

Parkinson's Disease

Overview

Parkinson's disease (PD) is a progressive neurodegenerative disorder that affects an individual's movement and motor skills. Symptoms generally develop slowly over several years and begin to worsen over time. The cause of the disease is unknown; however, treatment options such as medications and surgery are available to alleviate symptoms. The diagnosis of PD is defined by the death or malfunction of nervous cells in the brain. These nervous cells produce a chemical called dopamine, which sends messages to the part of the brain that controls movement and coordination. As the disease progresses, the amount of dopamine produced decreases, which hinders a person's ability to control movement. Although PD is not a fatal condition, complications of the disease are the 14th leading cause of death in the United States.

Symptoms

Signs and symptoms of PD are highly individualized and may not be noticed until the disease progresses to later stages. Typically, symptoms begin on one side of the body and usually remain worse on that side, even after symptoms begin to affect both sides. Symptoms may include:

- **Resting Tremor:** A slight tremor in the hand or foot; usually on one side of the body, jaw or face. Tremors consist of shaking and oscillating movements when muscles are relaxed.
- **Bradykinesia:** A term for slowed movement, occurs when an individual experiences abnormal stillness and a decrease in facial expressions.
- **Rigidity:** Stiffness and inflexibility of limbs, neck and trunk. Muscles typically stretch when in motion and then relax when at rest. An individual with PD always experiences stiffness and is not able to relax their muscles.
- **Postural Instability:** Unstable when standing upright. This increases the risk of falls in people with PD due to a loss of balance.
- **Loss of Automatic Movements:** Unconscious movements, such as blinking or swinging of the arms while walking, may become more difficult and can stop all together.
- **Speech Changes:** Speech may become more monotone and slurs or hesitations may occur before talking.

Nutrition and Parkinson's Disease

Nutrition plays a major role in alleviating symptoms of PD. One common symptom is weight loss. Weight loss can occur for many reasons such as lack of appetite, nausea, skipping meals, depression or slowed movement, which leads to the inability to cook for oneself. An individual who is experiencing unintentional weight loss may benefit from incorporating frequent energy-dense meals into their diet. This may help strengthen their immune system, prevent muscle wasting and the development of nutrient deficiencies. Preventing malnutrition in patients with PD is a primary goal of nutrition therapy. Nutrition strategies to prevent or manage complications of PD are outlined below.

Dehydration

According to the National Institutes of Health (NIH) up to 60% of our body is water. Therefore, hydration at any stage of life is important. Unfortunately, in individuals with PD, the risk of dehydration is higher due diminished thirst cues and medication interactions. Dehydration can lead to weakness, respiratory failure, confusion, balance problems and eventually kidney

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disease. It is recommended to drink plenty of fluids throughout the day (about 8 cups per day) in order to avoid symptoms of dehydration.

Constipation

Constipation is common in individuals with PD due to slowed muscle contractions in the digestive tract. It is important not to let constipation go untreated to treat as severe constipation may lead to bowel obstruction. Depending on the degree of bowel obstructed, patients may be hospitalized or even require surgery. Consuming foods that are high in fiber can help maintain bowel regularity. High fiber foods include whole grain breads, brown rice, bran cereals, beans, fruits and vegetables. Consuming adequate fiber may alleviate symptoms of constipation and support overall digestive health.

Malnutrition

As PD progresses, patients may develop difficulties with chewing and swallowing, also known as dysphagia. Dysphagia can be a life threatening condition if food is aspirated into the lungs, so it is important to look for signs such as excessive drooling, a wet or gurgling voice while eating, or coughing during or after meals. Late stage PD affects the muscles in your head and neck making it difficult to chew and prevent saliva accumulation. To prevent malnutrition and encourage adequate food intake, try modifying the consistency of food to soft, minced, or pureed textures. This will not only make eating easier, it will decrease the risk of choking and make the eating experience more enjoyable for both the patient and caretaker. If you are concerned that an individual may be struggling with dysphagia, consult a Speech and Language Pathologist to determine the appropriate food and liquid consistency.

