Empowering Movement for People with Parkinson's Disease:

A Practical Guide for Exercise Professionals

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Keywords: Parkinson's Disease, exercise, evidence-based exercise, multidisciplinary care, specialized training

Word Count: 2,570 words

Funding Disclosures/Conflict of Interest: The author declares no conflict of interest and has no financial disclosures.

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Additional Elements:

Apply It!

- Identify key exercise domains (aerobic, strength, balance, flexibility, and dual-tasking) to create safe and effective programs for people with Parkinson's disease (PWP).
- Collaborate with healthcare providers to become an integrated and trusted part of the Parkinson's care team.
- Address barriers to exercise for people with Parkinson's disease (PWP) by offering education, accessible options, and supportive, individualized programming.
- Use assessment-based, client-centered approaches to track progress and adjust programs to maintain long-term engagement.

Bridging the Gap

Exercise is a powerful, evidence-based tool for managing both motor and non-motor symptoms of Parkinson's disease. Despite its benefits, a large percentage of people with Parkinson's remain inactive due to systemic and individual barriers. This article outlines the role of exercise professionals in designing and delivering safe, personalized programs while working collaboratively with healthcare providers. By closing referral and knowledge gaps, exercise professionals can help people with Parkinson's stay active, safe, and independent.

Summary Statement

This article explores the critical role of exercise professionals in supporting people with Parkinson's disease through safe, personalized exercise programs and collaborative care. It highlights strategies to overcome barriers to exercise, ultimately improving long-term health outcomes.

Pulled Text

"Exercise professionals are in a unique position to maintain long-term relationships with their clients, motivating, teaching, and guiding PWP to incorporate exercise into daily living."

"The problem is that people with Parkinson's disease do not achieve the recommended levels of exercise because referrals to physical activity from healthcare professionals at medical visits are neglected due to barriers, including a lack of training and a lack of access to tools and technology to support physical activity assessment and prescription."

"Developing an effective exercise program for a PWP requires careful planning, individualized attention, and ongoing attention."

"A collaborative, patient-centered model of care will diminish barriers to exercise for people with PD and improve continuity of care."

Abstract

Parkinson's disease (PD) is a progressive neurological condition that impacts over 10 million people worldwide, resulting in motor and non-motor symptoms that significantly reduce quality of life. Exercise is one of the most effective non-pharmaceutical treatments to manage PD symptoms, as it improves motor function, cognitive health, and overall well-being. Despite clear exercise guidelines from the American College of Sports Medicine and the Parkinson Foundation recommending 150 minutes of activity per week, most people with Parkinson's (PWP) fall short of this goal due to a variety of barriers, including insufficient referrals from healthcare providers, limited access to trained professionals, and fear of injury.

With their specialized knowledge and frequent client contact, exercise professionals can design individualized programs that meet the needs of PWP, promote long-term adherence, and mitigate functional decline. This article discusses the evidence-based benefits of various exercise modalities, including aerobic, strength, balance, flexibility, and dual-task training. It also explores the barriers to exercise and highlights practical strategies for overcoming them.

A collaborative, patient-centered care model that integrates exercise professionals as key members of the healthcare team is essential for maximizing the benefits of exercise in PD care. By improving referral systems, enhancing interdisciplinary communication, and expanding access to safe and effective exercise programs, more PWP can engage in regular physical activity. This empowers individuals with Parkinson's to maintain independence and improve their overall quality of life. The article serves as a resource for exercise professionals looking to make a meaningful impact in the lives of people with Parkinson's.

