



CENTER OF EXCELLENCE



Parkinson's Disease: New Diagnosis Workshop

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Dr. Jonathan Squires, MD, FRCPC

Movement Disorders Specialist

Co-Medical Director Pacific Parkinson's Research Center

Clinical Assistant Professor, UBC

Dr. Melissa Mackenzie, MD, FRCPC

Movement Disorders Specialist

Pacific Parkinson's Research Center

Clinical Assistant Professor of Neurology, UBC

Michelle McCarthy, PT

Physiotherapist, Movement Disorders Clinic

Presentation Outline

What is Parkinson's Disease?

Etiology & Epidemiology

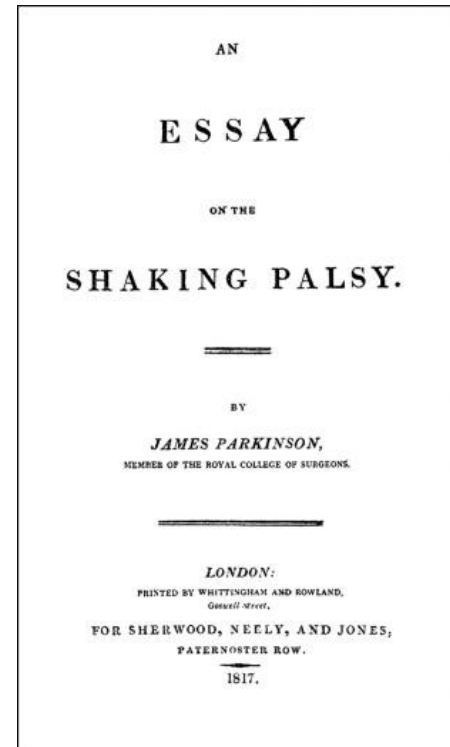
Diagnosis

Symptoms

Management

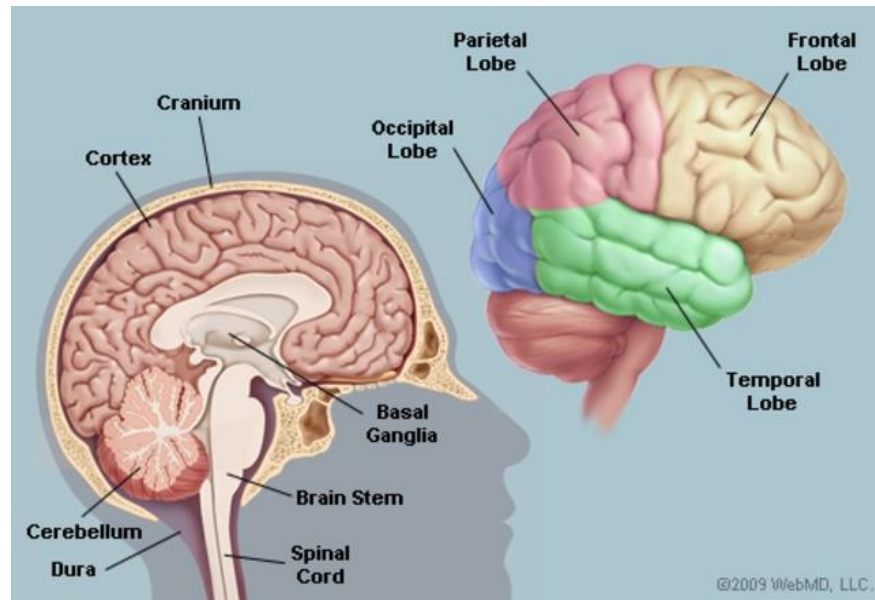
Living well with Parkinson's

History of Parkinson's



What is Parkinson's Disease?

