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**Preliminary study on peripheral effects of mirror visual feedback during mirror therapy****Hsin-Min Lee and Jia-Yuan You**

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Mirror Therapy (MT) has been used in clinics to manage phantom pain or to improve motor recovery of paretic limb for many years. Mirror Visual Feedback (MVF) during MT was believed to impact the brain to activate certain neural circuits centrally. However, little was known about the MVF effects on peripheral circuits. The feeling of jolt, experienced by most of MT adopters, is an interesting phenomenon that occurred if the movement discrepancy exists between the MVF and the hidden hand. Understanding of jolt feeling on how and what extent the MVF affects peripheral circuit will help us know the mechanism of MT profoundly. In the study, we primarily evaluate the effect of MVF on stretch reflex circuits by measuring H waves. Moreover, movement with extra load was used to know the central effect of MVF on peripheral circuits. 12 normal participants were included to test three different experimental conditions, i.e. MVF without load (condition 1), MVF with load (condition 2) and no MVF with load (condition 3). 10 maximal H-reflex responses of flexor carpi radialis were recorded during both their right wrist flexion and extension movements under three conditions. The results shown H-reflex amplitudes are significantly larger during wrist flexion than during wrist extension for all conditions (all  $P < 0.05$ ). However, H-reflex amplitudes didn't significantly different among three conditions for both wrist flexion and extension (all  $P > 0.05$ ). Inter-limb neural coupling might dominate the peripheral effects of MVF in current experimental setup. Further study with more subjects and different conditions are warranted.

**Biography**

Hsin-Min Lee has completed his PhD in Biomedical Engineering from National Cheng Kung University in 2002. His research interest focuses on using the knowledge and techniques of engineering to quantify the clinical phenomena (such as muscular spasticity) and to evaluate the neurophysiological effects of clinical treatment (such as massage and mirror therapy). Also he has held the patents of several quantitative systems (for spasticity measurement and steering movement analysis) and a digital mirror therapy system in Taiwan.

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