Difference (IV, Random, 95% CI)	11.75 [4.09, 19.40]
2.2 Receptive language: auditory comprehension	3	76	Std. Mean Difference (IV, Random, 95% CI)	0.69 [0.08, 1.31]*

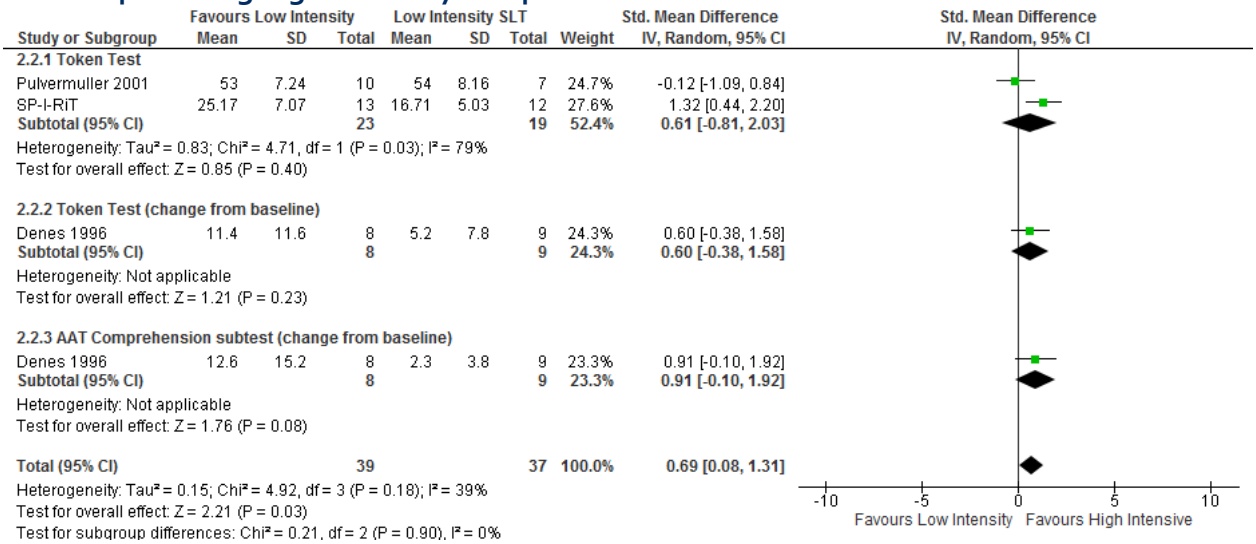
2.3 Receptive language: reading comprehension	1	25	Mean Difference (IV, Fixed, 95% CI)	1.71 [-3.03, 6.45]
2.4 Expressive language: naming	3	59	Std. Mean Difference (IV, Random, 95% CI)	0.37 [-0.15, 0.89]*
2.5 Expressive language: written	2	42	Mean Difference (IV, Random, 95% CI)	3.56 [-5.91, 13.03]
2.6 Expressive language: repetition	3	59	Std. Mean Difference (IV, Random, 95% CI)	0.08 [-0.44, 0.59]*
2.7 Expressive language: fluency	1	25	Mean Difference (IV, Fixed, 95% CI)	0.67 [0.23, 1.11]

* Back-estimated to mean difference in the summary of findings table to enable interpretation. See footnotes in summary of findings table for details.

