



# Parkinson's Disease

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## Why in News?

Scientists have found a new **genetic variant** associated with [Parkinson's disease](#), offering insights into the evolutionary roots of various familial forms of parkinsonism and paving the way for improved understanding and treatment of the condition.

## What is Parkinson's Disease?

- **About:** Parkinson's disease is a **progressive neurodegenerative disorder** that impairs movement and can lead to immobility and dementia over time.
  - The disease usually **occurs in older people**, but younger people can also be affected. Men are affected more often than women.
  - The prevalence of PD has doubled in the past 25 years. India shares around **10%** of the global burden of Parkinson's disease.
- **Causes:** The exact cause of Parkinson's disease is not fully known yet, but it is believed to involve a **combination of genetic and environmental factors**.
  - It is primarily characterized by the loss of dopamine-producing neurons in the brain, leading to motor and non-motor symptoms.
- **Symptoms:** Motor symptoms include **slow movement, tremors, rigidity**, and walking difficulties.
  - Non-motor symptoms include cognitive issues, mental health disorders, sleep disturbances, pain, and sensory problems.
- **Treatment:** There is no cure for Parkinson disease, but therapies including medicines, surgery and rehabilitation can reduce symptoms.
  - **Levodopa/carbidopa**, a combination medicine that increases the amount of dopamine in the brain, is the most common medication.
- **World Parkinson's Day:** Every year, **11<sup>th</sup> April** is observed as World Parkinson's Day.
  - The day aims to amplify awareness and understanding about Parkinson's disease internationally.

## What are the Current Major Advancements in Understanding Parkinson's Disease?

- Geneticists and neuroscientists are exploring genetic variations to understand Parkinson's better. Two primary approaches are used: linkage analysis and genome-wide association studies (GWAS).
  - **Linkage Analysis:** Focuses on rare families with **inherited parkinsonism**, identifying gene mutations associated with the disease.
    - Recent research identified a new genetic variant called **RAB32 Ser71Arg** linked to Parkinson's in multiple families globally.
  - **Genome-wide Association Studies (GWAS):** Under this genetic data from Parkinson's patients and healthy individuals were compared, identifying over 92 genomic locations and 350 genes potentially related to Parkinson's risk.

## What are the Other Key Neurological Diseases?

- [Alzheimer's disease](#)
- [Multiple sclerosis \(MS\)](#)
- [Huntington's disease](#)
- [Cerebral palsy](#)
- [Guillain-Barre syndrome](#)

### UPSC Civil Services Examination Previous Year Question

#### Q. Consider the following statements:

1. Genetic changes can be introduced in the cells that produce eggs or sperms of a prospective parent.
2. A person's genome can be edited before birth at the early embryonic stage.
3. Human induced pluripotent stem cells can be injected into the embryo of a pig.

#### Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 2 only
- (d) 1, 2 and 3

**Ans: (d)**

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