

Stroke Foundation Guidelines - Arm activity

<https://app.magicapp.org/#/guideline/Kj2R8j/section/nJMDdL>

Sixty-nine percent of acute stroke patients have upper limb impairment on admission (Stroke Foundation 2015 [7]). Recovery of upper limb function plays an important role in activities of daily living. The term 'arm' function describes proximal upper limb (UL) function (i.e. shoulder/elbow), whereas 'hand' function describes distal UL function and coordination (i.e. wrist, hand, and fingers).

Some interventions target people with weak arm function (e.g. external supports, taping, electrical stimulation). Other interventions target people with weak or absent hand function (e.g. orthotics, mirror therapy, electrical stimulation), or with some active wrist and finger movement (e.g. constraint-induced movement therapy). Some of the recommendations highlight interventions that are suitable for these subgroups.

Task-specific motor training forms the basis of the motor retraining that occurs as part of other interventions such as constraint-induced movement therapy. There is also direct evidence for task-specific training specifically (French et al. 2016 [187]).

Interventions which target activities of daily living such as eating, drinking and self-care and also involve the upper limb should also be considered here (see Activities of daily living). This section should also be read in conjunction with Weakness and Loss of sensation.

Strong recommendation

For stroke survivors with some active wrist and finger extension, **intensive constraint-induced movement therapy** (minimum 2 hours of active therapy per day for 2 weeks, plus restraint for at least 6 hours a day) should be provided to improve arm and hand use. (Corbetta et al. 2015 [191]) Trunk restraint may also be incorporated into the active therapy sessions at any stage post-stroke. (Wee et al. 2014 [182])

Weak recommendation

For stroke survivors with mild to severe arm weakness, **mechanically assisted arm training** (e.g. robotics) may be used to improve upper limb function. (Mehrholtz et al. 2015 [174])

Strong recommendation *against*

Hand and wrist orthoses (splints) should not be used as part of routine practice as they have no effect on function, pain or range of movement. (Tyson et al. 2011 [181])

Weak recommendation

For stroke survivors with mild to moderate arm impairment, **virtual reality and interactive games** may be used to improve upper limb function. Virtual reality therapy should be provided for at least 15 hours total therapy time and is most effective when used in the first six months after stroke. (Laver et al. 2015 [127])

Weak recommendation

For stroke survivors with mild to severe arm or hand weakness, **electrical stimulation in conjunction with motor training** may be used to improve upper limb function. (Howlett et al. 2015 [151])

Weak recommendation

For stroke survivors with mild to moderate weakness of their arm, **mental practice in conjunction with active motor training** may be used to improve arm function. (Kho et al. 2014 [175])

Weak recommendation

For stroke survivors with mild to moderate weakness, complex regional pain syndrome and/or neglect, **mirror therapy may be used as an adjunct** to routine therapy to improve arm function after stroke. (Thieme et al. 2012 [180])

Weak recommendation

For stroke survivors with at least some voluntary movement of the arm and hand, **repetitive task-specific training** may be used to improve arm and hand function. (French et al. 2016 [187])

Weak recommendation *against*

Brain stimulation (transcranial direct stimulation or repetitive transcranial magnetic stimulation) should not be used in routine practice for improving arm function, and only used as part of a research framework. (Elsner et al. 2016 [207]; Hao et al. 2013 [167])