



# EXERCISE FOR PARKINSON'S

Fundamentals for Professionals  
2018 Training Manual

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This program is based on research from Oregon Health & Science University's Balance Disorders Laboratory, supported by National Institutes of Health (NIH) and the Kinetics Foundation.

The Brian Grant Foundation thanks OHSU for their ongoing dedication to the Parkinson's community and partnership in the Exercise for Parkinson's training program.

Specials thanks to:

Matt Brodsky, MD  
Fay Horak, PhD, PT  
Laurie King, PhD, PT  
Sue Scott, MS  
Jenny Wilhelm, DPT

## LETTER FROM BRIAN GRANT

Before professional sports were a part of my life, exercise was a way to have fun. As I began a professional sports career, exercise became a way to condition my body to excel on the court. Now exercise has a whole new meaning.

After being diagnosed with Parkinson's, I looked for ways to combat the symptoms that I was experiencing while keeping my physical abilities as long as possible. I learned the importance of staying flexible, keeping good posture, and practicing specific movements to address symptoms of the disease.

Exercise is also important for mental health, and many people with Parkinson's suffer from depression and anxiety. I feel fortunate to have an incredible network of health care providers that have taught me how to use exercise to live well with Parkinson's.

With partners at OHSU, the Brian Grant Foundation has developed a training program for physical therapists, personal trainers and group fitness instructors to support the development of safe and effective exercise classes for Parkinson's. In addition to the physical benefits of exercise, these classes also give people an opportunity to meet others with the disease. Through my career with the NBA, I can tell you firsthand how important it is to stay inspired and motivated by your team.

I want to thank you for your commitment and interest in being a part of this program. You are part of our team, helping us make a difference in the lives of those living with Parkinson's.

Sincerely,

*Brian Grant*

*Founder, Brian Grant Foundation*



# CHAPTER 1: FUNDAMENTALS OF PARKINSON'S

## PARKINSON'S 101

### What is Parkinson's?

Parkinson's disease is a degenerative, neurological disorder that affects the cells in the brain that produce dopamine, a chemical that helps initiate and control movement. The primary symptoms of Parkinson's include the following:

1. Tremor, or trembling, in the hands, arms, legs, jaw and face
2. Rigidity or stiffness
3. Bradykinesia, or slowness of movement
4. Postural instability, or impaired balance and coordination

Though the primary symptoms of Parkinson's affect movement, there are other associated symptoms. These symptoms, called non-motor symptoms, can include:

1. Depression, anxiety and other emotional changes
2. Difficulty in swallowing, chewing and speaking
3. Urinary problems or constipation
4. Problems sleeping
5. Cognitive impairment
6. Low blood pressure

### Is there a cure for the disease?

There is currently no cure for Parkinson's. Treatments for the disease can help to alleviate the symptoms but the disease continues to progress and symptoms will become worse over time. Treatments for the disease often work by replacing or mimicking dopamine in the brain.

### Who gets Parkinson's?

While the average age at onset is 60, Parkinson's can occur at younger ages. When a person under the age of 50 is diagnosed with the disease, it is called Young Onset Parkinson's. Brian Grant was diagnosed with the disease when he was 36 years old. About one million people are living with Parkinson's in the U.S. and an estimated 7-10 million people are living with the disease worldwide.

### Are the symptoms the same for everyone?

Parkinson's affects everyone differently. The types and severity of symptoms and the rates of progression differ from person to person, making it incredibly important for patients to seek specific treatments for their own individual needs. For exercise instructors, it's important to have an understanding of the unique challenges faced by students, in order to tailor and modify movements to help improve symptoms.

## EXERCISE FOR PARKINSON'S

### What is the role of exercise in Parkinson's?

Regular exercise is **essential** for people with Parkinson's. Overall, exercise can improve the quality of life for people with Parkinson's, and it may help some of the most difficult motor and non-motor symptoms of the disease. Many studies suggest exercise may improve how the brain uses and protects remaining cells that produce dopamine. In animal studies there are significant improvements in both brain function and structure with exercise. In summary, exercise can benefit people with Parkinson's in the following important ways:

1. **Symptom Management:** Research has shown that exercise can improve motor symptoms of Parkinson's, including flexibility, balance, coordination, agility, gait and strength.
2. **Non-motor Symptoms:** Exercise may positively impact non-motor functions, including depression, apathy, cognition and sleep difficulties, common in Parkinson's.
3. **Delay Mobility Decline:** Studies suggest that exercise may slow the progression of symptoms.

### How often should a person with Parkinson's exercise?

Any exercise is better than none. Parkinson's patients enrolled in exercise programs for longer than six months, regardless of intensity, have shown significant gains in function. However, greater intensity reaps greater benefits for people with Parkinson's. That's why experts recommend that people with Parkinson's, particularly those in early stages, exercise with as much intensity as safely as possible, for as long as possible. For best results, people with Parkinson's should consistently exercise almost daily for about an hour. The exercise sessions should be challenging, requiring focus and effort. For example, walking is good, but also try walking quickly outside with distractions, obstacles and changes in terrain.

