Neurorehabilitation and Robotics: What Have We Learned So Far

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The demand for rehabilitation services is growing apace with the graying of the population. For example, by 2050 the US contingent of seniors is expected to double from 40 to 80 million. With these increases comes increased incidence of age-related diagnoses including cerebral vascular accident (stroke). The need is even more pressing if we consider the many neurological injuries other than stroke. This situation creates both a need and an opportunity to deploy technologies such as robotics to assist recovery and in the last five years, the field of robot-mediated therapy has seen sustained rapid growth. In this talk, I will present a broad overview of existing rehabilitation robots for the upper & lower extremity and clinical results with well over 400 stroke patients. I will spend considerable time on the clinical results, which I believe will be quite helpful as "background" to neuroscientists.