Examples of Texture Modified Foods

- **Bread and Cereal:** Bread pudding; Cooked cereals; Pancakes; Moist pastas; Casseroles
- **Dairy Products:** Creamy or blended cottage cheese; Soft cheeses; Yogurt; Thickened milk
- **Meats:** Moist ground meat; Meatloaf; Meatballs; Fish without bones
- **Vegetables:** Soft canned vegetables; Baked or mashed potatoes; Creamed or thick pureed vegetables; thick or blended soups
- **Fruits:** Soft ripe bananas; canned fruits without seeds, pits, or skin; Pureed fruits; Soft fruits
- **Desserts:** Gelatin; Apple or peach crisp; Moist cookies without fruit or nuts; Pudding; Sherbet; Sorbet; Ice cream
- **Eggs:** Scrambled; omelet
- **Butter**

Bone Loss

People with PD are at an increased risk of bone thinning and osteoporosis. Risk factors of osteoporosis include older age, low body weight, and inadequate amounts of bone strengthening nutrients such as calcium and Vitamin D. People with PD are encouraged to consume foods high in calcium, vitamin D, Vitamin K and magnesium. It is possible to obtain these nutrients in the diet by eating the following foods:

- **Sources of Calcium:** Dairy products such as yogurt or milk; Kale; Collard greens; Bok choy; Broccoli; Oranges; Salmon; Shrimp
- **Sources of Vitamin D:** Butter; Eggs; Fish oils; Beef or chicken liver; Salmon; Tuna

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- **Sources of Vitamin K:** Cabbage; Cauliflower; Spinach and other green leafy vegetables; Cereals; Soybeans
- **Magnesium:** Halibut; Nuts and nut butters; Cereals; Soybeans; Spinach; Potatoes (with skin); Black-eyed peas; Salmon

Exercise

Exercise is important for patients with PD to help them maintain balance and mobility and reduce depression or anxiety. Studies show that those who implement an exercise routine early on that incorporates at least two and a half hours of physical activity per week experience slower disease progression. Exercise not only improves quality of life, it can aid in the management of PD symptoms and delay associated complications. Speak to your healthcare provider or registered dietitian to find out what type of exercises are right for you.

Food and Medication Interactions

The most common and effective PD medication is Levodopa, which is synthesized in the brain into dopamine. It is important to note that dietary protein can interfere with the uptake of Levodopa in the brain, so it is best to avoid taking this medication with a protein containing meal. Many other medications can cause nutrition-related side effects or have negative interactions with certain foods. It is important to speak with your healthcare provider or registered dietitian to help prevent or manage food and medication interactions.



Tips to Increase the Calorie and Protein Content of Food

If you are experiencing unintentional weight loss or have difficulty eating enough to meet your needs, try to increase calorie and protein content of meals. Some general recommendations include:

- Supplement your diet with high calorie, high protein drinks such as milkshakes and commercial liquid supplements like Ensure or Boost.
- Add dry milk or protein powder to juices and smoothies.
- Prioritize energy dense, high protein foods and save soups and salads for the end of the meal. Energy dense, high protein foods include beans, eggs, milk, cheese, and yogurt.
- “Fortify” foods to maximize nutrient density by adding canola or olive oil, cheese, cream, silken tofu, yogurt, avocado, or nut butters (e.g. peanut butter, almond butter).
- Add cream-based sauces to vegetables and other dishes. Use whole milk in place of water when possible.
- Add nuts, seeds, or wheat germ to casseroles. Eat cooked fruit, ice cream, yogurt, cookies, pancakes, smoothies, and muffins with your meals or separately as a snack.

Nutrition and Lifestyle Guidelines

- Eat foods high in fiber to prevent constipation. High fiber foods include fruits, vegetables, and whole grains.
- Eat small, high calorie meals 4 to 5 times throughout the day to prevent unintentional weight loss.
- Keep ready to eat snacks on hand to increase total energy intake.



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- Consider adding nutritional supplements such as Ensure or Boost to help meet calorie needs.
- Incorporate naturally soft foods such as mashed potatoes, apple sauce, boiled eggs and soft pasta if you have trouble chewing or swallowing.
- Ensure adequate hydration. Aim to drink eight 8-ounce glasses of water per day.
- A multivitamin may be necessary to help you meet your nutrient needs. Please discuss with your registered dietitian to see if this might be beneficial for you.

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