thrive

BE YOUR BEST SELF

Thriving With Parkinson's Disease

Learn more about Parkinson's: What to expect and how you can advocate for your best treatment options

amneal

Disclaimer

The information provided today is for educational purposes and should be discussed with your healthcare provider.

Amneal acknowledges that while all participants may have agreed to safeguard any confidential or personal information disclosed, neither Amneal nor its vendors can guarantee compliance from all participants, and are in no way responsible for any such disclosures by other participants.

Amneal's contracted representatives have agreed not to disclose the personal or confidential information shared by the participants with anyone outside this program.

Amneal respectfully requests that participants not disclose confidential or patient information during today's presentation.

We’d like you to know…

This educational program will feature information about Parkinson’s disease from a healthcare provider

This program is not intended to provide medical advice or care

We encourage you to talk with your own healthcare providers for questions about your personal medical condition or management

Out of consideration for their time, the speakers have been compensated by Amneal

thrive
BE YOUR BEST SELF

Introduction

thrive
BE YOUR BEST SELF

What is Parkinson's disease?

Parkinson's disease is the fastest growing neurological disorder and impacts millions[1,2]

By 2037, **1.64 million people** in the United States will have the disease[2]

The disease is characterized by **loss of dopamine-producing cells** in certain areas of the brain[3,4]

The primary symptoms are **motor,** but the disease includes **non-motor** symptoms as well[4]

See slide notes for references.

thrive
BE YOUR BEST SELF

Parkinson’s disease: the who, what, and why

thrive
BE YOUR BEST SELF

Who gets PD—and why?

More men are diagnosed with PD than women, by a ratio of almost 3:2[1]

Age of onset for PD can vary, with majority of patients being >60 years old[2]

About 1% of the population over 60 years of age will have PD[3]

By 2037, 1.64 million people in the United States will have the disease[4]

Genetics may play a factor by predisposing some to PD[5]

Exposure to environmental toxins may be a risk factor[5]

People who have experienced head injuries may be at higher risk[5]

PD=Parkinson's disease.
See slide notes for references.

thrive
BE YOUR BEST SELF

What's happening in PD?

PD is caused by a loss of dopamine that is normally produced in the brain[1-3]

- Dopamine is a neurotransmitter and carries chemical signals or messages from one neuron (nerve cell) to the next cell[4]
- Sufficient dopamine stimulation helps the next cell function normally, which facilitates normal motor function in the body[4]
- However, in PD, the brain produces insufficient dopamine, causing body movements to become abnormal[2,4]

See slide notes for references.

Motor symptoms[1,2]

Motor symptoms (those affecting your movements) include:

- Tremors; the classic symptom is a slow tremor of the hand at rest
- Rigidity, or stiffness
- Bradykinesia, freezing up, having trouble moving, hunching and shuffling while walking
- Stability and balance problems when standing or walking
- Difficulty speaking

See slide notes for references.

Non-motor symptoms[1,2]

Non-motor symptoms (those to do with your body and thinking in general) include:

- Depression
- Constipation, trouble with urination
- Pain
- Sleep disorders, including acting out violently while dreaming
- Loss of sense of smell
- Fatigue
- Slowness in thinking
- Feelings of anxiety and agitation

See slide notes for references.

The progression of PD[1,2]

Symptoms may begin in small ways. Everyone stumbles or stubs their toe once in a while. Trouble sleeping, aches, pains, and constipation can occur normally from time to time for all sorts of reasons. But a few key characteristics set PD motor symptoms apart. They are:

Unilateral onset:
weakness or tremor that begins on one side of your body

Tremor at rest:
shaking that happens when you are not using your hand or arm

Asymmetry of motor symptoms:
one limb is affected more than the other

Progression with time:
symptoms become more noticeable as time progresses

See slide notes for references.

thrive
BE YOUR BEST SELF

The progression of PD

Every person with PD experiences the disease differently. Your symptoms may be different from those of others with PD.[1-4]

However, over time, symptoms will become more noticeable, and new ones will develop, so it's very important to take an active role in optimizing your treatment.[1-4]

You can work with your doctor to choose treatment options that require fewer medication doses per day, which may make it easier for you to follow your treatment regimen.[5]

One of the best things you can do to manage PD is to work with your doctors and care partners to find a suitable treatment plan, and to take your medications as prescribed[4,5]

See slide notes for references.

