IS ROBOT SUPPORTING THERAPY OF HIGH ADDED VALUE IN NEUROREHABILITATION?: YES

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Rehabilitation Robotics is a highly promising technology, whose application has shown benefit in several disabling neurological illnesses, particularly in stroke. There are also promising signs that robotics will be useful for treating cerebral palsy, multiple sclerosis, spinal cord injury, and traumatic brain injury as well. The benefits are significant, measurable, and will be presented. At this stage the central problem is not whether the technology is of high-added value for the rehabilitation process following a stroke, but to address our uncertainty about the appropriate way to use these devices and their potential limitations. We do not understand how to optimize therapy to a particular patient's need and to maximize the magnitude of long-term improvements resulting from robotic use.

The understanding of recovery following a stroke is imperfect and environmental manipulation is one important tool in neural recovery, but questions linger on how to most effectively deploy this technology and develop an optimal framework for training the injured brain or spinal cord. These questions will be the research focus of the next decade and progressing hand-in-hand with our growing understanding of the neuroscience and the neuro-rehabilitation process will foster faster scientific growth.