

# Stop the Shaking



# Objectives

Identify the pathophysiology of  
PD

Analyze presenting symptoms  
of PD

Correlate physical exam  
findings with Diagnosis of  
PD

Summarize current/future  
treatment options for  
PD

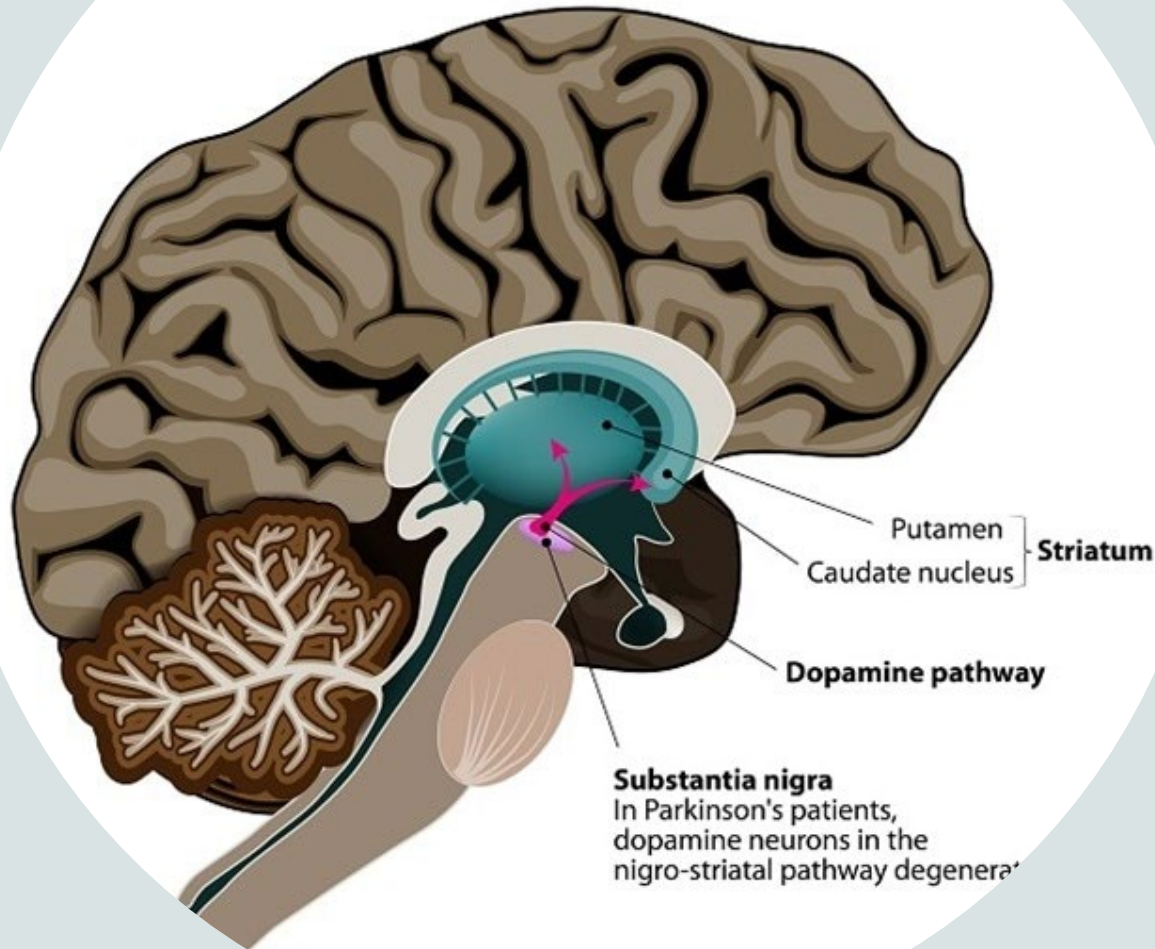


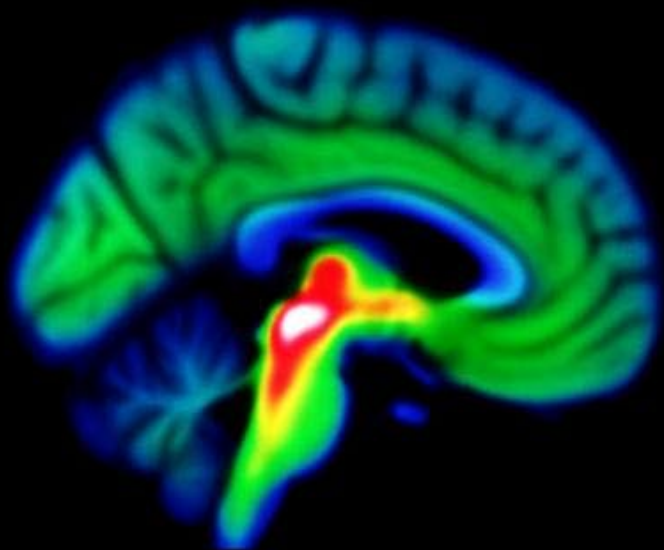
# PARKINSON'S DISEASE

## Pathophysiology

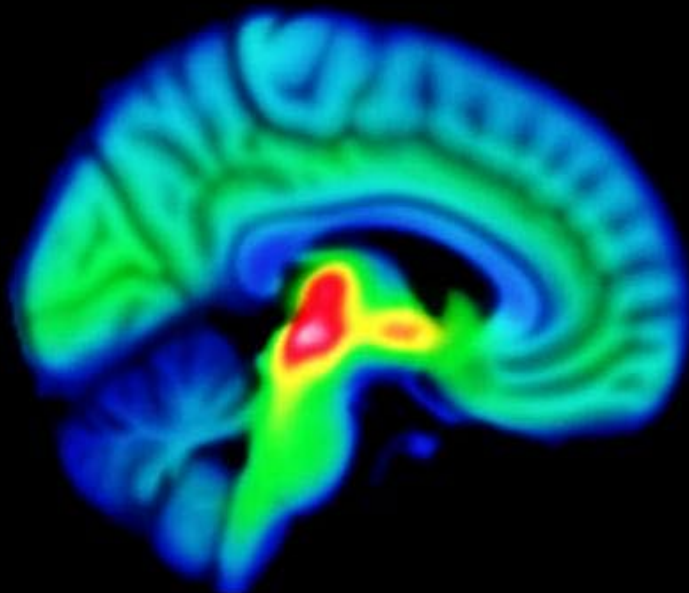
PD IS ASSOCIATED WITH  
DECREASED LEVELS OF  
DOPAMINE STORAGE CELLS IN  
SUBSTANTIA NIGRA IN BASAL  
GANGLIA

Cellular degeneration impairs the  
extrapyramidal tracts that control  
semiautomatic functions and  
coordinated movements

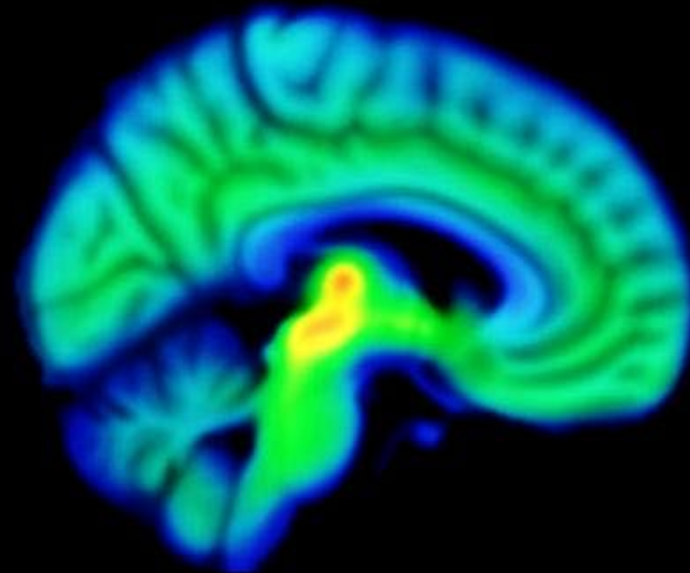




Healthy



