

# **The Effect of a Mindfulness Movement Therapy Programme on Arm and Hand Function in Patients with Stroke: A Case Study**

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Background and objectives – Mindfulness-based interventions are now increasingly applied in patients with stroke. However, no studies have investigated the effect of mindfulness meditation-related directly to brain plasticity which affects motor recovery in stroke patients. Therefore, a Mindfulness Movement Therapy Programme (MMTP) was proposed, and its feasibility and effects on arm and hand function were examined. Methods – WR and AT are men, aged 64 and 68. WR had a right infarction stroke (10 months), and AT had right haemorrhagic stroke (9 years). The patients received the usual physical therapy (PT) programme for 30 minutes, 3 times a week, for 4 weeks. After that, they underwent the usual PT programme for 30 minutes combined with the MMTP, which consisted of 1) a body scan (by focusing on the affected upper limb); 2) sitting meditation; and 3) mindful-movement of the affected upper limb integrated with physical therapy exercise, for 30 minutes, 3 times a week, for 8 weeks. All outcomes were measured at week 0 (pre-test 1), week 4 (pre-test 2), and week 12 (post-test). Results – Between week 4 and week 12, WR had increased in different percentage change in the Action Research Arm Test (8.03%), the Stroke Impact Scale 3.0 (SIS), strength domain (16.67%), motor-evoked potential (MEP) in the affected hemisphere (AH) (147.36%) and decreased in the Modified Ashworth Scale (MAS) (66.67%). AT had increased in the Philadelphia Mindfulness Scale, awareness domain (22.86%), SIS, emotion domain (36%). He had decreased in MAS (13.33%) and the Hospital Anxiety and Depression Scale (33.33%). Discussion – MMTP improved arm and hand function, and strength only in WR along with an increased MEP amplitude. It appeared to affect motor cortex excitability along the pathway to the muscles, resulting in an improvement in motor recovery. AT did not demonstrate any alteration in motor function of the upper limb possibly linked to the chronicity of his stroke. However, he had improved awareness, emotion, anxiety and depression. Conclusion – MMTP has potential to benefit patients with stroke both physically and mentally. MMTP may provide additional benefits in the recovery of movement post-stroke.