Parkinson's is a **neurodegenerative** condition, characterized by loss of dopamine producing cells and specific proteins (Lewy Bodies) in brain cells



The Role of Dopamine

Dopamine is one of the chemical messengers that brain cells use to communicate with each other. It is important for:

- Control of movement
- Mood
- Many other functions

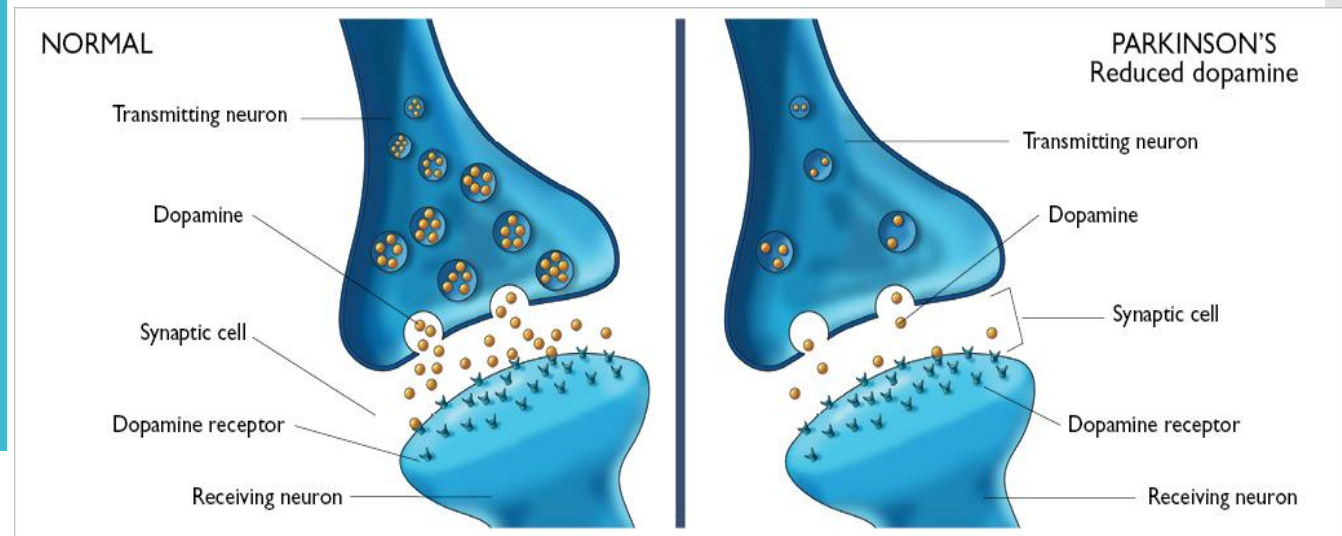


FIGURE 3. Illustration showing low levels of dopamine in a neuron affected by Parkinson's disease (right) and normal levels (left).

