Mental Practice for Treating Upper Extremity Deficits in Individuals With Hemiparesis After Stroke

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Activity limitations of the upper extremity are a common finding for individuals living with stroke. Mental practice (MP) is a training method that uses cognitive rehearsal of activities to improve performance of those activities. This review attempted to determine whether there is experimental support for the use of MP to improve upper extremity outcomes of individuals living with the effects of stroke.

Search Strategy
The following databases were searched from their inception to November 2009: the Cochrane Central Register of Controlled Trials, PubMed, EMBASE, CINAHL, PsycINFO, Scopus, Web of Science, the Physiotherapy Evidence Database, CIRRIE, REHABDATA, and Cochrane Stroke Group Trials Register (Nov 2010). We also searched ongoing trials registers, reference lists of previous reviews, and the tables of contents of relevant journals for suitable trials.

Selection Criteria
Trials that recruited adult survivors of stroke, had random allocation to groups, featured MP of upper extremity movements as the experimental intervention, and included a control group were selected.

Data Collection and Analysis
Two review authors independently selected trials for inclusion. We considered the primary outcome to be the ability of the arm to be used for real-life tasks (ie, arm function).

Results
We identified 6 studies (119 participants) that were suitable. The quality of included trials was graded with the PEDro scale with scores ranging from 6 to 9 out of 10. Meta-analysis showed that MP in combination with other treatment appeared to be more effective in improving upper extremity function than did the other treatment alone (Figure; standardized mean difference, 1.37; 95% CI, 0.60–2.15). A subgroup analysis to investigate the influence of the participants’ time since stroke and the amount of MP delivered was limited due to the small numbers in each group. The Grading of Recommendations Assess-

Figure. Forest plot showing the results of trials comparing the effect of adding mental practice with another rehabilitation method on indicators of upper extremity function. SD indicates standard deviation; Std., standard; IV, inverse variance; CI, confidence interval; Z, Z value.

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ment, Development and Evaluation score indicated the evidence to be of moderate strength.

**Conclusions**
There is limited evidence to suggest that MP, when combined with other rehabilitation treatment, appears to be beneficial in improving upper extremity function after stroke, compared with other rehabilitation treatment without MP. Evidence regarding improvement in motor recovery and quality of movement is less clear. There is no clear pattern regarding the ideal dosage of MP required to improve outcomes.

**Implications for Clinical Practice**
Although the evidence is limited, clinicians may consider the use of MP in addition to treatment currently used to increase upper extremity function after stroke. No evidence of side effects or harm was noted in the literature; the client should be able to imagine the movement.

**Implications for Future Research**
Additional studies are required to evaluate the effect of MP on varied times poststroke, the ideal dosage of MP that is required to affect the outcomes, and whether improvement is maintained over time. These issues should be clarified in the future, as several studies are ongoing.

**Disclosures**
None.

**Key Words:** mental practice | upper extremity
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