Supplementary file 4

Landahl et al. (2021)

Study Characteristics	
General information	**Design:** Randomized controlled trial **Duration of trial:** not reported **Recruitment and allocation:** Block randomization by an external researcher was used. **Method of blinding**: the post- and follow-up assessments were not blinded, as the evaluations were performed by therapists in the participants' team. **Cognitive domain**: attention
Participants	**Setting:** Danderyd University Hospital Stockholm **Country:** Sweden **Sample size:** *n* = 51, %men not reported; IG: *n* = 25, CG: *n* = 26 **Inclusion criteria:** 4-12 months after injury, age range 18-60 years, mild to moderate stroke or TBI according to their symptom picture and severity, attention deficit defined as 70% or less correct on at least 2 of the subtests in the diagnostic test for the APT, a standard score ≥ 7 for Matrix reasoning (WAIS-III) and sufficient knowledge of Swedish **Exclusion criteria:** aphasia, severe pain, ongoing psychiatric illness or substance abuse, severe bilateral motor or visual impairment that made participation impossible, neglect with a cut-off score (≥ 2) measured with Albert's test/ Line crossing. **Age:** 18 to 60 years, IG: *M* = 46.6 (SD 9.6); CG: *M* = 49.9 (SD 8.9) **Time since onset of ABI:** 4 to 11.5 months **Types of ABI:** stroke or TBI
Interventions	<u>Compensatory strategy training group</u> **Brief name**: Activity-Based Attention Training (ABAT) **Why**: to compare the effects of the therapy compared to APT **What (materials)**: teaching compensatory strategies **What (procedure)**: not reported **Who**: 1 occupational therapist (OT) administered the training, supervised by 1 of the investigators. **How**: individually or in a group format leading to more distractions

	Where: not reported **When and how much**: (20 hours in total) <u>Computerized function training group</u> **Brief name**: Attention Process Training (APT) **Why**: to compare the effects of the therapy compared to ABAT **What (materials)**: APT **What (procedure)**: not reported **Who**: 3 occupational therapists (OT) and 1 neuropsychologist administered the training **How**: individual 1:1 sessions in a private room **Where**: not reported **When and how much**: 3-5 hour per week, for 4-6 weeks (20 hours in total)
Outcomes	**Primary:** none reported **Secondary:** ***ICF-domain Activities:*** • <u>Proxy rating</u>: Rating Scale of Attentional Behaviour (RSAB) • <u>Self-reporting</u>: Canadian Occupational Performance Measure (COPM) (patient rating); Work Ability Index (WAI) ***ICF-domain Functionality:*** none reported **ICF-domain *Personal*:** none reported **Methods of data collection:** the post- and follow-up assessments were not blinded, as the evaluations were performed by therapists in the participants' team. **Data collection time points:** baseline, post-treatment, and at 3 months follow-up
Notes	**Funding**: yes **Conflict of interest**: the authors declare no conflicts of interest **Published trial protocol:** none reported **Trial registration:** yes **Ethics approval:** yes
Risk of Bias	
Bias	**Authors' Judgement** **Support of Judgement**

Random sequence generation (selection bias)	Low risk	Block randomization by an external researcher was used
Allocation concealment (selection bias)	Low risk	Block randomization was performed by an external researcher
Blinding of participants and personnel (performance bias)	Unclear risk	Blinding or not was not reported but it was apparent that participants could have known which group they were allocated to. Also, the personnel would have been aware of treatment allocation.
Blinding of outcome assessment (detection bias)	High risk	The post- and follow-up assessments were not blinded, as the evaluations were performed by therapists in the participants' team
Incomplete outcome data (attrition bias)	Low risk	Not reported, but it is likely that the assigned participants described in the study were also analysed.
Selective reporting (reporting bias)	Low risk	No protocol but all outcomes appear to be reported
Other bias	Unclear risk	Little information was given about the demographics of either group, e.g. related to type of stroke

Poulin et al. (2017)

