Question 35 evidence tables

Question 35: Does repetitive task training improve outcome and how should it be delivered?

NB Any discrepancies between reviewers in evidence quality and comment were discussed at the corresponding evidence review meeting

MAS = Motor Assessment Scale, TEMPA =Test d'Evaluation des Membres Superieurs des Personnes Agees, FMA = Fugl Myer Assessment Scale, MAL = Motor activity log, WMFT = Wolf Motor function Test, 9HPT = 9-hole peg test, B&BT = Box and block test, MAS = Modified Ashworth scale, UL = upper limb, 6MWT = 6 minute walk test, 10MWT = 10 minute walk test, TOBT = task-orientated balance training, CBT = Cognitive Behaviour Therapy, GHE = general health education, rTMS = repetitive transcranial magnetic stimulation, tDCS = transcranial direct current stimulation, TOT = task-oriented training, VIMT = constraint induced movement therapy, RTT = repetitive task training, SR = systematic review, MA = meta-analysis, RCT = randomised controlled trial, IPDMA = individual patient data meta-analysis, MDT = multidisciplinary team, PICO = patient/population, intervention, comparison and outcomes, OR = odds ratio, CI = confidence interval, QoL = quality of life, ADL = activities of daily living, OR = odds ratio, RR = relative risk, aOR = adjusted odds ratio, cOR = crude odds ratio, CI = confidence interval, RoB = risk of bias, I2 = heterogeneity statistic.

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
191	A. R. Alashram et al. (2019). Task-oriented Motor Learning in Upper Extremity Rehabilitation Post Stroke. *Journal of Stroke Medicine,* 2:2 95-104	Systematic review. NB NO Meta-analysis, merely reported the effect sizes in each trial: RCTs and pseudo-trials of UL task training. Quality assessed with PEDro scale. Effect sizes were calculated. 6 RCTs of 456 participants were included. 42% women, mean age 63 yrs. No info on chronicity or severity.	Task-oriented training +/- exercises or physical activity for the upper limb. Tasks and training highly varied. Appear to include reaching or strengthening – task minimal. Dose = 30-90 min/session, 2-3 x/wk for 6-10 weeks. Controls = varied alternative movements, lower limb exercises but NOT usual care	range of motion (active shoulder flexion), strength) shoulder flexion and hand grip), spasticity (Ashworth) , and upper extremity function/ impairment (3 trials using Fugl-meyer, Wolf, Motor activity log, TEMPA)	6 RCTs of 456 participants were included. Quality assessment = 6- 8.	- No meta-analysis. Claims no significant differences between groups but only reports effect sizes within the trials Strange interventions included- odd interpretation of 'task orientated training Limited description of participants.
191	A. R. Alashram et al. (2019). Task-oriented Motor Learning in Upper Extremity Rehabilitation Post	Systematic Review. Six RCTS n=456 published between 2000-2017 Mean age 63.3 yrs . 42% female.	Passive movement of elbow joint Intensive reaching Self care / functional activities	Fugl Myer Scale (FMS) MAL : Motor activity log Wolf Motor function Test SIS(Hand function scale) TEMPA	Task orientated practice does not produce a superior effect on UL recovery.	- Lacked details of participant characteristics, level of ability or time from stroke onset .

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
	Stroke. *Journal of Stroke Medicine,* 2:2 95-104	Time of onset from stroke not reported No baseline data on upper limb function / level of assistance required.	Eccentric strength training On average 2-4 sessions/wk from 30 to 90 mins for 3-10 weeks.	Hand grip strength 9HPT Box and block test MAS Modified Ashworth scale.		
192	M. Ali et al. (2020). Effects of individual task specific training verses group circuit training on balance and ambulation in sub-acute stroke. *Rawal Medical Journal,* 45:1 233-235	Small RCT (n=22) in outpatient setting Participants within 3 months of stroke who were able to stand and 'walk for some distance' without an assistive device	All received 'task orientated circuit training'; One group (n=11) received this within group-basis, other group received in individual basis. Dose-matched (3 sessions of 50 mins week for 8 weeks) Intervention 5 circuit stations; sit to stand training, step up forwards, backwards and sideways, trunk control and rotation, reaching and passing.	Motor Assessment Scale, Time Up and Go Test, 10 metre walk test, 6 min walk test, functional reach test, Dynamic Gait Index, Ashworth Scale and Berg Balance Scale.	Both groups improved significantly in measures of balance. No significant difference in outcome measures between groups. Authors suggest provides evidence that cost-effective group circuit training is feasible in sub-acute phase.	- Small study No details of randomisation process
192	M. Ali et al. (2020). Effects of individual task specific training verses group circuit training on balance and ambulation in sub-acute stroke. *Rawal Medical Journal,* 45:1 233-235	RCT of 22 (11x2) sub-acute (<3/12) strokes attending out-patient dept who were able to stand and walk for some distance with or without an assistive device	Group (2+ people) Task-oriented circuit training (5 stations @ 5 mins each: STS, stepping fwd, bckwds and sideways, trunk control and rotation, multi-direction reaching. Exercises progressed each week. Control = individual circuit training. 3 x50 mins /wk for 6 wks.	Walking endurance (6 min WT), walking speed (10mWT), balance (Berg balance scale, Functional reach test ,Time Up and Go) and ambulation (Dynamic gait index); motor impairment (Motor Assessment Scale (MAS), spasticity (Ashworth's scale).	Both groups showed improvements in motor impairment, mobility, balance, but not spasticity. No differences between groups	- Tiny unpowered trial. No details on blinding, concealed allocation, blinding, type of analysis; etc etc