Daily life with Parkinson’s: the “On”/“Off” cycle

thrive
BE YOUR BEST SELF

What is “Good On” time?

“Good On” times are periods during your day when your symptoms are well controlled and side effects from medications, like movements you can’t control, are not affecting your daily activities.[1,2]

- **During “Good On” time,** you may feel almost like you did before your symptoms began. You may be able to participate in your usual daily activities[1,2]
- **Tracking exercise and physical activity** with the help of care partner(s) can support symptom management[3]
- **You and your doctor can work together to develop a treatment plan with the goal of maximizing your “Good On” time[2]**

Tracking your symptoms will help you identify patterns in your day[4]

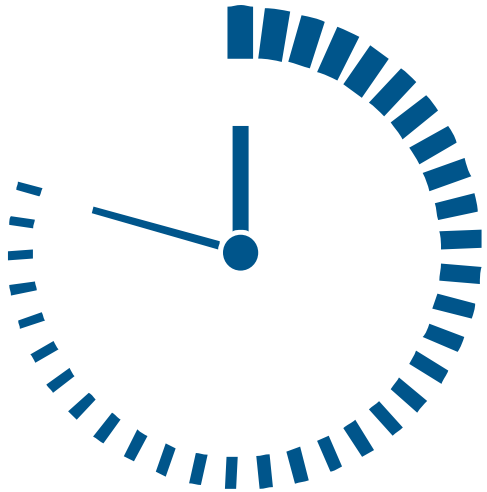
See slide notes for references.

thrive
BE YOUR BEST SELF

What is “Off” time?[1,2]

“Off” time happens when your medication is wearing off or hasn’t fully kicked in yet. It can happen unpredictably or at predictable timepoints during the day.

- **Partial “On”** happens when there is a partial effect of your medication, and you may feel like you are between “Off” and “On”
- **Dose failure** happens when your dose of medication does not help you feel “On”
- **Early morning “Off”** happens when you feel poor control of symptoms when you wake up
- **Wearing “Off”** happens when the benefits of your medicine lessen before you take your next dose
- **Unpredictable “Off”** happens unexpectedly, even if you’ve taken your medicine exactly as you are supposed to



Talk to your doctor about the different types of “Off” time you experience

See slide notes for references.

thrive
BE YOUR BEST SELF

What does “Off” time feel like?[1-3]

“Off” time can include both motor and non-motor symptoms and is experienced differently by each person living with Parkinson’s.

Motor symptoms may include	Non-motor symptoms may include
Tremor	Feelings of anxiety or agitation
Stiffness	Fatigue
Slowness	Pain
Difficulty speaking	Sweating
Trouble with balance	Slowness of thinking

You may experience “Off” time differently from day to day

See slide notes for references.

thrive
BE YOUR BEST SELF

How common is “Off” time?

“Off” time does not happen all at once but can occur during periods spread throughout the day.

>90%

experience **at least 1** “Off” episode per day

~65%

experience **at least 2 hours** of “Off” time per day

>20%

experience **more than 4 hours** of “Off” time per day

Talk to your doctor about how often you experience “Off” time

See slide notes for references.

thrive
BE YOUR BEST SELF

Why do you need to openly communicate with your healthcare provider about “Off” time?

