

# Graded Motor Imagery (GMI)

## Reference list for stroke patients

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At NOI, we are getting an increasing number of requests for help, references and so forth, with regards to use of graded motor imagery (GMI) in stroke patients. While there is no formal research that has been published as yet in this area that we are aware of (we have some in the pipeline though, watch this space...), there is research behind some of the components of GMI, namely *motor imagery* and *mirror therapy*.

Motor imagery has long been utilised as a treatment method in stroke rehabilitation and there are many articles (mostly positive, but also some negative) regarding this. Mirror therapy is relatively new in stroke rehabilitation and as such has much less listed articles (again, a mix of positive and negative).

Listed below are some useful references that may act as an initial guide to the use of GMI in stroke patients. For a full list of general GMI reference refer to [gradedmotorimagery.com](http://gradedmotorimagery.com). Also, we have created the NOI jam blog to provide a connection point for clinicians to discuss and brainstorm their cases. NOI jam provides an open, liberal discussion forum led by experienced clinicians, focusing on the treatment of on-going pain states via the nervous system changing therapies based on movement and education... [noijam.com](http://noijam.com).

### Motor imagery

Deutsch, J.E., Maidan, I. and Dickstein, R. (2012) Patient-centred integrated motor imagery in the home with telerehabilitation to improve walking after stroke. *Phys Ther* 92(8): 1065-77

Dickstein, R. and Deutsch, J.E. (2007) Motor imagery in physical therapy practice. *Phys Ther*, 87:942-953.

### Mirror therapy

Cacchio et al (2009) Mirror therapy in complex regional pain syndrome type 1 of the upper limb in stroke patients. *Neurorehab Neural Repair* 23:792-799

Michielsen et al (2011) Motor recovery and cortical reorganization after mirror therapy in chronic stroke patients: A Phase II randomized controlled trial. *Neurorehab Neural Repair* 25:223-233

Nojima I et al (2012) Human motor plasticity induced by mirror visual feedback. *Journal of Neuroscience* 32(4): 1293-1300

Sutbeuz S et al (2007) Mirror therapy enhances lower extremity motor recovery and motor functioning after stroke: A randomized controlled trial. *Arch Phys Med Rehab* 88(5):555-559

Yavuzer G et al (2008) Mirror therapy improves hand function in subacute stroke: A randomized controlled trial. *Arch Phys Med Rehab* 89(3):393-398