Keywords: Parkinson's Disease, exercise professionals, personal trainer, exercise prescription, collaborative care

Empowering Movement for People with Parkinson's Disease:

A Practical Guide for Exercise Professionals

Parkinson's disease (PD) is a progressive neurological disease affecting 10 million people worldwide (1). Parkinson's disease is characterized by its symptoms, including tremors, slow movements (bradykinesia), postural instability, rigidity, autonomic dysfunction, sensory dysfunction, sleep disorders, and psychological disorders. These symptoms impact daily function and movement for people with Parkinson's (PWP). The severity of these symptoms results in devastating consequences such as falls, immobility, impaired quality of life, and reduced general activity both physically and socially. With no known cure, efforts to manage the symptoms utilize both pharmaceutical and non-pharmaceutical options. Exercise, a non-pharmaceutical therapy, is a common therapy that provides many benefits in mitigating the motor and nonmotor symptoms of PD. Early exercise interventions can slow the progression of PD and reduce symptoms throughout the disease. People with Parkinson's disease (PWP) who maintain a consistent exercise routine (two and a half hours per week) or a community-based multimodal exercise routine have demonstrated smaller declines in health-related quality of life, functional mobility, and cognitive function. They also show greater potential to foster neuroprotection than those who exercise less (2, 3). However, despite the established guidelines by the American College of Sports Medicine and the Parkinson Foundation recommending at least 150 minutes of exercise per week (4), only 40% of PWP exercise regularly, with 20% not participating in exercise at all (5). The problem is that people with Parkinson's disease do not achieve the recommended levels of exercise because referrals to physical activity from healthcare professionals at medical visits are neglected due to barriers, including a lack of training and a

lack of access to tools and technology to support physical activity assessment and prescription (6).

Exercise professionals possess specific knowledge and skills to design individualized, safe, and effective exercise programs. People with Parkinson's interact with their exercise professionals more regularly than their traditional healthcare providers. Over 40% of PWP use exercise professionals in the first year of diagnosis. At the same time, referrals to physical therapy occur most frequently when PWP experience falls or mobility issues rather than at diagnosis (7, 8). Despite the acknowledged importance of promoting exercise and physical activity to PWP among healthcare providers, the confidence to recommend exercise remains low (8). This results in exercise professionals being underutilized as a part of the healthcare team to help people with PD achieve the recommended weekly physical activity to improve PD symptoms and their quality of life. This gap creates missed opportunities to optimize the benefits of exercise for PWP. By fostering a more integrative and effective approach to patient-centered care, integrating the expertise of trained exercise professionals into the PD healthcare team will benefit PWP by enabling healthcare providers to refer patients to skilled practitioners confidently (7). Exercise professionals are in a unique position to maintain long-term relationships with their clients, motivating, teaching, and guiding PWP to incorporate the recommended exercise into daily living.

The purpose of this article is to provide exercise professionals with the knowledge and tools necessary to support people with PD. It highlights considerations of this population, the specialized training required to design safe and effective PD exercise programs, and the critical role of collaboration with healthcare providers.

Understanding Parkinson's Disease and Movement Challenges

Parkinson's disease is the second most common neurological disease behind Alzheimer's disease. Pathologically, PD is characterized by the loss or death of dopaminergic neurons in the substantia nigra. This part of the brain controls movement. These neurons produce dopamine, a critical neurotransmitter that serves as a messenger between the brain and the muscles to produce smooth and coordinated movements. As neurons in the substantia nigra deteriorate, dopamine levels decrease, leading to motor symptoms such as resting tremors, bradykinesia (slowed movement), muscle rigidity, and postural instability. Beyond the dopaminergic system, multisystem neurodegeneration occurs, contributing to the non-motor symptoms of PD like cognitive decline, mood disturbances, sleep dysfunction, autonomic dysfunction, and sensory abnormalities (9). The severity of these symptoms results in devastating consequences such as falls, immobility, impaired quality of life, and reduced general activity both physically and socially. Given the complex nature of PD, exercise plays a crucial role in managing both motor and non-motor symptoms. However, because PD presents differently in everyone, an individualized exercise program is essential to address specific needs, optimize function, and enhance quality of life.

Evidence-Based Exercise Strategies for People with Parkinson's Disease

Exercise provides broad benefits for people with Parkinson's disease. Research suggests exercise improves motor function, reduces nonmotor symptoms, and improves the quality of life (10). The Parkinson's Foundation recommends including the domains of aerobic fitness, strength training, flexibility, and neuromotor exercises in programs designed for people with PD. Combining exercises and integrating a program utilizing different exercise modalities, including aerobic training, strength training, balance and gait training, flexibility and mobility work, and

dual tasking and cognitive challenges, will effectively target both the motor and nonmotor symptoms of PD.