The signs of “Off” time can vary greatly among people living with Parkinson’s disease, so your doctor may not see the full picture without your insight.[1,2]

While “Off” time **can be addressed**, effective treatment depends on **open communication** with your doctor about your symptoms.[1,2]

More than half of people living with Parkinson’s **failed to discuss** their wearing “Off” symptoms at every appointment.[2]

Talk to your doctor about your “Off” time and when it occurs

See slide notes for references.

thrive
BE YOUR BEST SELF

How Parkinson’s medications work

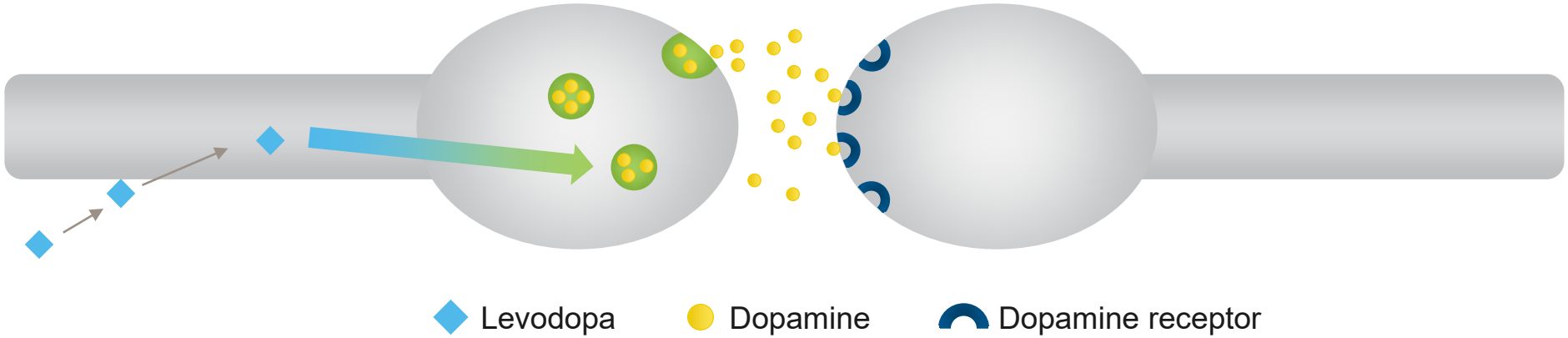
thrive
BE YOUR BEST SELF

How does levodopa for Parkinson's disease work?

Parkinson's disease medicines work to increase dopamine or act like dopamine in the brain, replacing what your brain isn't making and restoring normal function.[1,2]

The gold-standard treatment is levodopa (LD), a medicine that the body converts into dopamine once it's in the nervous system. It's paired with carbidopa (CD), a medicine that helps it reach the brain better.[1-3]

Synapse
(space between the end of a nerve cell and another cell)

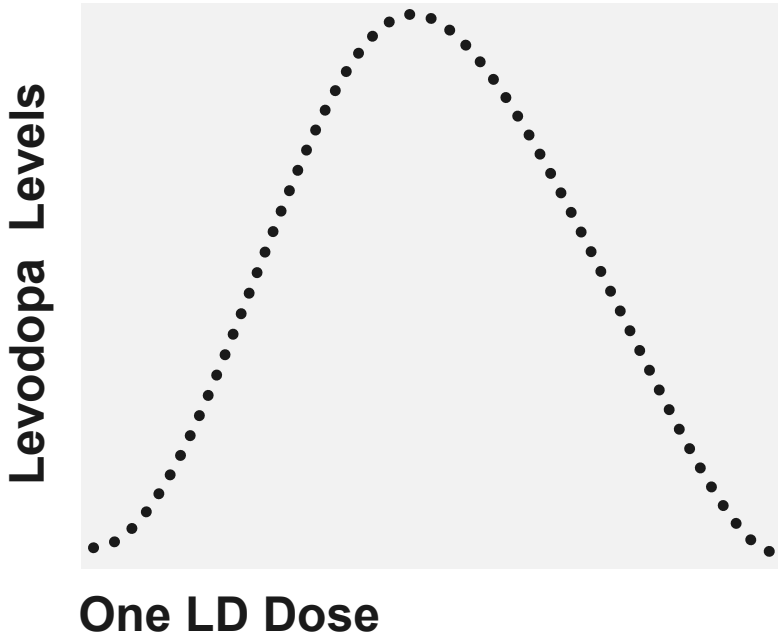


CD/LD helps replace dopamine in the brain, which is depleted in PD[1]

See slide notes for references.

thrive
BE YOUR BEST SELF

The LD efficacy cycle[1,2]