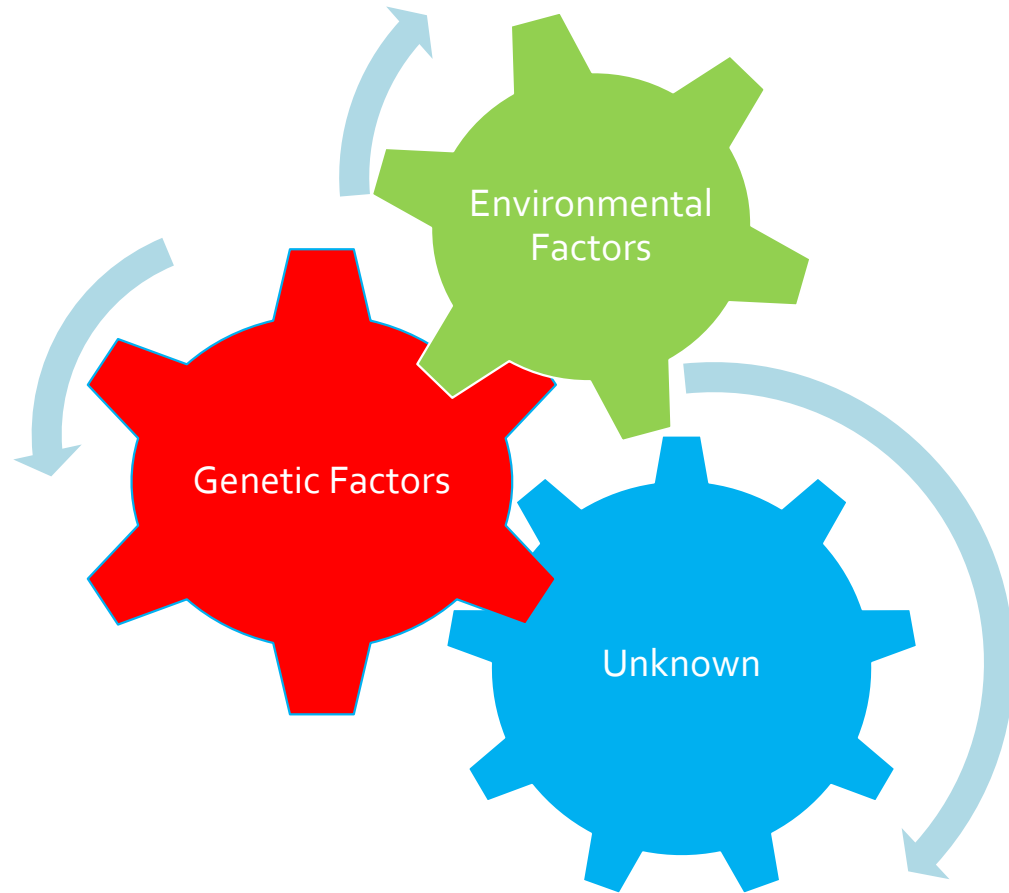
What Causes Parkinson's Disease?

- We don't really know!
- 5-10% of cases are genetic
 - Often younger onset (before age 50)
 - Usually have a strong family history

Risk Factors for PD

- Age is the number one risk factor
- Men are more likely to get PD than women
- Recurrent head injuries
- Living in the countryside
- Family history
 - One affected family member = 2-3 x risk

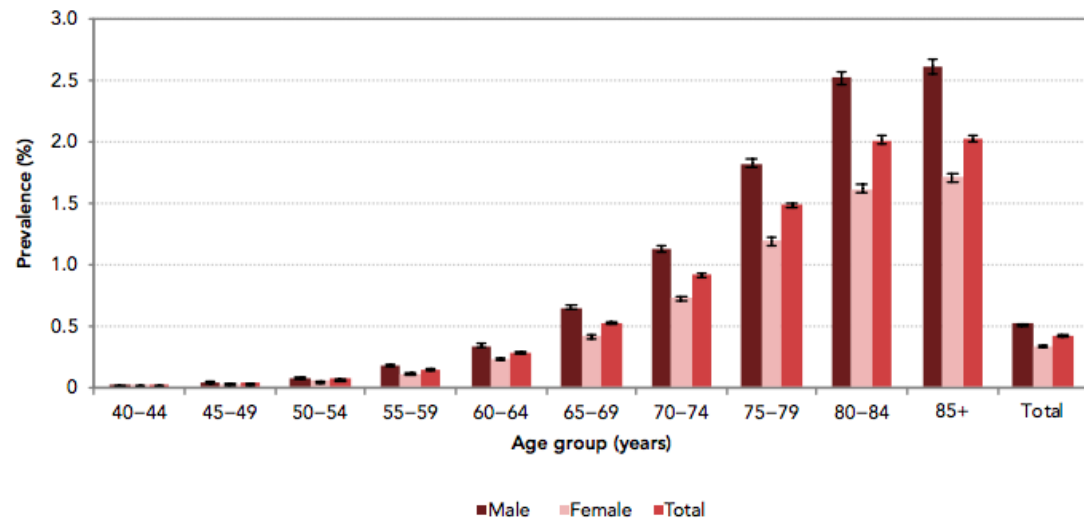
What Causes Parkinson's?