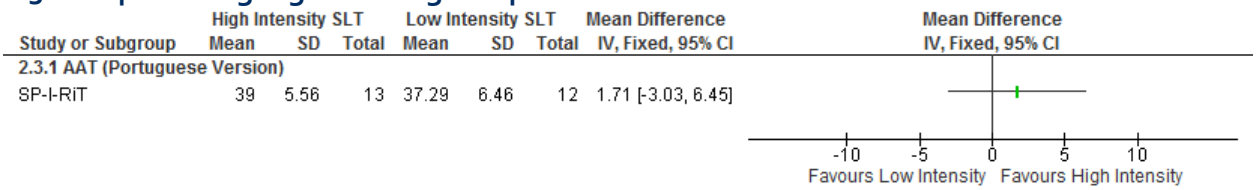
2.1 Functional communication



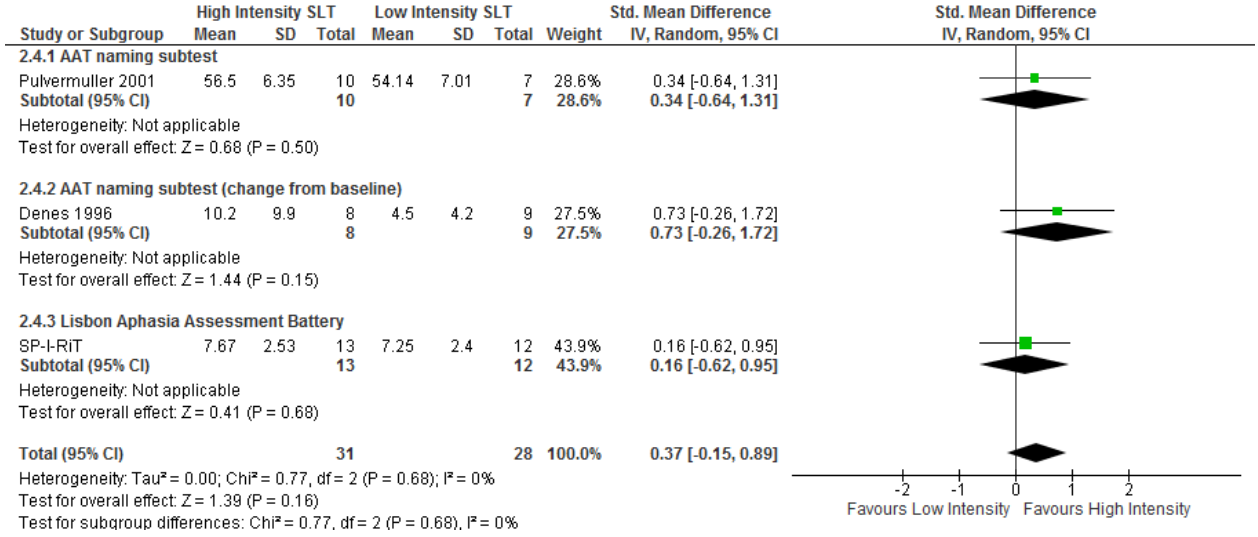
2.2 Receptive language: auditory comprehension



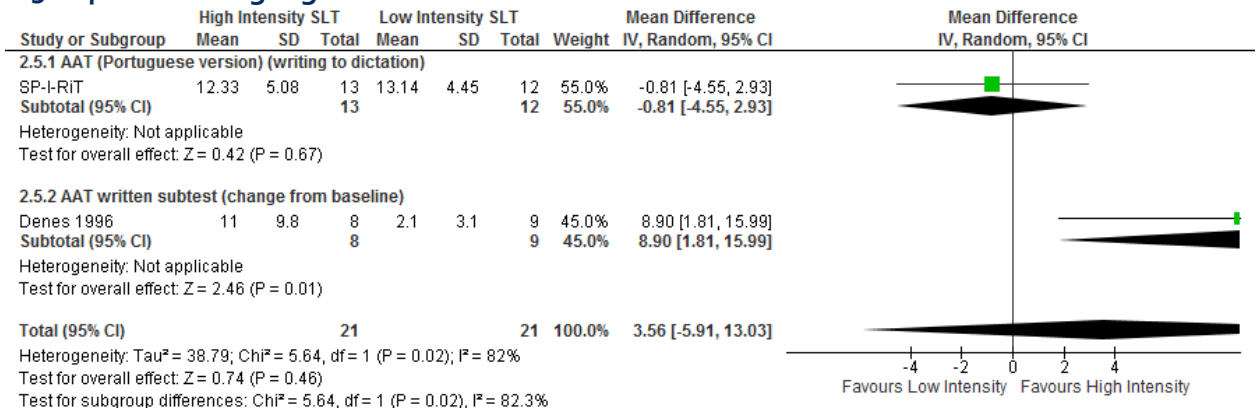
2.3 Receptive language: reading comprehension