Aerobic Training for People with Parkinson's Disease

Aerobic training improves cardiovascular health and endurance. For PWP, aerobic training not only provides these benefits but also reduces symptoms of PD. Aerobic training improves neuroplasticity and motor function, increases strength, and decreases non-motor symptoms of PD, like sleep disturbances and autonomic dysfunction (11-13). The minimum recommended aerobic exercise for PWP is three days a week for thirty minutes at a moderate to vigorous intensity (4, 12). Research shows that a variety of different aerobic exercises yield benefits; therefore, exercising aerobic capacity is more important than a specific type of exercise for the Parkinson's community. A structured program tailored to your client's specific fitness level and enjoyment ensures long-term adherence and benefits.

Strength Training for People with Parkinson's Disease

Strength training is important for building strength, enhancing muscle function, and increasing mobility. Sarcopenia (loss of muscle mass) and osteoporosis (loss of bone mass) are common in an aging population and may prove more deleterious for the PD population as movement difficulties increase. Building muscle strength and muscle volume, a goal of resistance training, is important to those experiencing sarcopenia. The results of a regular strength training program reduce fall risk by improving postural stability. Research has shown that resistance training has a positive effect on symptoms related to PD (14-16). The minimum recommended guidelines for strength training for PWP include two to three non-consecutive day sessions per week for at least 30 minutes per session. Ten to fifteen repetitions of exercise should

be included for major muscle groups. The focus per session should be on resistance, speed, or power (4).

Balance, Agility, and Multitasking Training for People with Parkinson's Disease

Postural instability, rigidity, and slow movements increase the risk of falls in PWPs. Incorporating balance and agility into exercise can enhance sensory integration and neuromuscular control, improving postural stability and reducing the likelihood of falls. Research shows that balance training that includes weight shifts in different directions, changing from double support to single support, and large amplitude movements improves dynamic balance in PWPs (17).

The minimum recommended guidelines for balance, agility, and multitasking for PWP include two to three days per week with daily integration if possible (4).

Flexibility and Mobility for People with Parkinson's Disease

Stretching, flexibility, and mobility training improve the range of motion, address the motor symptoms of rigidity, enhance postural alignment, and promote relaxation and stress relief. Research shows that incorporating exercises like Pilates, yoga, and Qigong are beneficial for people with PD and can improve functional mobility, balance, motor function, and quality of life, and improve non-motor symptoms of PD (16, 18, 19). The minimum recommended guidelines for flexibility for PWP include two to three days a week, with daily integration being the most effective (4).

Dual Tasking and Cognitive Challenges for People with Parkinson's Disease

Individuals with PD frequently struggle with dual-tasking (performing two tasks at once) and cognitive functions due to deficits in executive function, attention, and working memory. These impairments increase motor symptoms, heighten the risk of falls, and diminish

independence in daily activities. Evidence indicates that integrating cognitive and motor dual-task training can enhance gait, balance, executive function, and overall quality of life in PWP (2, 13, 20). Because dual-task exercises and cognitive challenges can be incorporated into the different exercise domains, the minimum exercise guidelines follow the specific domain. Effective dual-task training includes:

- Gait and balance exercises with cognitive challenges – Walking while counting backward, navigating an obstacle course while naming items in a category, or alternating between fast and slow walking to improve gait speed, stability, and cognitive flexibility.
- Cognitive-motor coordination drills – Tossing a ball while reciting words in a category or stepping in a pattern while following a sequence to enhance motor control and cognitive engagement.
- Task switching and executive function training – Boxing while recalling a list of words or using virtual/augmented reality training to improve adaptability and decision-making in real-life scenarios.

Dual-task training should incorporate progressive overload (gradually increasing task complexity), error-based learning (allowing mistakes to reinforce adaptability), and real-world application (practicing exercises relevant to daily life). By integrating cognitive challenges into structured exercise programs, PWP can improve motor and cognitive function, enhancing overall independence and quality of life.

