

FOCUS ON RESEARCH

CAN MOTOR IMAGERY ENHANCE RECOVERY OF HAND FUNCTION AFTER STROKE? AN EVALUATION OF MOTOR IMAGERY TRAINING

Researchers

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Aims

Motor imagery has been found to enhance sports performance and, if found to be effective, could be valuable in rehabilitation following stroke. In addition, stroke patients who think they have more control over their recovery have been found to make a better recovery and this may be because people with higher perceived control engage in more motor imagery.

Evidence from other fields suggests that motor imagery might function either by changes in brain function or by enhancing patient's confidence in recovery. Previous studies have found that motor imagery enhances outcomes for stroke patients, but the studies have been small or poorly controlled. Our pilot study showed that patients trained in motor imagery showed improved performance compared with untrained controls.

Therefore the **aim of the current study** was: To investigate the use of intensive motor imagery techniques in promoting recovery of arm function after stroke, in an adequately powered study with controls for non-specific effects (engaging in imagery and therapist attention).

Project Outline/Methodology

This randomised controlled trial (RCT) examined whether motor imagery training would be successful in improving hand function in participants 1-6 months post-stroke. A 4-week supervised evidenced-based motor imagery training programme was compared with a 4 week supervised non-motor imagery programme to allow for the possibility that any effects might be due to having the attention of a therapist or due to practising imagery and a control group who received no intervention.

A sequential cohort of participants (n= 125) with a diagnosis of stroke and an impairment of the upper arm were recruited from Grampian and Tayside health boards. The primary outcome was performance on the Action Research Arm Test (ARAT) with measures of activity limitations as secondary outcomes.

Assessments were conducted by a researcher, who did not know which group each individual had been allocated to, on two occasions: at baseline before group allocation and, for outcome, 5 weeks later when all interventions were complete.

Key Results

Participants in the motor imagery training group showed no improvement in arm function when compared to the two control groups. The result was the same whether data were analysed for all participants or only for those completing the full study protocol.

Conclusions

Motor imagery was not found to be effective, showing no greater benefit than normal care. Thus the greater recovery of patients with greater perceived control over their recovery is not due to their having better motor imagery.

What does this study add to the field?

This study used a sequential cohort of patients, a larger sample and had more controls than previous studies. While previous studies have found support for the use of motor imagery, this more tightly controlled study found no evidence that it was effective in improving arm function in the early stages of recovery.

Implications for Practice or Policy

These results suggest that it would be inappropriate to incorporate motor imagery routinely in the rehabilitation of stroke patients.

Where to next?

Further investigation e.g. of the combined use of imagery with actual movement, or with patients at a later stage in recovery are warranted. It will also be important to further investigate other possible factors which explain the better recovery of patients with high perceived control.

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