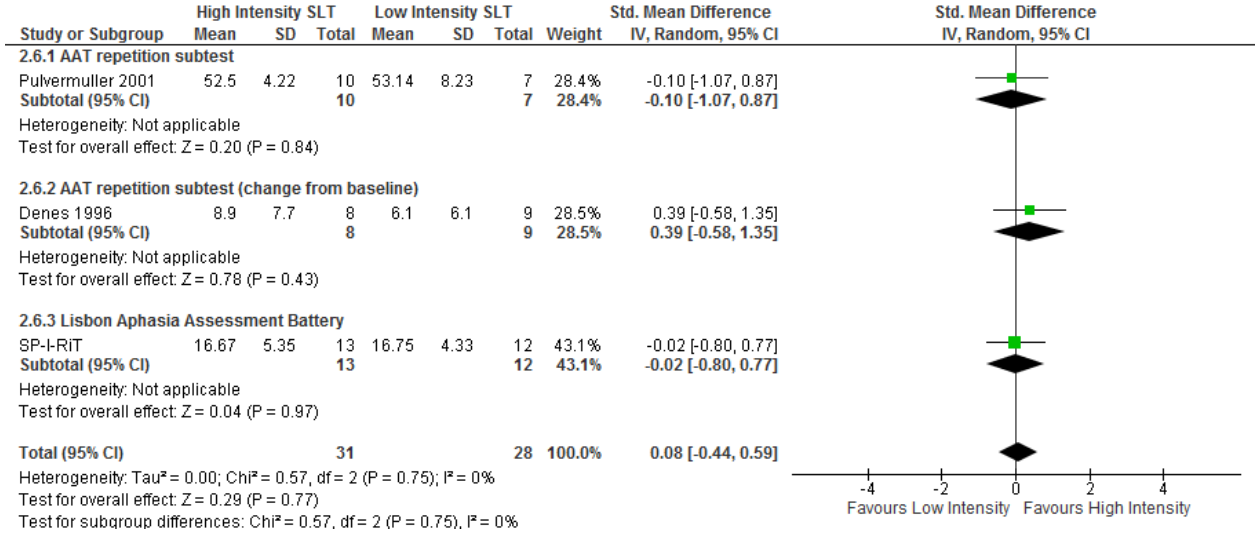
2.4 Expressive language: naming



2.5 Expressive language: written

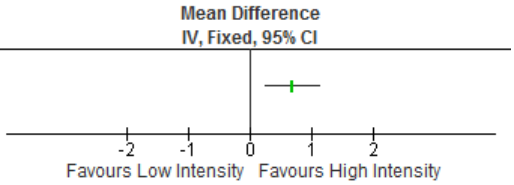


2.6 Expressive language: repetition



2.7 Expressive language: fluency

Study or Subgroup	High Intensity SLT Mean	SD	Total	Low Intensity SLT Mean	SD	Total	Mean Difference IV, Fixed, 95% CI
2.7.1 Lisbon Aphasia Assessment Battery							
SP-I-RiT	3.17	0.54	13	2.5	0.57	12	0.67 [0.23, 1.11]