Study Characteristics	
Methods	**Design:** single-blind partially randomised controlled trial **Duration of trial:** not reported **Recruitment and allocation:** the first two participants received strategy training due to practical constraints and medical conditions that may have interfered with the computerised training; the next nine participants were randomly allocated to receive either strategy training or computerized function training **Method of blinding**: outcome measures were administered by a blinded evaluator **Cognitive domain**: executive functioning
Participants	**Setting:** outpatient rehabilitation **Country:** Canada **Sample size:** *n* = 9, 77.8% men; strategy training: *n* = 5; computerized function training: CFT = 4 **Inclusion criteria:** diagnosis of first or recurrent stroke < 12 months; EF deficits (1.5 SD or greater below norms) identified on one or more of three neuropsychological EF tests: the Trail Making Test, the Delis-Kaplan Executive Function System (D-KFEFS) Colour-Word Interference test or the Digit span from the WAIS-IV; EF impairments as determined by clinician referrals and health record review; a score ≥ 22/30 on the Mini-Mental State Examination (MMSE); living at home at the time of baseline assessment; proficiency in English or French; ability to identify some day-to-day difficulties on which to base goals of treatment. **Exclusion criteria:** history of severe psychiatric problems; severe visual problems not sufficiently corrected with corrective lenses; language problems as indicated by a score of <4 on the communication items of the Functional Independence Measure (FIM); need for moderate, maximal or total assistance, and/or other pre-existing disabling neurological conditions **Age:** *M* = 49.25 (SD 11.35) years **Time since onset of ABI:** one participant in the computerized function group had a time since stroke of 1.5 months; the others ranged from 3.5 to 11 months

	Types of ABI: stroke (all participants in the strategy training had a haemorrhagic stroke; *n* = 4 participants in the CG had an ischemic stroke)
Interventions	<u>Compensatory strategy training group</u> **Brief name**: Cognitive Orientation to daily Occupational Performance (CO-OP) **What (materials)**: adapted version of the CO-OP approach described by Polatajko (2001) **What (procedure)**: Participants set a goal, and the therapist guided them with the "Goal- Plan- Do- Check" strategy to achieve this goal. **Who**: research therapist, a trained, licenced occupational therapist **How**: face-to-face and individually **Where**: in participant's homes **When and how much**: 1-hour sessions, twice a week, for 8 weeks (16 sessions) <u>Computerized function training group</u> **Brief name**: computerized executive function training **What (materials)**: nine different computer activities: four tasks of the NeuroActive software and three tasks from the attentional software named Le Réseau Psychotech Inc. as well as two computerised tasks specifically designed for inhibition training and dual task training. **What (procedure)**: each session consisted of three to four computer activities; level of difficulty was adjusted automatically; therapists provided verbal encouragement and assistance when needed. **Who**: research therapist, a trained, licenced occupational therapist **How**: face-to-face and individually **Where**: in participant's homes **When and how much**: 1-hour sessions, twice a week, for 8 weeks (16 sessions)
Outcomes	**Primary:** ***ICF-domain Activities:***

	• Proxy rating: Canadian Occupational Performance Measure (COPM) (proxy rating) • Self-reporting: COPM (patient rating) **Secondary:** ***ICF-domain Activities:*** • Self-reporting: Dysexecutive Questionnaire (DEX) (patient rating) ***ICF-domain Participation*:** Assessment of Life Habits (LIFE-H) ***ICF-domain Functionality*:** • Working memory: Digit span (forward, backward and sequencing) • Executive functioning: TMT-B; Stroop (inhibition and inhibition/flexibility) • Speed of processing: TMT-A ***ICF-domain Personal*:** none reported **Methods of data collection:** outcome measures were administered by a blinded evaluator **Data collection time points:** baseline, post-treatment and 1 month follow-up
Notes	**Funding**: yes **Conflict of interest**: none reported **Published trial protocol:** none reported **Trial registration:** no **Ethics approval:** yes

Risk of Bias

Bias	**Authors' Judgement**	**Support of Judgement**
Random sequence generation (selection bias)	High risk	The first two participants received strategy training due to practical constraints and medical conditions that may have interfered with the computerised training; the next nine participants were randomly allocated to receive either strategy training or computerized function training
Allocation concealment (selection bias)	Low risk	Groups assignments were kept in sequentially numbered, opaque, sealed

		envelopes that were prepared prior to recruitment and revealed only when a participant had completed the baseline assessment
Blinding of participants and personnel (performance bias)	Unclear risk	People and carers delivering the interventions were aware of the intervention
Blinding of outcome assessment (detection bias)	Low risk	Outcome measures were administered by a blinded evaluator
Incomplete outcome data (attrition bias)	Unclear risk	One participant dropped out in each intervention group due to medical reasons unrelated to the intervention, but based on the sample size it is a 20-25% drop-out per group
Selective reporting (reporting bias)	Unclear risk	No published study protocol or trial registration
Other bias	Unclear risk	Baseline differences in demographic information suggest a problem in the randomization process, all participants in the strategy training group had a haemorrhagic CVA and in the computerized function training group an ischemic CVA. The study also consists of a really small sample size to investigate the effect between groups

Spikman et al. (2010)

