

# Automating activity-based interventions: The role of robotics

**Abstract**—We have seen a continued growth of robotic devices being tested in neurorehabilitation settings over the last decade, with the primary goal to improve upper- and lowermotor function in individuals following stroke, spinal cord injury, and other neurological conditions. Interestingly, few studies have investigated the use of these devices in improving the overall health and well-being of these individuals despite the capability of robotic devices to deliver intensive timeunlimited therapy. In this article, we discuss the use of robotic devices in delivering intense, activity-based therapies that may have significant exercise benefits. We also present preliminary data from studies that investigated the metabolic and cardiac responses during and after 6 months of lower-limb robotic training. Finally, we speculate on the future of robotics and how these devices will affect rehabilitation interventions.

**Key words:** activity-based rehabilitation, cardiovascular, gait, Lokomat, metabolic response, rehabilitation, robotics, spinal cord injury, treadmill training, walking therapy.

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