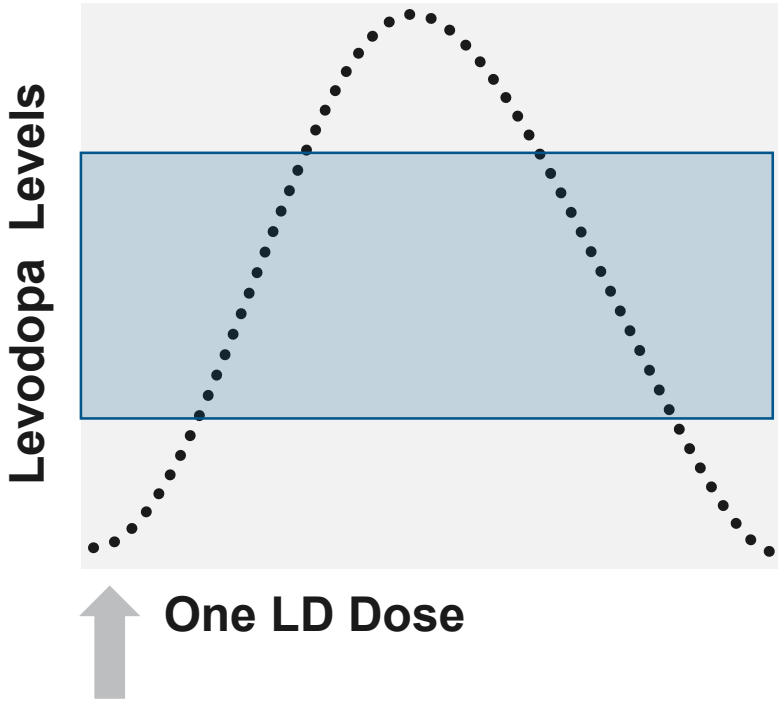


When you take a dose of the LD medication, it begins to work to return your dopamine levels to normal. But, like any drug, its effects will wear off as your body uses it up

See slide notes for references.

The LD efficacy cycle[1,2]

During times when levodopa levels are optimal, you'll have "Good On" time.



"Good On" time

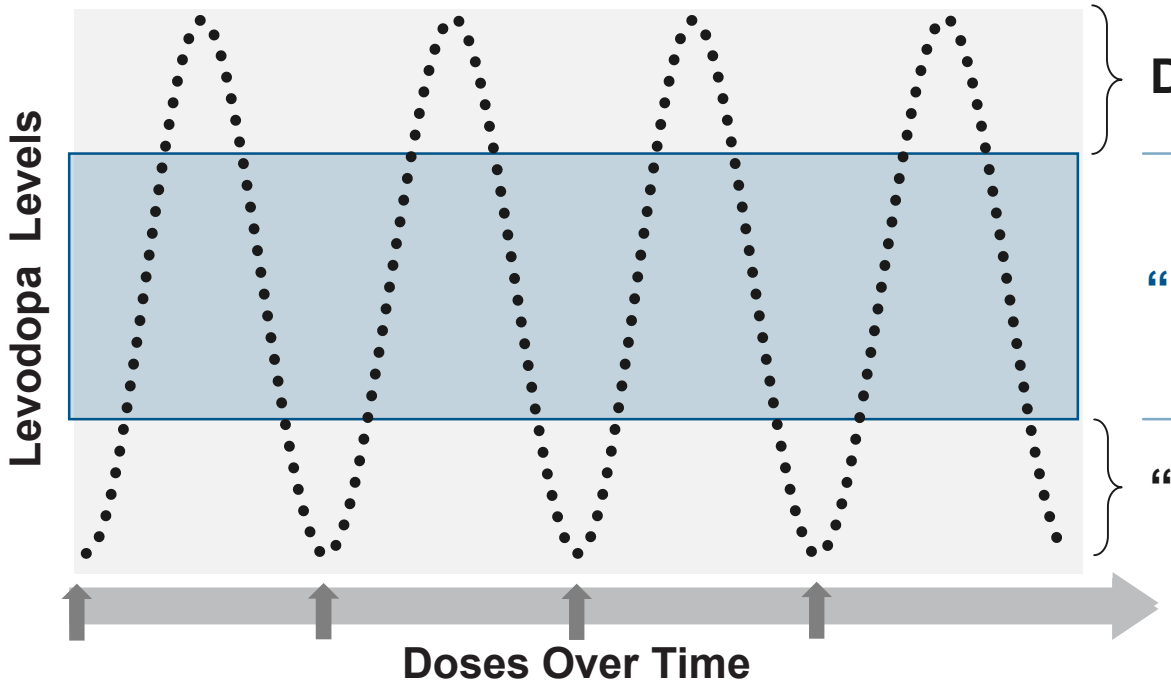
Levels are just right: you feel like your Parkinson's symptoms are managed

