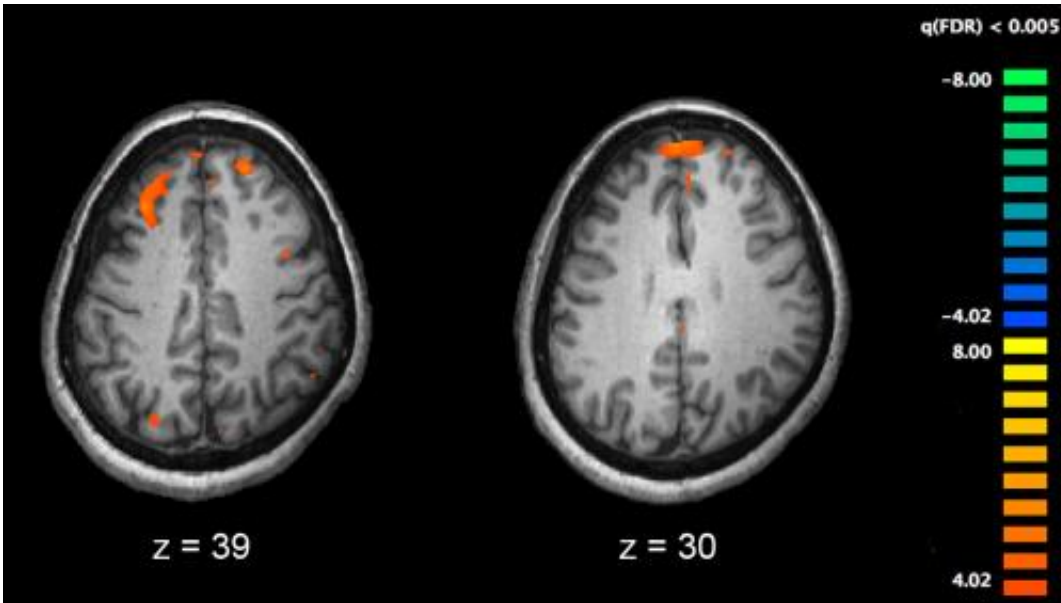


White matter and schizophrenia

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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.

Schizophrenia, a disturbance of functional connections within brain networks, has been extensively studied by MRI. However, functional alterations involving white matter (WM) have not previously been investigated, especially during tasks.

Yurui Gao, Ph.D., Neil Woodward, Ph.D., John Gore, Ph.D., and colleagues analyzed resting state and [task](#) fMRI images from 84 patients with schizophrenia and 67 controls to examine functional connectivity (FC). They compared FC between 46 WM bundles and 82 cortical regions, and the FC density of each WM bundle was compared between groups.

FC measures were found to be lower in people with schizophrenia relative to controls for external capsule, cingulum, uncinate fasciculus and [corpus callosum](#) under the rest or task condition, and higher in the posterior corona radiata and posterior thalamic radiation during the task condition.

The findings, reported in *Schizophrenia Research*, suggest functional abnormalities in patients' WM are heterogeneous, possibly reflecting underlying mechanisms like structural damage, functional compensation and excessive effort on task, and WM FC disruption may contribute to impairment of working memory and processing speed.

More information: Yurui Gao et al, Lower functional connectivity of white matter during rest and working memory tasks is associated with cognitive impairments in schizophrenia, *Schizophrenia Research* (2021). [DOI: 10.1016/j.schres.2021.06.013](https://doi.org/10.1016/j.schres.2021.06.013)

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