Appendices

Appendix 1: MEDLINE search strategy

MEDLINE (Ovid) from 1946 to 22 September 2015

1. exp aphasia/
2. language disorders/ or speech disorders/ or anomia/
3. (aphasi$ or dysphasi$ or anomia or anomic).tw.
4. ((speech or language$ or linguistic or communicat$) adj5 (disorder$ or impair$ or problem$ or dysfunction or difficult$)).tw.
5. 1 or 2 or 3 or 4
6. exp aphasia/rh, th or language disorders/rh, th or speech disorders/rh, th or anomia/rh, th
7. speech-language pathology/ or exp "rehabilitation of speech and language disorders"/
8. ((speech or language$ or linguistic or aphasi$ or dysphasi$ or anomia or anomic) adj5 (therap$ or train$ or rehabilitat$ or treat$ or remediat$ or intervention$ or pathol$)).tw.
9. (SLT or SLP).tw.
10. (melodic intonation therap$ or MIT).tw.
11. 6 or 7 or 8 or 9 or 10
12. Randomized Controlled Trials as Topic/
13. random allocation/
14. Controlled Clinical Trials as Topic/
15. control groups/
16. clinical trials as topic/ or clinical trials, phase i as topic/ or clinical trials, phase ii as topic/ or clinical trials, phase iii as topic/ or clinical trials, phase iv as topic/
17. double-blind method/
18. single-blind method/
19. Placebos/
20. placebo effect/
21. cross-over studies/
22. randomized controlled trial.pt.
23. controlled clinical trial.pt.
24. (clinical trial or clinical trial phase i or clinical trial phase ii or clinical trial phase iii or clinical trial phase iv).pt.
25. (random$ or RCT or RCTs).tw.
26. (controlled adj5 (trial$ or stud$)).tw.
27. (clinical$ adj5 trial$).tw.
28. ((control or treatment or experiment$ or intervention) adj5 (group$ or subject$ or patient$)).tw.
29. (quasi-random$ or quasi random$ or pseudo-random$ or pseudo random$).tw.
30. ((control or experiment$ or conservative) adj5 (treatment or therapy or procedure or manage$)).tw.
31. ((singl$ or doubl$ or tripl$ or trebl$) adj5 (blind$ or mask$)).tw.
32. (cross-over or cross over or crossover).tw.
33. (placebo$ or sham).tw.
34. trial.ti.
35. (assign$ or allocat$).tw.
36. controls.tw.
37. or/12-36
38. 5 and 11 and 37
39. exp animals/ not humans.sh.
40. 38 not 39
41. (pediatric or paediatric or infant or infants or child or children$ or childhood or neonat$ or juvenile$ or toddler$).ti.
42. (child/ or child, preschool/ or adult children/ or adolescent/ or exp infant/) not exp adult/

43. 41 or 42
44. 40 not 43

Appendix 2: CINAHL search strategy

CINAHL (EBSCO) from 1982 to 22 September 2015

S1 .(MH "Aphasia+")
S2 .(MH "Speech Disorders") or (MH "Language Disorders") or (MH "Anomia")
S3 .TI (aphasi* or dysphasi* or anomia or anomic) OR AB (aphasi* or dysphasi* or anomia or anomic)
S4 .TI ((speech or language* or linguistic or communicat*) N5 (disorder* or impair* or problem* or dysfunction or difficult*)) or AB ((speech or language* or linguistic or communicat*) N5 (disorder* or impair* or problem* or dysfunction or difficult*))
S5 .S1 OR S2 OR S3 OR S4
S6 .(MH "Aphasia+/RH/TH") or (MH "Speech Disorders/RH/TH ") or (MH "Language Disorders/RH/TH ") or (MH "Anomia/RH/TH ")
S7 ..(MH "Rehabilitation, Speech and Language") or (MH "Speech-Language Pathologists") or (MH "Speech-Language Pathology") or (MH "Speech Therapy+") or (MH "Language Therapy")
S8 .TI ((speech or language or linguistic or aphasi* or dysphasi* or anomia or anomic) N5 (therap* or train* or rehabilitat* or treat* or remediat* or intervention* or pathol*)) or AB ((speech or language or linguistic or aphasi* or dysphasi* or anomia or anomic) N5 (therap* or train* or rehabilitat* or treat* or remediat* or intervention* or pathol*))
S9 .TI (SLT or SLP) or AB (SLT or SLP)
S10 .TI (melodic intonation therap* or MIT) or AB (melodic intonation therap* or MIT)
S11 .S6 OR S7 OR S8 OR S9 OR S10
S12 .(MH "Randomized Controlled Trials") or (MH "Random Assignment") or (MH "Random Sample+")
S13 .(MH "Clinical Trials") or (MH "Intervention Trials") or (MH "Therapeutic Trials")
S14 .(MH "Double-Blind Studies") or (MH "Single-Blind Studies") or (MH "Triple-Blind Studies")
S15 .(MH "Control (Research)") or (MH "Control Group") or (MH "Placebos") or (MH "Placebo Effect")
S16 .(MH "Crossover Design") OR (MH "Quasi-Experimental Studies")
S17 .PT (clinical trial or randomized controlled trial)
S18 .TI (random* or RCT or RCTs) or AB (random* or RCT or RCTs)
S19 .TI (controlled N5 (trial* or stud*)) or AB (controlled N5 (trial* or stud*))
S20 .TI (clinical* N5 trial*) or AB (clinical* N5 trial*)
S21 .TI ((control or treatment or experiment* or intervention) N5 (group* or subject* or patient*)) or AB ((control or treatment or experiment* or intervention) N5 (group* or subject* or patient*))
S22 .TI ((control or experiment* or conservative) N5 (treatment or therapy or procedure or manage*)) or AB ((control or experiment* or conservative) N5 (treatment or therapy or procedure or manage*))
S23 .TI ((singl* or doubl* or tripl* or trebl*) N5 (blind* or mask*)) or AB ((singl* or doubl* or tripl* or trebl*) N5 (blind* or mask*))
S24 .TI (cross-over or cross over or crossover) or AB (cross-over or cross over or crossover)
S25 .TI (placebo* or sham) or AB (placebo* or sham)
S26 .TI trial
S27 .TI (assign* or allocat*) or AB (assign* or allocat*)
S28 .TI controls or AB controls
S29 .TI (quasi-random* or quasi random* or pseudo-random* or pseudo random*) or AB (quasi-random* or quasi random* or pseudo-random* or pseudo random*)
S30 .S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29
S31 .S5 AND S11 AND S30
S32 .TI (pediatric or paediatric or infant or infants or child or children* or childhood or neonat* or juvenile* or toddler*)
S33 .((MH "Adolescence+") or (MH "Child+") or (MH "Infant+")) not (MH "Adult")

