

FOCUS ON RESEARCH

INVESTIGATING BILATERAL SIMULTANEOUS UPPER LIMB TASK TRAINING IN ACUTE STROKE: A RANDOMISED CONTROLLED TRIAL

Researchers

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Aims

- To establish if arm training with both arms moving together but independently (bilaterally) is more effective in improving functional arm recovery with patients soon after stroke than the same training with the affected arm only (unilaterally)
- To determine if this training is most beneficial for patients with different degrees of severity of arm impairment
- To establish if bilateral training influences depression and quality of life more than unilateral training

Project Outline/Methodology

A randomised controlled trial with blinded outcome assessment. Patients admitted to hospital with a diagnosis of a new stroke, persistent arm impairment and the ability to participate in regular physiotherapy sessions were invited to participate.

Participants were randomised to two groups. One group, **the bilateral intervention group**, received arm training involving practice of everyday tasks with both arms moving together but independently. The other group, **the unilateral control group**, received the same training, but practised with the stroke-affected arm only. Training was for 20 minutes on weekdays over 6 weeks, in addition to regular physiotherapy and occupational therapy.

Key Results

One hundred and six participants were enrolled, and of those 97 completed the training. Measurements taken at the end of the treatment period show that bilateral training was not more effective than unilateral training in improving outcomes of arm disability, the primary research measure, regardless of the severity of initial arm disability. Bilateral training was less beneficial for recovery of movement and tended to be less effective for finger control than unilateral training. When measured at follow-up, again there was no benefit of bilateral training over unilateral training. Patients receiving

bilateral training showed smaller lasting benefits and recovery of finger control. Bilateral training did not improve depression, patient quality of life or independence in everyday tasks more than unilateral training

Conclusions

Training of functional tasks with both arms simultaneously is not more effective for recovery of the arm soon after stroke than the current physiotherapy practice of training the affected arm only. Short-term recovery of movement and short and long-term finger control benefit more from practice with the affected arm only. Furthermore, severity of initial arm disability does not influence results.

What does this study add to the field?

Previous studies have shown benefits of bilateral training for performance of the affected arm in longstanding stroke. This larger study, using robust methodology, confirms more recent work, in demonstrating that the training is not more effective than unilateral training for recovery of arm function in patients soon after stroke.

Implications for Practice or Policy

For rehabilitation of unilateral performance of the affected arm with patients soon after stroke, therapists should continue current practice of assisting patients to practise tasks with the affected arm only.

Where to next?

Future research should examine at what point and with which patients, bilateral and unilateral training are most beneficial for arm recovery following stroke. It will be important also to determine the type of unilateral and bilateral training tasks that are of most benefit, and to investigate relationships between different types of measurements used to assess recovery.

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