

Parkinson's treatment could be more effective, student finds

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A Binghamton University senior and her colleagues recently uncovered evidence that the current treatment for Parkinson's disease may not be as effective as it could be.

Lakshmi Hareendran was part of a research team investigating drug treatment for Parkinson's, a neurodegenerative disorder caused by a loss of the [brain](#) chemical dopamine.

The dopamine circuit involved in motor movements consists of two receptors in the brain, the D1 and the D2 receptors. The current treatment for Parkinson's is the drug L-DOPA, which acts on both of these receptors to release and replenish dopamine in the brain.

Hareendran and her colleagues in the Freshman Research Immersion program (FRI) at Binghamton provided evidence that stimulating the D2 receptor produces cognitive deficits, illustrating that L-DOPA may not be the best treatment for Parkinson's.

The researchers treated rodents with L-DOPA and drugs that target either the D1 or the D2 receptors and then observed the effects on their ability to complete a behavioral task.

Stimulating the D2 receptor caused attention deficits on the behavioral tasks in both Parkinson's and control models. Stimulating the D1 receptor produced no such effects.

"Parkinson's disease is one of the most common neurodegenerative diseases in the world," Hareendran says. "Knowing that the current treatment isn't as effective as it could be is important."

Hareendran, 21, has wanted to be a doctor since she was growing up on Long Island, influenced by several doctors in her family. Even then, she was interested in neuroscience.

"I had an uncle who was a brain surgeon," Hareendran says. "As a kid, just thinking about him being able to understand something as complex as the human brain really inspired me to go down that path."

Hareendran wants to work with Doctors Without Borders someday. An experience with MEDLIFE, an organization that provides medical care to impoverished areas, helped to solidify her goal. Hareendran traveled with the group to Peru and Ecuador to help set up medical clinics.

"My parents are refugees from Sri Lanka," Hareendran says. "There was a genocide happening there for a while, so specifically with Doctors Without Borders I want to go and give back there."

Hareendran is also president of the Indian International Student Union and was a peer mentor for FRI after she finished the program.

Corinne Kiessling, research educator for the FRI neuroscience stream, emphasized Hareendran's dedication.

"She was one of those students that puts extra hours in, came in early, stayed late," Kiessling says. "As a peer mentor, she was very open and receptive, and she challenged students to find answers. She's a natural leader."

More information: [urjp.psych.ucla.edu/wp-content ... reads-with-](http://urjp.psych.ucla.edu/wp-content...reads-with-)

[Cover.pdf](#)

Provided by Binghamton University

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