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Mirror Therapy for Improving Motor Function After Stroke
Update of a Cochrane Review

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Mirror therapy has been proposed as potentially beneficial intervention in the rehabilitation after stroke. The Cochrane review summarizes the effectiveness of mirror therapy for improving motor function, motor impairment, activities of daily living, pain, and visuospatial neglect after stroke.

Methods

We searched the Cochrane Stroke Group Trials Register, the Cochrane Central Register of Controlled Trials, MEDLINE, Embase, CINAHL (Cumulative Index to Nursing and Allied Health Literature), AMED (Allied and Complementary Medicine), PsycINFO, and PEDro (Physiotherapy Evidence Database) (last searched August 16, 2017); handsearched other relevant resources; checked reference lists, trials, and research registers; and contacted authors in effort to identify relevant studies. We included randomized controlled trials and randomized crossover trials comparing mirror therapy with any control intervention for people after stroke. Two review authors independently selected trials based on the inclusion criteria, documented the methodological quality, assessed risks of bias in the included studies, and extracted data. We assessed the quality of the evidence using the GRADE approach (Grading of Recommendations Assessment, Development and Evaluation). We analyzed the results as standardized mean differences (SMDs), mean differences, and as odds ratios.

Results

We included 62 studies with a total of 1982 participants that compared mirror therapy with other interventions. Participants had a mean age of 59 years (45–73 years). Mirror therapy was provided 3 to 7× a week, between 15 and 60 minutes for each session for 2 to 8 weeks (on average 5× a week, 30 minutes a session for 4 weeks). We found 33 studies with no or unclear use of concealed allocation, 40 studies with no or unclear use of an adequate handling of missing outcome data, and 24 studies with no or unclear blinding of assessors. On this basis, we downgraded the quality of the evidence. When compared with all other interventions, we found moderate-quality evidence that mirror therapy has a significant positive effect on motor function (SMD, 0.47; 95% CI, 0.27–0.67; 1173 participants; 36 studies; Figure) and motor impairment (SMD, 0.49; 95% CI, 0.32–0.66; 1292 participants; 39 studies). However, effects on motor function are influenced by the type of control intervention. Additionally, based on moderate-quality evidence, mirror therapy may improve activities of daily living (SMD, 0.48; 95% CI, 0.30–0.65; 622 participants; 19 studies). We found low-quality evidence for a significant positive effect on pain (SMD, −0.89; 95% CI, −1.67 to −0.11; 248 participants; 6 studies) and no clear effect for improving visuospatial neglect (SMD, 1.06; 95% CI, −0.10 to 2.23; 175 participants; 5 studies). No adverse effects were reported.

Implications for Practice

The results of this review indicate that mirror therapy could be applied in terms of improving motor function and motor impairment of the upper and lower extremity, as well as improving activities of daily living for people after stroke. For a subgroup with a complex regional pain syndrome, type I after stroke, mirror therapy may be an effective intervention for reducing pain.

Implications for Research

There is an urgent need for well-designed and properly reported multicenter randomized controlled studies with large sample sizes to provide a high level of evidence.

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This article is based on a Cochrane Review published in The Cochrane Library 2018, Issue 7 (see www.thecochranelibrary.com for information).[1] 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.

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Disclosures

Dr Thieme is author of an included study on the effect of mirror therapy after stroke. He was not involved in checking this trial for

