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# Introduction

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The four papers encompassing this special section on Robot Mediated Neuro-motor Therapy introduce a new area for robotics in the healthcare industry, that of assisting in the delivery of neuro-motor therapies, for patients recovering from a stroke. As life expectancy increases, so do problems associated with old age. In the paper by Krebs et al. the authors not only summarise the need for action in stroke rehabilitation but also makes a useful distinction between assistive technologies that provide enhanced abilities for the patient, and therapy tools for the clinician, that seek to enhance the patients recovery.

Therapy of a patient after a stroke is a clinically difficult task that seeks not only to restore the muscles needed for movement but also to retrain the brain to provide the correct signals. The ideas discussed in this special section has the potential to create a major change in the delivery of stroke rehabilitation not only allowing intensive and focused treatment, but also providing an engaging and motivating therapy, a point is well made in Johnson et al., as well as providing an objective measure of movements (discussed in Krebs et al.)

Most of the papers in this special section deal with rehabilitation of arm and hand function post stroke; however, strokes are hemiplegic so patients also need to relearn to walk. New clinical practices are emerging on partial deweighting a patient on a treadmill, but this is a labour intensive therapy requiring up to three people to manage the patient. Timoszyk et al. have proposed a robotic system where the robot would pattern the movements necessary for stepping and use an animal model to compare this to a treadmill exercise.

Much more work is needed in Robot mediated neuro-therapy but already possible commercial routes are being explored. Mahoney et al. discusses how work done at Stanford on ‘mirror movements’ is being translated into a commercial prototype. Although the papers in this section are all by USA based research groups work is emerging in Europe, primarily funded by the European Commission to address this need. It is very probable that the robot mediated neuro-rehabilitation will be an emerging and hopefully profitable new area for robotic technology.

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