

Cognitive Rehabilitation for Executive Dysfunction in Adults With Stroke or Other Adult Nonprogressive Acquired Brain Damage

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Executive functions are cognitive processes essential for controlling goal-oriented behavior and responding to new and novel situations. Executive function includes the processes of planning, initiation, organization, inhibition, problem solving, self-monitoring, and error correction. It has been estimated that $\approx 75\%$ of stroke survivors experience impaired executive function (executive dysfunction), resulting in reduced capacity to regain independence in activities of daily living, particularly when new movement strategies are necessary to compensate for limb weakness. A variety of cognitive rehabilitation interventions are implemented within clinical practice in an attempt to improve executive function and, consequently, independence with activities of daily living.¹

Objectives

To determine the effects of cognitive rehabilitation on executive dysfunction for adults with stroke or other nonprogressive acquired brain injuries.

Methods

We searched: Cochrane Stroke Group Trials Register, the Cochrane Central Register of Controlled Trials, MEDLINE, EMBASE, CINAHL, PsycINFO, and AMED (last search August 2012). We also searched an additional 11 databases, hand-searched journals and conference proceedings, and contacted experts.

We included randomized trials in adults with stroke or other adult acquired brain injury in which the intervention was cognitive rehabilitation, and outcomes included executive function measures or cognitive outcome measures with separable executive function scores. The primary outcome of interest was measures of global executive function; secondary outcomes included assessments of specific components of executive function and activities of daily living.

Two review authors independently screened abstracts, extracted data, and appraised trials. Assessments of methodological quality for allocation concealment, blinding of outcome assessors, method of dealing with missing data, and other potential sources of bias were undertaken. For continuous data, we calculated the treatment effect using standardized mean differences and 95% confidence intervals where different studies used different scales for the assessment of the same outcome, and using mean differences and 95% confidence interval where studies all used the same

method of measuring outcome. We used a random-effect model for all analyses.

Main Results

Nineteen studies (907 participants) met the inclusion criteria for this review. Data were available for inclusion within meta-analyses from 13 studies (660 participants, including 234 with stroke) that investigated a range of interventions, including problem-solving training (6 studies), self-awareness or self-monitoring training (4 studies), general cognitive rehabilitation (2 studies), and working memory training (1 study).

Six of the included studies (333 participants) compared cognitive rehabilitation with no treatment or placebo; none reported the primary outcome measure and data from 4 studies demonstrated no statistically significant effect of cognitive rehabilitation on secondary outcomes. Ten studies (448 participants) compared an experimental cognitive rehabilitation approach with a standard cognitive rehabilitation approach. Only 2 of these studies (82 participants) reported the primary outcome; no statistically significant effect was found. Data from 8 studies (404 participants) demonstrated no significant effect on the secondary outcomes. Three studies (134 participants) compared cognitive rehabilitation with sensorimotor therapy. None reported the primary outcome, and data were only available relating to the secondary outcomes from 1 study.

Conclusions

There is insufficient high-quality evidence to reach any generalized conclusions about the effect of cognitive rehabilitation on executive function or independence in activities of daily living. Further high-quality research comparing cognitive rehabilitation with nonintervention, placebo, or sensorimotor interventions is recommended.

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Disclosures

None.

Reference

1. Chung CS, Pollock A, Campbell T, Durward BR, Hagen S. Cognitive rehabilitation for executive dysfunction in adults with stroke or other adult non-progressive acquired brain damage. *Cochrane Database Syst Rev* 2013, 4. Art. No. CD008391. doi:10.1002/14651858.CD008391. pub2' : <http://dx.doi.org/10.1002/14651858.CD008391>

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