



Exercise Physiology • Hydrotherapy • Injury Rehabilitation

Pathophysiology

Parkinson's disease (PD) is still considered to be largely idiopathic (unknown cause), yet is a neurological disorder manifested clinically by;

- Resting tremor
- Bradykinesia- slowness of movement
- Rigidity- muscle stiffness cogwheel/lead-pipe
- Postural instability: inability to maintain upright stance
- Hypokinesia - small amplitude of movement
- Tremor - oscillating movement regular in beat
- Dyskinesia - rhythmical writhing movement

Physiologically the symptoms associated with Parkinson's disease are the result of the loss of a number of neurotransmitters, most notably dopamine. Dopamine's role as a neurotransmitter is to transmit chemical messages from one nerve cell to another and over time as more cells are affected, motor symptoms worsen. The severity of the disease is commonly described using the Hoehn & Yahr Disease severity rating;

- Symptoms on one side of the body only
- Symptoms on both sides of the body. No impairment of balance.
- Balance impairment. Mild to moderate disease. Physically independent
- Severe disability, but still able to walk or stand unassisted
- Wheelchair-bound or bedridden unless assisted

BENEFITS OF EXERCISE

Research has shown that exercise can improve gait, balance, tremor, flexibility, grip strength and motor coordination. Exercise such as treadmill training and biking have all been shown to benefit, along with Tai Chi and yoga. So far, studies have shown:

- Engaging in any level of physical activity is beneficial, rather than being sedentary — this is associated with improved motor symptoms.
- For people with mild to moderate PD, targeted exercises can address specific symptoms for example: aerobic exercise improves fitness, walking exercises assist in gait, resistance training strengthens muscles. One study showed that twice a week tango dancing classes helped people with PD improve motor symptoms, balance and walking speed.
- Exercise may also improve cognition, depression and fatigue, but the research is still ongoing in these areas.
- One study showed that people with PD who exercised regularly for 2.5 hours a week had a smaller decline in mobility and quality of life over two years.

References

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Rodrigues, J. (2008). "Parkinson's Disease: a general practice approach." Royal Australian College of General Practitioners 2nd Ed.



GOT A QUESTION?
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