



Aging & Chronic Diseases

Exercise therapy for Parkinson's disease

Does exercise alone improve symptoms of Parkinson's disease?

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Parkinson's disease (PD) is a progressive neurological disease caused by the reduction in dopaminergic neurons in the brain, leading to both motor and non-motor symptoms. Common motor symptoms include: tremor, balance deficits and postural instability. Non-motor symptoms are for instance cognitive deficits, autonomic dysfunction, pain and fatigue, as well as sleep and mood disturbances.

Medical management of PD often involves medication, such as Levodopa. Long-term use of medication can have a ceiling effect. Other medical management such as deep brain stimulators are sometimes used, but can limited benefits compared to the cost and associated medical risks. Thus, exercise is often used as part of treatment to address deficits with the peripheral and central nervous systems.

This paper reviewed and performed a meta-analysis on 18 randomised control trials (in total 1,114 participants) to investigate changes in physical and non-physical symptoms as a result from exercise in patients with PD. Two main areas of comparison were identified: 1) exercise + medication and medication alone; 2) and exercise + medication versus regular daily activity + medication. The duration of treatment within the studies varied from 1 to 14 months, and the frequency of exercise varied from 3-6 days a week.



The studies used outcome measures relating to balance, gait, motor function and overall symptoms. Two main outcome measure used throughout the studies were the Unified Parkinson Disease Rating Scale and the Berg Balance Scale. A couple of studies also used the Timed Up and Go test and the 6 Minute Walking Distance.

The exercises performed in the treatment groups differed across the studies, and varied from static and dynamic balance with tasks such as single-legged stance and lateral walking, to walking programmes, core and hip strengthening, and other recreational tasks such as dance.

The authors found that patients in the exercise groups showed greater improvement in the overall motor symptoms associated with PD compared to patients in the groups that only performed regular activity or just used medication.

They were not able to draw conclusions, however, on the improvement in other areas such as non-functional symptoms of PD, or to establish whether exercise influenced these symptoms positively. Other considerations are also needed for participants who have progressed postural stability as they are more at risk of falls when performing balance exercises.

The broad nature of exercise reviewed in this meta analysis highlights that physical activity of all kinds has additional benefits over just medication or daily activity alone. Further individual tailoring of the exercise programme is helpful to address the patient's specific needs and interests. Finding a programme that is safe and meets the activity goals of a patient with PD is essential. Nevertheless, further integration with prescribed medication alongside exercise may yield the best overall outcomes.

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