

Motor Symptoms in Parkinson's Disease

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Outline

- Introduction
- Diagnosis
- Head to Toe
- Other symptoms
- Treatments

○ NEXT

○ LATER

○ NOW

Introduction

- Why does it matter?
 - Neurologist
 - Bothersome
 - Treatable
 - Management



Diagnosis... ?

- Can be much much more subtle!



Recognize The Signs

Tremors



Rigidity

Akinesia
(Difficulty with movement)

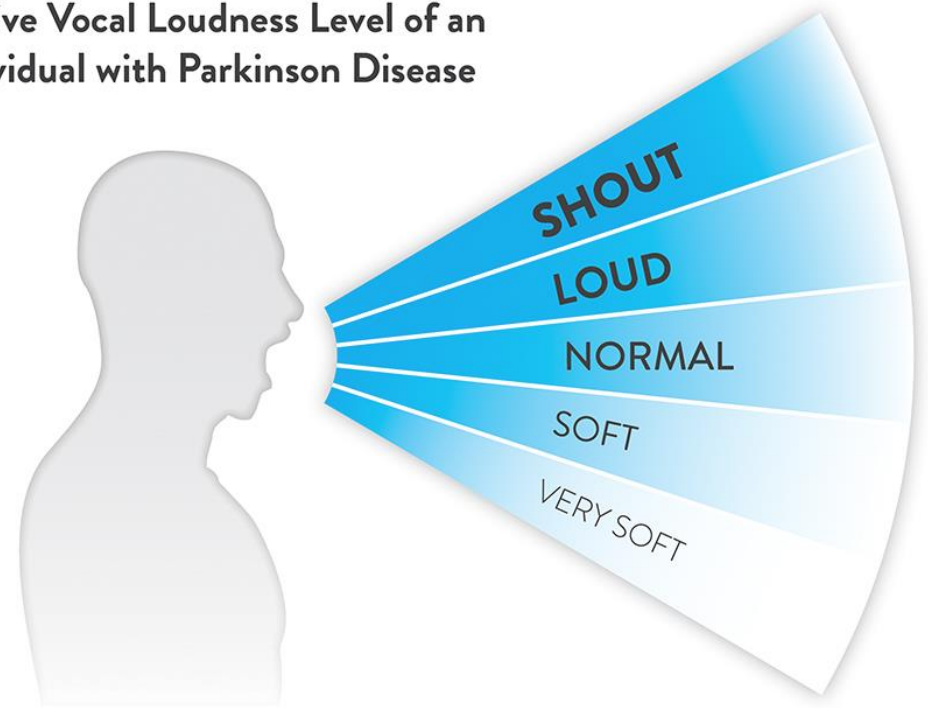


Postural Instability

Motor Symptoms: Head

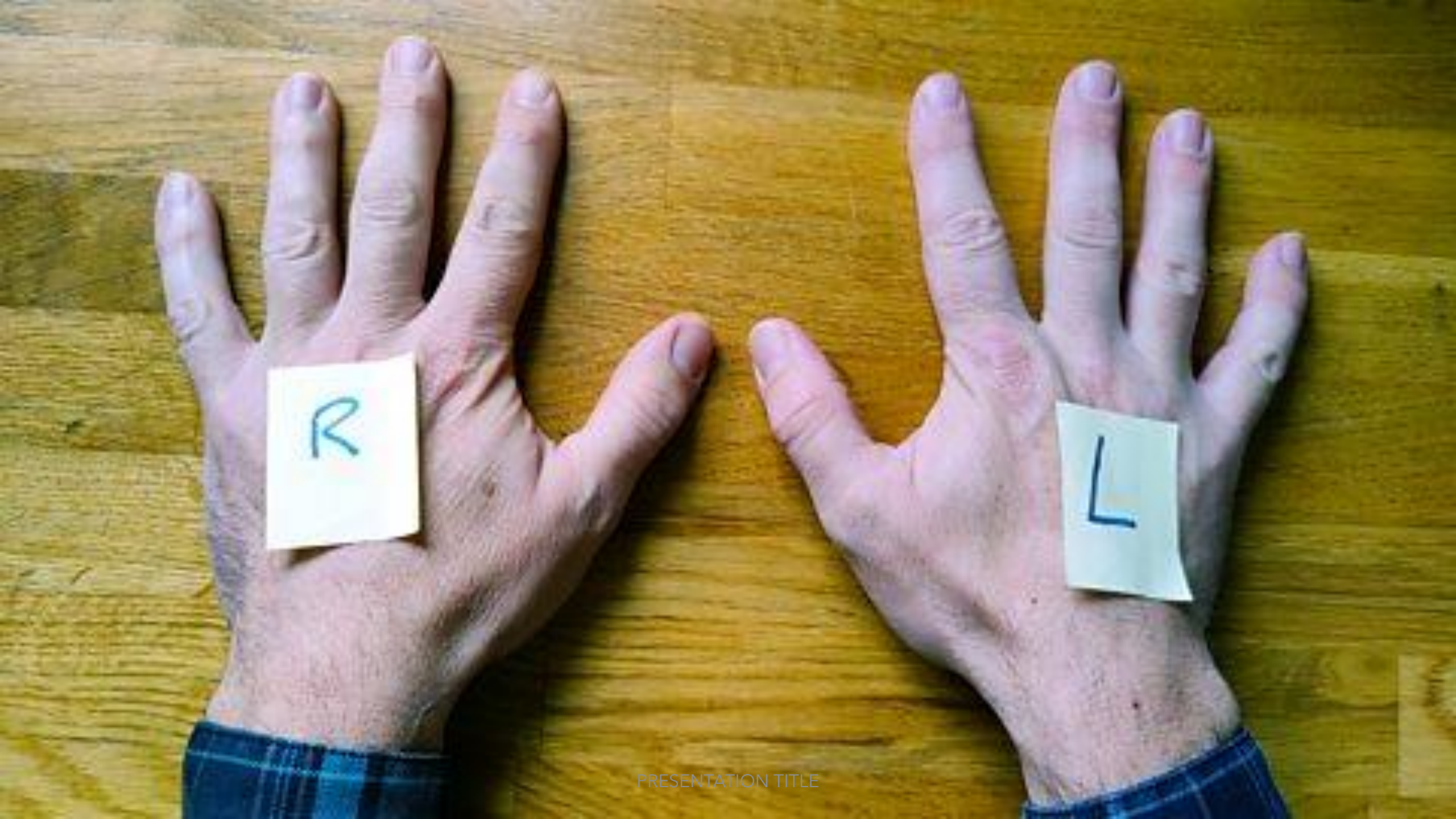
- Masked face
 - Decreased blinking
 - Increased blinking
- Decreased speech volume
 - Or change in speed
- Change in swallowing
- Drooling

Relative Vocal Loudness Level of an Individual with Parkinson Disease



As a result of Parkinson disease, you may need to use more vocal effort to have a voice within normal loudness limits.

