

Parkinson's Disease

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EMORY
UNIVERSITY



UCSF Health

SOUTH VALLEY
NEUROLOGY

A Multispecialty Neurology Practice

Why Neurology?

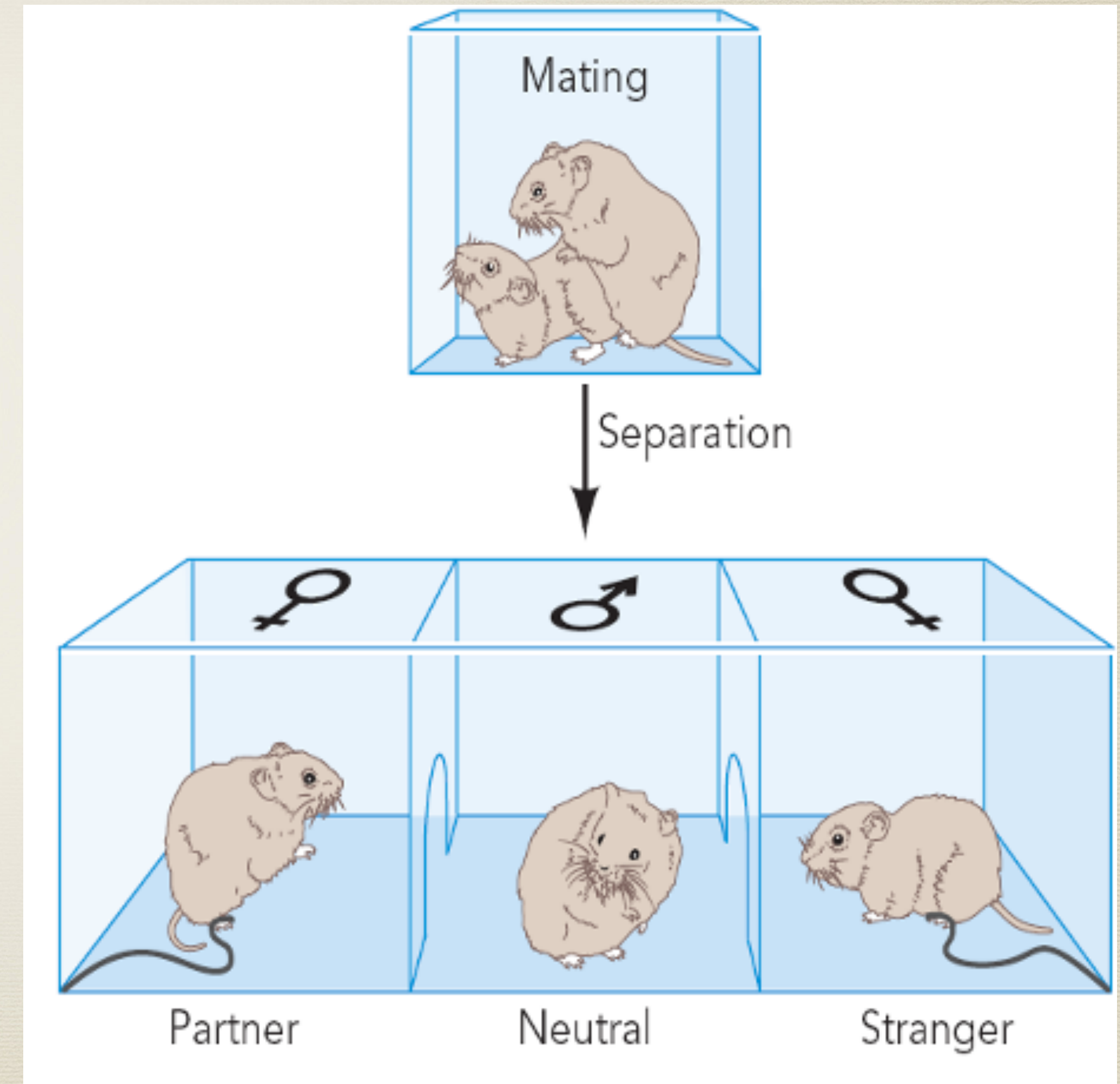
- * Summer neuroscience course
- * Mother had a stroke secondary to cancer
- * Found a local college with a neuroscience major
- * Researched in a lab investigating vole rodent monogamous attachment

Research



EMORY

YERKES
NATIONAL
PRIMATE
RESEARCH
CENTER



Why Movement Disorders?

- * Opera singer who developed voice tremor
- * Model train lover who developed hand tremor
- * Excellent mentors
- * Adoptive mother diagnosed with genetic form of Parkinson's Disease (GBA)

Raise your hands if you...

