

Devices to assist rehabilitation of movement following neurological injury

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There are over 750,000 new strokes each year in the USA. A significant number of survivors are left with disabilities that limits their independence in the activities of daily living. This produces a tremendous burden on caregivers and decreased quality-of-life for survivors. While the dominant factor in the final recovery level is the severity of the neurological damage, recent evidence has proven that the sensorimotor experience following the stroke is critical for promoting optimal recovery of motor function. Highly repetitive active movement is particularly effective, and this is usually facilitated by one-on-one treatment from a physical or occupational therapist. However, cost issues prohibit patients from receiving the large amounts of movement therapy required. My lab focuses on the use of robotic devices to assist movement, potentially improving the quality and quantity of the sensorimotor experience following stroke. Some projects in the lab involve design, fabrication and evaluation of novel devices, while other projects focus on developing new measurement tools to assess the effects of the treatments on movement ability.