See slide notes for references.

thrive
BE YOUR BEST SELF

What does the LD “On”/“Off” cycle look like in a day?[1-3]

Parkinson’s disease medications (which we will discuss in the upcoming slides) need to be at just the right levels in your blood to give you “Good On” time.



Dyskinesia

Levels are too high: you experience random, uncontrollable movements

“Good On” time

Levels are just right: you feel like your Parkinson’s symptoms are managed

“Off” time

Levels are too low: you feel like your Parkinson’s symptoms have returned

The goal is to maximize “Good On” time and minimize motor complications

See slide notes for references.

There are options for increasing “Good On” time

Treatment options can include:

- Increasing the dose/frequency of IR CD/LD or current medication
- Adding an MAO-B inhibitor
- Adding a COMT inhibitor
- Adding a dopamine agonist
- Adding a rescue medication
- Switching to a longer-acting CD/LD

When you begin to experience more “Off” time, talk to your doctor about ways to reduce it

COMT=catechol-O-methyl transferase; IR=immediate release; MAO-B=monoamine oxidase type B.
See slide notes for references.

thrive
BE YOUR BEST SELF

Carbidopa/levodopa (CD/LD) formulations[1,2]

**Every formulation of CD/LD contains the same medication.
The difference is in the way it is released into your body.**

Formulation		
Immediate-release CD/LD	The medication takes effect quickly, but it may wear off quickly too.	Because the medication acts quickly, patients may require frequent dosing.
Controlled-release CD/LD	The medication is designed to be released into your body more slowly. It begins to take effect more slowly but lasts longer.	With slower release, patients may require fewer daily doses.
Extended-release CD/LD	The medication is bundled with multiple ingredients designed to release medicine rapidly and over an extended period of time.	Because the medication continues to maintain levels over time, patients may require fewer daily doses.

See slide notes for references.

Selecting and managing your treatment

thrive
BE YOUR BEST SELF

Setting a treatment goal

Choosing the best treatment regimen for you will mean sitting down with your doctor, going over the available treatments, and learning to work your PD into your life.

Your care partner(s) will be an important part of your journey, so bring someone with you to each appointment to take notes and remind you of questions you had.

While the disease may seem daunting, it is highly treatable, and the right medication can make your life much easier.

More “Good On” time—time with symptom control and without dyskinesia—in your day increases your quality of life and keeps you more independent for longer. It is an achievable goal.

As PD progresses, you may need to adjust your treatment

Your doctor may start you on a lower dose, then gradually increase it as you become used to the medicine and its side effects.

Keeping track of your symptoms will help you communicate with your doctor and know when an adjustment is needed.

Don’t be afraid to advocate for yourself when a part of your regimen is no longer working. Adjustments can be made—more “Good On” time is within your reach.

See slide notes for references.

thrive
BE YOUR BEST SELF

Lifestyle changes to support your treatment

Being diagnosed with Parkinson's disease is stressful. But there are a lot of things you can do to help achieve stable control of your symptoms and have more "Good On" time.

