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Repetitive task training for improving functional ability after stroke (Review)

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[Intervention Review]

Repetitive task training for improving functional ability after stroke

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ABSTRACT

Background

The active practice of task-specific motor activities is a component of current approaches to stroke rehabilitation.

Objectives

To determine if repetitive task training after stroke improves global, upper or lower limb function, and if treatment effects are dependent on the amount, type or timing of practice.

Search methods

We searched the Cochrane Stroke Trials Register (October 2006), The Cochrane Library, MEDLINE, EMBASE, eight additional electronic databases (to September 2006), and OT search (to March 2006). We also searched for unpublished/non-English language trials, conference proceedings, combed reference lists, requested information on bulletin boards, and contacted trial authors.

Selection criteria

Randomised/quasi-randomised trials in adults after stroke, where the intervention was an active motor sequence performed repetitively within a single training session, aimed towards a clear functional goal, and where the amount of practice could be quantified.

Data collection and analysis

Two authors independently screened abstracts, extracted data and appraised trials. Assessment of methodological quality was undertaken for allocation concealment, blinding, loss to follow up and equivalence of treatment. We contacted trial authors for additional information.

Main results

Fourteen trials with 17 intervention-control pairs and 659 participants were included. Primary outcomes: results were statistically significant for walking distance (mean difference (MD) 54.6, 95% CI 17.5 to 91.7); walking speed (standardised mean difference (SMD) 0.29, 95% CI 0.04 to 0.53); sit-to-stand (standard effect estimate 0.35, 95% CI 0.13 to 0.56); and of borderline statistical significance for functional

ambulation (SMD 0.25, 95% CI 0.00 to 0.51), and global motor function (SMD 0.32, 95% CI -0.01 to 0.66). There were no statistically significant differences for hand/arm function, or sitting balance/reach. Secondary outcomes: results were statistically significant for activities of daily living (SMD 0.29, 95% CI 0.07 to 0.51), but not for quality of life or impairment measures. There was no evidence of adverse effects. Follow-up measures were not significant for any outcome at six or 12 months. Treatment effects were not modified by intervention amount or timing, but were modified by intervention type for lower limbs.

Authors' conclusions

Repetitive task training resulted in modest improvement in lower limb function, but not upper limb function. Training may be sufficient to impact on daily living function. However, there is no evidence that improvements are sustained once training has ended. The review potentially investigates task specificity rather more than repetition. Further research should focus on the type and amount of training, and how to maintain functional gain.

PLAIN LANGUAGE SUMMARY

Repetitive task training for improving functional ability after stroke

Stroke can cause problems with movement, often down just one side of the body. All limbs can be affected, and while some recovery is common over time, about one third of people will have continuing problems. This review of 14 studies with 659 participants looked at whether repeated practice of tasks similar to those commonly performed in daily life could improve functional abilities. In comparison with usual care or placebo groups, people who practiced functional tasks showed modest improvements in walking speed, walking distance and the ability to stand from sitting, but improvements in leg function were not maintained six months later. Repetitive task practice had no effect on arm or hand function. There was a small amount of improvement in ability to manage activities of daily living. Training effects were no different for people whether early or late after stroke. Further research is needed to determine the best type of task practice, and whether more sustained practice could show better results.