S34 .S32 OR S33
S35 .S31 not S34

Appendix 3: AMED search strategy

AMED (Ovid) from 1985 to 22 September 2015

1. aphasia/
2. language disorders/ or speech disorders/
3. (aphasi$ or dysphasi$ or anomia or anomic).tw.
4. ((speech or language$ or linguistic or communicat$) adj5 (disorder$ or impair$ or problem$ or dysfunction or difficult$)).tw.
5. 1 or 2 or 3 or 4
6. speech language pathology/ or speech therapy/ or language therapy/
7. ((speech or language$ or linguistic or aphasi$ or dysphasi$ or anomia or anomic) adj5 (therap$ or train$ or rehabilitat$ or treat$ or remediat$ or intervention$ or pathol$)).tw.
8. (SLT or SLP).tw.
9. (melodic intonation therap$ or MIT).tw.
10. 6 or 7 or 8 or 9
11. clinical trials/ or randomized controlled trials/ or random allocation/
12. research design/ or comparative study/
13. double blind method/ or single blind method/
14. placebos/
15. (random$ or RCT or RCTs).tw.
16. (controlled adj5 (trial$ or stud$)).tw.
17. (clinical$ adj5 trial$).tw.
18. ((control or treatment or experiment$ or intervention) adj5 (group$ or subject$ or patient$)).tw.
19. (quasi-random$ or quasi random$ or pseudo-random$ or pseudo random$).tw.
20. ((control or experiment$ or conservative) adj5 (treatment or therapy or procedure or manage$)).tw.
21. ((singl$ or doubl$ or tripl$ or trebl$) adj5 (blind$ or mask$)).tw.
22. (cross-over or cross over or crossover).tw.
23. (placebo$ or sham).tw.
24. trial.ti.
25. (assign$ or allocat$).tw.
26. controls.tw.
27. or/11-26
28. 5 and 10 and 27
29. (pediatric or paediatric or infant or infants or child or children$ or childhood or neonat$ or juvenile$ or toddler$).ti.
30. (exp adolescent/ or exp child/ or exp infant/) not exp adult/
31. 29 or 30
32. 28 not 31

Appendix 4: Cochrane Library Databases

Cochrane Library databases (CDSR, DARE, CENTRAL, HTA) from inception to 22 September 2015

#1 [mh aphasia]
#2 [mh ^"language disorders"] or [mh ^"speech disorders"] or [mh ^anomia]
#3 (aphasi* or dysphasi* or anomia or anomic):ti,ab
#4 ((speech or language* or linguistic or communicat*) near/5 (disorder* or impair* or problem* or dysfunction or difficult*)):ti,ab
#5 #1 or #2 or #3 or #4