- * Have seen a neurologist about Parkinson's for yourself
- * Have seen a neurologist for a loved one
- * Have seen a neurologist only once regarding Parkinson's
- * Have seen a neurologist less than 1 year regarding Parkinson's
- * Have seen a neurologist about Parkinson's for more than 8 years (2014)
- * Have seen a movement disorders specialist
- * Have seen me in clinic

Objectives

- * Epidemiology
- * Symptoms of Parkinson's Disease (PD)
- * Progression
- * Management
- * Important Lessons

Epidemiology

- * Nearly one million people in the U.S. are living with Parkinson's disease (PD).
- * Expected to rise to 1.2 million by 2030.
- * PD is the second-most common neurodegenerative disease after Alzheimer's disease.
- * More than 10 million people worldwide are living with PD.
- * The incidence of PD increases with age, but an estimated four percent of people with PD are diagnosed before age 50.
- * Men are 1.5 times more likely to have PD than women.

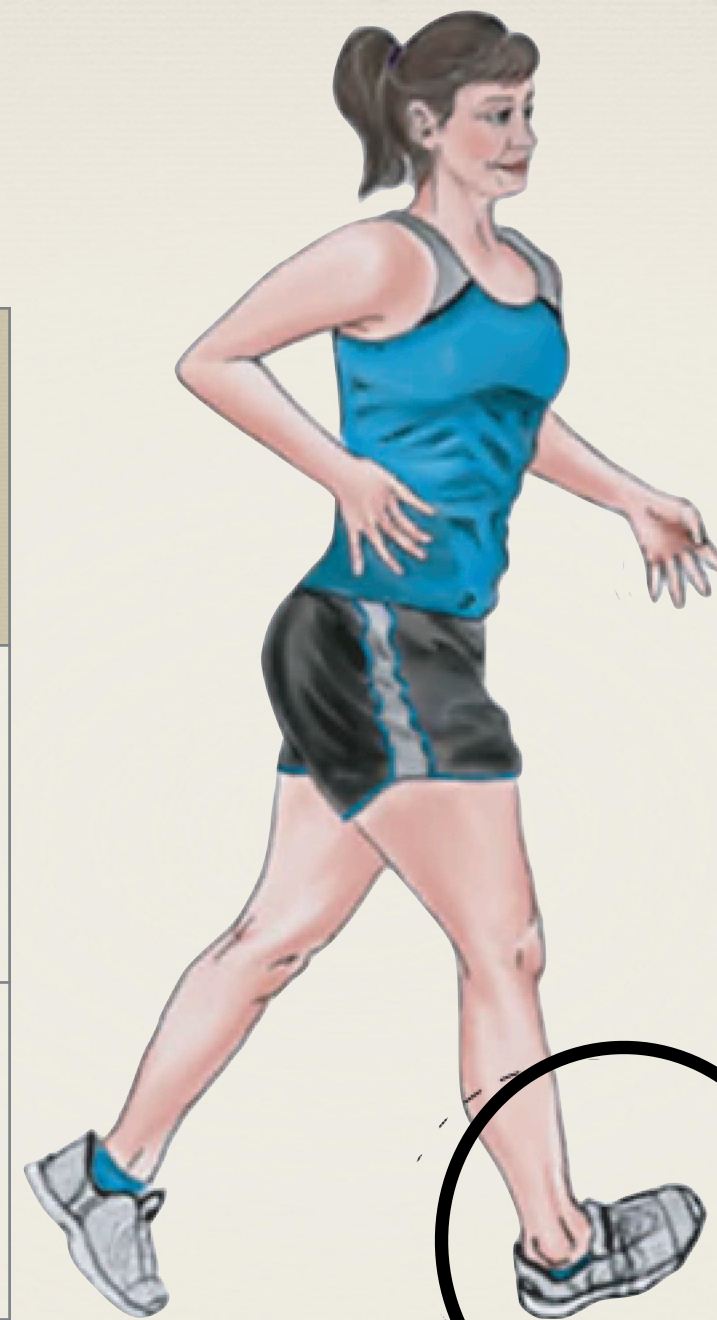
Risk Factors

Anosmia	Male
REM Behavior Disorder	Head trauma
Constipation	Exposure to pesticides
Age	Agent Orange & Camp Lejeune

Symptoms

Motor Symptoms

MOTOR
REST TREMOR
BRADYKINESIA
↑ MUSCLE TONE
POSTURAL INSTABILITY



On time

Off time



JAMA

Subtypes

* Tremor-dominant

* Shuffling-dominant

Postural Instability and Gait Disorder

Nonmotor Symptoms

NONMOTOR	
SLEEP	LOSS OF SMELL
URINARY URGENCY	DROOLING
CONSTIPATION	ANXIETY / DEPRESSION
PAIN, MELANOMA	HALLUCINATIONS

Dealing with nonmotor symptoms

Important to Remember

- * Not everyone gets every symptoms
- * No one's timeline for progression is the same as someone else's
- * Not everyone "follows the textbook"

Rapid Eye Movement (REM) sleep behavior disorder

- * Vocal and motor behaviors during dreaming
- * Yelling, Kicking, Screaming, or Punching