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
193	E. S. M. da Silva et al. (2020). The Effect of Priming on Outcomes of Task-Oriented Training for the Upper Extremity in Chronic Stroke: A Systematic Review and Meta-analysis. *Neurorehabilitation and Neural Repair,* 34:6 479-504	Systematic Review with Meta Analysis : 36 studies n=814. Include RCTS, pseudorandomised trials and randomised crossover trials. Participants chronic stroke survivors (> 6 months) Ranging from 8.7 to 478 months . PEDro scale used to assess methodological quality . All included studies score>=6 Assessment of Risk assessed by Cochrane Collaboration tool.	Evaluation of priming immediately before or concurrent with Task orientated training (TOT) 17 studies included stimulation priming, 9 performed with rTMS, and 8 with t DCS. 12 studies performed sensory priming 5 studies used electrical stimulation, repetitive peripheral somatosensory stimulation, neuromuscular electrical Stimulation ,vibration or somatosensory electrical stimulation, 4 studies used movement priming via aerobic exercise and bilateral motor priming 3 studies used action observation priming 2 studies used mirror therapy. Task orientated Training Protocol included CIMT, mirror therapy and / or functional exs with higher no of reps . No of sessions per week ranged from 1/day to 5 sessions	22 different outcome primary & secondary outcome measures. 6 classified as structure & body function;8 classified as activity domains UE-FMA most commonly used for structure & body function(20 studies) WMFT most widely used activity domain (12 studies). Other studies used MAL and/ or ARAT	Simulation Priming : moderate evidence of effect on activity domain as measured by MAL and body function as measured by UE-FMA. Sensory Priming , improvements in UE-FMA (MD 4.77,95% CI 3.25-6.29) ARAT (MD 7.47 ,95% CI 4.52-10.42) Movement priming :Effect size determined although only one study included in SR (MD 7.47, 95% ci 4.52-10.42) Action Observation Priming : Review unable to determine effects Task Orientated Training : The studies employing higher intensity & doses Reported effects in favour of priming and TOT	**+** Good quality SR & MA The use of different outcome measures , time since stroke onset limits the applicability of findings

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
			per week with total no. ranging from 1 to 40 sessions			
194	P. B. a. da Silva et al. (2015). Strength training associated with task-oriented training to enhance upper-limb motor function in elderly patients with mild impairment after stroke: a randomized controlled trial. *American journal of physical medicine & rehabilitation / Association of Academic Physiatrists,* 94:1 Nov-19	Community setting. Single blind randomised controlled trial. Chronicity Patients had to have stroke 6 months to five years previously. Severity At least grade 3 on manual muscle testing or able to move arm through 60 degrees of range.	Task orientated activities completed in both groups with treatment group including strength training. Either unilateral or bilateral "functional exercises, activity-of-daily-living goal, context specific environment using real-life object manipulation, and exercised in multiple movement planes." Same number and frequency of sessions (ten repetitions of movement with a three minute rest period.) TREATMENT GROUP – 60% load resistance put on the arm. THIS DID NOT CHANGE OVER SIX WEEK PERIOD SO NO PROGRESSION. REPETITIONS ARE LOW BUT LIKELY TO BE DUE TO STRENGTH TRAINING ELEMENT FOR TREATMENT GROUP	Primary outcome measure - Test d'Evaluation des Membres Superieurs des Personnes Agees (TEMPA) – Eight standardised tasks – score 0-150 with higher best. Grip strength Shoulder strength Active range Fugl-Meyer Scale.	20 participants – Mean 41.4 (11.9) months post stroke. Provided Median [min-max range] data and percentage change with no other recognised statistical presentation of results. Difficult to establish between group statistical comparisons. TEMPA - Unilateral total score Bilateral total score Combined score Shoulder strength (Kg) Control=0.2Kg improvement from baseline to post-test Treatment=1.1Kg. Grip strength (lb) Control=2.1lb Treatment=21.2lb Fugl-Meyer Control=1.6 Treatment=7.2	concealment and study methods acceptable but results not presented in an acceptable manner and prevent adequate analysis.

