

Ulcer bacteria may contribute to development of Parkinson's disease

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The stomach bacteria responsible for ulcers could also play a role in the development of Parkinson's disease according to research presented today at the 111th General Meeting of the American Society for Microbiology.

"Infection of late middle-aged mice with a particular strain of the bacteria [Helicobacter pylori](#) results in development of [Parkinson's disease](#) symptoms after 3-5 months," says Traci Testerman of Louisiana State University Health Sciences Center, Shreveport, who presented the research. "Our findings suggest that *H. pylori* infection could play a significant role in the development of Parkinson's disease in humans."

Physicians have noted a correlation between [stomach ulcers](#) and Parkinson's disease as far back as the 1960s, before it was even known that *H. pylori* was the cause of ulcers. More recently, a number of studies found that people with Parkinson's disease were more likely to be infected with the [bacterium](#), and that Parkinson's patients who were treated and cured of infection showed slight improvement compared to controls that continued to deteriorate.

In Guam, a study of why some populations had a high risk of developing a Parkinson's-like disease discovered that a specific compound in cycad seeds eaten by these populations was neurotoxic. The compound, which resembles a cholesterol with an attached sugar group, is almost identical to a compound produced by *H. pylori*.

Testerman and her colleagues developed an [animal model](#) to more effectively understand the role of *H. pylori* and its modified cholesterol in Parkinson's disease. They infected young and aged mice with three different strains of the bacteria and monitored their locomotor activity and dopamine levels in the brain. Mice infected with one of the strains showed significant reductions in both.

"The results were far more dramatic in aged mice than in young mice, demonstrating that normal aging increases susceptibility to Parkinsonian changes in mice, as is seen in humans," says Testerman.

In order to determine whether the modified cholesterol or other substances could be responsible for Parkinson's disease development, they fed aged mice with *H. pylori* extracts. The mice did not become infected but developed the same symptoms as those infected with the bacteria, suggesting that the modified cholesterol or some other product contained within the [bacteria](#) contribute to disease development.

"Our mouse model demonstrates a direct effect of *H. pylori* infection on the development of Parkinson's disease. The observation that not all *H. pylori* strains are equally able to cause symptoms will allow us to investigate bacterial factors and/or immune response to *H. pylori* infection that increase the risk for Parkinson's disease," says Testerman.

Provided by American Society for Microbiology

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