
The benefits and mechanisms of exercise training for Parkinson's disease

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Setting the scene:

Parkinson's disease (PD) is a significantly progressive neurodegenerative disease characterized by both motor and non-motor disorders.

What did they do?

The main pathological characteristics of PD consist of the loss of dopaminergic neurons and the formation of alpha-synuclein-containing Lewy bodies in the substantia nigra. Currently, the main therapeutic method for PD is anti-Parkinson medications, including levodopa, madopar, sirelin, and so on. However, the effect of pharmacological treatment has its own limitations, the most significant of which is that the therapeutic effect of dopaminergic treatments gradually diminishes with time. Exercise training, as an adjunctive treatment and complementary therapy, can improve the plasticity of cortical striatum and increase the release of dopamine. Different types of exercise training for PD include: Aerobic exercise training, Gait training (Treadmill training, Body weight –supported treadmill training, Robot -assisted gait training, Virtual reality) Balance training, Progressive resistance training, Complementary exercise (Tango, Qigong, Tai Chi and Yoga)

Takeaway message:

Overall, various types of exercise therapy have been reported as having therapeutic effects on motor disorders and non-motor disorders in patients with PD. Among the different kinds of exercise interventions, aerobic exercise is the most widely studied treatment and has positive effects on motor, quality of life, cognition and emotion. In addition, some new types of techniques have been used in the treatment of PD. For instance, VR technology provides patients with visual, auditory and somatosensory stimulation for dual-tasking training to improve the symptoms of the patients.