

Retina indicates severity of schizophrenia, scientists discover

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Researchers have discovered that the retina of schizophrenia patients differs from the retina of healthy participants. These changes could help psychiatrists to recognize who will have a particularly severe course of illness. The findings are [published](#) in the journal *Biological Psychiatry*.

From an [evolutionary perspective](#), the retina is an outgrowth of the brain and shares the same genetics. In illnesses such as schizophrenia, which is marked by [genetic changes](#), the retina is an easily accessible alternative for researchers to study the central nervous system.

First author Emanuel Boudriot from the Max Planck Institute of Psychiatry and his colleagues examined the retina of around 230 schizophrenia patients and healthy controls. They recorded the layers of the retina using light-based [optical coherence tomography](#) (OCT) and measured the electrical signals of the individual nerve cells.

"Our results show that some retinal layers were significantly thinner in schizophrenia patients, and electrophysiological signals were significantly altered," study lead Florian Raabe explains.

For the first time, scientists were also able to show that the retinal changes were particularly pronounced in more severely ill patients, and in patients with a higher burden of genetic risk factors. This correlation indicates that the retinal changes are caused by the disease itself and not only by other factors such as smoking, obesity or diabetes (which are generally more common in [schizophrenia patients](#) than in the rest of the

population).

The cross-sectional study provides snapshots. Longitudinal studies are needed to confirm whether patients with pronounced retinal changes generally have a more severe illness progression. This involves following patients over a longer period of time, starting from the time of diagnosis. In the future, measuring the retina at the time of diagnosis could help psychiatrists to predict which patients are particularly at risk and require closer observation.

More information: Emanuel Boudriot et al, Signature of altered retinal microstructures and electrophysiology in schizophrenia spectrum disorders is associated with disease severity and polygenic risk, *Biological Psychiatry* (2024). [DOI: 10.1016/j.biopsych.2024.04.014](https://doi.org/10.1016/j.biopsych.2024.04.014)

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