Getting people into Parkinson's-specific exercise programs in the earlier stages of diagnosis is especially important. The earlier a person starts a proper program, the better the long-term outcomes of maintaining motor functions and quality of life.

For people with Parkinson's, ideally exercise is intense enough to make them sweat. Recent studies indicate that exercising at 80-85% of the maximum heart rate show more benefit on Parkinson's symptoms than exercising at 60-65 % of the maximum heart rate, for people in the very early stages of the disease.

However, people with Parkinson's have a hard time generating enough speed and force (due to bradykinesia) to create an intense exercise program. This is where exercise classes are ideal – trainers and classmates can help increase the intensity. As instructors its important to push your clients while at the same time respecting each client's own body and potential joint and muscle limitations. The next page includes some guidelines on exercise duration and intensity.

*"If exercise could be packed in a pill, it would be the single most widely prescribed and beneficial medicine in the nation."*

**-Robert N. Butler**

Aim for the following for how much and when to exercise:

- Begin training in the early stages of Parkinson's, before function is compromised.
- Train most days of the week, for at least one hour.
- Include mental and physical challenges in trainings.
- Train at higher intensity levels (4-8 on a 1-10 scale):
  - Moderate level exercise (4-6) means you can carry on a conversation while training.
  - Intense level exercise (7-8) means you can still talk but in shorter bursts while training.

10	Max Effort Activity
9	Very Hard Activity
7-8	Vigorous Activity
4-6	Moderate Activity
2-3	Light Activity
1	Very Light Activity

### What types of exercises are best for people with Parkinson's?

Aerobic activities combined with movements that address specific symptoms (stiffness, slowness, poor coordination) are the most effective types of exercises. These activities will help improve quality of life while also potentially delaying the decrease in mobility that accompanies Parkinson's. Researchers and exercise therapists focus on the following types of movements, especially early on, to maintain and practice everyday motor functions that directly impact quality of life. These activities, embedded throughout this program, also provide cognitive challenges, social interaction, and positive feedback:

- Big movements
- Full, functional, sequential movements
- Self-initiated/self-paced exercises as well as external pacing at times
- Movements that require planning and decision making
- Reciprocal arm and leg movements
- Torso rotations
- Loud voices
- Erect postural alignment exercises
- Controlled slow and quick movements
- Balance and stability exercises
- Strengthening of extensor muscles and stretching of flexor muscles
- Cardiovascular conditioning
- Dual tasks (performing multiple tasks simultaneously) that include physical and cognitive tasks
- Exercises that improve sensorimotor awareness
- Exercises that involve the whole body, not just the impaired side
- Progressive complexity of movements by varying contexts

These types of activities inserted into exercise programs for Parkinson's help patients practice motor functions that directly improve everyday kinds of tasks that normally get more difficult as the disease progresses. And here is one more piece of good news: activities that are enjoyable are even more effective. Think social, fun, tough and enjoyable when designing your classes.

## CHAPTER 2: GETTING STARTED

### EXERCISE FOR PARKINSON'S

The fundamentals of this exercise training can be applied to just about any type of exercise program. Whether you're a group fitness instructor, personal trainer or physical therapist, this training can help you work more effectively with students that are living with Parkinson's.

The gold standard, however, is a Parkinson's-specific class. Chapter 5 of this manual has a sample protocol that you can follow. This class, called Boot Camp for Parkinson's, aims is to get people with Parkinson's exercising at their highest intensity using movements that can help counteract the loss of specific motor functions. The class incorporates cognitive challenges with physical challenges to encourage brain stimulation.

Boot Camp for Parkinson's is based on research from OHSU's Balance Disorders Laboratory. The framework for the class is an endurance-based agility-training program that can incorporate many types of exercises to specifically combat mobility limitations common to Parkinson's. The requirements to start a Boot Camp class are listed below and this manual provides all of the information to get started.

### REQUIREMENTS

#### Class Requirements

For instructors that wish to adopt a Boot Camp for Parkinson's class, BGF requires:

- Each class is led by an instructor that has completed a BGF exercise for Parkinson's training
- Students and instructors participate in regular evaluations of the Boot Camp
- Potential students are screened prior to attending a class to ensure they are appropriate for the high intensity format of the Boot Camp

To ensure a great experience for everyone, BGF strongly recommends the following:

- One instructor and/or assistant for every 12 class participants
- Classes are held at a minimum two times per week
- Each class is 60 minutes in length

#### Instructor Requirements

- Hold a current NCCA-accredited fitness certification (ACE, NASM, ACSM etc.)
- Exercise science-based (or related field) two- or four-year degree (or equivalent experience)
- Current Brian Grant Foundation instructor certification
- Current CPR/AED/basic first aid certification
- Experience in group fitness and working with older adults or people with chronic illness is a plus