<https://www.youtube.com/watch?v=oXhcsZKa3jo>

Insomnia

- * Most common sleep disorder for patients with PD
- * Sleep fragmentation
- * Early morning awakenings

Insomnia Interventions

- * Increased activity during the day
- * Restriction of daytime napping
- * Adequate sunlight exposure or 10,000 lux
- * Sleep Hygiene
- * Cognitive Behavioral Therapy for Insomnia (CBT-I)
- * Medications

Restless Leg Syndrome

- * Affects 20% of patients with PD
- * Risk factors: depression, iron deficiency, more severe Parkinson's
- * There is no evidence that RLS progresses to Parkinson's Disease

RLS Treatments

- * Treat Iron deficiency (Ferritin goal > 75)
- * Avoid medications that can worsen it
- * Medications

Excessive Daytime Sleepiness

- * Affects 50% of patients with PD
- * Risk factors:
 - * Male gender
 - * Duration and severity of PD
 - * Cumulative dose of dopaminergic medications.
 - * Sleep Apnea

Sleep Disordered Breathing

Obesity
Hypertension
Middle Age

Parkinson's
Stroke
Heart Failure

Sleep Apnea Treatments

- * CPAP / BIPAP
- * Mandibular Advancement Device
- * Weight Loss

Lightheadedness

- * Orthostatic hypotension (OH) is a sustained drop in BP after postural change
- * Supine HTN as a systolic BP >150mm Hg while lying down
- * Medications

Impulse Control Disorder

- * Pathological gambling
- * Compulsive shopping
- * Hypersexuality
- * Binge eating
- * Can be medication-induced

Hallucinations and Psychosis

- * Seeing shadows
- * Feeling like someone is present
- * Mistaking an object like a mail box with a little girl
- * Hallucinations that talk to you or that scare you
- * Thinking someone is stealing from you
- * Treatment: Rule out infection if it's sudden onset, reduce levodopa, antipsychotics