Epidemiology

- 2nd most common brain condition after Alzheimer's
- 13,000 people living with PD in British Columbia (2014-2015 – PSBC)
- 100,000 people living with PD in Canada

FIGURE 1: Prevalence (%) of diagnosed parkinsonism, including Parkinson's disease, by sex and age group, Canada, 2013–2014



NOTE: The 95% confidence interval shows an estimated range of values which is likely to include the true value 19 times out of 20.

DATA SOURCE: Public Health Agency of Canada, using Canadian Chronic Disease Surveillance System data files contributed by provinces and territories, July 2017.

How do we Diagnose PD?

- The first step is to determine whether you have *parkinsonism*
 - Slowness of movement (bradykinesia)
 - Increased muscle tone (rigidity)
 - Resting tremor (when your arm/leg are totally relaxed)
- Then we try to rule out other things as the cause of these symptoms

How do we Diagnose PD?

FAQ:

Is there a test to confirm the diagnosis?



The only test than can confirm the diagnosis is an autopsy



MRI and CT scans are normal, or show only non-specific changes



Functional Imaging = F-Dopa PET Scan, DaT Scans

If it's not PD,
then what is
it?

- A number of other conditions can cause parkinsonism
 - Neurodegenerative disorders
 - Medications
 - Other structural problems of the brain (this is quite rare)

How accurate is the diagnosis?

- In the early stages of PD, clinical diagnosis is only 70-80% accurate
- The remaining 20-30% have one of the PD mimics
- When you see your neurologist, we are always looking for any unusual symptoms that may suggest one of these mimics
 - Usually show up in the first 5 years

How will my condition progress?

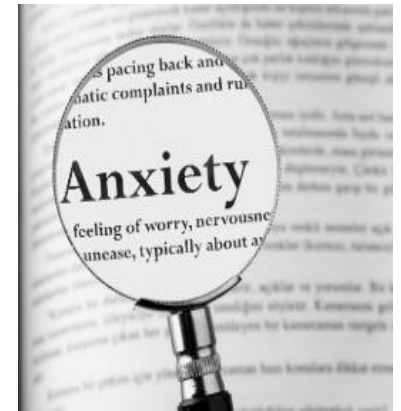
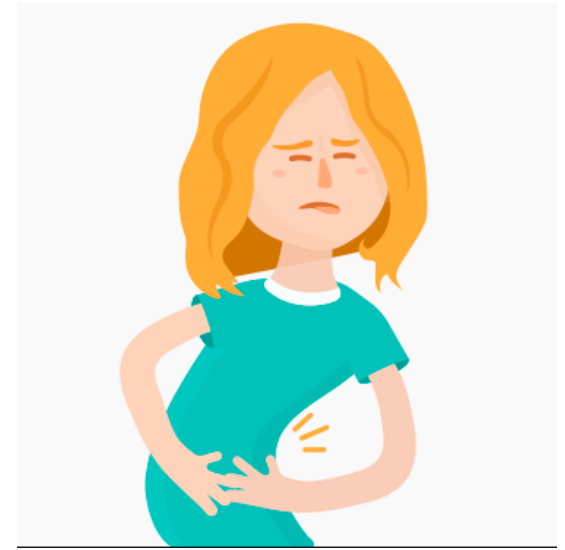
- In general, slowly (over years)
 - Highly variable between individuals
- Women progress more slowly
- Younger age of onset usually means slower progression
- Sudden worsening of symptoms is a sign that something else is wrong



What Does Parkinson's Look Like?

Symptoms are variable!

