The Combined Effects of Pedaling Exercise and Therapeutic Electrical Stimulation on Gait Performance in Stroke Patients: A Pilot Study

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Purpose: We evaluated the combined effects of pedaling exercise and therapeutic electrical stimulation on gait performance in subacute stroke patients.

Methods: Six patients were randomly allocated to one of the following three groups: (1) pedaling exercise combined with therapeutic electrical stimulation, (2) pedaling exercise alone, and (3) therapeutic electrical stimulation alone. We adopted a single-case design (ABAB) that included five sessions per phase. To evaluate gait performance, we measured the maximum gait speed, cadence, and length of stride. In addition, we measured the peak torque of leg extension initially (baseline) and at the end of the study.

Results: Only the patients from the combined exercise and stimulation group demonstrated a maximum gait speed that was significantly improved during the intervention phase compared with that during the baseline phase.

Conclusion: These findings suggest that pedaling exercise combined with therapeutic electrical stimulation might improve gait performance in subacute stroke patients.