Supplemental Table 1. Selected Evidence for the Effectiveness of Interventions to Improve Occupational Performance of People With Motor Impairments After Stroke

Author/Year	Study Objectives	Level/Design/Participants	Intervention and Outcome Measures	Results	Study Limitations
Arya et al. (2012)	To evaluate the effectiveness of meaningful task-specific training (MTST) for UE motor recovery during the subacute phase after a stroke	Level I RCT $N = 103$ (62 men, 41 women); M age = 50.93 yr, $SD = 7.78$; M time poststroke = 12.15 wk, $SD = 6.54$ Experimental group $n = 51$ Control group $n = 52$ Subacute time poststroke: $M = 12.15$ wk Brunnstrom stage of arm recovery = 2–5	*Intervention* MTST vs. NDT *Experimental Group:* MTST 4–5 days/wk for 4 wk *Control Group:* Dose-matched NDT *Outcome Measures* • FMA • ARAT • GWMFT • MAL	Statistically significant differences were observed in changes between the groups at postintervention and follow-up assessment for FMA, ARAT, GWMFT, and MAL in favor of the experimental group.	N/A
Barclay-Goddard, Stevenson, Poluha, & Thalman (2011)	To determine whether MP improves the outcomes of upper-limb rehabilitation after stroke	Level I Systematic review, meta-analysis $N = 6$ studies (5 RCTs and 1 randomized crossover design) Trials selected included adult participants with UE deficits as a result of a stroke.	*Search Methods* Multiple databases were searched (e.g., CENTRAL, PubMed, CINAHL). *Selection Criteria* RCTs and crossover RCTs comparing MP with any other therapy, no therapy, or placebo MP *Outcome Measures* *Primary (Examples):* • ARAT • WMFT • B&B Test • FAT • JTTHF • BI • FIM *Secondary (Examples):* • FMA • Chedoke–McMaster Stroke Assessment • PEDro Scale (to assess methodological quality)	*UE function and activity limitations:* Significant effect favoring MP on improving UE function and activity limitations. *UE impairments:* Significant effect favoring MP on reducing UE impairments.	Included studies were significantly heterogeneous in terms of participant characteristics, intervention protocols, and outcome measures. Literature search may have failed to identify all relevant studies.
Franceschini et al. (2012)	To determine whether AO combined with physical training is more effective than static image observation and physical training in the recovery	Level I Multicenter observer blind RCT $N = 102$	*Intervention* All participants received inpatient rehabilitation 3 hr/day for 4 wk. Both groups received two 15-min daily sessions (5 days) over 4 wk.	Scores on the FAT, FMA, B&B Test, and FIM improved over time for both groups. Scores on the B&B Test were significantly higher for the experimental	Heterogeneous sample

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Supplemental Table 1. Selected Evidence for the Effectiveness of Interventions to Improve Occupational Performance of People With Motor Impairments After Stroke (*cont.*)

Author/Year	Study Objectives	Level/Design/Participants	Intervention and Outcome Measures	Results	Study Limitations
	of upper-limb motor function early after stroke	Experimental group $n = 53$ (33 men, 20 women); *M* age = 67.0 yr, *SD* = 12.4; *M* time poststroke = 31.0 days, *SD* = 4.6 Control group $n = 49$ (28 men, 21 women); *M* age = 65.7 yr, *SD* = 11.9; *M* time poststroke = 29.5 days, *SD* = 4.2 $n = 12$ did not receive allocation intervention, $n = 11$ lost to follow-up	*Experimental group:* Watched videos of 20 different actions. After each sequence, participants were asked to perform the same movement for 2 min. *Control group:* Sham AO involving viewing 5 static images of objects *Outcome Measures* *Primary:* • B&B Test *Secondary:* • FMA • FAT • Modified Ashworth Scale • FIM	group, and these improvements were maintained at 4- to 5-mo follow-up.	
Harris & Eng (2010)	To examine the evidence for strength training of the paretic upper limb in improving strength, upper-limb function, and ADLs. A secondary objective was to examine the effect of duration of injury (subacute and chronic) and motor severity (moderate and mild) on upper-limb function. Adverse effects were also explored.	Level I RCT $N = 13$ trials	*Search Methods* Multiple databases were searched (e.g., MEDLINE, CINAHL, EMBASE). *Selection Criteria* RCTs that examined the effect or additional effect of a graded strengthening program compared with uni- or multidimensional programs. Study authors had to use the term *strength, resistance,* or *exercise* as part of the intervention description. *Outcome Measures (Examples)* • Grip strength • MAS • ARAT • WMFT • B&B Test • BI • FIM • SF–36 • Methodological quality was assessed with the PEDro Scale.	A significant effect favoring strength training was found for grip strength and upper-limb function. No treatment effect was found for strength training on ADL measures. A significant effect for strength training on upper-limb function was found for studies including participants with moderate and mild upper-limb motor impairment. No trials reported adverse effects. Quality of included trials ranged from 2 to 8 on the PEDro Scale with four trials falling below a rating of 5.	Several studies used mixed interventions. In those studies, it was difficult to determine which component or combination of components produced the significant treatment effect.

