

Physical exercise improves gait speed, muscle strength, fitness in patients with Parkinson's disease

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Physical exercise, including treadmill, stretching and resistance exercises, appears to improve gait speed, muscle strength and fitness for patients with Parkinson disease (PD), according to a report of a randomized clinical trial published Online First by *Archives of Neurology*, a JAMA Network publication.

[Gait](#) impairment is associated with [functional decline](#) in patients with PD and current therapies are inadequate at preserving mobility as PD progresses. There is growing interest in the use of exercise to improve mobility and function, the authors write in the study background.

Lisa M. Shulman, M.D., of the University of Maryland School of Medicine, Baltimore, and colleagues conducted a [randomized clinical trial](#) of three types of [physical exercise](#) to compare the effectiveness of treadmill, stretching and resistance exercises in improving gait speed, strength and fitness for patients with PD.

The study included 67 patients with PD who had gait impairment and were randomly assigned to one of three groups in the trial: a higher intensity [treadmill exercise](#) (30 minutes at 70 percent to 80 percent of heart rate reserve); a lower-intensity treadmill exercise (50 minutes at 40 percent to 50 percent of heart rate reserve); and stretching and resistance exercises (two sets of 10 repetitions on each leg on three resistance machines). Patients performed the exercises three times a week for three

months.

"The effects of exercise were seen across all three [exercise groups](#). The lower-intensity treadmill exercise resulted in the greatest improvement in gait speed. Both the higher- and lower-intensity treadmill exercises improved cardiovascular fitness. Only the stretching and resistance exercises improved [muscle strength](#). Therefore, exercise can improve gait speed, muscle strength and fitness for patients with Parkinson disease," the study notes.

According to the study results, all three types of exercise improved distance on the 6-minute walk: lower-intensity treadmill exercise (12 percent increase), stretching and [resistance exercises](#) (9 percent increase), and higher-intensity treadmill exercises (6 percent increase). Both types of treadmill training improved [cardiovascular fitness](#), whereas stretching and resistance had no effect. Only stretching and resistance improved muscle strength (16 percent increase).

"The fact that the lower-intensity treadmill exercise is the most feasible exercise for most patients with PD has important implications for clinical practice. Although treadmill and resistance training are beneficial for gait, fitness and muscle strength, these benefits were not accompanied by improvements in disability and quality of life," the authors conclude. "Future directions for study include trials of combinations of exercise types, longer training periods and investigation of the potential for exercise to modify the trajectory of disease progression over time."

In an editorial, Liana S. Rosenthal, M.D., and E. Ray Dorsey, M.D., M.B.A., of The Johns Hopkins University School of Medicine, Baltimore, Md., write: "In this issue of the journal, Shulman and colleagues offer compelling evidence that exercise can improve gait and fitness among individuals with PD."

"This research adds to the evidence regarding the value of interventions for PD beyond medications and surgery and offers an opportunity for patients to be active participants in their care," they continue.

"Exercise programs among those with neurological disorders increase the patients' sense of self-efficacy, their sense of involvement in their care and overall belief in their abilities to perform certain activities," they conclude. "In essence, exercise puts the patient – not a pill – at the center of care, which is exactly where patients want and ought to be."

More information:

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