Parkinson's Disease  
before symptoms



Parkinson's Disease  
after symptoms

# Clinical Symptoms

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- Clinical Symptoms do not appear until 60% of the pigmented neurons are lost.
- Symptoms have a gradual onset



# Clinical Symptoms

## Cardinal Signs

### Classic Presentation of

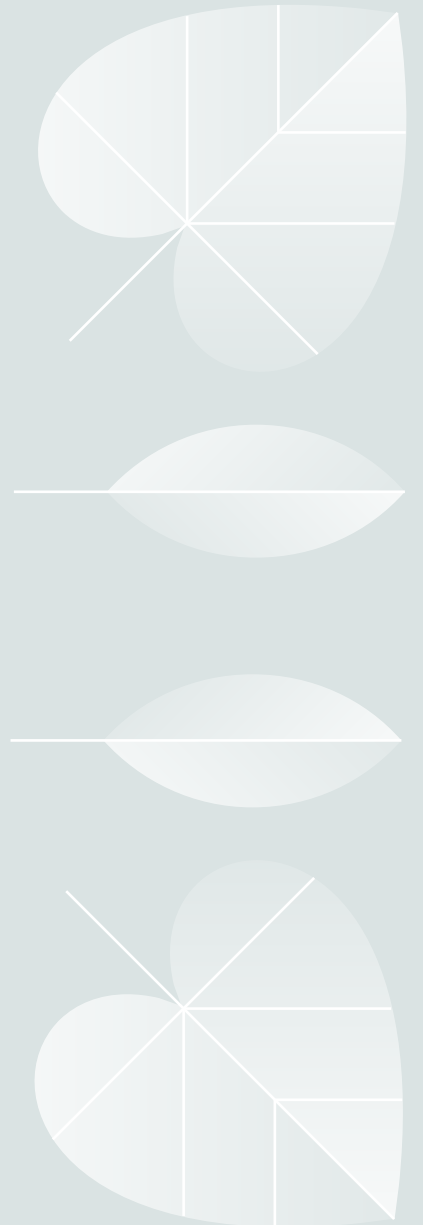
- Tremor
- Rigidity
- Bradykinesia
- Postural Instability



# Common Complaints

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- “I feel like I have gum on my shoe”.
- “I cannot stop my hand from shaking”.
- “My balance is off and I feel like I am going to fall”.
- “My joints are stiff”.