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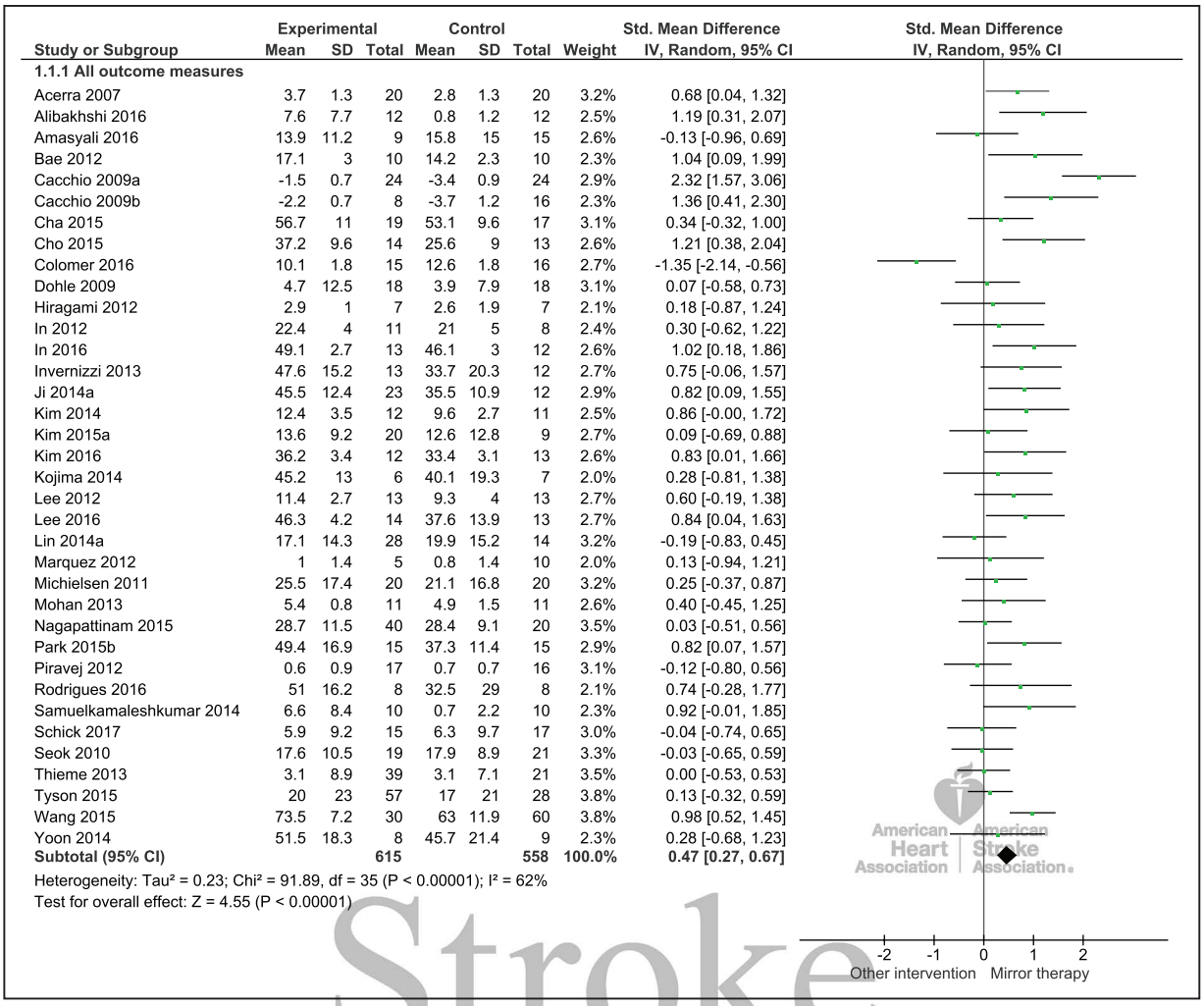

Figure. Mirror therapy vs all other interventions. Outcome: motor function at the end of intervention.

eligibility, extracting data, or assessing the methodological quality of this study. He has received and will receive honorarium for presentations and seminars on mirror therapy. Dr Dohle is author of 2 included studies on the effect of mirror therapy after stroke. He was not involved in checking these trials for eligibility, extracting data, or assessing the methodological quality of the studies. He has received honorarium from the Academy of the Evangelic Geriatric Center Berlin for seminars on mirror therapy, as well as grants from the Federal Ministry of Education and Research for studies on conventional and technical-assisted mirror therapy. Dr Dohle and N. Morkisch are authors of therapy manuals on mirror therapy, published at Schulz-Kirchner-Verlag (Dr Dohle) and Hippocampus Verlag (Dr Dohle and N. Morkisch). Drs Pohl and Behrens are authors of an included study on the effect of mirror therapy after stroke. They were not involved in checking this trial for eligibility, extracting data, or assessing the methodological quality of this study. The other authors report no conflicts.

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