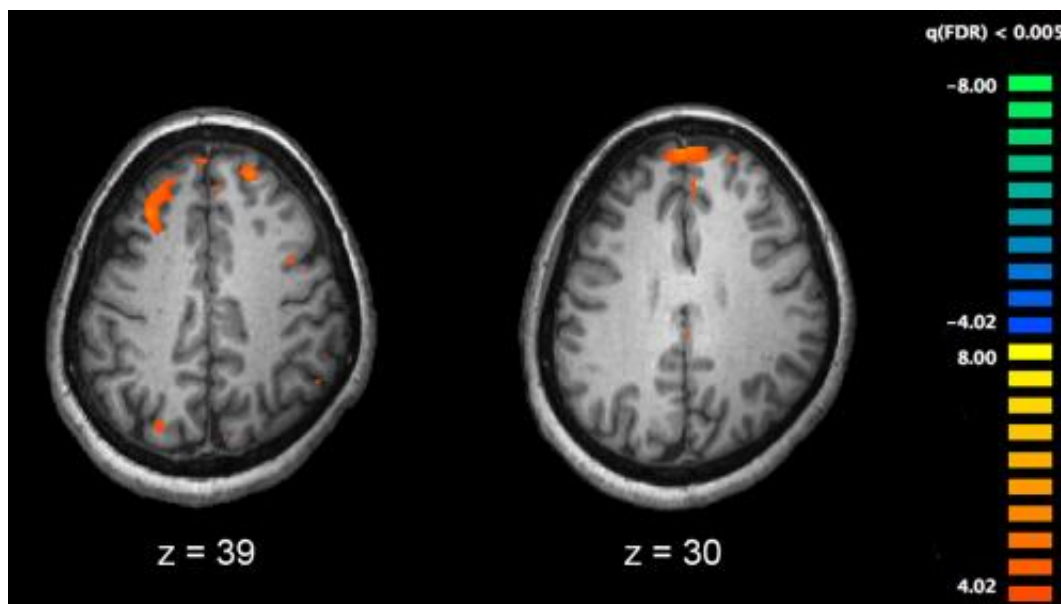


# Researchers identify signature of microbiomes associated with schizophrenia

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Functional magnetic resonance imaging (fMRI) and other brain imaging technologies allow for the study of differences in brain activity in people diagnosed with schizophrenia. The image shows two levels of the brain, with areas that were more active in healthy controls than in schizophrenia patients shown in orange, during an fMRI study of working memory. Credit: Kim J, Matthews NL, Park S./PLoS One.

In the most comprehensive study to date, researchers at the George Washington University have identified a potential link between microbes (viruses, bacteria and fungi) in the throat and schizophrenia. This link may offer a way to identify causes and develop treatments of the disease

and lead to new diagnostic tests.

"The oropharynx of schizophrenics seems to harbor different proportions of [oral bacteria](#) than healthy individuals," said Eduardo Castro-Nallar, a Ph.D. candidate at GW's Computational Biology Institute (CBI) and lead author of the study. "Specifically, our analyses revealed an association between microbes such as lactic-acid bacteria and schizophrenics."

Recent studies have shown that microbiomes—the communities of microbes living within our bodies—can affect the immune system and may be connected to mental health. Research linking [immune disorders](#) and [schizophrenia](#) has also been published, and this study furthers the possibility that shifts in oral communities are associated with schizophrenia.

Mr. Castro-Nallar's research sought to identify [microbes](#) associated with schizophrenia, as well as components that may be associated with or contribute to changes in the immune state of the person. In this study, the group found a significant difference in the microbiomes of healthy and schizophrenic patients.

"Our results suggesting a link between microbiome diversity and schizophrenia require replication and expansion to a broader number of individuals for further validation," said Keith Crandall, director of the CBI and contributing author of the study. "But the results are quite intriguing and suggest potential applications of biomarkers for diagnosis of schizophrenia and important metabolic pathways associated with the disease."

The study helps to identify possible contributing factors to schizophrenia. With additional studies, researchers may be able to determine if microbiome changes are a contributing factor to

schizophrenia, are a result of schizophrenia or do not have a connection to the disorder.

Provided by George Washington University

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