Progression

Stages of PD

Stage 1

Unilateral involvement only

Stage 1.5

Unilateral and axial involvement

Stage 2

Bilateral symptoms
No impairment of balance

Stage 2.5

Mild bilateral disease with recovery on pull test

Stage 3

Mild to moderate disease
Physically independent

Stage 4

Severe disability, still able to walk or stand unassisted

Stage 5

Wheelchair-bound or bedridden unless assisted

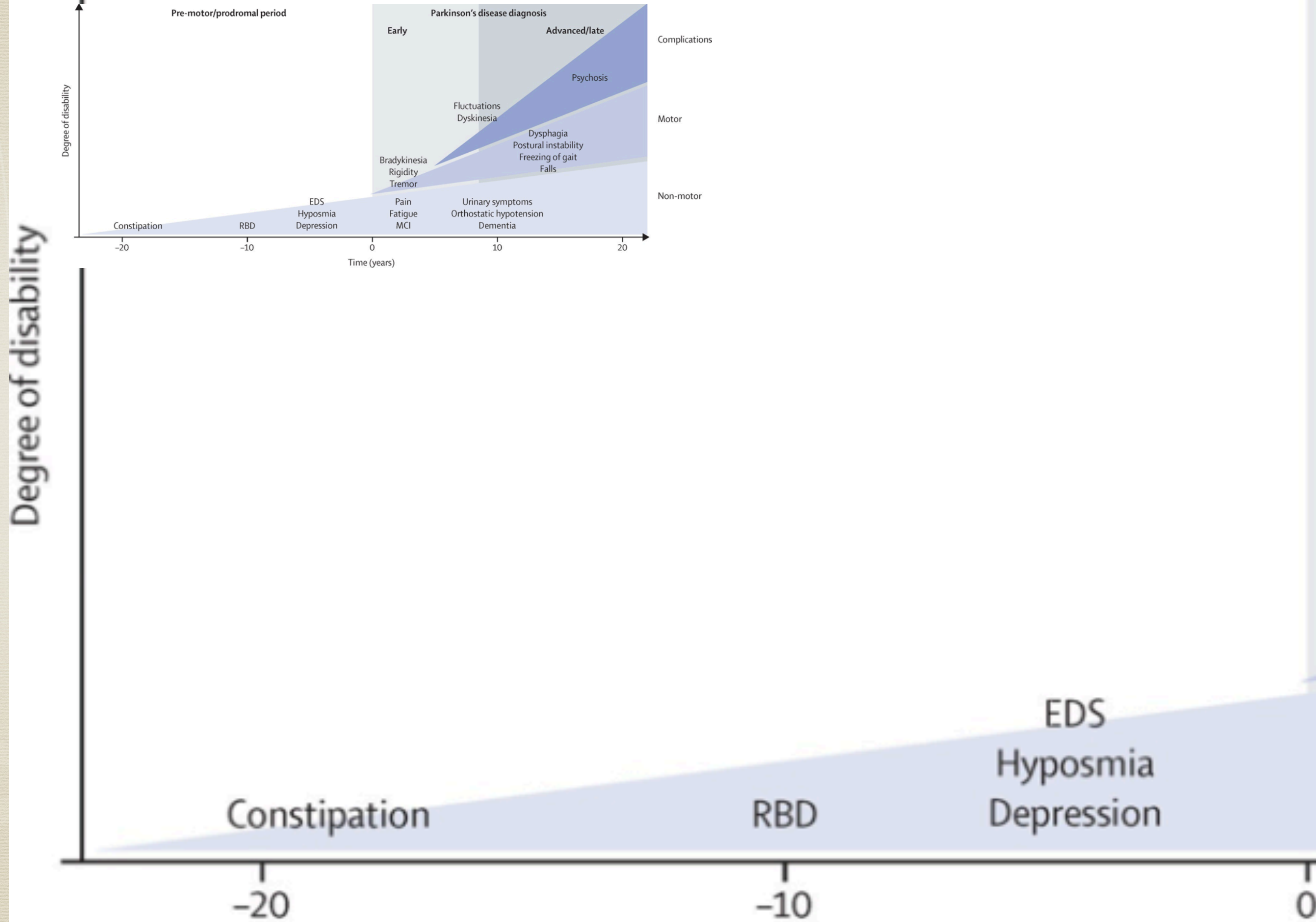


Progression

A 2010 study of 695 (predominantly Chinese) patients (mean age: 65.2, male: 57.3%) found the median time taken to transit H&Y