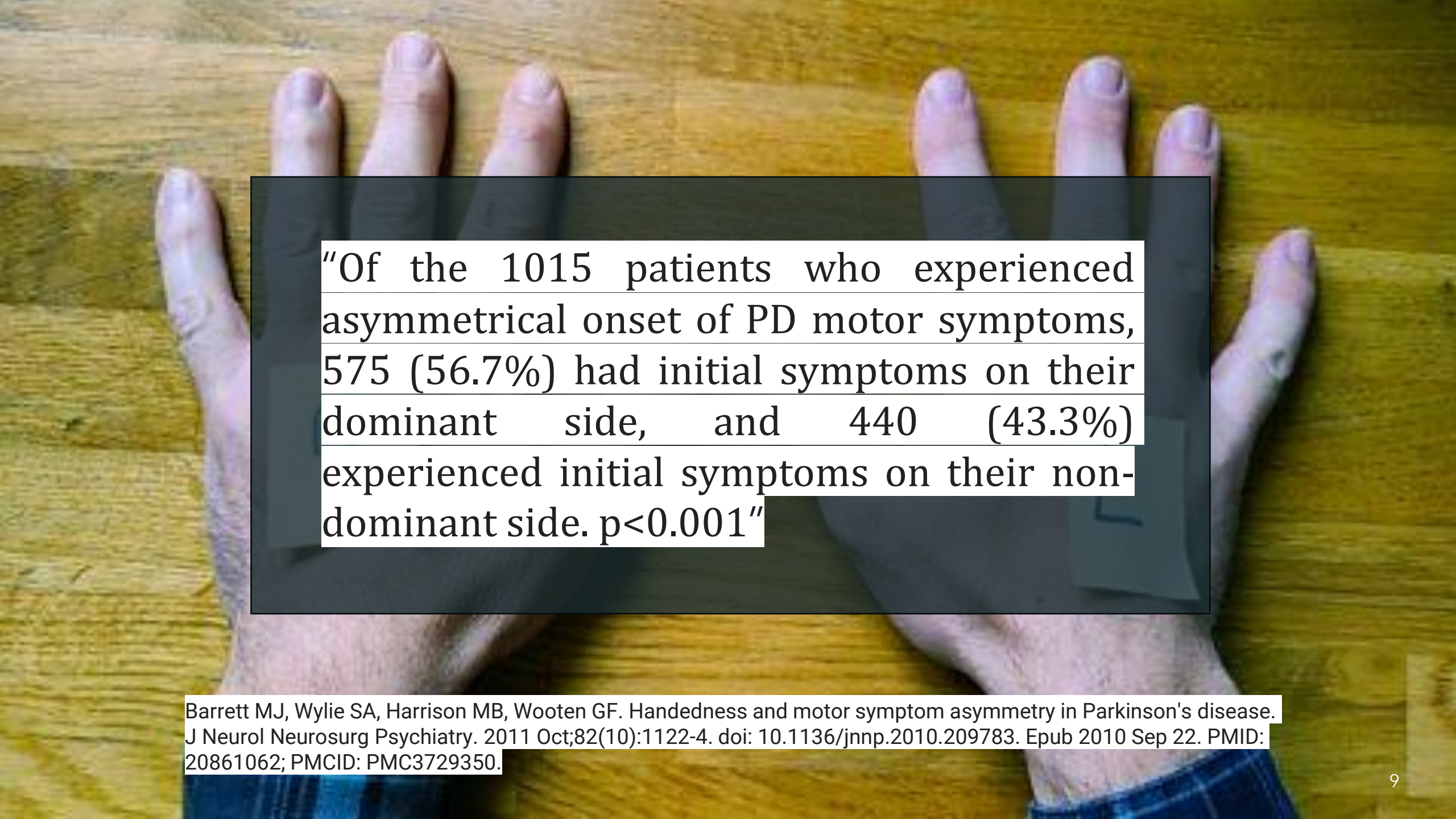
(Adapted from Carolyn Mead Bonitati, 1987)



An axial PET scan of a normal brain. The image shows a cross-section of the brain with a color scale from dark blue (low activity) to bright yellow (high activity). Two distinct, bright yellow-orange regions are visible in the cerebral cortex, one on each side of the midline, indicating symmetric uptake. The rest of the brain tissue shows low activity, appearing in shades of blue and green.

Symmetric

Normal Scan



"Of the 1015 patients who experienced asymmetrical onset of PD motor symptoms, 575 (56.7%) had initial symptoms on their dominant side, and 440 (43.3%) experienced initial symptoms on their non-dominant side. $p < 0.001$ "

Barrett MJ, Wylie SA, Harrison MB, Wooten GF. Handedness and motor symptom asymmetry in Parkinson's disease. *J Neurol Neurosurg Psychiatry*. 2011 Oct;82(10):1122-4. doi: 10.1136/jnnp.2010.209783. Epub 2010 Sep 22. PMID: 20861062; PMCID: PMC3729350.

A close-up photograph of a tree trunk showing concentric growth rings in shades of brown, tan, and blue. The rings are curved and create a sense of depth and texture.