Diet and nutrition

Although no diet can substitute for comprehensive medical care, early research points to the benefits of the Mediterranean diet in people with PD. The diet, rich in fruit and vegetables, legumes, whole grains, lean proteins, and olive oil, is thought to curb inflammation throughout the body and improve digestive health.[1]

Rest

Getting adequate rest is an important key to managing your PD. Your brain needs downtime to refresh itself. Being well-rested will help you focus and give you energy.[2]

Physical health

Physical therapies have been shown to help mitigate and manage PD symptoms. Maintaining exercise and work-related and household activities may be associated with a slower decline in posture and gait function, cognitive processing speed, and activities of daily living. And you'll feel better and healthier, too.[3,4]

See slide notes for references.

“Hopamine”: the medicine only you can give yourself[1]

“Hopamine” is a concept developed by a team of Parkinson’s disease researchers and doctors—one of whom was living with PD. In their practice and in their lives, they had come to believe that patients who had a strong sense of control—who felt that they were an active partner in their treatment plan, rather than just a patient who sat back and accepted treatment—would fare better and have a better quality of life, despite their diagnosis and the challenges it has brought.

It is unfortunate—even unfair—that you are dealing with this problem. But you have the power in your hands and in your heart to make the most of your treatment and take an active role in your care plan. Be curious, ask questions, read, and talk with other people living with PD and their care partners. Set goals for your treatment, like achieving more “Good On” time.
Stay active. And don’t forget to take your “hopamine.”

You are not alone. Your family, your healthcare team, countless researchers, and the worldwide PD community are all in this with you.

See slide notes for references.

Questions?
Comments?

thrive
BE YOUR BEST SELF

What did we learn today?

"Off" time is different for everyone and can impact your life dramatically, so it's important to talk about it with your doctor

As the disease progresses, many people with Parkinson's disease find they need to adjust their medication

The goal of managing Parkinson's disease is to maximize "Good On" time without motor complications

References

Ayano G. Dopamine: receptors, functions, synthesis, pathways, locations and mental disorders: review of literatures. *J Ment Disord Treat*. 2016;2(2):1000120.

Bisaglia M. Mediterranean diet and Parkinson's disease. *Int J Mol Sci*. 2023;24(1):42.

Calabresi P, Di Filippo M, Ghiglieri V, Tambasco N, Picconi B. Levodopa-induced dyskinesias in patients with Parkinson's disease: filling the bench-to-bedside gap. *Lancet Neurol*. 2010:9(11):1106-1117.

Chaudhuri KR, Rizos A, Sethi KD. Motor and nonmotor complications in Parkinson's disease: an argument for continuous drug delivery? *J Neural Transm (Vienna).* 2013;120(9):1305-1320.

Dorsey ER, Sherer T, Okun MS, Bloem BR. The emerging evidence of the Parkinson pandemic. *J Parkinsons Dis*. 2018;8(suppl 1):S3-S8.

Ellis TD, Colón-Semenza C, DeAngelis TR, et al. Evidence for early and regular physical therapy and exercise in Parkinson's disease. *Semin Neurol*. 2021;41(2):189-205.

Emamzadeh FN, Surguchov A. Parkinson's disease: biomarkers, treatment, and risk factors. *Front Neurosci*. 2018;12:612.

Franke GH, Nentzl J, Jagla-Franke M, Prell T. Medication adherence and coping with disease in patients from a neurological clinic: an observational study. *Patient Prefer Adherence*. 2021;15:1439-1449.

Gupta HV, Lyons KE, Pahwa R. Old drugs, new delivery systems in Parkinson's disease. *Drugs Aging*. 2019;36(9):807-821.

Hametner E, Seppi K, Poewe W. The clinical spectrum of levodopa-induced motor complications. *J Neurol*. 2010;257(suppl 2):S268-S275.

Hauser RA, Deckers F, Lehert P. Parkinson's disease home diary: further validation and implications for clinical trials. *Mov Disord*. 2004;19(12):1409-1413.

Jankovic J. Parkinson's disease: clinical features and diagnosis. *J Neurol Neurosurg Psychiatry*. 2008;79(4):368-376.

Jankovic J, Tan EK. Parkinson's disease: etiopathogenesis and treatment. *J Neurol Neurosurg Psychiatry.* 2020;91(8):795-808.