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
195	B. French et al. (2016). Repetitive task training for improving functional ability after stroke. *The Cochrane database of systematic reviews,* 11: CD006073	Cochrane SR. 33 trials with 36 intervention-control pairs and 1853 participants. Arm (11 studies, 749 participants); Hand (8 studies, 619 participants); LL (5 studies, 419 participants);	RTT = an active motor sequence performed repetitively within a single training session, aimed towards a clear functional goal. This SRR looked at RTT for both UL and LL	(i) effect of RTT on UL function/reach or LL function/balance; (ii) effect of RTT on ADLs, global motor function, QoL/health status, adverse events.	There is *low-quality evidence* that RTT improves arm function (standardised mean difference (SMD) 0.25, 95% confidence interval (CI) 0.01 to 0.49; 11 studies, participants = 749), hand function (SMD 0.25, 95% CI 0.00 to 0.51; 8 studies, participants = 619), and LL functional measures (SMD 0.29, 95% CI 0.10 to 0.48; 5 trials, participants = 419). There is *moderate-quality evidence* that RTT improves walking distance (mean dilerence (MD) 34.80, 95% CI 18.19 to 51.41; 9 studies, participants = 610) and functional ambulation (SMD 0.35, 95% CI 0.04 to 0.66; 8 studies, participants analysed = 525). We found significant differences between groups for both upper-limb (SMD 0.92, 95% CI 0.58 to 1.26; 3 studies, participants = 153) and lower-limb (SMD 0.34, 95% CI 0.16 to 0.52; 8 studies, participants = 471) outcomes up to six months post treatment but not after six months. Effects were not modified by intervention type, dosage of task practice or time since stroke for upper or lower limb. There was insufficient	**++** for SR 'low-moderate' quality for evidence

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
					evidence to be certain about the risk of adverse events.	
195	B. French et al. (2016). Repetitive task training for improving functional ability after stroke. *The Cochrane database of systematic reviews,* 11: CD006073	Systematic review (review); N=33, n=1853 Included studies whose participants were adults with stroke. Excluded studies whose participants had mixed aetiology. Studies on repetitive task training (RTT) which combines elements of both intensity of practice and functional relevance.	Primary objective: To determine if repetitive task training (RTT) improves upper limb function/reach and lower limb function/balance in adults after stroke. Secondary objectives: 1) To determine the effect of RTT on secondary outcome measures including activities of daily living (ADL), global motor function, quality of life/health status, and dverse events. 2) To determine the factors that could influence primary and secondary outcome measures, including the effect of 'dose' of task practice; type of task (whole therapy, mixed or single task); timing of the intervention; and type of intervention.	Primary outcomes; Upper limb function/reach * Arm function * Hand function: Motor * Sitting balance/reach: Lower limb function/standing balance * Lower limb function * Standing balance/reach Secondary outcomes; • Activities of daily living (ADL) • Global motor function (including arm, leg and trunk and gross motor function [e.g. the ability to move from lying to sitting on the side of the bed]) • Measures of quality of life, health status, user satisfaction, carer burden, motivation or perceived improvement • Adverse events	There is *low-quality evidence* that RTT improves arm function SMD 0.25, 95% confidence interval (CI) 0.01 to 0.49; 11 studies, number of participants analysed = 749), hand function (SMD 0.25, 95% CI 0.00 to 0.51; eight studies, number of participants analysed = 619), and lower limb functional measures (SMD 0.29, 95% CI 0.10 to 0.48; five trials, number of participants analysed = 419). There is *moderate-quality evidence* that RTT improves walking distance MD 34.80, 95% CI 18.19 to 51.41; nine studies, number of participants analysed = 610) and functional ambulation (SMD 0.35, 95% CI 0.04 to 0.66; eight studies, number of participants analysed = 525). We found significant differences between groups for both upper-limb (SMD 0.92, 95% CI 0.58 to 1.26; three studies, number of participants analysed = 153) and lower-limb (SMD 0.34, 95% CI 0.16 to 0.52; eight studies, number of participants analysed = 471) outcomes up to six months	**++** Very well conducted