Study Characteristics	
Methods	**Design:** Randomized Controlled Trial **Duration of trial:** not reported **Recruitment and allocation: b**alanced assignment (per four participants) took place by lot **Method of blinding**: tests and questionnaires were administered by independent assessors who were blind for treatment condition **Cognitive domain**: executive functioning
Participants	**Setting:** outpatient rehabilitation **Country:** The Netherlands **Sample size:** *n* = 75, 66.5% men; strategy training: *n* = 38; computerized function training: *n* = 37 **Inclusion criteria:** acquired brain injury of nonprogressive nature; > 3 months post-injury; age between 17 – 70; participants had to live at home; dysexecutive problems reported by themselves or observed by proxies as measured on the Dysexecutive Questionnaire (DEX); EF problems had to hamper the resumption of previous activities and roles; a BADS score of 1 SD or lower; or standard scores of 2 or lower on the Six element's test and Zoo Map test. **Exclusion criteria:** severe cognitive comorbidity interfering with treatment; severe psychiatric problems; neurodegenerative disorders; substance abuse **Age:** IG: *M* = 41.4 (SD 12.1) years; CG: *M* = 43.7 (SD 14.9) years **Time since onset of ABI:** IG: *M* = 47.9 (range: 4 – 288) months; CG: *M* = 71 (3 – 468) months **Types of ABI:** TBI: *n* = 33; stroke: *n* = 32; other: *n* = 10
Interventions	Compensatory strategy training group **Brief name**: Multifaceted Treatment of Executive Dysfunction **What (materials)**: standard protocol, including relevant exercises and homework assignments; a diary as planning and memory aid. **What (procedure)**: based on Goal Management Training (GMT) and Problem Solving Therapy (PST). Teaching and application of these strategies were administered step-by-step in various stages, namely (1) information and awareness (2) goal setting and

	planning, (3) initiation, execution, and regulation, (4) execution and monitoring according to GMT; (5) introduction of PST. **Who**: experienced and trained neuropsychologists **How**: face-to-face and individually **Where**: participating rehabilitation centres **When and how much**: 1-hour sessions, twice a week, for 12 weeks (20-24 sessions) <u>Computerized function training group</u> **Brief name**: computerized cognitive function training **What (materials)**: CogPack **What (procedure)**: performing repetitive exercises to improve cognitive functioning (reaction speed, attention, memory and planning); followed by feedback from the computer program. As in the experimental group, participants formulated three goals after session 10. The remaining sessions, patients could freely select exercises they deemed useful for reaching these goals. **Who**: experienced and trained neuropsychologists **How**: face-to-face and individually **Where**: in the participating rehabilitation centres **When and how much**: 1-hour sessions, twice a week, for 12 weeks (20-24 sessions)
Outcomes	**Primary:** ***ICF-domain Participation*:** Role Resumption List (RRL) **Secondary:** ***ICF-domain Activities:*** • <u>Proxy rating</u>: Dysexecutive Questionnaire (DEX) (proxy rating); DEX (therapist rating); Executive Observation Scale (EOS) (therapist rating) • <u>Self-reporting</u>: DEX (patient rating); Treatment Goal Attainment (TGA) (patient rating) ***ICF-domain Functionality*:** • <u>Memory</u>: 15-WT (immediate and delayed recall) • <u>Executive functioning</u>: BADS (all subtests); TMT-B/A; Stroop (inhibition); Tower of London (ToL) ***ICF-domain Personal*:**

	• Quality of Life: Quality of Life After Brain Injury (QOLIBRI – satisfaction and burden) **Methods of data collection:** tests and questionnaires were administered by independent assessors who were blind for treatment condition **Data collection time points:** baseline, post-treatment and at 6-month follow-up
Notes	**Funding**: yes **Conflict of interest**: none reported **Published trial protocol:** none reported **Trial registration:** no **Ethics approval:** no

Risk of Bias

Bias	**Authors' Judgement**	**Support of Judgement**
Random sequence generation (selection bias)	Low risk	Balanced assignment (per four participants) took place by lot
Allocation concealment (selection bias)	Low risk	Lots were drawn blindly by an employee not involved in the study
Blinding of participants and personnel (performance bias)	Unclear risk	Not reported, however, participants would have been provided with an information sheet that explained about the nature of the study. Staff would also have been aware of the treatment allocation
Blinding of outcome assessment (detection bias)	Low risk	Tests and questionnaires were administered by independent assessors who were blind for treatment condition
Incomplete outcome data (attrition bias)	Low risk	All participants were analysed
Selective reporting (reporting bias)	Unclear risk	No published study protocol or trial registration
Other bias	Low risk	No other concerns