Kalia LV, Lang AE. Parkinson's disease. *Lancet*. 2015;386(9996):896-912.

Kuhl M. Capturing and elevating the patient voice. Michael J. Fox Foundation for Parkinson's Disease. Foxfeed Blog. November 10, 2014. Accessed April 5, 2023. https://www.michaeljfox.org/foundation/news-detail.php?capturing-and-elevating-the-patient-voice.

Livingston C, Monroe-Duprey L. A review of levodopa formulations for the treatment of Parkinson's disease available in the United States. *J Pharm Pract.* 2023;8971900221151194. doi:10.1177/08971900221151194.

References (cont'd)

Magrinelli F, Picelli A, Tocco P, et al. Pathophysiology of motor dysfunction in Parkinson's disease as the rationale for drug treatment and rehabilitation. *Parkinsons Dis*. 2016;9832839.

Mantri S, Lepore M, Edison B, et al. The experience of OFF periods in Parkinson's disease: descriptions, triggers, and alleviating factors. *J Patient Cent Res Rev*. 2021;8(3):232-238.

Marras C, Best JC, Bower JH, et al. Prevalence of Parkinson's disease across North America. *NPJ Parkinsons Dis*. 2018;4:21.

Matthews H, Stamford J, Saha R, Martin A; Off-Park survey steering group. Exploring issues around wearing-off and quality of life: the OFF-PARK survey of people with Parkinson's and their care partners. *J Parkinsons Dis*. 2015;5(3):533-539.

Mayo Clinic. Parkinson's disease: symptoms and causes. Accessed April 7, 2023. https://www.mayoclinic.org/diseases-conditions/parkinsons-disease/symptoms-causes/syc-20376055?p=1.

Mayo Clinic. Parkinson's disease: diagnosis and treatment. Accessed April 7, 2023. https://www.mayoclinic.org/diseases-conditions/parkinsons-disease/diagnosis-treatment/drc-20376062.

Noordegraaf MA, van den Berg SW, Bloem BR. Hopamine as personalized medicine for persons with Parkinson's disease. *J Parkinsons Dis*. 2023;13(2):271-277.

Oertel W, Schulz JB. Current and experimental treatments of Parkinson disease: a guide for neuroscientists. *J Neurochem*. 2016;139(suppl 1):325-337.

Oguh O, Eisenstein A, Kwasny M, et al. Back to the basics: regular exercise matters in parkinson's disease: results from the National Parkinson Foundation QII Registry Study. *Parkinsonism & Related Disorders*. 2014;20(11):1221-1225.

Parkinson's Foundation. Sleep disorders. Accessed April 11, 2023. https://www.parkinson.org/understanding-parkinsons/non-movement-symptoms/sleep-disorders.

Parkinson's Study Group. Levodopa and the progression of Parkinson's disease. *N Engl J Med*. 2004;351(24):2498-2508.

Reimer J, Grabowski M, Lindvall O, Hagell P. Use and interpretation of on/off diaries in Parkinson's disease. *J Neurol Neurosurg Psychiatry.* 2004;75(3):396-400.

Tsukita K, Sakamaki-Tsukita H, Takahashi R. Long-term effect of regular physical activity and exercise habits in patients with early parkinson disease. *Neurology*. 2022;98(8).

Tysnes OB, Storstein A. *Epidemiology of Parkinson's disease*. *J Neural Transm (Vienna)*. 2017;124(8):901-905.

Van Den Eeden SK, Tanner CM, Bernstein AL, et al. Incidence of Parkinson's disease: variation by age, gender, and race/ethnicity. *Am J Epidemiol*. 2003;157(11):1015-1022.

Yang W, Hamilton JL, Kopil C, et al. Current and projected future economic burden of Parkinson's disease in the US. *NPJ Parkinsons Dis*. 2020;6:15.

Zahoor I, Shafi A, Haq E. Pharmacological treatment of Parkinson's disease. In: Stoker TB, Greenland JC, eds. *Parkinson's Disease: Pathogenesis and Clinical Aspects*. Codon Publications; 2018:129-144.