



POSITION PAPER: EXERCISE AS A COMPONENT IN THE MANAGEMENT OF PARKINSON'S DISEASE

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In recent years increasing attention is being paid to the role of exercise in the management of Parkinson's disease in delaying or reversing functional decline. The purpose of this document is to provide practitioners and people affected with PD background and guidelines summarizing the current available information relating to the development of an effective exercise strategy.

This document provides:

- Guidelines for physicians in prescribing exercise
- A communication tool to be used between health care providers, persons with PD and exercise and/or rehabilitation specialists (i.e. PT, OT, SLP).
- Guidelines for the person with PD in selecting exercise programs
- Guidelines for the "non-medical" exercise instructor which may assist in creating a safe program for the person with PD, including cues for what to include in exercise programs.

Definition of exercise:

Exercise is a planned, structured physical activity which aims to improve one or more aspects of physical fitness (3).

What do we know about exercise and Parkinson's disease?

In people experiencing Parkinson's disease:

- Studies indicate that exercise benefits physical and mental function, health-related quality of life, strength, balance and gait speed. Beyond improvement in PD-related problems, cardiovascular, joint, muscle and other body systems need regular exercise to maintain health. The choice of any particular exercise regimen is generally not as important as the time devoted to exercise and the regularity of the exercise sessions.(see references)
- The majority of participants who continued to exercise after the end of most trials testing the influence of exercise have generally found that it has positive effects on the quality of life.
- There is evidence that a history of physical activity might decrease the risk of acquiring Parkinson's disease, suggesting that exercise may have disease-

modifying effects. However, this question is still controversial (and we still don't know what triggers PD or affects its rate of progression).

- Something is better than nothing; too much is too much. Evidence suggests that a moderate increase in the intensity of exercise is more beneficial, but too much can be a stressor and be detrimental.

In experimental models of Parkinson's disease:

- Preclinical studies using animal models of Parkinson's disease indicate a benefit to exercise at a biochemical and nerve cell level. In these studies, exercise increases levels of beneficial growth factors in the brain, increases blood flow and decreases inflammation. All of these factors have been implicated in Parkinson's disease. (see references)

What is the position of the Michigan Parkinson Foundation Professional Advisory Board?

1. *The Michigan Parkinson Foundation recognizes the importance of planned exercise as a component of Parkinson disease treatment.*
2. *It is important to consider incorporating exercise into the Parkinson disease management program early given the benefits of exercise. Physician recommendation for exercise is a critical factor in the successful initiation and integration of an ongoing exercise program to an overall care plan.*
3. *Evaluating each individual for exercise is important in order to maximize the benefit of exercise and to reduce risk of injury for the individual.*
Individualization of the exercise regime can include the following:
 - a. Evaluation of disease stage, physical and mental condition of the individual, co-morbidities and age. These indicators may dictate what type of exercises would be appropriate. For example, a person with young onset Parkinson's disease may have a good opportunity to learn a variety of different skill sets and routines, thus mixing of routines may be helpful; while an older person with more advanced Parkinson's disease may require more consistency in routine to enhance learning.
 - b. Determining what the individual enjoys doing, which influences motivation to exercise.

4. *Exercise strategies should be individualized for people with PD and include the following components:*
 - c. Strengthening
 - d. Flexibility
 - e. Coordination
 - f. Balance
 - g. Trunk rotation
 - h. Aerobic or cardiovascular conditioning
 - i. Fall prevention
 - j. Intensity based on conditioning level

5. *Safety is a major consideration in exercise programs due to such problems as balance and difficulty in multi-tasking.*

6. *Feedback loops which include the person with PD, a "certified/licensed/ qualified exercise specialist" and the physician can be useful to assess progress. This will assist practitioners in recommending modifications in exercise regimens in order to maximize results and to identify when referral to rehabilitation specialists would be of value.*

7. *It is recommended that referral to rehabilitation specialists, for example, Physical Therapist, Occupational Therapist, or Speech-Language Pathologists should be made*
 - a. Initially to assess and monitor throughout progression.
 - b. When new issues occur with regard to balance, functional ability, falls, freezing, injury, need for home assessments (mobility issues in the home) or adaptive equipment needs, family instruction, apathy/decreased motivation to exercise and lack of progress.

8. *The individual with PD seeking community -based exercise programs should be aware of the following:*
 - a. The need for obtaining clearance from a physician prior to exercising.
 - b. Examining the qualifications of the exercise instructor
 - c. The environment needs to be conducive to participate in a safe, effective program
 - 1) reduction of distractions
 - 2) availability of enough space to work out safely
 - 3) having a class size that allows for the instructor to check safety and proper positioning
 - 4) moderate room temperature
 - d. Type of exercise program
 - 1) focus on practical function rather than tasks requiring special equipment and context (eg. Squat in front of a chair vs use a machine)

- 2) individualized exercise programs should be used (see #4 above)
 - 3) the individual with PD has the ability to communicate with the instructor to address problem areas.
- e. Factors influencing the person with PD need to be considered:
- 1) hydration
 - 2) comfortable clothes
 - 3) time around medications (when exercise is timed to coincide with "on" periods)
 - 4) safety
 - 5) what the individual is interested in (exercise should be fun)
9. *Periodic modifications need to be made in exercise regimens due to functional capacity of the individual, his/her goals and what are the outcomes of exercise.*

10. *Developing an exercise habit can be crucial to the outcome and is difficult for many people.*

Examples of helpful adjuncts to develop and maintain exercise regimens.

- 1) develop a habit and commitment, realistic goals (routine is critical)
- 2) value of groups/buddies in exercise helps in motivation
- 3) journaling as a tool in self-monitoring and motivation
- 4) baseline assessment and periodic evaluation
- 5) importance of individual's interest and abilities in maintaining exercise regimen

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