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
					post treatment but not after six months.	
196	E. S. Grattan et al. (2016). Examining the Feasibility, Tolerability, and Preliminary Efficacy of Repetitive Task-Specific Practice for People With Unilateral Spatial Neglect. *The American journal of occupational therapy : official publication of the American Occupational Therapy Association,* 70:4	Prospective, single group, repeated measures, collaborative multi-site Pilot study. .N=20, Participants aged 18 and over, stroke onset >= 6 months, mild to moderate UL paresis, presence of unilateral neglect, English speaking. Participants recruited from 2 health centres and from local stroke support groups. Participants excluded if severe aphasia or if receiving concurrent therapy.	Task specific individualised progressive program of repetitive training in functional task delivered by experienced OT& PTs. . Administered 3dys/wk. for 1hr/day over 6 wk.	Feasibility measured by total percentage of session's attended, total repetitions and satisfaction as measured by Client Satisfaction Questionnaire. Tolerability measured by pain in affected UL using Wong Baker FACES pain rating scale: 40% participants experienced an increase in pain in one or more session. Secondary Outcome Measures : Motor Activity Log The Action Research Test Catherine Bergego Study. (CBS)	Feasibility: Participants attended 99.4% of 18 scheduled sessions. Average 290 reps completed per session. (SD=44) 50% participants achieved 300 or more per session. 95% reported high satisfaction. Minimal changes in pain. Secondary outcomes : Statistically significant improvements in ARAT & CBS No adverse events	**+** Acceptable feasibility study No details of specifics tasks within intervention Lack of objective measures Severe aphasiac stroke survivors and participants with severe hemiparesis excluded.
196	E. S. Grattan et al. (2016). Examining the Feasibility, Tolerability, and Preliminary Efficacy of Repetitive Task-Specific Practice for People With Unilateral Spatial Neglect. *The American journal of occupational therapy : official publication of the American Occupational*	Community setting. Non-randomised study. 19 Patients recruited Design - Prospective observational study though described as "single-group, repeated measures, collaborative pilot study." Severity - People with spatial neglect and mild to moderate upper-extremity paresis (defined by Motricity Index scores of 48–92	6 week individualised, progressive repetitive task specific practice programme. Progressive programme administered three days a week for one/hour over six weeks. "In each 1-hr session, the participant's goal was to achieve at least 300 repetitions of	19 Patients Main outcome measures were for satisfaction – Client satisfaction Questionnaire-8 Tolerability (8-32) – Pain measured Wong-Baker Faces Pain scale (0-10) Secondary outcome – ARAT Motor Activity Log (MAL) Catherine Bergego Scale (CBS) 0-30 (measure of spatial neglect)	19 Patients Main outcome measures were for satisfaction – Client satisfaction Questionnaire-8 Tolerability (8-32) – Pain measured Wong-Baker Faces Pain scale (0-10) Secondary outcome – ARAT Motor Activity Log (MAL) Catherine Bergego Scale (CBS) 0-30 (measure of spatial neglect)	**0** Unacceptable – Not a cohort study or controlled trial. Just a prospective observational study so no score.

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	Therapy Association, 70:4	Chronicity – greater than 6 months.	practice for each of three therapist-selected tasks."			
197	P. Kuberan et al. (2017). Effects of task oriented exercises with altered sensory input on balance and functional mobility in chronic stroke: A pilot randomized controlled trial. *Bangladesh Journal of Medical Science,* 16:2 307-313	Hospital, high performing stroke patients	Task-oriented exercises with sensory manipulations in enhancing functional mobility and dynamic balance in stroke patients (not sure what sensory manipulation. Daily treatment x 5 days/week for 3 weeks The sensory deprivation involved blind folding (these were high performing patients)	DGI – is not a great measure TUGT (I will look at this) FES – has absolutely no contextual reference for India (I would not report this finding either)		Power calculation issues Simple randomisation (high risk of bias) Between group data not provided Independent assessor
198	G. Y. F. Ng et al. (2019). Decreasing Fear of Falling in Chronic Stroke Survivors through Cognitive Behavior Therapy and Task-Oriented Training. *Stroke,* 50:1 148-154	RCT (n=89); participants with single stroke within 1-6 years (chronic) before study, indep mobile at least 10M+/- aid, ≥7 out of 10 on abbreviated mental test and had low balance score (measured by ABC-C score) Intervention delivered in neurorehabilitation laboratory	Participants in both groups received 2 weekly sessions of 90 mins for 8 weeks. Experimental group (n=45) received 45 mins of task-orientated balance training (TOBT) and 45 mins of Cognitive Behaviour Therapy (CBT) targeting fear of falling The control group (n= 44) received 45 mins of TOBT and 45 mins of general health education (GHE).	Primary Outcome: Balance confidence (ABC-C measure) Secondary Outcomes: Berg Balance scale; Lawton ADL scale; fear avoidance, community integration and QOL scales.	Compared with the GHE+TOBT intervention, the CBT+TOBT intervention produced greater reduction in the fear of falling and fear-avoidance behaviour and greater improvements in balance ability and independent living from immediately post intervention to 12 week follow up. Much of within-group reduction in the fear of falling maintained in CBT+TOBT group compared with control group CBT+TOBT intervention improved independent daily living and community	++