Stage	1	2	2.5	3	4	5
Median time to transit (months)	-	20	62	25	24	26

Pre-motor/prodromal period



Parkinson's disease diagnosis

Early

Advanced/late

Complications

Psychosis

Fluctuations
Dyskinesia

Motor

Dysphagia
Postural instability
Freezing of gait
Falls

Bradykinesia
Rigidity
Tremor

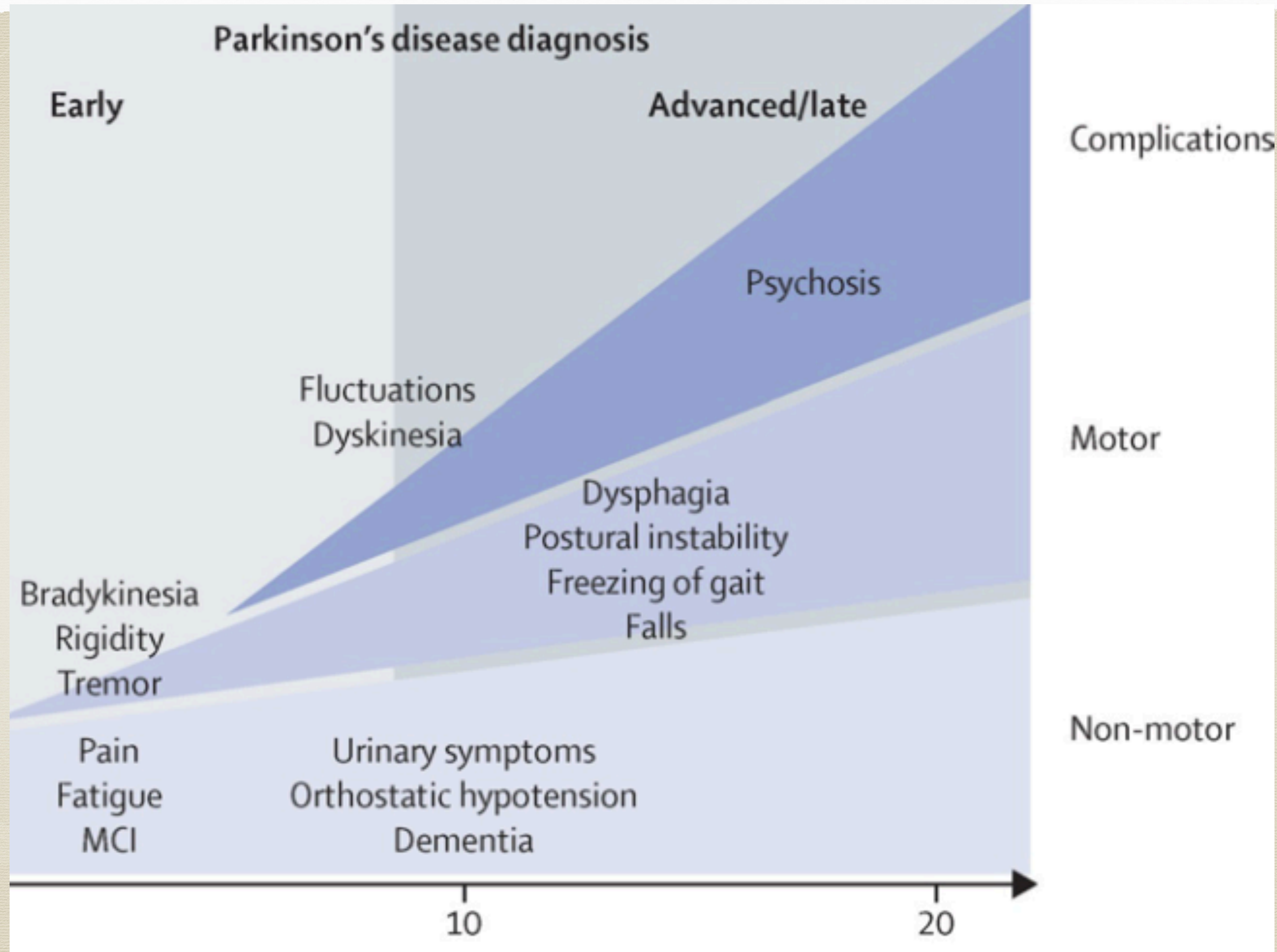
Non-motor

Pain
Fatigue
MCI

Urinary symptoms
Orthostatic hypotension
Dementia

10

20



What can you do about it?

- * Exercise
- * Aerobic
- * Strength
- * Balance
- * Flexibility
- * Mediterranean Diet



Benefits of Exercise

Physiotherapy Versus Placebo or no intervention in Parkinson's disease

- * 33 trials with 1518 patients with improvement in:
 - * Gait velocity (mean difference 0.05 m/s) **10 feet / min**
 - * Step length (0.03 m, CI: 0 to 0.06, P = 0.04)
 - * Functional mobility and balance (Timed Up & Go test) (-0.61 s, CI: -1.06 to -0.17, P = 0.006)
 - * Unified Parkinson's Disease Rating Scale (UPDRS) (total: -4.46 points, CI -7.16 to -1.75, P = 0.001)
- * There was no difference between the groups in falls or patient-rated quality of life.

Clinical Trials

- * Those not on medications
- * Those who started medications
- * [CLINICALTRIALS.GOV](https://www.clinicaltrials.gov)
- * Stanford and UCSF

