Repetitive Task Training for Improving Functional Ability After Stroke: A major update of a Cochrane Review

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Repetitive task training (RTT) involves the active practice of task-specific motor activities and is a component of current therapy approaches in stroke rehabilitation.

**Objectives**

Primary objective is to determine whether RTT improves upper limb function/reach and lower limb function/balance in adults after stroke.

Secondary objectives are (1) to determine the effect of RTT on secondary outcome measures, including activities of daily living, global motor function, quality of life/health status, and adverse 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), and timing of the intervention and type of intervention.

**Methods**

We searched the Cochrane Stroke Group Trials Register (March 4, 2016); the Cochrane Central Register of Controlled Trials (CENTRAL; the Cochrane Library 2016, Issue 5: October 1, 2006 to June 24, 2016; MEDLINE (October 1, 2006 to March 8, 2016); Embase (October 1, 2006 to March 8, 2016); CINAHL (2006 to June 23, 2016); AMED (2006 to June 21, 2016), and SPORTSDiscus (2006 to June 21, 2016).

We included only randomized or quasi-randomized trials in adults after stroke, where the intervention was an active motor sequence performed repetitively within a single training session, aimed toward a clear functional goal.

**Data Collection and Analysis**

Two review authors independently selected trials for inclusion, extracted data, and appraised methodological quality.

**Main Results**

We included 33 trials with 36 intervention–control pairs and 1853 participants. The risk of bias present in many studies was unclear because of poor reporting; the evidence has therefore been rated moderate or low when using the GRADE system.

There is low-quality evidence that RTT improves arm function (standardized mean difference [SMD], 0.25; 95% confidence interval [CI], 0.01−0.49; 11 studies, number of participants analyzed=749), hand function (SMD, 0.25; 95% CI, 0.00−0.51; 8 studies, number of participants analyzed=619), and lower limb functional measures (SMD, 0.29; 95% CI, 0.10−0.48; 5 trials, number of participants analyzed=419).

There is moderate-quality evidence that RTT improves walking distance (mean difference, 34.80; 95% CI, 18.19−51.41; 9 studies, number of participants analyzed=610) and functional ambulation (SMD, 0.35; 95% CI, 0.04−0.66; 8 studies, number of participants analyzed=525). We found significant differences between groups for both upper limb (SMD, 0.92; 95% CI, 0.58−1.26; 3 studies, number of participants analyzed=153) and lower limb (SMD, 0.34; 95% CI, 0.16−0.52; 8 studies, number of participants analyzed=471) outcomes ≤6 months post-treatment but not after 6 months. Effects were not modified by intervention type, dosage of task practice, or time since stroke for upper or lower limb. There was insufficient evidence to be certain about the risk of adverse events.

**Conclusions**

Patients who receive RTT may be more likely to improve upper and lower limb function after treatment and sustain these improvements ≤6 months after treatment than patients receiving usual care.

**Implications for Clinical Practice and Future Research**

Our findings indicate that patients seem to benefit from RTT regardless of the amount of task practice, type of intervention, or time since stroke (Table). Further research should focus on the type and amount of training, including ways of measuring the number of repetitions actually performed by participants.
Disclosures

None.

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This article is based on a Cochrane Review published in The Cochrane Library 2016, Issue 11 (www.thecochranelibrary.com). Cochrane Reviews are regularly updated as new evidence emerges and in response to feedback, and The Cochrane Library should be consulted for the most recent version of the review.

Reference


Key Words: arm ■ quality of life ■ rehabilitation ■ stroke ■ walking
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