

# Antipsychotic drugs linked to slight decrease in brain volume

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A study published today has confirmed a link between antipsychotic medication and a slight, but measureable, decrease in brain volume in patients with schizophrenia. For the first time, researchers have been able to examine whether this decrease is harmful for patients' cognitive function and symptoms, and noted that over a nine year follow-up, this decrease did not appear to have any effect.

As we age, our brains naturally lose some of their volume – in other words, [brain cells](#) and connections. This process, known as [atrophy](#), typically begins in our thirties and continues into old age. Researchers have known for some time that patients with schizophrenia lose [brain volume](#) at a faster rate than healthy individuals, though the reason why is unclear.

Now, in a study published in the open access journal *PLOS ONE*, a team of researchers from the University of Oulu, Finland, and the University of Cambridge has identified the rate of decrease in both healthy individuals and patients with schizophrenia. They also documented where in the brain schizophrenia patients have more atrophy, and have examined links between atrophy and antipsychotic medication.

By comparing [brain scans](#) of 33 patients with schizophrenia with 71 [control subjects](#) over a period of 9 years – from age 34 to 43 – the researchers were able to show that schizophrenia patients lost brain volume at a rate of 0.7% each year. The control participants lost brain volume at a rate of 0.5% per year.

Scientists have previously speculated that antipsychotic medication used to treat schizophrenia may be linked to this decrease in brain volume. Today's research confirms this association, showing that the rate of decrease in volume was greater when the dose of medication was higher. However, the mechanisms behind this – and whether it was in fact the medication that was causing this greater loss of tissue – are not clear. Some researchers have previously argued that whilst older [antipsychotic medications](#) might cause brain volume decreases, newer antipsychotic medications may protect against these decreases. However, today's research suggests that both classes of antipsychotic medication are associated with similar declines in brain volume.

The researchers also looked at whether there was any link between the volume of brain lost and the severity of symptoms or loss of cognitive function, but found no effect.

Professor Juha Veijola from the Department of Psychiatry at the University of Oulu, Finland says: "We all lose some brain tissue as we get older, but people with schizophrenia lose it at a faster rate. We've shown that this loss seems to be linked to the antipsychotic medication people are taking. Research like this where patients are studied for many years can help to develop guidelines about when clinicians can reduce the dosage of antipsychotic medication in the long term treatment of people with [schizophrenia](#)."

"It's important to stress that the loss of brain volume doesn't appear to have any effect on people over the nine year follow-up we conducted, and patients should not stop their medication on the basis of this research," adds Dr Graham Murray from the Behavioural and Clinical Neuroscience Institute and the Department of Psychiatry at University of Cambridge. "A key question in future will be to examine whether there is any effect of this loss of brain volume later in life. We need more research in larger studies with longer follow-ups to evaluate the

significance of these brain changes."

Provided by University of Cambridge

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