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					integration, continuing at 12 month follow up.	
199	U. P. Okonkwo et al. (2018). Effects of a 12-month task-specific balance training on the balance status of stroke survivors with and without cognitive impairments in Selected Hospitals in Nnewi, Anambra State, Nigeria. *Topics in Stroke Rehabilitation,* 25:5 333-340	Controlled cohort study. 100 sub-acute (3-6/12) stroke survivors (convenience sample) classified as cognitively impaired group (CIG) or not (control) based on MMSE score.	Both groups undertook Task-specific balance training 1 hour sessions, 3x/wk for 12 months: STS; aerobic bicycle ergometer; obstacle crossing; standing balance board for 1 minute x10; stepping- fwd, bckwd, side, and turning task.	Balance - Berg Balance scale at baseline, 4th, 8th, and 12th month intervals.	Significant improvement in balance with large effect sizes in both groups at all time points: cognitively impaired group = 0.69 @ 12/12) and non-impaired = 0.544 @12/12. No significant difference in improvement.	+ Well conducted cohort study- good sized sample (with power calculation), consecutive recruitment, multi-cente wide selection criteria. BUT treatment continued for a very long time
199	U. P. Okonkwo et al. (2018). Effects of a 12-month task-specific balance training on the balance status of stroke survivors with and without cognitive impairments in Selected Hospitals in Nnewi, Anambra State, Nigeria. *Topics in Stroke Rehabilitation,* 25:5 333-340	100 sub-acute (3–6/12) ischemic stroke survivors, age 30–6 from 4 hospitals in Nigeria. Classified as cognitively impaired or not	1 hr, 3x week, for 12 mths task-specific activities targeted at optimizing balance, such as: (a) practice of sit to stand (b) aerobic training using bicycle ergometer (c) obstacle crossing (d) standing balance with eyes open using a balance board Not clear how aerobic element combined? Initial aerobic exercise intensity 60% of maximum HR based on stress test. Each subject was	Berg at baseline, 4th, 8th and 12th months,	Significant improvement in balance with large effect sizes in both groups at all time points: cognitively impaired group = 0.69 @ 12/12) and non-impaired = 0.544 @12/12. No significant difference in improvement.	+ Reasonable cohort study but to selective age range, large drop outs not accounted for and long intervention/ unclear aerobic element: 43 drop-outs compliance level (participants that completed the study) was 58.82%, while for the non-cognitive group; the compliance level was 86.21%.

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
			progressed to 85% of the value over 12 months			
200	K. Scrivener et al. (2020). Bobath therapy is inferior to task-specific training and not superior to other interventions in improving lower limb activities after stroke: a systematic review. *Journal of physiotherapy,* 66:4 225-235	SR with MA. 22 trials n review, 17 in metaanalyses. PEDro scores 2- 8	No trials compared Bobath therapy to no intervention. Meta-analyses estimated the effect of Bobath compared with: - task-specific training (9 trials) - combined interventions (4 trials) - PNF (1 trial) - strength training (2 trials)	LL activities: sitting balance, sit-to-stand, standing balance, walking, running and stair climbing. 2ry outcomes were measures of lower limb strength or co-ordination.	TST has a moderately greater benefit on LL activities than Bobath therapy (SMD 0.48), (95% CI 0.01 to 0.95). Bobath therapy did not clearly improve LL activities more than a combined intervention (SMD 20.06, 95% CI 20.73 to 0.61) or strength training (SMD 0.35, 95% CI 20.37 to 1.08). In 1 study, Bobath therapy effective than PNF for istanding balance (SMD 21.40, 95% CI 21.92 to 20.88), but did not differ on any other outcomes.	**++** Well conducted review, no concerns. Empirical research- usual challenge of varied quality/ inconsistent intervention descriptions
200	K. Scrivener et al. (2020). Bobath therapy is inferior to task-specific training and not superior to other interventions in improving lower limb activities after stroke: a systematic review. *Journal of physiotherapy,* 66:4 225-235	Systematic review: 22 included trials, 1192 participants 17 trails were included in the meta-analysis Most trials (n=12) were in a rehab hospital setting, however trials conducted later after stroke were also included Age range 34-75 Time since stroke – 6 days to 6 months	Bobath therapy: The average dose of bobath therapy was 17hrs (range 6 to 38) among the 12 studies that reported session time in enough detail to calculate dose Comparison interventions were divided into: i)Task specific training ii)Strength training iii)PNF iv)Robotics v)Combined interventions	Primary: Sitting balance, sit to stand, standing balance, walking, running or stair climbing Secondary: LL strength or coordination	TST, 7 trials (PEDro score = 7),n=409, SMD was 0.64 in favour of TST (95%CI 0.06-1.21, I^2=86% Bobath therapy compared with strength training and Bobath compared with combined intervention neither provided clear evidence in favour of either intervention. All other outcomes examined (standing balance, sit to stand , stair climbing, sitting balance found no clear evidence in favour of either intervention) Exception: Bobath compared with PNF, 1 trial, PEDro =4, n=72, SMD was -1.40(95%CI -	**++**

