AN EXPLORATIVE STUDY INTO CHANGES IN CIRCLE DRAWING AFTER GRAVITY COMPENSATION TRAINING IN CHRONIC STROKE PATIENTS.

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ABSTRACT

A way to reduce the influence of abnormal synergies on range of motion after stroke directly is to support the arm by a robotic gravity compensation device. However, it is not known whether a period of training with arm support improves independent, unsupported circle drawing, and what the role of abnormal synergies is. Seven chronic stroke patients received three 30 minute robotic gravity compensation training sessions per week for a period of six weeks. During baseline and evaluation measurements, Fugl-Meyer (FM) scores and circle drawing performance (area and roundness) were determined. After training, FM had improved in some subjects. Circle area increased significantly across subjects, whereas roundness did not. This indicates an improved unsupported active range of motion, but the influence of (reduced) abnormal synergies on this change remains unclear. Despite the small number of subjects, the present explorative study suggests that robotic gravity compensation training has the potential to increase the work area of the affected arm of chronic stroke patients. Further research into the impact of robotic gravity compensation training is warranted, to enhance insight into underlying mechanisms and optimal applications in clinical practice.

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