Practical Application of Exercise and Strategies for People with Parkinson's Disease

Developing an effective exercise program for a PWP requires careful planning, individualized attention, and ongoing attention. Prioritizing safety, function, and engagement ensures long-term adherence and positive outcomes for PWP.

Designing a PD-specific exercise program begins with understanding the unique considerations of this population, including safety factors, movement challenges, and considerations of fatigue levels, medication timing, and cognitive function.

A thorough assessment is crucial to evaluate current abilities, mobility limitations, and any concerns that could impact exercise participation. This assessment serves as the foundation for setting realistic and meaningful goals in collaboration with the client. Whether the goal is to improve balance, increase endurance, or maintain independence, tailoring the program establishes appropriate targets that align with their needs and motivation.

The exercise program should be well-balanced, incorporating the key exercise domains, dual-task exercises, and cognitive challenges to address the diverse challenges of PD. Regular Progress monitoring and adapting the program ensure that exercises remain safe, effective, and engaging. Adjusting intensity, modifying movements, or integrating new challenges helps PWP stay active, confident, and empowered over time. This structured approach to exercise programming lays the groundwork for practical application and implementation in Parkinson's care.

The Role of Exercise Professionals in Parkinson's Care

Exercise professionals play a crucial role in bridging the gap between medical treatment and long-term physical activity for people with Parkinson's disease. While healthcare providers deliver essential medical and rehabilitative care, exercise professionals contribute to sustained movement-based interventions that support lifelong, ongoing disease management (7). A key advantage of integrating exercise professionals into the PD healthcare team is the frequency of interaction. Many PWP engage with their exercise professionals more regularly than their neurologists or other health care providers (7, 8). This puts exercise professionals in a

unique position, allowing for constant monitoring of symptoms while reinforcing movement strategies, providing modifications based on symptom fluctuations, and encouraging adherence to evidence-based exercise recommendations. Interdisciplinary collaboration between healthcare providers and exercise professionals is essential to improving the quality of life for PWP. When neurologists and primary care providers refer PWP to trained exercise specialists, individuals are more likely to engage in structured, safe, and effective exercise programs (6, 8). Additionally, exercise professionals can communicate with healthcare teams to provide valuable insights into a patient's functional status, progress, and challenges, further optimizing care. Despite these benefits, exercise professionals remain underutilized in Parkinson's care. Increasing awareness among healthcare providers about the expertise of exercise professionals trained to work with the PD population and establishing standardized referral pathways can help more PWP achieve the recommended levels of physical activity, ultimately enhancing their quality of life. Exercise professionals interested in expanding their expertise to work with PWP may benefit from specialized training or certification, such as ACSM's Exercise is Medicine credential or the Parkinson Foundation-accredited PWR!Moves program.

Overcoming Barriers to Exercise for People with Parkinson's Disease

Research supports the benefits of exercise for people with PD, and yet, a large portion of the PD population remains inactive (5). Several barriers contribute to this issue, including the lack of knowledge, fear of injury, financial constraints, and accessibility challenges. Addressing these barriers with solution-based actions can broaden access and improve the availability of exercise for people with PD.

The lack of knowledge is a barrier that exists on many levels. PWP and their caregivers may be unaware of the benefits exercise offers or unsure how to begin an exercise routine safely. At

the healthcare level, this barrier may result in fewer referrals, as providers might lack the time to discuss exercise, the training to recommend specific exercises, or awareness of programs suited to their patients' needs (6, 8). With specified education and training, exercise professionals are in a valuable position to bridge this gap, ensuring PWP safely integrate exercise into their well-being routine while informing local healthcare providers of the exercise opportunities available for their patients.

The fear of injury is another barrier to exercise for people with PD (5, 7, 8). Mobility issues and fear of falling can reduce confidence in one's ability to exercise. Introducing appropriate exercises to meet the PWP where they are in their current abilities can build confidence and foster greater participation. Proper guidance in a safe environment further supports this process, ultimately reducing fear and increasing engagement.