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
					1.92 to -0.88) in favour of Bobath	
201	S. Vive et al. (2020). Experience of enriched rehabilitation in the chronic phase of stroke. *Disability and rehabilitation,* : 01-Aug	Focus group with 20 participants, mean age 61 years, mean time since stroke 30 months. All had undergone ETT training (see Vive et al 2020).	None	Qualitative	1. The program—different and hard – highlighting the participants view of the ETT as strenuous and different in nature; 2. My body and mind learn to know better – describing positive changes in participants' body function and functional ability as well as behavioural changes experienced throughout the ETT; 3. The need and trust from others – emphasizing the perceived importance of trust in rehabilitation clinicians and the support of family and other participants. From these categories, a main theme emerged: It's hard but possible—but not alone!	**N/A** No SIGN guidance for this design
201	S. Vive et al. (2020). Experience of enriched rehabilitation in the chronic phase of stroke. *Disability and rehabilitation,* : 01-Aug	Swedish/Norwegian patient getting comprehensive therapy in span Patients who were reasonably capable and who could communicate well	Enhanced treatment in an enriched environment (a lot of therapy and practice with competent professional supervision)	Patients liked the treatment		
202	K. J. Waddell et al. (2016). Dose response of task-specific upper limb training in people	Participants ≥6 months post stroke Mean age 59.9 – 62.1 Score of 1-3 on NIHSS arm item	1hr per day, 4 days/week for 8 weeks. Supervised massed practice of	Measures taken at baseline, post intervention and 2 months later	Primary: overall there was a modest change in motor function (< 1 point/week) but no clear difference in	

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	at least 6 months poststroke: A phase II, single-blind, randomized, controlled trial. *Annals of Neurology,* 80:3 342-354	Mild to moderate functional motor capacity as indicated by 10-48 on the ARAT	functional tasks, appropriately graded and progressed for each participant. 4 dose groups: i)3200 (100reps/session) ii)6400 (200 reps/session) iii)9600 (300reps/session) iv) Individualised maximum dose (300reps/session and session continuing until meeting stopping criteria) Purpose of this group was to see how much and how long UL TS practice is tolerated	Primary: ARAT Secondary: SIS – hand and ADL subscales, COPM, 7-point likert scale evaluating self-perceived change and whether it was meaningful. 6point difference on ARAT is considered MCID in chronic stroke Potential modifiers of dose-response relationships examined: Initial severity of functional deficit measured by baseline ARAT, neglect, depression, aphasia, cognition, impaired somatosensation, muscle tone. Additional demographic and clinical characteristics also noted	response based on treatment dosage. Change scores (mean with 95%CI) were: i)5.8 (3.9-7.7) ii)5.1 (3.1-7.1) iii)5.5 (3.4-7.6) iv)8.4 (5.7-11.1) Secondary: Small improvements in functional capacity and self-reported performance seen here were likely driven by the social and psychological effects of being in therapy not by amount of training provided None of the potential modifiers had effects on the dose-response relationship	
203	K. A. Wattchow et al. (2018). Rehabilitation Interventions for Upper Limb Function in the First Four Weeks Following Stroke: A Systematic Review and Meta-Analysis of the Evidence. *Archives of Physical Medicine and Rehabilitation,* 99:2 367-382	Within 4-weeks post stroke Please read the extraction just a lot of work has been done and reported poorly – there was some bias and the rationale for merging studies was not as explicit	Variety	Variety	A lot	Acceptable

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
203	K. A. Wattchow et al. (2018). Rehabilitation Interventions for Upper Limb Function in the First Four Weeks Following Stroke: A Systematic Review and Meta-Analysis of the Evidence. *Archives of Physical Medicine and Rehabilitation,* 99:2 367-382	SR with MA. 104 trials (83 RCTs, 21 nonrandomized studies) were included (N=5225 participants). Meta-analyses of RCTs only (20 comparisons) and narrative syntheses were completed. Quality assessed: Cochrane Risk of Bias Tool. Inclusion: Adults within 4 weeks of any type of stroke	Any PT/ OT technique designed to address impairment and/or activity of the affected UL after stroke. Comparator Any usual care, sham, or another technique.	Any measure of UL impairment or activity	Significant + effects for mCimt) [SMD]Z1.09; 95% CI, .21-1.97) and task-specific training (SMDZ.37; 95% CI, .05-.68). Evidence was found to support supplementary use of biofeedback and electrical stimulation. Use of Bobath therapy was not supported.	**+** Well conducted review, no concerns.
204	Q. Zhang et al. (2020). The effect of adding trunk restraint to task-oriented training in improving function in stroke patients: A systematic review and meta-analysis. *NeuroRehabilitation,* 46:1 95-108	Meta-analysis using PRISMA guidelines. RCT of patients with functional loss of arm post stroke who were treated with trunk restraint during task orientated training versus task orientated training alone. Chronicity – subacute=2 weeks to 6 months and chronic > 6 months.	Duration of treatment ranged from two to ten weeks with frequencies ranging from two to five sessions per week. Follow-up performed in three trials at one to three months.	Nine studies identified with seven deemed as good quality. MAL used in six of nine studies. Fugl-Meyer Assessment in seven studies. Wolf-Motor in two studies. ARAT in three studies ADL measures included Barthel, Frenchay Activities Index, modified Bartherl	MAL - the amount of use: Sub-acute - MD=0.39 CI=0.25to0.54. Chronic - MD=0.03 CI=-0.31to0.36. Quality of movement: Sub-acute - MD=0.45 CI=0.27to0.63. Chronic - MD=-0.06 CI=-0.41to0.29. Fugl-Meyer Assessment: Sub-acute - MD=1.99 CI=0.67to1.51 Chronic - MD=0.28 CI=-0.13to0.70. ARAT: Sub-acute - MD=4.51 CI=2.49to6.54 Chronic - MD=0.6 CI=-7.78to8.98. Wolf Motor: Chronic – MD=-0.99(-3.2 TO 1.8) ADL: Sub-acute - MD=1.7 CI=0.2to3.2– MD=-0.01(-0.6 TO 0.6)	High Quality - Only used studies written in English or Chinese so others may have been excluded.

