

Neuropsychology and Parkinson's Disease

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Parkinson's disease and cognition

- Parkinson's disease is not just a disorder of movement
- The same circuits associated with motor functioning can also lead to non-motor symptoms
- Around 25% of individuals with newly diagnosed PD have cognitive concerns
- This may increase to 50% over time

Early cognitive changes

- Cognitive difficulties usually limited to one or two cognitive domains. These include:
 - Executive functioning (problem solving, planning, organization, decision-making, etc.)
 - Attention
 - Slowed thinking
 - Word finding problems
 - Learning and retrieval
 - Spatial abilities

Cognition later in the disease

- Longer duration of the disease may mean increase in cognitive problems, including memory
- Memory and drawing abilities decline slowly in people with PD without dementia
- When cognitive problems occur early, there may be a more rapid decline
- Visual hallucinations are associated with a faster rate of cognitive decline

Risk Factors for cognitive decline

- Older age
- Hallucinations
- Male gender
- Increased symmetry of parkinsonism
- Speech and swallowing problems
- Gastroenterological/urological disorders
- Severe motor symptoms
- Depression

Mental Health Contributions (other non-motor symptoms)

- Depressed mood
 - may occur in 40-70% of people with PD, may occur in advance of motor symptoms
- Anxiety
 - May occur in 40% of people with PD, often together with depression
 - May be worse as medications wear off
- Apathy

Mental Health Contributions

- Impulse control problems
- Mania, psychosis
- Hallucinations

Other contributors to cognitive and mental health changes

- Medications
- Sleep problems
- Fatigue
- Stress

Exercise, Cognition and PD

- Studies have shown improvements in executive functioning and processing speed with exercise
- Exercise also has a positive effect on mood
- Low-intensity passive aerobic cycling and moderate-intensity aerobic and anabolic exercise improve executive functioning
- Yoga, t'ai chi, boxing, Tango, Nordic Walking, biking, Wii Fit

(e.g., Murray et al., 2014)

Treatment strategies

- Talk to your doctor about whether any medications may be appropriate
- Exercise regularly
- Nutrition
- Keep active physically and mentally
- Address any underlying depression or psychological symptoms, or sleep disorders
- Consider working with a health psychologist
- Speech therapy or cognitive rehabilitation

Strategies

- Carry a small notepad
- Written reminders
- Checklists
- Calendars and alarms on smart phones

Strategies

- Organizational strategies: complete one task before beginning another
- Work in an environment that is free from distractions
- Ask for assistance breaking down larger tasks into smaller, more manageable parts

Neuropsychological Evaluation

- Focuses on brain functioning
- Detailed, objective assessment of abilities
- Patterns of strengths and weaknesses used for diagnosis and treatment planning



Neuropsychological Evaluation

- Establishes a baseline of functioning, so that direct comparisons can be made later
- Assists in determining if other factors such as depression or stress are present, which could contribute to cognitive changes
- Assists in treatment planning, including referral to speech therapy or cognitive rehabilitation, provides information to your neurologist which helps with medication management

Conclusions

- Cognitive and mood changes are not uncommon in Parkinson's disease, but may be mild
- Problems with slowed thinking, attention, executive functioning, visual spatial abilities, and learning and memory are the most common symptoms
- Common concerns such as depressed mood, sleep problems, and medications should be addressed
- Speak with your physician, who may recommend a neuropsychological evaluation, psychotherapy, or consultation with psychiatry