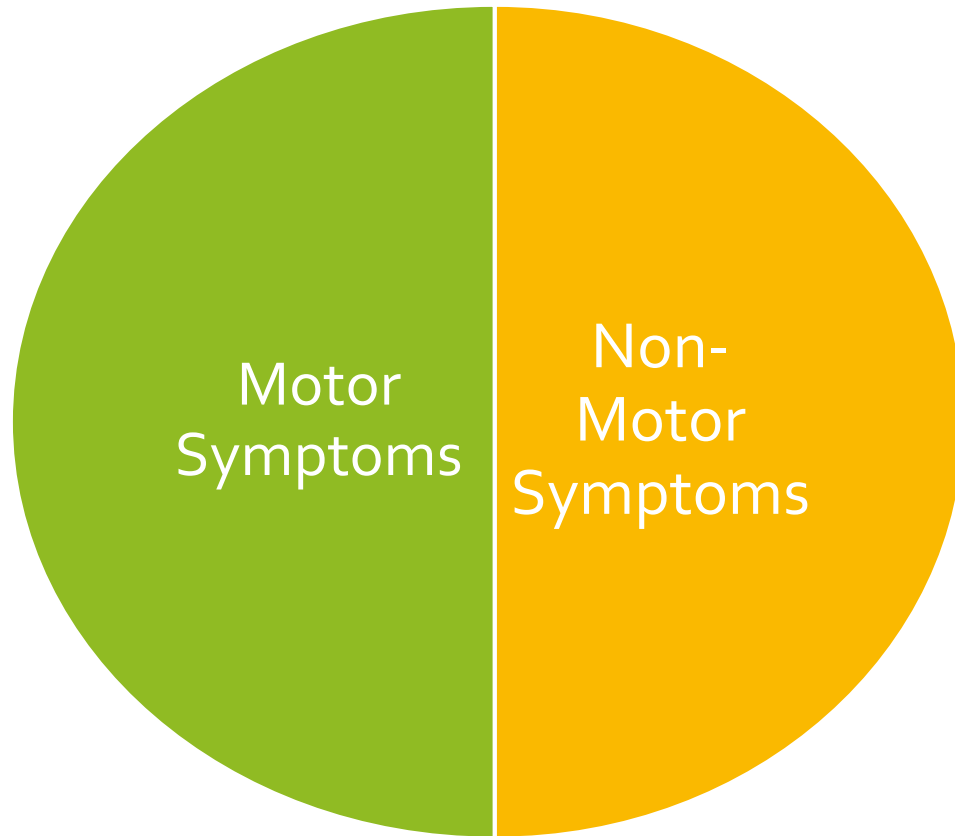
Early Symptoms of Parkinson's



Symptoms of Parkinson's

FAQ:

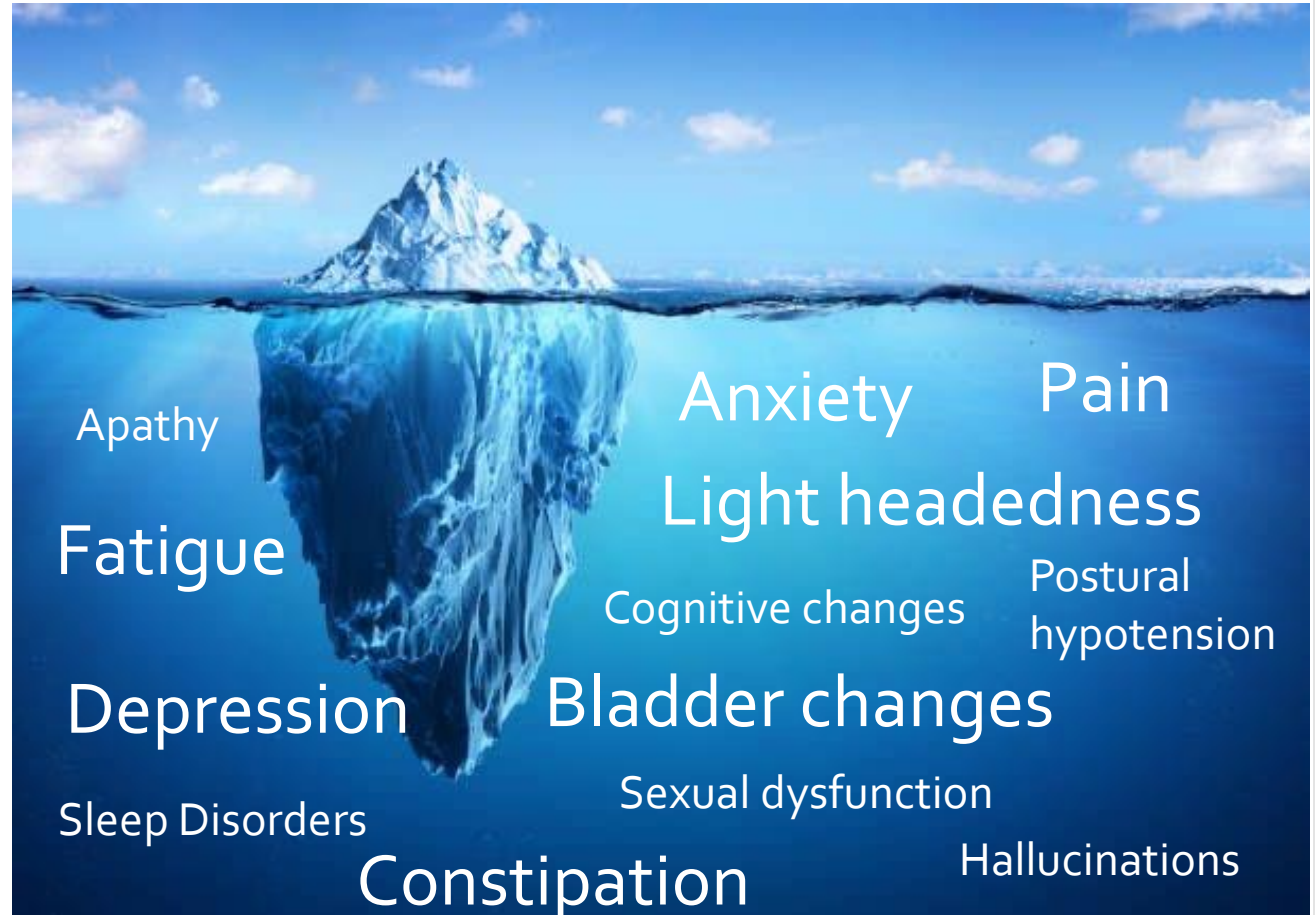
*I don't have tremor
- does that mean I
still have
Parkinson's?*



Motor Symptoms of Parkinson's

- **Tremor**
 - More prominent at rest
- **Rigidity** (stiffness in limbs)
 - May present as pain
- **Bradykinesia** (Brady = slow, Kinesia = movement)
 - Can manifest in several ways
 - Daily activities take longer to do
- **Postural Instability** (later manifestation)
 - Trouble with balance

Non-Motor Symptoms



Non-Motor Symptoms: Depression / Anxiety



Approximately 50% will notice changes to mood



Often overlooked and under reported



Can respond well to treatment
(Talk therapy, CBT, Mindfulness)



Medications can help

Non-Motor Symtoms: Other Psychiatric Symptoms

- Apathy is common, though usually later in the disease
 - Not always related to depression!
- Hallucinations can occur, usually later in the disease
 - Usually visual

Non-Motor
Symptom:
Sleep
Disturbances



Non-Motor Symptom: Sleep Disturbances

- Parkinson's can affect sleep in many different ways
- The circadian rhythm (body clock) is dysregulated
- Restless leg syndrome and obstructive sleep apnea are more common in people with Parkinson's disease

Non-Motor Symptom: Sleep Disturbances

- Some people will wake through the night due to their Parkinson's symptoms
- Leg cramps
- Fatigue is very common and can be unrelated to the quality of your sleep
- REM Sleep behaviour disorder is quite common