#6 [mh aphasia/RH,TH] or [mh ^"language disorders"/RH,TH] or [mh ^"speech disorders"/RH,TH] or [mh ^anomia/RH,TH]
#7 [mh ^"speech-language pathology"] or [mh "rehabilitation of speech and language disorders"]
#8 ((speech or language* or linguistic or aphasi* or dysphasi* or anomia or anomic) near/5 (therap* or train* or rehabilitat* or treat* or remediat* or intervention* or pathol*)):ti,ab
#9 (SLT or SLP):ti,ab
#10 (melodic next intonation next therap* or MIT):ti,ab
#11 #6 or #7 or #8 or #9 or #10
#12 #5 and #11
#13 (pediatric or paediatric or infant or infants or child or children* or childhood or neonat* or juvenile* or toddler*):ti
#14 ([mh ^child] or [mh ^"child, preschool"] or [mh ^"adult children"] or [mh ^adolescent] or [mh infant]) not [mh adult]
#15 #13 or #14
#16 #12 not #15

Appendix 5: Embase search strategy

EMBASE (Ovid) from 1980 to 22 September 2015

1. exp aphasia/ or dysphasia/
2. language disability/ or speech disorder/
3. (aphasi$ or dysphasi$ or anomia or anomic).tw.
4. ((speech or language$ or linguistic or communicat$) adj5 (disorder$ or impair$ or problem$ or dysfunction or difficult$)).tw.
5. 1 or 2 or 3 or 4
6. exp aphasia/rh, th, dm or dysphasia/rh, th, dm or language disability/rh, th, dm or speech disorder/rh, th, dm
7. exp speech rehabilitation/
8. ((speech or language$ or linguistic or aphasi$ or dysphasi$ or anomia or anomic) adj5 (therap$ or train$ or rehabilitat$ or treat$ or remediat$ or intervention$ or pathol$)).tw.
9. (SLT or SLP).tw.
10. (melodic intonation therap$ or MIT).tw.
11. 6 or 7 or 8 or 9 or 10
12. Randomized Controlled Trial/ or "randomized controlled trial (topic)"/
13. Randomization/
14. Controlled clinical trial/ or "controlled clinical trial (topic)"/
15. control group/ or controlled study/
16. clinical trial/ or "clinical trial (topic)"/ or phase 1 clinical trial/ or phase 2 clinical trial/ or phase 3 clinical trial/ or phase 4 clinical trial/
17. Crossover Procedure/
18. Double Blind Procedure/
19. Single Blind Procedure/ or triple blind procedure/
20. placebo/ or placebo effect/
21. (random$ or RCT or RCTs).tw.
22. (controlled adj5 (trial$ or stud$)).tw.
23. (clinical$ adj5 trial$).tw.
24. ((control or treatment or experiment$ or intervention) adj5 (group$ or subject$ or patient$)).tw.
25. (quasi-random$ or quasi random$ or pseudo-random$ or pseudo random$).tw.
26. ((control or experiment$ or conservative) adj5 (treatment or therapy or procedure or manage$)).tw.
27. ((singl$ or doubl$ or tripl$ or trebl$) adj5 (blind$ or mask$)).tw.
28. (cross-over or cross over or crossover).tw.
29. (placebo$ or sham).tw.
30. trial.ti.

31. (assign$ or allocat$).tw.
32. controls.tw.
33. or/12-32
34. 5 and 11 and 33
35. (exp animals/ or exp invertebrate/ or animal experiment/ or animal model/ or animal tissue/ or animal cell/ or nonhuman/) not (human/ or normal human/ or human cell/)
36. 34 not 35
37. (paediatric or paediatric or infant or infants or child or children$ or childhood or neonate$ or juvenile$ or toddler$).it.
38. (child/ or juvenile/ or exp infant/ or preschool child/ or school child/ or toddler/) not (adult/ or aged/ or middle aged/ or young adult/)
39. 37 or 38
40. 36 not 39