

TIMELINE OF PARKINSON'S DISEASE DISCOVERIES

MID 1800S

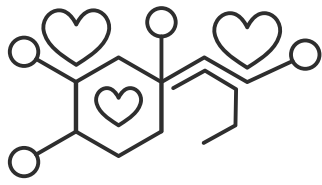
Jean-Martin Charcot refined the idea of Parkinson's disease by building on the description of it and he identified bradykinesia as a primary symptom.

He also spread information about the disease internationally by separating it from multiple sclerosis and other tremor-based diseases.

1910

Dopamine was first synthesized by Barger and Ewens.

It was also found that levodopa was a precursor of dopamine.

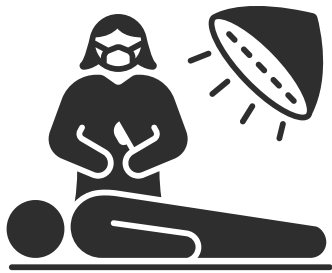


1953

Cooper accidentally cut the anterior choroidal artery of a Parkinson's patient but joined it to prevent a hematoma.

This led to high relief of tremors and rigidity on the contralateral side.

Resulting in the widespread use of this surgery though prompted a mortality rate of around 10%.



1968

10 synthetic anticholinergic agents were recommended as treatments for Parkinson's Disease but some were unjustified.

Emphasis was placed on physical therapy and the management of symptoms.



1817

James Parkinson, an English physician, described Parkinson's disease as "shaking palsy" and wrote "Essay on the Shaking Palsy"

<https://gutenberg.org/files/23777/23777-h/23777-h.htm>



1883

A Russian treatment was used where the patient's weight and gravity added excess vertical traction on the spine and nerves in mid-air with a pulley and harness.

Rigidity and sensory symptoms improved but not tremors. However, this was discontinued due to the stress and side effects.

1950

2 key discoveries were made:

1. Dopamine was localized in the brain's striatum

2. The reserpine-model was developed as the first model of Parkinsonism which was then reversed by levodopa treatment

1967

Hoehn and Yahr created a staging system that was internationally used to state the progression of PD

"Stage 1.0: Unilateral involvement only.

Stage 1.5: Unilateral and axial involvement.

Stage 2.0: Bilateral involvement without impairment of balance.

Stage 2.5: Mild bilateral involvement with recovery on retropulsion (pull) test.

Stage 3.0: Mild to moderate bilateral involvement, some postural instability but physically independent.

Stage 4.0: Severe disability, still able to walk and stand unassisted.

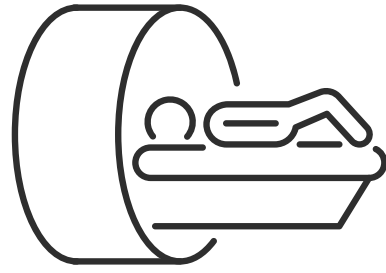
Stage 5.0: Wheelchair-bound or bedridden unless aided."

PSSO RESEARCH INITIATIVES AND FUTURE RESEARCH

2017

\$87,000 was awarded for

- research on communication devices, the therapeutic effect of Spinal Cord Stimulation (CSC) on gait cognitive impairments, and non-motor symptoms of PD
- Continued research at Movement Disorders Research & Rehabilitation Center at Wilfrid Laurier University.



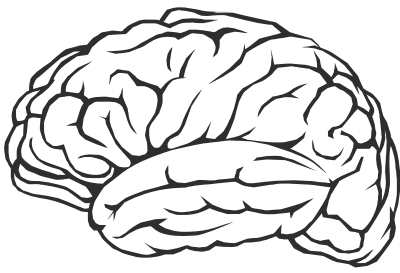
2018

\$129,000 awarded for

- developing brain banks
- research on changes in the brain's preclinical biomarkers using magnetic resonance imaging (MRI)
- research on hypophonia (quiet speech), alpha-synuclein, and informal caregivers

2019

\$37,000 awarded for brain banks



2019

\$57,027 was awarded for research on

- Parkinson disease's pathology moving from diseased to healthy cells
- cognitive and sensory impairment using exercise
- rapid eye movement sleep behaviour disorder (RBD)
- Sparx III trial

2021

\$75,000 was awarded for

- research on conversations between patients and caregivers, the relation between exciting molecules and Parkinson's disease
- research at London Movement Disorder Center at Western University

2022

\$175,000 awarded for research on

- AMPK-USP8
- diagnostic MRI biomarkers
- predictive phenotyping of Alzheimer's and Parkinson's disease using multifactor biomarker and neuroimaging data
- temporal interference stimulation
- Pimavanserin drug
- mobile brain imaging and mobility
- deep brain stimulation (DBS) targeting anatomical landmarks
- and machine learning



FUTURE RESEARCH

Research is being done on neural transplantations to repair the neurons lost due to Parkinson's disease. The neurons will then grow and divide.

- Results of neural transplantation have shown that some patients improved while others developed further difficulties.

Since Parkinson's disease has genetic factors

- Gene therapy has the potential to cure Parkinson's disease, slow the disease's progression, and reverse the damage it causes.

New biomarkers show different shapes in spinal fluid in those diagnosed and not diagnosed with Parkinson's disease.

- This can improve the sensitivity of diagnosis, distinguishing between Parkinson's disease and other neurodegenerative diseases.

FUTURE RESEARCH

Research is being conducted on how to destroy Leucine Repeat Kinase 2 (LRRK2), a protein that helps in the development of Parkinson's disease. A therapy using XL01126 is being developed to aid in degrading LRRK2.

1. [https://www.ncbi.nlm.nih.gov/books/NBK379751/#:~:text=Stage%201.0%3A%20Unilateral%20involvement%20only,on%20retropulsion%20\(pull\)%20test.](https://www.ncbi.nlm.nih.gov/books/NBK379751/#:~:text=Stage%201.0%3A%20Unilateral%20involvement%20only,on%20retropulsion%20(pull)%20test.)
2. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3234454/>
3. <https://pssso.ca/research/>
4. <https://www.healthline.com/health/parkinsons/future-treatments#Deep-Brain-Stimulation>
5. <https://www.sciencedaily.com/releases/2022/11/22/11221128101246.htm>
6. <https://www.dundee.ac.uk/stories/research-breakthrough-parkinsons-disease>