Motor Symptoms: Upper Limb

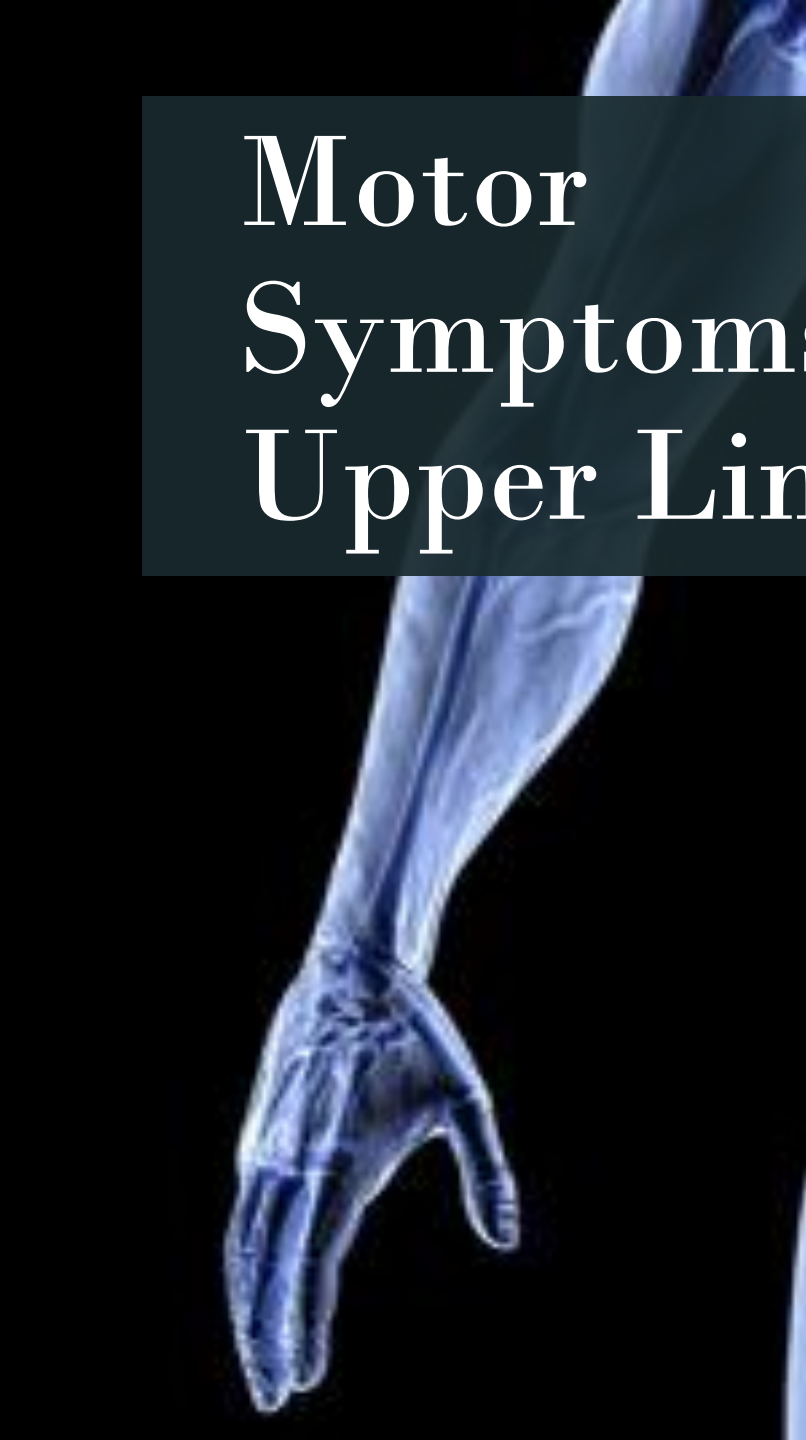
Rigidity & bradykinesia



In the beginning...