Non-Motor Symptoms: Autonomic dysfunction

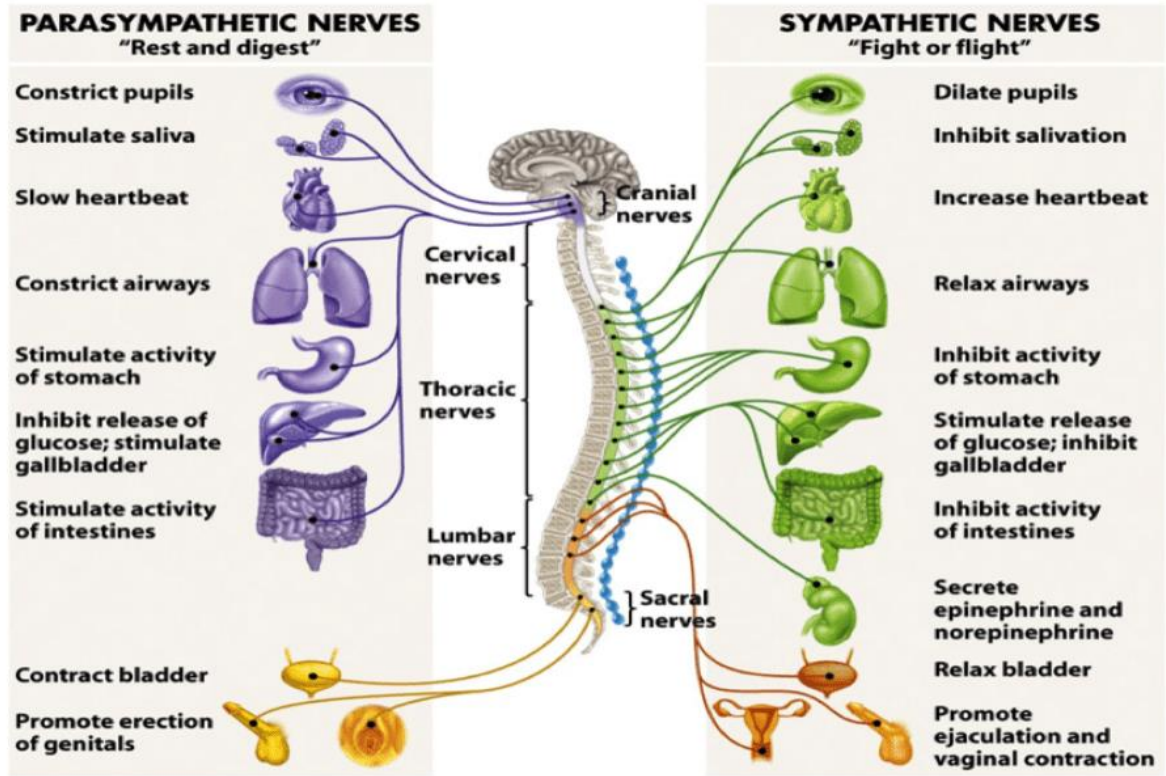


Figure 45-20 Biological Science, 2/e
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Non-Motor Symptoms: Autonomic dysfunction

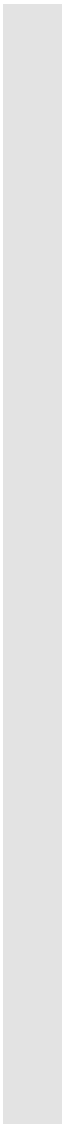
- The autonomic nervous system regulates the bodies “housekeeping functions”
- Constipation is very common and can predate motor symptoms by a decade or longer
- Urinary dysfunction usually manifests as frequency and urgency

Non-Motor Symptoms: Autonomic dysfunction

- Blood pressure can drop when you stand, resulting in lightheadedness
- Cold hands and feet are very common
- Sexual dysfunction is very common in both men and women with PD

Other Symptoms

- Pain is common
 - Musculoskeletal
 - Central
- Cognitive changes will occur in the majority of people (eventually)



- Next talk with Dr. Melissa Mackenzie
- February 17, 2021
- 11 AM
- Treatment of Parkinson's disease