

Eli's Rehab Report

Clinical Rehab Roundup: Improve Stroke Patients' Gait Patterns With This Advice

Walking a little faster can lead to big improvements, study shows.

Influence of Systematic Increases in Treadmill Walking Speed on Gait Kinematics After Stroke. C.M. Tyrell, PT, DPT, M.A. Roos, PT, DPT, K.S. Rudolph, PT, PhD, D.S. Reisman, PT, PhD. Phys Ther March 2011 91:392-403.

Your stroke patients may prefer to have control over their walking speed during therapy, but pushing them a bit could be more beneficial.

Fast treadmill training helped stroke patients walk faster and with a more normal gait than did allowing patients to self-select their walking speed, according to the March issue of Journal of Physical Therapy.

For the study, researchers asked twenty patients with stroke to walk on a treadmill at their self-selected walking speed, their fastest speed, and two speeds in between. The goal was to determine the effect of increases in treadmill speed on common gait patterns observed after stroke.

Researchers used a motion capture system to measure spatiotemporal gait parameters and kinematic gait compensations. They stuck to small increases in walking speed versus pushing patients to an extreme.

Results: When pushed to walk just a little faster than they thought they could, stroke patients saw significant improvements in paretic- and nonparetic-limb step length and in single- and double-limb support, the study showed. Asymmetry improved for step length.

Researchers also measured significant improvements in paretic hip extension, trailing limb position, and knee flexion during swing. However, they found no increases in circumduction or hip hiking -- meaning the increased speeds did not worsen stroke-induced gait abnormalities.

Caution: The participants in this study never self-selected a walking speed under 0.4 m/s, so you shouldn't generalize the results to all stroke survivors. Rather, these results could be beneficial to patients who self-select higher walking speeds. Also note that the study was for treadmill walking only, not over-ground walking.

Bottom line: "Faster treadmill walking facilitates a more normal walking pattern after stroke, without concomitant increases in common gait compensations, such as circumduction," the study's authors write.

Implement the study's lessons by bumping up stroke patient's walking speed by small amounts, authors suggest.