AMERICAN PARKINSON DISEASE ASSOCIATION
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Parkinson's Disease and Climate

Living with Parkinson's disease (PD) means adjusting to changes in movement, thinking, and overall health. What many people don't realize is that factors such as temperature, weather, and altitude can also have a significant effect on symptoms.

PD affects not just the brain's movement pathways, but also the autonomic nervous system, which regulates involuntary body functions like heart rate, blood pressure, digestion, sleep, and body temperature control. Because of this, people with PD may be more sensitive to heat, cold, and weather changes compared to the general population.

Understanding how climate impacts PD can help people better manage their health and maintain independence.

Temperature Dysregulation in PD

The brain's hypothalamus helps regulate temperature. In PD, nerve cell loss can disrupt the signals that allow the body to sweat, shiver, and adjust blood flow to the skin. This can lead to a condition called temperature dysregulation.

Common signs of temperature dysregulation:

- Feeling too hot or too cold compared to others in the same situation
- Sweating profusely, especially at night or during "OFF" periods (*hyperhidrosis*)
- Hardly sweating at all even in hot weather (*hypohidrosis*)

Some people with PD report that their motor symptoms of stiffness and slowness are worse when they feel too hot or too cold. In addition, over-sweating can lead to dehydration, which can manifest as lightheadedness or weakness in the heat.

Effects of Heat

High heat and humidity can be especially difficult for people with PD. Dehydration can happen faster because of sweating changes. Even mild dehydration can worsen fatigue, balance, and cognition. *Orthostatic hypotension* (drops in blood pressure when standing, a common non-motor symptom of PD) may become more severe in the setting of dehydration, increasing the risk of fainting and falls.

To avoid these issues in hot weather, especially in extreme heat (>95° F), be sure to drink fluids regularly, avoid prolonged sun exposure (especially during midday), wear lightweight breathable clothes, and stay in cool places when possible, with cooling packs or damp washcloths nearby.

Effects of Cold

Cold weather can be especially challenging for people living with PD. Low temperatures often increase muscle stiffness and rigidity, making it more difficult to move smoothly. Many people notice that their movements get slower in the cold, and tasks such as walking or buttoning can feel harder than usual. Because PD can also interfere with the body's ability to shiver and warm itself, it can be more difficult to stay comfortable when exposed to chilly air. Protecting yourself against cold weather is important. Wearing clothing in layers can be helpful, as well as covering the hands and feet, even inside.

Sweating Problems in PD

Sweating changes are another common issue in PD. The nervous system disruptions that accompany PD can cause either too much or too little sweating, sometimes even both in the same person at different times. Some people sweat profusely at night or during "OFF" periods, while others hardly sweat at all even in hot conditions. Both situations can be uncomfortable and potentially unsafe. Excessive sweating can interrupt sleep and lead to dehydration, while reduced sweating can make overheating more likely. It helps to wear breathable clothing, stay well hydrated, and pay attention to your environment so that you do not become too hot or too cold.

Dehydration

Maintaining hydration in PD is critical, but can be difficult. Normal thirst cues, which alert a person that they need to drink, decrease as people age—particularly in someone with PD. Therefore, a person with PD must continue drinking even if they don't feel thirsty. Water is a great source of hydration, as are electrolyte drinks. However, avoid electrolyte drinks that contain a lot of sugar. Tea and coffee typically have

diuretic effects on the body and are not good sources of hydration.

Many people limit their hydration, especially when they are out of the house, in order to avoid the need to urinate. Instead, know where bathrooms are and plan bathroom breaks when you are on excursions out of the house. Stop hydrating in the late evening to decrease the need to urinate through the night.

Altitude in PD

Traveling or living at higher altitudes adds another layer of difficulty. Exposure to high altitude often impairs sleep quality, resulting in increased sleep fragmentation and nocturnal awakenings. Above about 8,000 feet, oxygen levels are lower, which can make anyone not used to these conditions feel tired, dizzy, or short of breath. For people with PD, these symptoms may worsen mobility, balance, sleep, and endurance. Cold weather often accompanies high altitude, which can add to the stiffness and slowness already present. If you are planning a trip to the mountains, it is best to ascend gradually, allow yourself time to adjust, and take breaks as needed. Staying hydrated and planning activities carefully can make altitude changes easier to tolerate. Using a cane or walker for stability may also be useful if balance is affected.

Climate Change, Extreme Weather, and PD

Beyond day-to-day weather, extreme weather events, such as heat waves (>95° F), unexpected cold snaps, and storms pose particular risks to people with PD. During heat waves, the chance of dehydration, which can lead to low blood pressure, lightheadedness, and falls, increases. In both heat waves and sudden cold weather, mobility can be impaired. In addition, outdoor excursions are necessarily curtailed and the ability to maintain an active lifestyle and continue exercising may be limited.

Severe storms or power outages can also disrupt heating or cooling systems, leaving people vulnerable, and may even interfere with access to medications. Preparing ahead of time is important. Keeping an emergency kit with water, extra medication, non-perishable food, and cooling or warming supplies can help. It is also wise to have a plan for where to go if power is lost, and to let family members, caregivers, or neighbors know about your needs in case help is required.

Impact on Gait and Mobility

Changes in temperature and humidity can influence mobility. Research suggests that cold conditions can shorten stride length and reduce walking speed, while humid weather may make joints feel stiffer and movement less fluid. These changes can affect confidence and stability, sometimes making mobility aids like canes or walkers more important during certain seasons. If you can't get outside, make sure to keep active indoors with gait training and continue with regular physical therapy.

Other Issues Related to Climate and PD

- Climate and its effects can influence how medications work. Dehydration, for example, can cause delayed gastric emptying, in which medication and food move through the GI tract more slowly. This can affect how levodopa is absorbed and metabolized in the body, sometimes making it less predictable.
- It is also important to store medications at the correct temperature. For example, carbidopa-levodopa should be stored at room temperature (68–77° F) since extreme heat or cold can reduce its effectiveness.
- Shorter daylight hours and weather changes may contribute to sleep disturbances in people with PD. Using light therapy lamps, if recommended by your provider, may help restore balance to your sleep-wake cycle. In addition, maintaining a steady bedtime and wake-up routine and avoiding daytime napping provides stability and supports better rest, no matter what the weather is outside.
- Mood can also be affected by the season, with shorter daylight hours contributing to depressive symptoms.

Managing PD in different climates often comes down to awareness and preparation. It can be very helpful to track how your symptoms change with the weather and share those observations with your doctor. This way, you and your care team can identify patterns and make adjustments as needed. Planning errands or outdoor activities during the mildest parts of the day—when it is not too hot or too cold—can also reduce strain and help conserve energy. At home, creating a comfortable indoor environment with the right use of fans, heaters, or humidifiers can go a long way toward keeping symptoms under control. Staying socially connected is equally important since difficult weather sometimes leads to more isolation and can affect overall well-being.

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