EARLIER DIAGNOSIS

OBSERVATIONAL

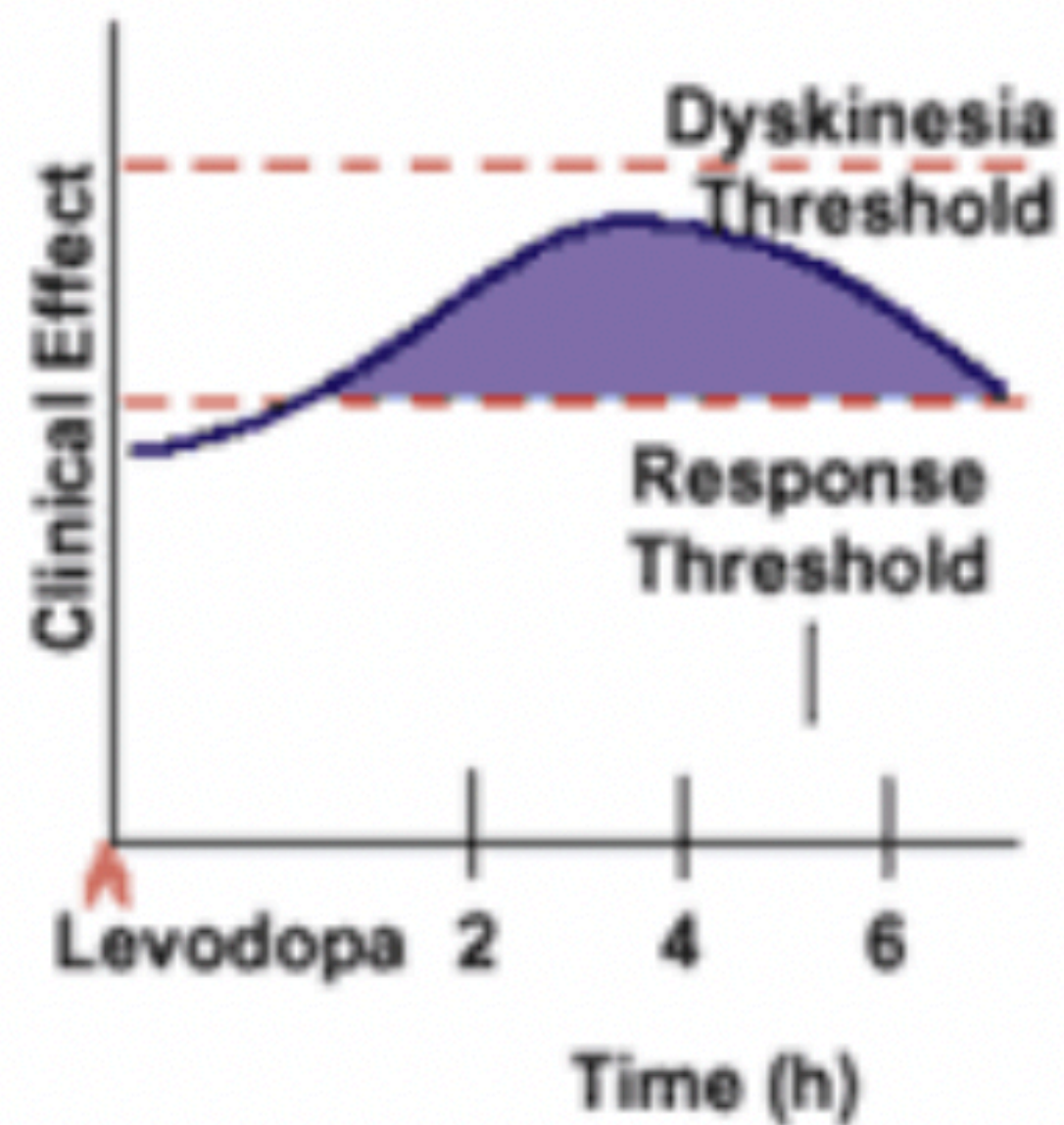
PREVENTION

TREATMENT

Carbidopa-Levodopa

1910	1938	1960	1967	1969	1975
Vicia faba Seedlings isolated levodopa	Dopa decarboxylase was discovered, the enzyme that produces dopamine from levodopa	Dopamine low in Parkinson's patient's brain	Levodopa used alone at high doses with side effects	Carbidopa and levodopa administered in a clinical trial together	Sinemet & Madopar available

