



FES CYCLING AND MULTIPLE SCLEROSIS FACT SHEET

WHAT IS FES CYCLING?

Functional Electrical Stimulation (FES) Cycling is a therapeutic exercise where small electrical pulses are applied to peripheral nerves through adhesive electrodes in order to produce strong muscle contractions in weakened or paralyzed muscles. These muscle contractions are then utilized to facilitate cycling exercise with a motor, providing assistance and/or resistance to pedaling.

HOW CAN FES CYCLING HELP ME?

Below are some summaries of studies from the four decades' worth of clinical research on lower extremity FES Cycling in individuals with MS– highlighting the potential benefits. We

start with a systematic review (comprehensive review and evaluation of the research on a certain topic) followed by additional individual studies.

Published	Article Topic/Summary	What does this mean?
2020 ¹	Systematic Review: Effects of FES cycling on cardiovascular, musculoskeletal, and functional outcomes in people with MS • Only included participants with more significant disability • Lots of variation in study designs and participants	• Improved aerobic capacity, but not to a statistically significant level • Significantly reduced spasticity • Well tolerated in people with MS, little risk of adverse event

Published	Article Topic/Summary	What does this mean?
2019 ²	Effects of FES Cycling: cognition, symptoms and quality of life	• FES group demonstrated improved cognition– increased processing speed • FES group had reduced fatigue– in both severity and overall fatigue impact • Moderate effect in decreasing pain • Improvements in quality of life
2020 ³	Effects of FES Cycling in people with MS who cannot walk	• Most participants able to improve their cycling performance–indicating people with greater levels disability can improve neuromuscular control and conditioning • Improved fatigue • Improved quality of life

2010 ⁴	FES Cycling in people with progressive MS can improve walking, strength, mobility, quality of life and reduce fall risk	• Two Minute Walk Test (distance participant can walk in two minutes) increased 13% • Timed 25-Foot Walk Test (how long it takes to walk 25 feet) improved 36% • Timed Up and Go Test (time it takes to stand, walk 10 feet, and return to chair) improved 22% • Measures mobility and fall risk • Leg strength improved in muscles stimulated • Quality of life: physical health perception increased 20% and mental health increased 12%
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REFERENCES:

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