Ref ID	Source	Setting, design and subjects	Intervention	Outcomes	Results	Evidence quality (SIGN checklist score) and comment
204	Q. Zhang et al. (2020). The effect of adding trunk restraint to task-oriented training in improving function in stroke patients: A systematic review and meta-analysis. *NeuroRehabilitation,* 46:1 95-108	SR/MA of 9 studies (255 participants). Only 3 were subacute, 6 were chronic. Only 3 did long term follow up (1-3 months).	mCIT/reach-to-grasp training +/- trunk restraint 15-60 hours	FW/ARAT/MAL (most common)	Adding trunk restraint to task-oriented training may improve function in patients with subacute stroke. In particular FW and ARAT.	**+** for SR For studies - 7 studies - good quality, 2 studies – fair quality But, small trials
205	S. Ribault et al. (2019). Limited evidence of physical therapy on balance after stroke: A systematic review and meta-analysis. *PLoS ONE,* 14:8 e0221700	Systematic review and Meta-Analysis Studies included are not listed therefore unable to determine setting, chronicity, stroke severity etc Definitions unclear for usual care/sham treatment/no treatment. Follow up points unknown.	Physical therapies divided into follow categories: Assistive devices, constraint induced therapy, cardiopulmonary, functional task training, Musculoskeletal intervention, neurophysiological intervention, sensory intervention, other interventions (acupuncture, aquatic therapy, body awareness therapy). No details on dose, timing of intervention, intensity etc	Primary outcomes: i)Balance (BBS and postural assessment scale for stroke) ii) Postural control with postural deviation or stability measurement in sitting or standing static evaluation measured by WBA (weight baring asymmetry), COP (centre of pressure or LOS (limit of stability) parameters	145 studies included N=5912 Functional task training (SMD 0.39, 95% CI(0.09;0.68) heterogeneity I^2 =63%) associated with musculoskeletal intervention and/or cardiopulmonary intervention (0.37 [0.19;0.55], I^2 = 48%) and sensory interventions seem to be effective in improving balance and postural stability effectively.	Somewhere between low quality and unacceptable based on lack of information provided, poorly defined interventions, unclear descriptions of usual care, sham treatment and no treatment
205	S. Ribault et al. (2019). Limited evidence of physical therapy on balance after stroke: A systematic review and	Systematic review with Meta-analysis of 145 RCTs (18 crossover and 127 parallel group design). 5912 participants (mean: 40.8, SD: 42.9, range: 7–408). Weighted age was 60.8 years (SD:	Any PT of PT for balance and postural control after stroke, classified. Controls = sham treatment or usual care (ST/UC)	Balance activity (Berg Balance Scale or Postural Assessment Scale for Stroke); postural deviation = weight bearing asymmetry or the	Most studies had high or unclear bias for blinding but a low risk for other biases. Possible publication bias. For balance - functional task-training alone (smd 0.39, 95%	**++** Very high quality SR and MA.