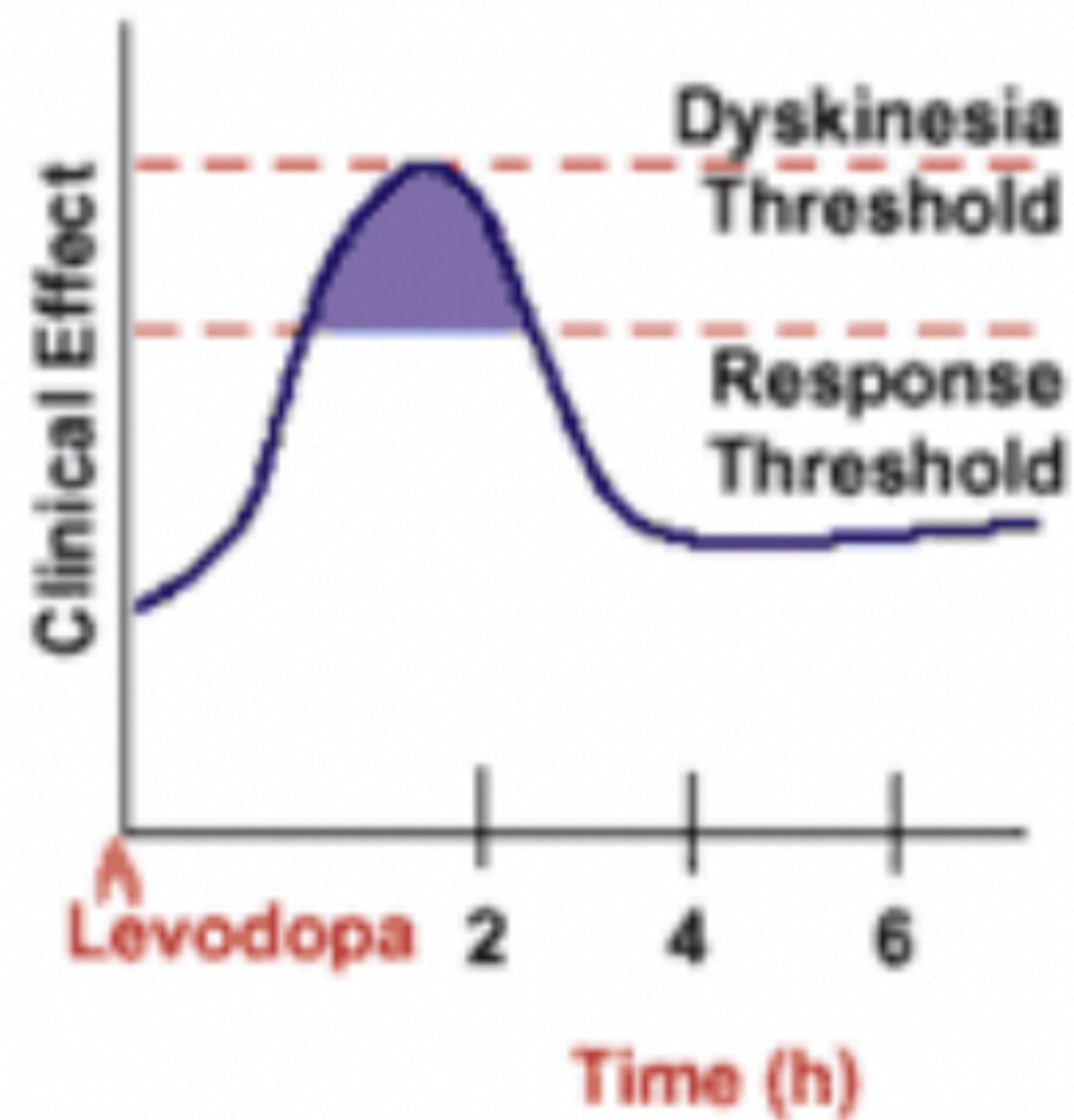
Early PD



Long duration
motor response

Low incidence
of dyskinesia

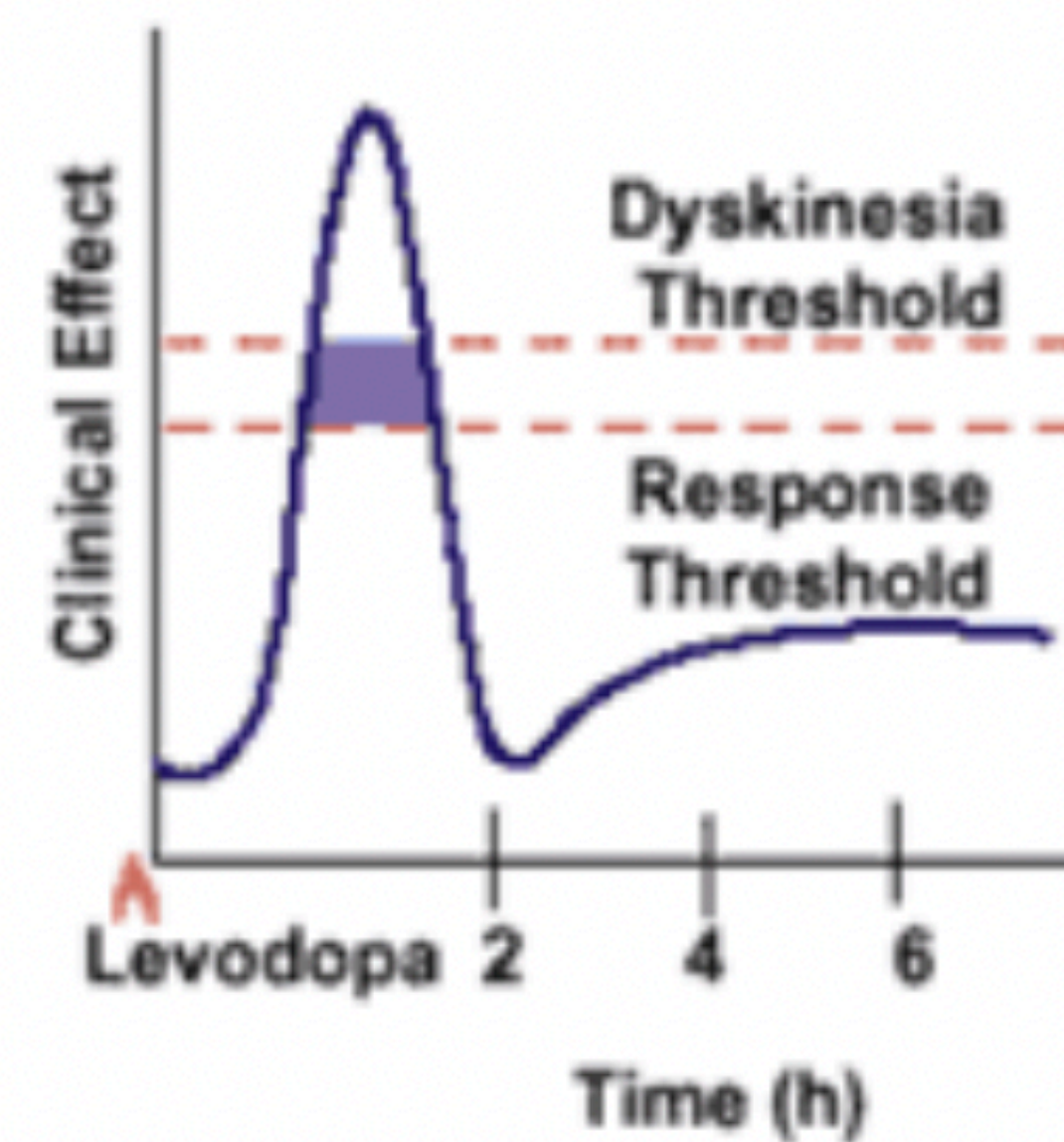
Moderate PD



Shorter duration
motor response

Increased incidence
of dyskinesia

Advanced PD

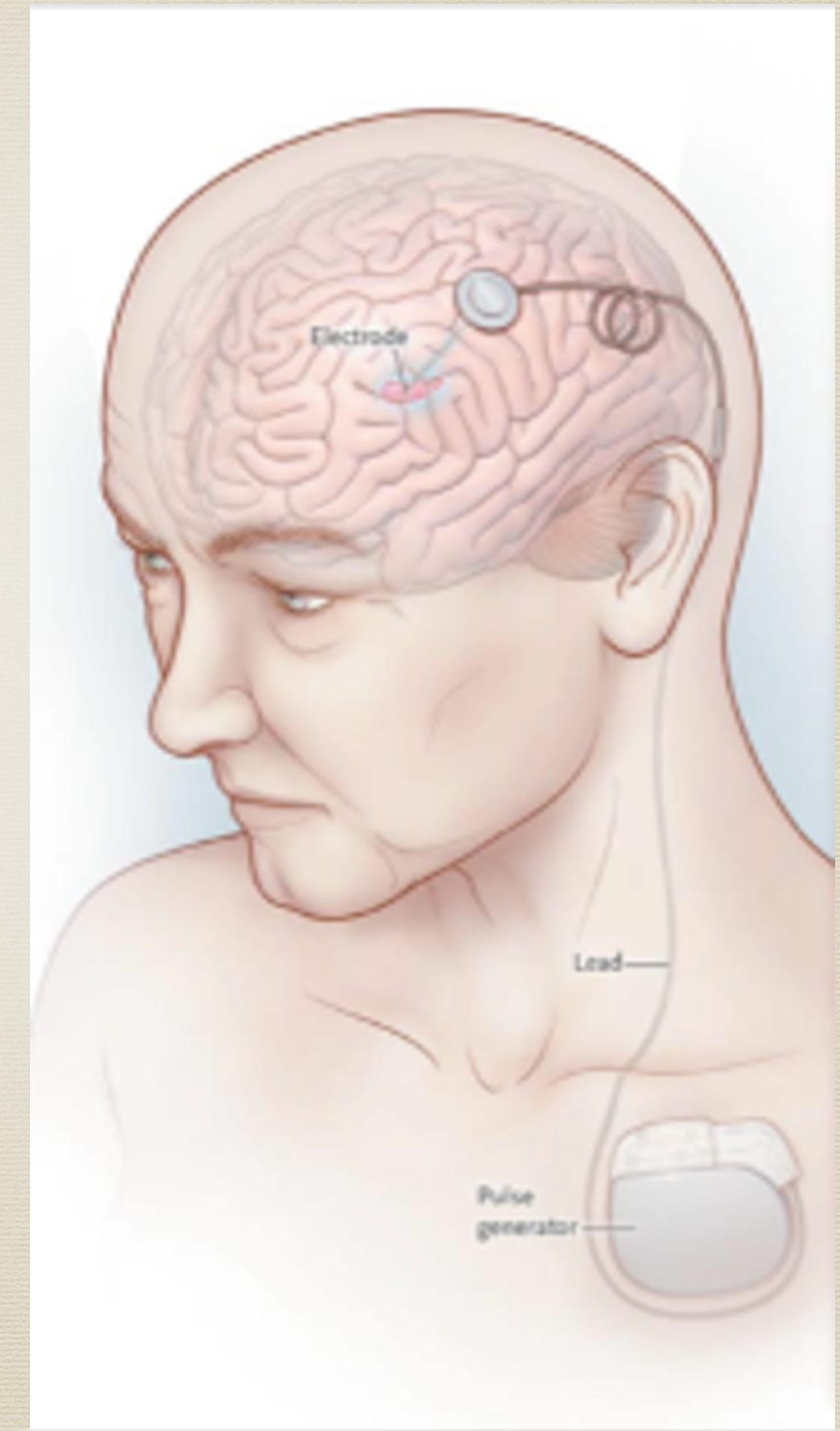


Short duration
motor response

'On'-time consistently
associated with
dyskinesia

Deep Brain Stimulation

- * A small pacemaker-like device, implanted under the skin
- * Sends electrical signals through the lead(s) to an area in the brain
- * These signals block some of the brain messages that cause the movement symptoms of Parkinson's or Essential tremor.
- * DBS is being utilized clinically and in research for other uses as well such as depression, Tourette's, and Obsessive Compulsive Disorder



Lessons Learned

Pearls

- * Are my relatives at higher risk for Parkinson's?
 - * Free genetic testing with the Parkinson's Foundation
- * Parkinson's progresses slowly
 - * If you're suddenly worse, think infection such as urinary tract infection
- * You might not look like Michael J Fox
 - * He never had Deep Brain Stimulation Surgery

Pearls

- * The day you get diagnosed with Parkinson's isn't the day you're going to go to a nursing home.
- * You can still be gainfully employed.
- * You have rights against discrimination in the work place
- * How to decide when to stop driving
 - * Approximately 1 year after it is noticed you're drifting in lanes
- * Parkinson's does not get suddenly worse. Think of an infection.

Questions?

References

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