Stiffness & Slowness

- Difficulty whisking
- Difficulty 2-handed typing
- Asymmetric arm swing
- Sore / frozen shoulder
- Scuffing a foot



Motor Symptoms: Upper Limb

- Sore / frozen shoulder, arm
- Weak arm / hand
- Dystonia
- Handwriting
- Work activities
- Activities of daily living

**Motor
Symptoms:
Tremor**



Motor Symptoms: Lower Limbs

- Dexterity
- Tremor
 - Rest tremor in the foot
- Dystonia
 - Can be first symptom
 - Classic positioning



Motor Symptoms: Gait

- Standing from seated
- Scuffing / dragging a foot
- Difficulty on uneven ground
- Difficulty with turning
- Difficulty with tight spaces
- Freezing
- Balance





Head:

Masked Face

Speech

Swallowing

Drooling

Upper Limb:

Stiffness

Slowness / weakness

Dystonia

Handwriting

Tremor

Lower Limb:

Stiffness

Slowness / weakness

Dystonia

Tremor

Gait:

Standing

Scuffing / dragging

Speed

Turns

Freezing

Balance



Head:

Masked Face

Speech

Swallowing

Drooling

Upper Limb:

Stiffness

Slowness / weakness

Dystonia

Handwriting

Tremor

Lower Limb:

Stiffness

Slowness / weakness

Dystonia

Tremor

Gait:

Standing

Scuffing / dragging

Speed

Turns

Freezing

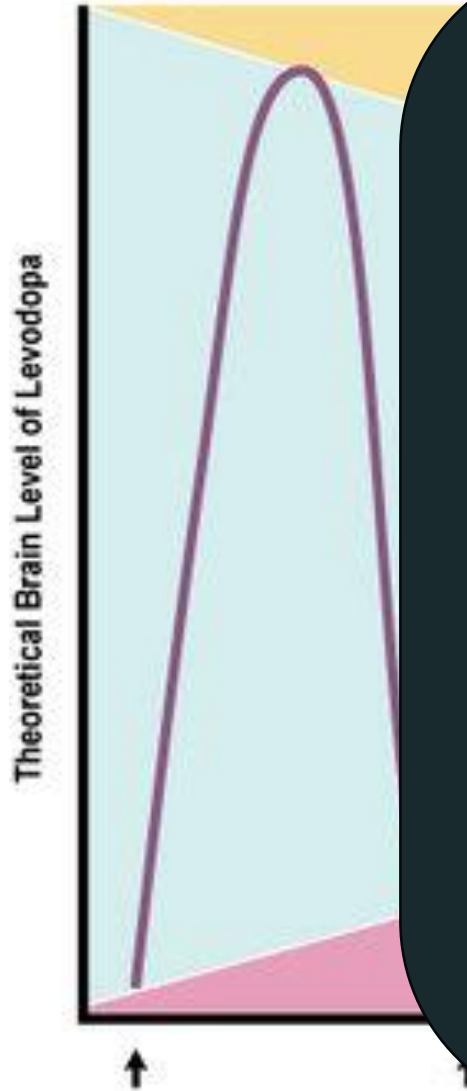
Balance



I've heard medication stops working in 5 years, so I want to save medication for later. (...?)



Brain changes over time



Levodopa Administration

What about symptoms that do not respond to dopaminergic medication?





Head:

Masked Face

Speech

Swallowing

Drooling

Upper Limb:

Dystonia

Handwriting

Tremor

Lower Limb:

Tremor

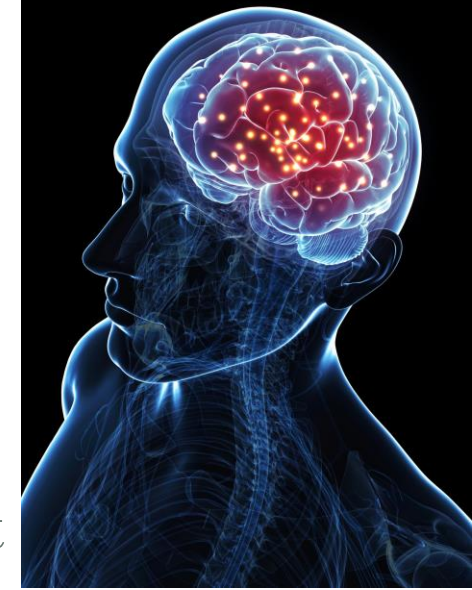
Gait:

Turns

Freezing

Balance

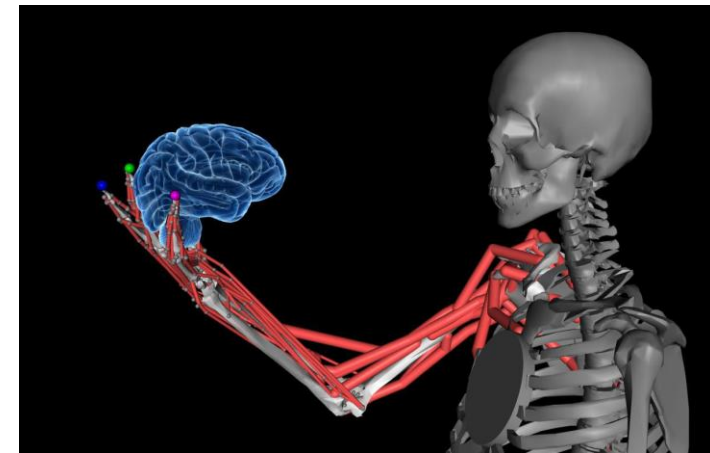
Motor Symptoms: Head



- Masked Face
- Speech
 - Speech therapy!
 - Parkinson's Voice Project
 - LVST
- Swallowing
 - Swallow assessment
 - Therapy
 - Change textures
 - Pills
- Drooling
 - Gum, candy, lozenge
 - Water bottle
 - Oral medications
 - Injections

Motor Symptoms: Upper Limb

- (dexterity, stiffness, slowness)
- Dystonia
 - Other oral medications
 - Injections
- Handwriting
- Tremor
 - Other oral medications
 - Deep brain stimulation
 - Focused ultrasound



Motor Symptoms: Lower Limb

- (dexterity, stiffness, slowness)
- **Dystonia**
 - Other oral medications
 - Injections
- **Tremor**
 - Other oral medications
 - Deep brain stimulation
 - Focused ultrasound



