



# IN TOUCH Hand Therapy

## HANDout #9

### CHRONIC PAIN AND GRADED MOTOR IMAGERY

One of the main reasons people come to see a hand therapist is pain. Whilst acute onset of pain after an injury can be quick to resolve, and relatively straight forward to treat, chronic pain can be far more challenging and complex. Clients suffering with complex regional pain syndrome (CRPS) and phantom limb pain are two groups of chronic pain sufferers we often see at our hand therapy clinic.

There is now good scientific evidence that changes occur in the sensorimotor cortex activity in the region of the affected hand. In other words chronic pain has a central component as well as peripheral features. The sensorimotor cortex becomes less active and re-organises and it is thought that this has an effect on hand function and pain intensity. As pain reduces these cortical changes have been found to normalise. It would seem that any treatment approach for these patient groups must be now considered from the "top down" alongside "bottom up".<sup>(1)</sup>

Graded motor imagery (GMI) is a relatively new approach still in its infancy. There is a growing body of research which supports its efficacy in terms of reducing pain and disability in those with chronic pain conditions.<sup>(2,3)</sup> It offers a comprehensive treatment programme tailored to the individual client suffering from a persistent and complex pain problem. It is designed to sequentially activate cortical motor networks and improve cortical organisation through a graduated rehabilitation programme. This programme contains 3 steps; laterality training (discriminating left and right), explicit motor imagery (thinking about moving the affected part) and mirror visual feedback (using reflected images with movement).<sup>(2,4)</sup>

1. Laterality training. Identification of images of right and left hands using laterality cards or a dedicated computer programme. The hand therapist guides the process. The aim is to increase the number of images, difficulty level of the images and improve the number correctly identified in less time.<sup>(1)</sup>
2. Explicit motor imagery. The imagination of pain-free postures and movements of the affected limb. This is believed to activate the cortex similar to physically executed movements.<sup>(1)</sup>
3. Mirror visual feedback. The third and final step involves using a mirror box. This creates the illusion that the injured hand is moving as the client watches the mirror image of their unaffected hand moving in a pain-free manner. This provides strong positive sensory feedback that movement does not have to be painful, a form of cognitive behavioural therapy. The client can be guided by the hand therapist through a progressive graduated exercise programme. These exercises can be easily done at home.<sup>(3)</sup>

The rate of progression through these 3 stages is dictated by the response of the client. These are difficult problems to treat and can take a lot of hard work from the client and hand therapist alike, but the results can make it well worth it trying this innovative approach.

#### References

- (1) Priganc, V. & Stralka, S. (2011) Graded Motor Imagery. Journal of Hand Therapy, April-June, 164-168
- (2) Moseley, G.L. (2006) Graded motor imagery for pathologic pain – A randomised control trial. Neurology, December (2 of 2), p2129 – 2134.
- (3) McCabe, C. (2011) Mirror visual feedback therapy. A practical approach. Journal of Hand Therapy, April- June, 170-178.
- (4) [www.gradedmotorimagery.com](http://www.gradedmotorimagery.com)

IN TOUCH HAND THERAPY ARE PROVIDERS OF HAND THERAPY SERVICES IN THE HORNBY AND LINCOLN AREAS

### CLINIC LOCATIONS

We can offer appointments at either of our two clinics:

Hornby – 64 Carmen Rd, Ph: 03 344 0053 and  
Lincoln – 19 Gerald Street, Ph: 03 928 1671