Withiel et al. (2019)

Study Characteristics	
Methods	**Design:** Randomized Controlled Trial **Duration of trial:** January 2015 – January 2017 **Recruitment and allocation:** randomization was performed with an online random sequence generation in advance of the study **Method of blinding**: assessors were not aware of whether a participant was randomised to the IG or CG **Cognitive domain**: memory
Participants	**Setting:** outpatient rehabilitation **Country:** Australia **Sample size:** *n* = 34, 76.2% men; strategy training: *n* = 18; computerized function training: *n* = 16 **Inclusion criteria:** history of stroke confirmed by neurological examination and brain imaging at least 3 months previously; self or close other (i.e. relative) reported everyday memory complaints. **Exclusion criteria:** physical impairment preventing access to intervention; inadequate computer proficiency limiting computer use; severe cognitive or communication deficits; history of other neurological or psychiatric condition. **Age:** strategy training: *M* = 60.4 (SD 11.5) years; computerized function training: *M* = 61.7 (SD 11.6) years **Time since onset of ABI:** > 3 months, not reported in more detail **Types of ABI:** stroke
Interventions	<u>Intervention group</u> **Brief name**: Compensatory memory group **What (materials)**: adapted version of the manualized "Making the Most of your Memory: An Everyday Memory Skills Program" **What (procedure)**: not reported **Who**: experienced neuropsychologist with the assistance of two psychologists **How**: face-to-face and in groups of 3 to 8 participants (all sessions were video-recorded) **Where**: at the university psychology training clinic **When and how much**: 2-hour sessions, once a week, for 6 weeks (6 sessions)

	Control group **Brief name**: computerized cognitive training - Lumosity **What (materials)**: Lumosity (www.lumosity.com), only the memory games were selected **What (procedure)**: game complexity increases and decreases systematically based on the individual's performance (i.e. is adaptive). The order in which games were presented was varied across training days to maximize engagement. **Who**: self (at home) **How**: participants compliance was monitored remotely through weekly examination of total days trained, and researchers contacted the participants weekly by phone contact. **Where**: not reported, but appeared to be at participants' homes **When and how much**: 30-minute sessions, 5 days a week, for six weeks (30 sessions)
Outcomes	**Primary:** ***ICF-domain Activities:*** • Self-reporting: Goal Attainment Scaling (GAS) (patient rating) **Secondary:** ***ICF-domain Activities:*** • Proxy rating: prospective memory failures measured with the Everyday Memory Questionnaire (EMQ-R) and Comprehensive Assessment of Prospective Memory (CAPM) (proxy rating) • Self-reporting: everyday memory failures measured with the EMQ-R and CAPM (patient rating); prospective memory failures measured with the EMQ-R and CAPM (patient rating) ***ICF-domain Participation*:** none reported ***ICF-domain Functionality*:** • Memory: Rey Auditory Verbal Learning Test (RAVLT – immediate and delayed recall); Brief Visuospatial Memory Test (BVMT – immediate and delayed recall); Royal Prince Alfred Prospective Memory Test (PRAProMem)

	• Working memory: Digit span backwards; Symbol span ***ICF-domain Personal*:** none reported **Methods of data collection:** at participants' homes, assessed by a researcher independent of intervention delivery and blinded to treatment arm allocation. **Data collection time points:** baseline, post-treatment and at 6 week follow-up
Notes	**Funding**: none stated **Conflict of interest**: none reported **Published trial protocol:** none reported **Trial registration:** yes **Ethics approval:** yes

Risk of Bias

Bias	**Authors' Judgement**	**Support of Judgement**
Random sequence generation (selection bias)	Low risk	Randomization was performed with an online random sequence generation in advance of the study
Allocation concealment (selection bias)	Low risk	Randomization was transcribed into randomly permuted fixed block sizes of 6 by an independent researcher
Blinding of participants and personnel (performance bias)	Unclear risk	Not reported, however, participants would have been provided with an information sheet that explained about the nature of the study. Staff would also have been aware of the treatment allocation
Blinding of outcome assessment (detection bias)	Low risk	Assessors were not aware of whether a participant was randomised to the IG or CG
Incomplete outcome data (attrition bias)	Unclear risk	Six participants dropped out of the computerized function training due to fear of using the computer, withdrew due to frustration and unable to contacted. Another six participants dropped out of the compensatory strategy training because they did not come, withdrew before the

		training started, withdrew because of a medical condition or after the training ended
Selective reporting (reporting bias)	Low risk	Study is registered in the trial register
Other bias	Low risk	No other concerns