Financial constraints also pose barriers to exercise for people with Parkinson's. Specialized instruction may be costly, but alternatives exist. Breaking down the knowledge barrier can help PWP learn about cost-effective exercise options, including virtual programs that reduce geographical challenges and expand accessibility.

To address these barriers and increase exercise participation for PWP, collaborative efforts are essential between healthcare providers and exercise professionals alike. Educating PWP on the importance of exercise, having safe and accessible exercise options, and providing ongoing support will break down these barriers. Action-based solutions, including community-based exercise programs, virtual training options, and financial assistance or insurance coverage for these programs will make exercise available to a wider PD population.

Conclusion

Exercise is a proven, evidence-based treatment that improves both the motor and nonmotor symptoms of PD, enhancing the overall quality of life for those living with the disease. Despite this, many PWP remain inactive, missing out on the protective and functional benefits exercise provides. While healthcare providers are essential in diagnosing and treating PD, exercise professionals have a critical role in bridging the gap between medical management and long-term functional and wellness support.

Exercise professionals have the specialized knowledge and capabilities to design and deliver personalized, safe, and engaging programs to meet the needs of PWP. They are in the prime position to support ongoing engagement and adherence to exercise routines by establishing trusting and consistent relationships. However, this connection is often missed due to inconsistent referrals and limited collaborative efforts. Integrating exercise professionals into the healthcare system is essential to increase participation in regular exercise. A collaborative, patient-centered model of care will diminish barriers to exercise for people with PD and improve continuity of care. Expanding access through individualized, community-based, and remote delivery options will further enhance accessibility and participation.

Exercise professionals can empower PWP with the tools, knowledge, and professional guidance to exercise safely and consistently. This can profoundly impact the independence, function, and overall well-being of PWP. A coordinated, collaborative approach involving healthcare and exercise professionals is not only practical but vital for enhancing long-term health and the quality of life for those living with Parkinson's.

Acknowledgements

This manuscript was conceptualized, researched, and written by the author. Open AI, specifically, ChatGPT was used to edit the original content for grammar, clarity, and flow. New work was not generated by ChatGPT.

OpenAI. (2025). *ChatGPT conversation on editing this manuscript for grammar, clarity, and flow.* OpenAI. Retrieved March 20, 2025, from https://chat.openai.com

References (NLM)

1. Foundation Ps. Statistics: Parkinson's Foundation; n.d [cited 2023 September 7]. Available from: https://www.parkinson.org/understanding-parkinsons/statistics.

2. Ferrusola-Pastrana A, Davison G, Meadows SN. The therapeutic effects of multimodal exercise for people with Parkinson's: A longitudinal community-based study. Parkinsonism & related disorders. 2023;110:105366-. doi: 10.1016/j.parkreldis.2023.105366.

3. Rossi A, Torres-Panchame R, Gallo PM, Marcus AR, States RA. What makes a group fitness program for people with Parkinson's disease endure? A mixed-methods study of multiple stakeholders. Complementary Therapies in Medicine. 2018;41:320-7. doi: 10.1016/j.ctim.2018.08.012. PubMed PMID: S0965229918306101.

4. Parkinson's Foundation. Parkinson's exercise recommendations: Parkinson's Foundation; n.d. [cited 2024 Oct. 1, 2024]. Available from: https://www.parkinson.org/library/fact-sheets/exercise-recommendations

5. Jagota P, Phutrakool P, Kamble N, Dang THT, Aldaajani Z, Hatano T, et al. Exercise habits in people with Parkinson's: A multinational survey. Movement Disorders Clinical Practice. 2024;11(11):1396-409. doi: https://doi.org/10.1002/mdc3.14197.

6. Whitsel LP, Bantham A, Chase PJ, Dunn P, Hovind L, McSwain B. The current state of physical activity assessment and interventions with public policy solutions. Progress in cardiovascular diseases. 2024;83:29-35. doi: 10.1016/j.pcad.2024.02.012.

7. Rafferty MR, Hoffman L, Feeney M, Schulte C, Hutber A, Galati T, et al. Parallel development of Parkinson's-specific competencies for exercise professionals and criteria for exercise education programs. Parkinsonism & related disorders. 2023;112:105407-. doi: 10.1016/j.parkreldis.2023.105407.