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Supplemental Table 1. Selected Evidence for the Effectiveness of Interventions to Improve Occupational Performance of People With Motor Impairments After Stroke (*cont.*)

Author/Year	Study Objectives	Level/Design/Participants	Intervention and Outcome Measures	Results	Study Limitations
Laver, George, Thomas, Deutsch, & Crotty (2011)	To evaluate the effects of VR and interactive video gaming on upper-limb, lower-limb, and global motor function after stroke	Level I Systematic review, meta-analysis *N* = 19 studies (all RCTs) Trials selected included adult participants poststroke.	*Search Methods* Multiple databases were searched (e.g., CENTRAL, MEDLINE, CINAHL, PsycINFO). *Selection Criteria* RCTs and quasi-RCTs comparing VR (i.e., nonimmersive or immersive VR or commercially available gaming consoles) with either an alternative intervention or no intervention. *Outcome Measures* *Primary (UE, lower extremity, and global motor function—examples):* • ARAT • WMFT • MAS • B&B Test • Walking distance • TUG • BBS *Secondary* *Cognitive function—examples:* • Trail Making Test • Useful Field of View Test *Activity limitation—examples:* • FIM • BI *Participation restriction and quality of life—examples:* • SF–36 • SIS	*Arm motor function:* Moderate significant effect favoring VR on arm function and activity postintervention *Hand motor function:* Nonsignificant effect of VR on grip strength *Gait speed:* Nonsignificant effect of VR on gait speed *Cognitive function:* No data reported. *ADLs:* Large significant effect favoring VR postintervention *Participation restriction and quality of life:* No data reported.	Studies were significantly heterogeneous in terms of participant characteristics, intervention protocols, and outcome measures. Sample sizes of included studies were small. Risk of bias in included studies was unclear because of poor reporting and lack of clarification by authors. Fewer than 50% reported adequate allocation concealment, and blinding of outcome assessors was unclear in 5 of the included studies.
Peurala et al. (2012)	To examine the effect of CIMT and mCIMT on activity and participation of patients with stroke	Level I Systematic review with meta-analysis *N* = 30 studies (all RCTs) (8 RCTs, CIMT; 22 RCTs, mCIMT) Trials selected included patients >18 yr old with stroke.	*Search Methods* Multiple databases were searched (e.g., MEDLINE, CINAHL, EMBASE). *Selection Criteria* RCTs for patients receiving CIMT or mCIMT; published in Finnish, Swedish, English, or German *Outcome Measures (Examples)* • ARAT • WMFT	*Arm motor function (WMFT and ARAT):* Significant effect postintervention favoring CIMT, regardless of practice schedule *Perceived arm function (MAL):* Significant effect favoring CIMT, regardless of practice schedule	Included studies were heterogeneous in terms of participant characteristics, intervention protocols, and outcome measures. Literature search may have failed to identify all relevant studies.

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Supplemental Table 1. Selected Evidence for the Effectiveness of Interventions to Improve Occupational Performance of People With Motor Impairments After Stroke (*cont.*)