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	meta-analysis. *PLoS ONE,* 14:8 e0221700	44.3) Quality assessed with Cochrane risk of bias tool.	On average, participants received an additional 300 minutes in 12sessions of 20 minutes for 3 weeks (PT versus NT). Compared to ST/UC, Tx = 570 min in 16 x 30 mins for 5 weeks	mediolateral anteroposterior CoP. Postural stability = postural sway - COP sway or limit of stability (LOS) parameters.	CI 0.09; 0.68) +/- MSK or cardiopulmonary intervention (0.37, [0.19; 0.55]) post-treatment was favourable. For postural stability eyes open, functional task-training and sensory interventions were more effective than control (0.97, [0.35; 1.59] and 0.80, [0.46; 1.13], respectively) immediately after intervention	
206	S. Vive et al. (2020). Enriched, Task-Specific Therapy in the Chronic Phase After Stroke: An Exploratory Study. *Journal of Neurologic Physical Therapy,* 44:2	Exploratory within-subject, repeated-measures design (Could call it a cohort study). The intervention was preceded by a baseline period to determine the stability of the outcome measures. 41 chronic strokes (mean 36 months post-stroke) with mild-moderate motor impairment and disability (Can sit-to-stand and transfers independently or with (non-mechanical) assistance Participants from Sweden or Norway but travelled to Spain for treatment. Ax before nad after treatment wer ein Span, others in Sweden/Norway or by postal questionnaire.	The 3-week Enriched Task-specific Training (ETT): PT with social and cognitive stimulation. Individually tailored groups (4-9 people) repetitive massed practice with non-compensatory strategies supervised by PTs. 3- 6 hours training/ day (functional task and impairment-based training sessions) Each session = 1.5-2 hrs. Half day on Saturdays and Sundays off. Therapy interspersed with social activities, eg coffee and lunch breaks with each other and accompanying family. Participants encouraged to engage	Primary outcome = motor recovery (Modified Motor Assessment Scale, M-MAS). Secondary outcomes = balance, Walking (^min walk test), grip strength, dexterity, and multiple dimensions of health. Assessments made at baseline, immediately before and after the intervention, and at 3 and 6 months	Baseline measures were stable. 39 participants (95%) completed the intervention. Mean amount of PT= 75.3 ± 19.2 hours. M-MAS UAS increased 2.3 points and 5 points on the Berg Balance Scale (both $P<0.001$; SRM>0.90). Comfortable and fast gait speed increased by 0.13 and 0.23 m/s, ($P < 0.001$; SRM = 0.88), 6 min WT increased (24.2 m; $P < 0.001$; SRM = 0.64), Box and block test of dexterity changed from 11.8 to 13.1 blocks/min ($P = 0.028$), but no significant change in grip strength was seen ($P = 0.11$). Enriched, task specific therapy also increased participants' confidence in task performance as measured by Falls Efficacy Scale The improvements were sustained at 6 months.	Low level evidence. Cohort study Strange. Scandinavian participants, but treatment in Span. Has combined large amounts of therapy with social interaction but don't know which element was effective, or both. No control. Highly selected participants. But more evidence that high dose/large amounts of therapy are possible

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			in a challenging outdoor environment. Also enriching excursions with rehabilitation personnel, enabling goal-directed training in various environments.			
206	S. Vive et al. (2020). Enriched, Task-Specific Therapy in the Chronic Phase After Stroke: An Exploratory Study. *Journal of Neurologic Physical Therapy,* 44:2	Two rehab centres, Sweden. Within subject, repeated measures design. 3 weeks baseline, 3 weeks treatment (6 days a week, (31 hours/week), 3 and 6 month follow up (5 measurement points) 41 subjects, mean age (59.6 years) , mean of 36 months post-stroke	sessions of 1.5 to 2 hours task specific UL training = repetitive functional training in everyday tasks, meaningful for the individual. E = 'an intervention to increase motor, sensory, cognitive, and social activity by providing a stimulating environment.' Only within subject baseline control period (which included 5.6 ± 3.8 hours of therapist led rehabilitation)	The primary outcome was functional motor performance, measured with the Modified Motor Assessment Scale (MAS) according to Uppsala University Hospital (MMAS UAS) – M-MAS UAS is a functional test designed to assess 8 motor components in individuals with stroke: supine to side lying, supine to sitting over side of bed, sitting, sitting to standing, walking, upper arm function, hand movements, and fine motor activities; the latter 3 components are assessed bilaterally	During the ETT program, the whole study cohort received a mean of 75.3 ± 19.2 hours of physical therapy. Measures at baseline 1 and 2, post-ETT 1,2,3 Only comparison that seems to be made is baseline 2 to post-ETT 1 Without correction for B1 to B2. MMAS UAS SRM after ETT 1.28 (increase 2.3 points), at 6 month follow up 0.92 (increase 2.4 points), both p<0.001 Immediately after the intervention, significant gains were also observed in balance and gait, as shown by a 5.0-point improvement on the BBS (P < 0.001). The Box and blocks test of manual dexterity showed changes from 11.8 to 13.1 blocks/minute (P = 0.028), but no significant change in grip strength was seen (10.9 to 12.1 N, P = 0.11). ETT also increased participants' confidence in	**N/A** No SIGN guidance for this design Chances of false positive – small. Probably useful in the 'high dose' category rather than ETT.

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					task performance as measured by Falls Efficacy Scale and improved the perception of life satisfaction as measured by LISAT. The level of depression and fatigue was also significantly improved after treatment completion, as was patient-reported mobility, anxiety/depression, and the overall health status according to EQ-5D. Note SRMs are quite large	