Motor Symptoms: Gait

- (standing, scuffing, dragging, speed)
- Turns
- Freezing
- Balance



Other Symptoms: Levodopa Responsive

Apathy

Fatigue

Depression

Sleep Disorders

Constipation

Anxiety

Light headedness

Cognitive changes

Bladder changes

Apathy

Pain

Postural

hypotension

Hallucinations

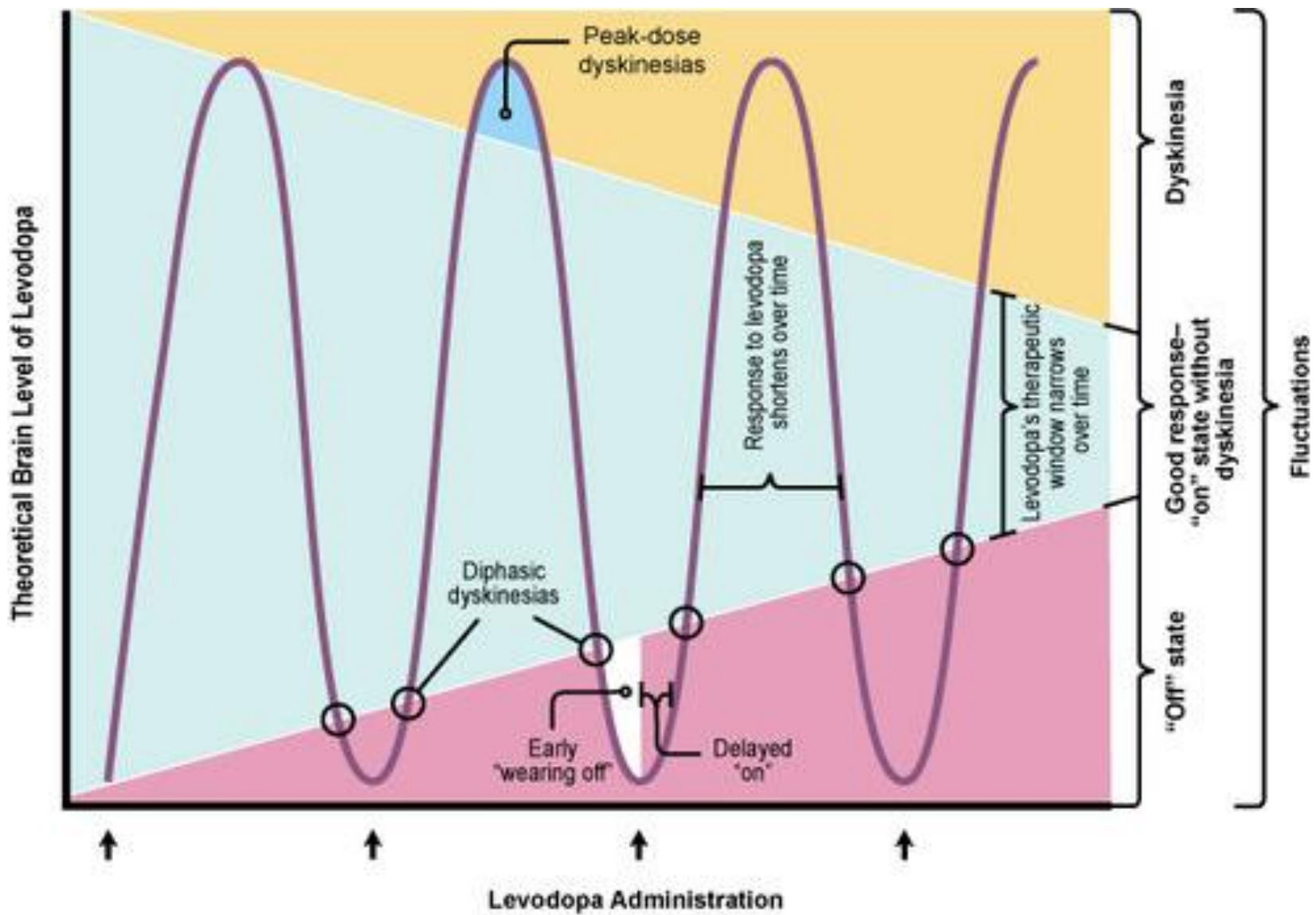
Other Symptoms: Parkinson's?

- Pain in shoulder?
- Pain in limb?
- Pain in low back?



Other Symptoms: Motor Fluctuations

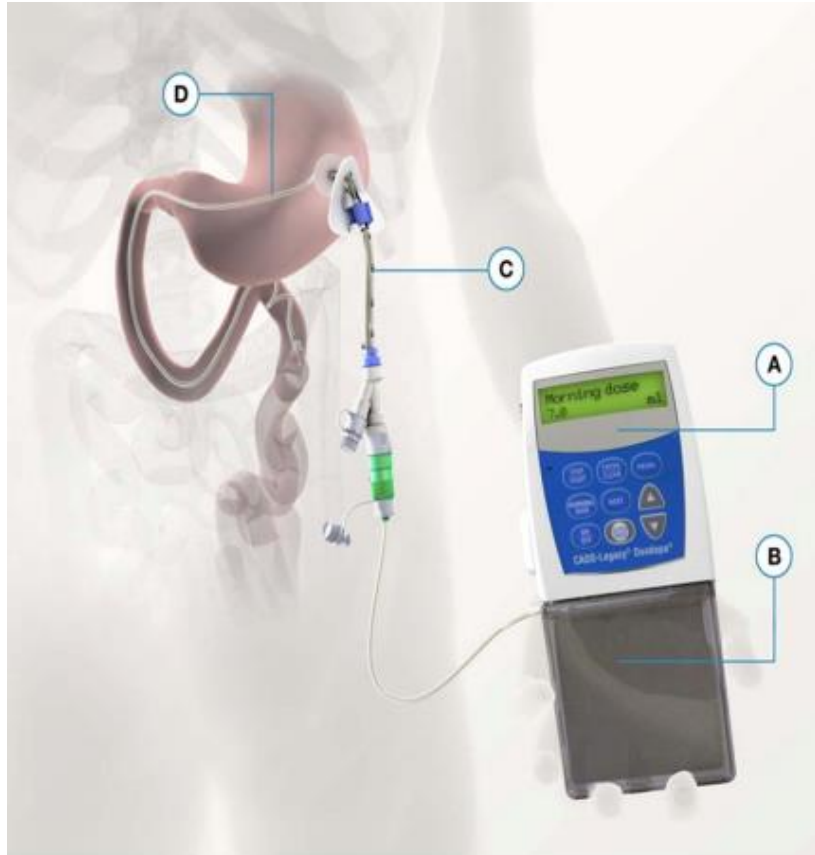
- Kicking in
- Wearing off
- Dyskinesias