8. Agley L, Hartley P, Lafortune L. Exercise and physical activity promotion for people newly diagnosed with Parkinson's disease: a UK survey exploring current practice and the views of healthcare professionals. Physiotherapy. 2024;122:17-26. doi: 10.1016/j.physio.2023.12.004.

9. Schapira AHV, Chaudhuri KR, Jenner P. Non-motor features of Parkinson disease. Nature Reviews Neuroscience. 2017;18(7):435-50. doi: 10.1038/nrn.2017.62.

10. Padilha C, Souza R, Schorr Grossl F, Gauer APM, de Sá CA, Rodrigues-Junior SA. Physical exercise and its effects on people with Parkinson's disease: Umbrella review. PloS one. 2023;18(11):e0293826-e. doi: 10.1371/journal.pone.0293826.

11. Donahue EK, Venkadesh S, Bui V, Tuazon AC, Wang RK, Haase D, et al. Physical activity intensity is associated with cognition and functional connectivity in Parkinson's disease. Parkinsonism & Related Disorders. 2022;104:7-14. doi: https://doi.org/10.1016/j.parkreldis.2022.09.005.

12. Alberts JL, Rosenfeldt AB, Bloem BR, Brundin P. The universal prescription for Parkinson's disease: Exercise. Journal of Parkinson's Disease. 2020;10:S21-S7. doi: 10.3233/JPD-202100.

13. Feng Y-S, Yang S-D, Tan Z-X, Wang M-M, Xing Y, Dong F, et al. The benefits and mechanisms of exercise training for Parkinson's disease. Life Sciences 2020;245:117345-10. doi: 10.1016/j.lfs.2020.117345.

14. Gamborg M, Hvid LG, Dalgas U, Langeskov-Christensen M. Parkinson's disease and intensive exercise therapy — An updated systematic review and meta-analysis. Acta Neurologica Scandinavica. 2022;145(5):504-28. doi: https://doi.org/10.1111/ane.13579.

15. Yang Y, Wang G, Zhang S, Wang H, Zhou W, Ren F, et al. Efficacy and evaluation of therapeutic exercises on adults with Parkinson's disease: A systematic review and network meta-analysis. BMC Geriatrics. 2022;22(1):1-14. doi: 10.1186/s12877-022-03510-9. PubMed PMID: edsdoj.8cd5dcc66cc34a818aa708d9f3bc77de.

16. Zikang H, Zhang X, Chen P. Effects of ten different exercise interventions on motor function in Parkinson's disease patients—A network meta-analysis of randomized controlled trials. Brain Sciences. 2022;12(698):698-. doi: 10.3390/brainsci12060698. PubMed PMID: edsdoj.44dcbc147f25460784e1a06a01f6e44d.

17. Mak MKY, Wong-Yu ISK. Six-Month Community-Based Brisk Walking and Balance Exercise Alleviates Motor Symptoms and Promotes Functions in People with Parkinson's Disease: A Randomized Controlled Trial. Journal of Parkinson's Disease. 2021;11(3):1431-41. doi: 10.3233/JPD-202503.

18. Kwok JYY, Kwan JCY, Auyeung M, Mok VCT, Lau CKY, Choi KC, et al. Effects of mindfulness yoga vs stretching and resistance training exercises on anxiety and depression for people With Parkinson disease: A randomized clinical trial. JAMA neurology. United States: American Medical Association; 2019. p. 755-63.

19. Mustafaoglu R, Ahmed I, Pang MYC. Which type of mind–body exercise is most effective in improving functional performance and quality of life in patients with Parkinson's disease? A systematic review with network meta-analysis. Acta neurologica Belgica. 2022;122(6):1433-46. doi: 10.1007/s13760-022-02070-4.

20. Tan X, Wang K, Sun W, Li X, Wang W, Tian F. A review of recent advances in cognitive-motor dual-tasking for Parkinson’s disease rehabilitation. Sensors. 2024;24(19):6353. doi: https://doi.org/10.3390/s24196353. PubMed PMID: 3116694311.