Constraint-induced movement therapy after stroke.

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Abstract

Constraint-induced movement therapy (CIMT) was developed to overcome upper limb impairments after stroke and is the most investigated intervention for the rehabilitation of patients. Original CIMT includes constraining of the non-paretic arm and task-oriented training. Modified versions also apply constraining of the non-paretic arm, but not as intensive as original CIMT. Behavioural strategies are mostly absent for both modified and original CIMT. With forced use therapy, only constraining of the non-paretic arm is applied. The original and modified types of CIMT have beneficial effects on motor function, arm-hand activities, and self-reported arm-hand functioning in daily life, immediately after treatment and at long-term follow-up, whereas there is no evidence for the efficacy of constraint alone (as used in forced use therapy). The type of CIMT, timing, or intensity of practice do not seem to affect patient outcomes. Although the underlying mechanisms that drive modified and original CIMT are still poorly understood, findings from kinematic studies suggest that improvements are mainly based on adaptations through learning to optimise the use of intact end-effectors in patients with some voluntary motor control of wrist and finger extensors after stroke.

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