

# Understanding Parkinson's Cognition and Parkinson's



Parkinson's disease (PD) is increasingly becoming recognized for its non-motor characteristics, including cognitive difficulties. For people with Parkinson's, these problems can be distressing and among the toughest to bring up with their doctors and their families. Cognition is difficult to define, but it generally refers to the brain processes through which we discover and understand the world around us. These include: making sense of perceptions; storing and retrieving memories; learning things; forming concepts; solving problems; planning activities; language; achieving insights; and abstract thinking.

## Cognitive Changes in Parkinson's

Understanding how many people with Parkinson's experience cognitive changes is difficult, because the changes themselves are difficult to measure and because researchers have used different means to identify and define them. It is estimated that, at any given time, of all people with Parkinson's, about one quarter to one third have mild cognitive impairment (MCI) while another one quarter to one third have dementia.

Symptoms of MCI will not interfere with a person's ability to function. Early changes may not be noticeable, but can be detected through testing. Once MCI is diagnosed, symptoms may become more apparent. Recent research suggests that mild changes may be present as early as the time of diagnosis. Dementia is a decline in multiple mental abilities that is severe enough to lead to trouble at home, at work or in social situations. It can include, but is not limited to, problems with memory. If one follows a large number of individuals with Parkinson's over time, many may go on to develop dementia.

## Causes of Cognitive Changes

One cause of cognitive changes is a drop in the level of dopamine, the neurotransmitter that helps to regulate the body's movements. Scientists are looking at changes in two other chemical messengers — acetylcholine and norepinephrine — as possible additional causes of attention diffi-

culties, memory and executive function loss in PD.

## Effects of Cognitive Changes

The cognitive changes that accompany Parkinson's early on tend to be limited to one or two domains, and their severity will vary from person to person. They most often include:

*Executive functions.* Similar to the problem-solving duties of a company executive, these include forming concepts, making plans, formulating goals, anticipating consequences, strategizing to reach goals and evaluating progress.

*Attention difficulties.* Cognitive changes may make it difficult to pay attention. In situations, such as a party, where several conversations are going on at once, this problem may be acute.

*Slowed thinking.* People with PD say their brain feels "swampy." It takes more time and more effort than usual to complete them.

*Word-finding.* People with PD may have difficulty coming up with words because of slowed thinking ability. The words are available, but may be difficult to access. If you think of vocabulary as a dictionary, the person with PD has to search for the dictionary before opening it to find words, whereas a person with Alzheimer's has the dictionary but many of the pages are blank.

*Learning and remembering information.* About half to two thirds of people with Parkinson's report that they have memory problems. There are two types of memory, the first being declar-

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ative memory (e.g., remembering events from a specific time or place or facts). The second type is non-declarative and is demonstrated through performance of tasks (e.g., riding a bicycle). Memory involves encoding, storage and retrieval. Like a filing cabinet, first you have to acquire information, and then you have to organize it and store it, and finally you have to retrieve it. People with PD have trouble taking in information and organizing it well, so it becomes difficult for them to remember it. Another specific type of memory is prospective memory. Failures of prospective memory annoy most of us, but seem to be more common in PD. For example, you put a package out to mail in the morning, but then find yourself leaving the house without sending it.

*Imagery and spatial processes.* The ability to form a mental image and to determine where things are in space may be affected by PD. An example of this problem is when one is driving a car, trying to form a mental map of a route to the store.

### Seeking Help for Cognitive Changes

Cognitive change is a sensitive issue. The doctor may be as hesitant to address it as the person with Parkinson's is to ask about it. The doctor may delay discussing cognitive impairment out of concern for the person who is coping with a diagnosis or struggling with motor symptoms. For this reason, the person with PD often needs to be the one to initiate the conversation. If the person is experiencing problems that are upsetting family, or causing problems at work, discuss them with the doctor. The doctor can help with a referral to a psychiatrist, a neuropsychologist, a speech or occupational therapist. The neuropsychological evaluation can be useful in the early stages of a cognitive problem. Having this baseline test can help the doctor determine whether future changes are related to medications, Parkinson's disease or other factors such as depression.

### Treating Cognitive Changes in PD

When a person reports symptoms of mild cognitive impairment, the doctor will first want to rule out causes other than PD, such as Vitamin B-12 deficiency, depression, fatigue, or sleep disturbances.

## Tips for Care Partners

- Offer help only when your loved one asks for it
- Prompt the person — for example, instead of asking, "Did anyone call?" ask, "Did Linda call?"
- Say the name of the person and make eye contact when speaking to them
- Put reminder notes in a prominent place
- Keep things in routine places
- To ensure medications are taken on time, provide the person with a dispenser
- Use photos on cell phone contact entries to prompt face-name association
- Write lists and keep them in a routine place
- If the person is searching for a word, provide a cue, such as, "the word begins with 'd'"
- Do not finish the sentences of a person who needs more time to put them together
- When presenting the person with a list of actions, first verbalize them, then write them down

PD does not cause sudden changes in mental functioning. If someone does experience a sudden change, the cause is likely to be something else.

If cognitive symptoms *are* traceable to PD, there are drug therapies available that were developed for Alzheimer's, but have been found to have some effect in Parkinson's. One is rivastigmine, the only medication approved by the US Food and Drug Administration (FDA) for dementia in PD. Doctors also may prescribe donepezil and galantamine. In addition, a person with attention difficulties that are due to daytime sleepiness may benefit from stimulants.

### Research Directions

Much remains to be learned about the biology underlying cognitive changes in PD. Our greatest hopes are to detect cognitive impairment early, and then have more therapies to treat it.

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If you have or believe you have Parkinson's disease, then promptly consult a physician and follow your physician's advice. This publication is not a substitute for a physician's diagnosis of Parkinson's disease or for a physician's prescription of drugs, treatment or operations for Parkinson's disease.