Author/Year	Study Objectives	Level/Design/Participants	Intervention and Outcome Measures	Results	Study Limitations
			• MAL • FIM • SIS • BI Methodological quality was assessed by 2 blinded and independent assessors using an 11-point scale.	*Self-care (FIM and BI):* Significant effect favoring CIMT administered for 30 hr over 3 wk *Quality of life (SIS):* No significant differences noted between the groups postintervention. Methodological quality of included studies was generally good (range = 3–8, *M* = 5.5, *SD* = 1.4).	
Shi, Tian, Yang, & Zhao (2011)	To compare the effectiveness of mCIMT with traditional rehabilitation (TR) therapy in patients with UE dysfunction after stroke	Level I Systematic review with meta-analysis *N* = 13 studies (all RCTs) Trials selected included adults >18 yr old with a clinical diagnosis of stroke who met the inclusion criteria of modified CIMT.	*Search Methods* Multiple databases were searched (e.g., PUBMED, EMBASE, Cochrane Library). *Selection Criteria* RCTs investigating mCIMT vs. TR for treatment of patients with UE dysfunction after stroke. *Outcome Measures (Examples)* • FMA • ARAT • MAL (Amount of Use and QoU) • WMFT • FIM The methodological quality of the included studies was assessed using a quality-scoring instrument (5-point scale).	*Arm motor impairment (FMA):* Significant effect favoring mCIMT postintervention *Arm motor function (ARAT):* Significant effect favoring mCIMT postintervention *Perceived arm motor function (MAL):* Significant effect favoring CIMT postintervention *Focal disability (FIM):* Significant effect favoring CIMT postintervention *Kinematic variables:* Significant effect favoring mCIMT on several UE reaching variables Methodological quality scores of included studies ranged from 3 to 5, with 9 studies receiving a score of ≥4, indicating the majority of the studies were of high quality.	Included studies were heterogeneous in terms of participant characteristics, intervention protocols, and outcome measures. Literature search may have failed to identify all relevant studies.
Thieme, Mehrholz, Behrens, & Dohle (2012)	To summarize the effectiveness of MT for improving motor function, ADLs, pain, and visuospatial neglect after stroke	Level I Systematic review and meta-analysis *N* = 14 studies (12 RCTs and 2 crossover designs) Trials selected included adult participants (≥18 yr old) with paresis of the upper or lower limb or both after stroke.	*Search Methods* Multiple databases were searched (e.g., CENTRAL, Medline, CINAHL). *Selection Criteria* RCTs and crossover RCTs comparing MT with any other therapy, no therapy, or sham therapy *Outcome Measures* *Primary (Examples):* • FMA	*Motor function:* Significant effect favoring MT on motor function postintervention and at 6 mo follow-up *ADL:* Significant effect favoring MT on improving ADLs postintervention *Pain:* Significant effect favoring MT on pain reduction postintervention Multiple subgroup analysis and sensitivity analysis by trial method-	Included studies were heterogeneous in terms of participant characteristics, intervention protocols, and outcome measures. Study sample sizes were small. Literature search may have failed to identify all relevant studies.

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Supplemental Table 1. Selected Evidence for the Effectiveness of Interventions to Improve Occupational Performance of People With Motor Impairments After Stroke (*cont.*)

Author/Year	Study Objectives	Level/Design/Participants	Intervention and Outcome Measures	Results	Study Limitations
			• ARAT • WMFT • MAS *Secondary—ADLs:* • BI • FIM *Secondary—pain:* • VAS or numeric rating scale *Secondary—visuospatial neglect:* • Self-defined scale (results reported in Gillen et al., 2015). Methodological quality was assessed using PEDro Scale.	ologies confirmed the results presented above. Median of the PEDro scale scores was 7 of 10 points; the majority of the studies were of good to excellent quality.	

Note. $p < .05$. ADLs = activities of daily living; AO = action observation; ARAT = Action Research Arm Test; BBS = Berg Balance Scale; B&B Test = Box and Block Test; BI = Barthel Index; CIMT = constraint-induced movement therapy; FAT = Frenchay Arm Test; FMA = Fugl-Meyer Motor Assessment; GWMFT = graded Wolf Motor Function test; JTTHF = Jebsen–Taylor Test of Hand Function; *M* = mean; MAL = Motor Activity Log; MAS = Motor Assessment Scale; mCIMT = modified constraint-induced movement therapy; MP = mental practice; MT = mirror therapy; N/A = not applicable; NDT = neurodevelopmental treatment; PEDro = Physiotherapy Evidence Database; QoU = Quality of Use scale; RCT = randomized controlled trial; *SD* = standard deviation; SIS = Stroke Impact Scale; TUG = Timed Up and Go test; UE = upper extremity; VAS = visual analog scale; VR = virtual reality; WMFT = Wolf Motor Function Test.

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