

Food allergies and multiple sclerosis: study reveals a new link

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Like many other medical conditions, the mechanism of multiple

sclerosis remains an enigma—a puzzle composed of complex genetic and environmental factors. A key piece to this puzzle is the immune system, which is also responsible for regulating many other physiological (and pathological) phenomena—including allergies. Although previous studies investigating the association between MS and allergies have yielded mixed results, a research team at Brigham and Women's Hospital sought to uncover the putative link in a new way. Investigating the correlation between allergy and inflammatory disease activity, the team found new evidence connecting food allergies and relapses of multiple sclerosis. The results are published in the *Journal of Neurology, Neurosurgery & Psychiatry*.

"Some multiple sclerosis patients with significant allergies would complain of frequent relapses associated with their allergic episodes," said Tanuja Chitnis, MD, senior author and a neurologist at the Partners MS Center at the Brigham. "We felt that the most likely mechanism associated with [allergy](#) and its influence on MS would be related to inflammatory activity."

Accordingly, Chitnis and colleagues set out to investigate the association between inflammatory disease activity and allergy history in a subset of patients enrolled in a large study known as the Comprehensive Longitudinal Investigation of Multiple Sclerosis at Brigham and Women's Hospital (CLIMB). A total of 1,349 [study participants](#) completed a self-administered questionnaire outlining food, environmental and/or drug allergies. Disease activity was assessed through evaluating the cumulative number of attacks over disease course, and new gadolinium (Gad)-enhancing lesions, as detected by MRI.

Interestingly, only participants in the food allergy group demonstrated a significantly higher rate of cumulative attacks and increased likelihood of new Gad-lesions compared to participants with no reported food

allergies. This effect remained significant even when adjusted for potential confounders such as sex, age at symptom onset, and disease category. No significant effects were observed for the environmental and drug allergy groups after adjusted analyses.

This association between food allergy and MS [disease](#) activity highlights an important role for a potential player in immunity and inflammation—the gut. "It is interesting that this association was only found with food allergies and not other types of allergies, which might have been expected had this solely been an immune deviation issue," said Chitnis. "The presence of food allergies and mechanisms related to food allergies may increase relapse rate and inflammatory activity in MS patients. There may be a common [mechanism](#) here, or other mechanisms which may induce MS relapses in a predisposed host."

Currently, Chitnis and colleagues are working to further uncover these mechanisms of immune dysregulation in allergy and delineate how such dysregulation impacts MS inflammatory activity. Given the correlative nature of this study, the researchers are careful to highlight the limited clinical actionability of their findings. However, Chitnis is optimistic about the potential translational significance of the work and highlights the importance of addressing food allergies in MS patient care.

"There has long been a hypothesis of the gut being related to the [immune system](#), and this really points to a stronger association than previously understood," Chitnis said. "This research opens up a new way of thinking about the immune mechanisms in MS."

More information: Rami Fakhri et al, Food allergies are associated with increased disease activity in multiple sclerosis, *Journal of Neurology, Neurosurgery & Psychiatry* (2018). [DOI: 10.1136/jnnp-2018-319301](https://doi.org/10.1136/jnnp-2018-319301)

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