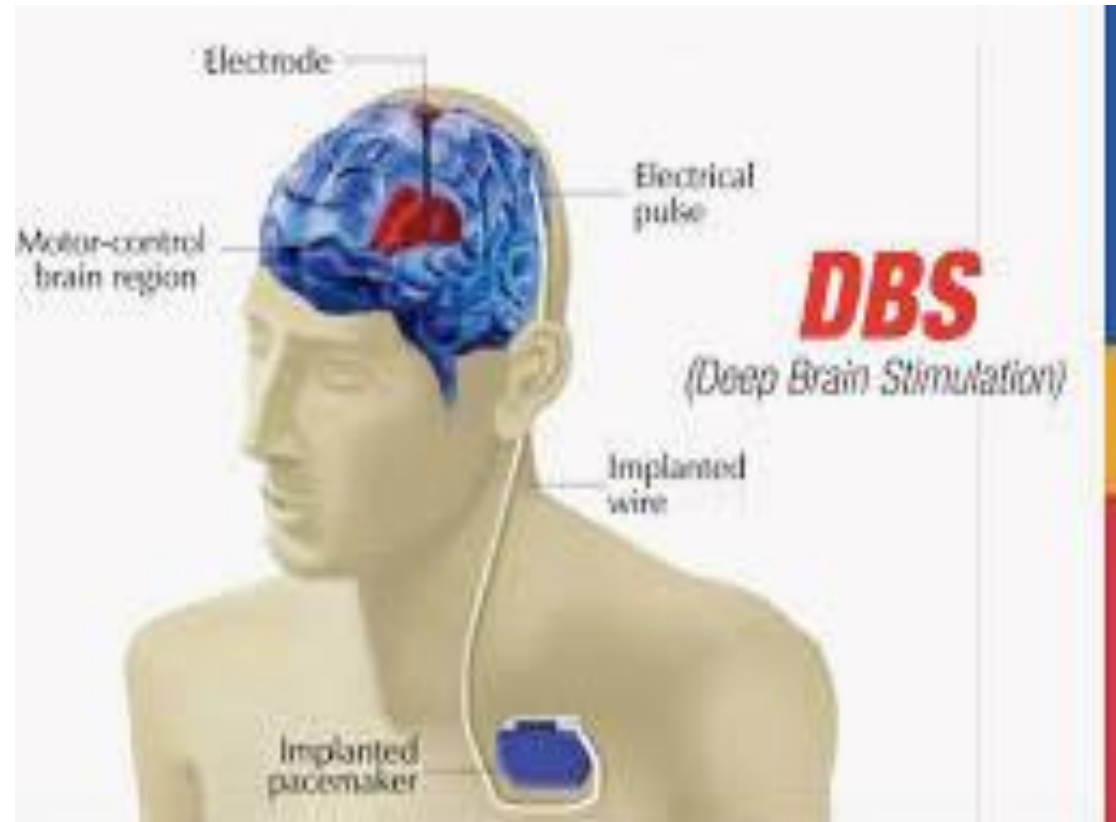
Motor Fluctuation: Treatments

- Planning around dose timing
- Taking medication doses closer together
- Adding additional medications
- Advanced therapies

Advanced Therapies



Advanced Therapies



Take Home Points



Pay attention to timing of symptoms



Prioritize your most bothersome symptoms



Work with your allied health team



Not all symptoms are PD!



Thank you

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