# Causes of PD

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Although the cause of most cases is unknown, research suggests a multifactorial combination of AGE, ENVIRONMENT & HEREDITY.

Genes: GBA, LRRK2 & PARK2

Certain toxins (Pesticides, herbicides & heavy metals)

Head Trauma

Gut Bacteria



# Treatment for PD

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**DIRECTED TOWARD CONTROLLING  
SYMPTOMS AND MAINTAINING  
FUNCTIONAL INDEPENDENCE**



# Levodopa (Sinemet)

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The most effective agent and mainstay of treatment.

Levodopa is converted to dopamine in the basal ganglia

Usually a combination of Carbidopa/Levodopa to prevent breakdown before reaching the brain

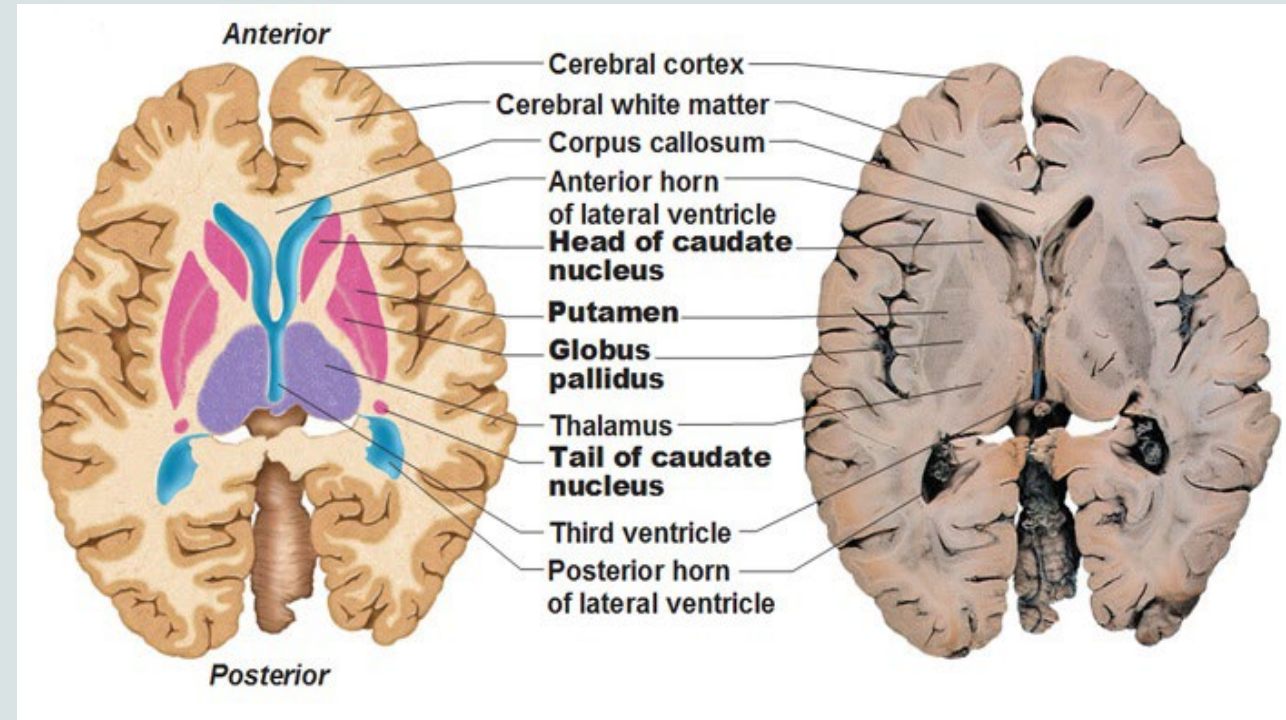
*Other drugs*

*Ropinirole*

*Pramipexole*

# New Treatment INSIGTEC

- Unilateral MRgFUS pallidotomy
- Surgical inactivation of the globus pallidus or a portion of it.



# BENEFITS OF MRgFUS



## Reduced Risks



incisionless  
surgery



single session



no general  
anesthesia

## Improved Lesioning



accurate and  
adjustable  
targeting



limited localized  
effect



intra-operative  
feedback

## Better Experience & Outcomes



immediate  
tremor relief



favorable safety  
profile



quick recovery



# Thank you

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