

# Medication absorption: levodopa and protein



Levodopa, one of the first and still most effective Parkinson's drugs, is the only medication that converts directly into dopamine when it reaches the brain, helping with slowness, stiffness and tremor.

Levodopa is found in a variety of formulations including:

- Levodopa and carbidopa, referred to as levocarb or levodopa/carbidopa (brand names Sinemet® and Sinemet CR®)
- Levodopa and benserazide (brand name Prolopa®)
- Levodopa/carbidopa/entacapone (brand name Stalevo®)

Some people taking levodopa notice a decrease in the effectiveness of their medication if it is taken at, or close to, the same time as a high protein meal. Not everyone with Parkinson's has this problem.

## Why does protein sometimes interfere with the absorption of levodopa?

When any kind of protein is being digested, it is broken down into its core components, which are amino acids. The lining of the digestive tract contains many receptors designed to absorb these amino acids and then transfer them into the blood stream to be carried to the brain.

There are only so many receptors in the digestive tract, and for some people, food-based amino acids may be absorbed first leaving medication sitting in the gut. This means that the medication does not start working and providing symptom relief until the protein is out of the system.

It is important to note that other classes of drugs, such as dopamine agonists, do not compete for absorption with protein, so dietary considerations may be different for those taking these medications (Michael J. Fox Foundation, n.d.).

## What does this mean for me?

A decrease in medication effectiveness can be different for everyone. For some, it may seem as though it is taking a very long time for your medication to “kick in” or you may be spending more time than you usually do in an “off” state. In some instances, you may experience “dose failures”, when your medication does not work at all.

If you are concerned about your ability to absorb levodopa, we recommend that you discuss this with your health care team. Prior to your appointment, it is useful if you can make notes about the effectiveness of your medication.

**When taking your medication please make note of the following:**

- **Whether you have taken the medication with food, and if so, what you ate.**
- **How close your medication time is to the time you ate, or will eat, a meal.**
- **Effectiveness of your medication around the times you are eating.**

If protein rich foods are impeding your absorption of levodopa, take your medication 30-60 minutes before or after you eat. However, if you experience nausea after taking medication on an empty stomach, it is safe to eat a low protein snack, such as bread or oatmeal (Michael J. Fox Foundation, n.d.)

Some individuals may also prefer to ‘redistribute’ their protein throughout the day by eating less protein during the day (when they would prefer their symptoms be better controlled) and more at night (when symptom control may not be as imperative) (Michael J. Fox Foundation, n.d.). This redistribution diet allows them to meet their nutritional needs, while balancing those with optimal symptom control. The National Institute for Health and Care Excellence (NICE) Guidelines for Parkinson’s (2017) state that people with Parkinson’s should not reduce their total daily protein intake, because protein is essential for a healthy, well-balanced diet.

Even if you suspect that protein is getting in the way of adequate absorption of levodopa, **please do not make adjustments to your medication schedule without talking to your doctor.** Effective management of Parkinson’s medications requires following a strict schedule. **Adjust your meals and snacks, not your medication.**

## Should I have a snack along with my levodopa?

Opinions differ on this question, but it is generally considered wise to have a light, non-protein snack along with your levodopa to assist with digestion. Foods to consider include fruit, crackers, or apple sauce.

## If I notice an absorption problem relating to protein, what foods should I avoid when I am taking levodopa?

Foods that are high in protein and that should be avoided in large servings include:

- high protein milk products, including yogurt, ice cream, butter, and cheese
- non-dairy milk products, including almond, soy, hemp, or rice milk
- eggs and egg substitute
- meats, poultry, and fish of all types
- nuts, including spreads like peanut butter
- sunflower seeds and all other seeds, such as pumpkin, flax, and sesame
- beans and peas
- soybeans, including tofu and tempeh
- puddings and custards
- dietary supplements, such as Ensure, or whey and protein powders

Protein is essential to good nutrition and health. If you find that protein does interfere with the absorption of levodopa, do not cease eating protein unless directed by your doctor. Instead, reschedule your meals and snacks around your medication schedule. Regular amounts of protein-rich foods may be taken 1 hour before or after your scheduled medication time.

**Parkinson Canada would like to acknowledge Parkinson Society British Columbia for granting permission to reprint their valuable information resource.**

### References:

1. Ahlskog, J. E. (2005). *The Parkinson's Disease Treatment Book: Partnering with your doctor to get the most from your medications*. New York, NY. Oxford University Press.
2. Michael J. Fox Foundation (n.d.). *Parkinson's Disease and Diet: A Practical Guide*. [https://www.michaeljfox.org/sites/default/files/media/document/041819\\_MJFF\\_DIET\\_GUIDE\\_0\\_1.pdf](https://www.michaeljfox.org/sites/default/files/media/document/041819_MJFF_DIET_GUIDE_0_1.pdf)
3. National Institute for Health and Care Excellence (2017). *Parkinson's disease in adults*. <https://www.nice.org.uk/guidance/ng71/chapter/Recommendations>

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