

Tailoring physical therapy can restore more functions after neurological injury

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New research suggests a tailored approach to physical therapy after a neurological injury such as a stroke, traumatic brain injury or spinal cord injury could help restore a wider variety of functions.

Clinical [physical therapy](#) is a widely used treatment approach to help restore the motor function of patients following neurological injuries. Unfortunately many of the specific treatments used in the clinic only restore function to a specific task, and not to a wide range of everyday activities. This is also true in animal research where stand training only leads to better standing, step training only leads to better stepping, and so forth.

Researchers at Georgetown University Medical Center have investigated the effects of training rats with [spinal cord injuries](#) on a [robotic device](#) (Rodent Robotic Motor Performance System, Robomedica Inc, Irvine, Calif.) that precisely guides the hindlimbs through a training pattern.

The training pattern chosen for this research was the mean pattern recorded before the rats were injured. The results were presented during a nanosymposium at the 39th annual meeting of the Society of Neuroscience.

For four weeks, half of the rats received daily training on the robotic trainer and half did not. At the end of each training week, and two weeks after completion of the full training program, walking performance of all animals was measured. After four weeks of training, trained animals had

shorter stride lengths than the non-trained animals both within the device as well as overground.

"Our results show that increasing activity using a precise and repeatable physiologically relevant training pattern can modify overground [locomotion](#)," says Nathan D. Neckel, PhD, a post-doctoral fellow in the department of neuroscience. "These findings suggest that more accurate and precise exercises in the human physical therapy clinic may lead to the restoration of function in everyday tasks."

Source: Georgetown University Medical Center ([news](#) : [web](#))

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