

# Faulty 'wiring' in the brain triggers onset of schizophrenia

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A new study by researchers at the Institute of Psychiatry (IoP), King's College London has discovered abnormalities in the white matter of the brain that seem to be critical for the timing of schizophrenia. The study, led by Professor Phillip McGuire and Dr Sophia Frangou, has been published in this month's edition of the *British Journal of Psychiatry*.

The white matter of the brain consists of nerve fibres that connect parts of the brain and help regulate behaviour. The normal brain develops in a back to front fashion, i.e. posterior regions mature first and the frontal lobes last. The research discovered that if there are very severe deficits in the white matter in these posterior (specifically parietal) regions, then schizophrenia develops early in adolescence. As people grow older their deficits "migrate" in a back to front manner and in adulthood, they impact the frontal lobes of the brain quite dramatically.

Schizophrenia is a disabling and emotionally devastating illness that affects about one per cent of the population worldwide. Professor McGuire, from the NIHR Biomedical Research Centre for Mental Health, South London and Maudsley NHS Foundation Trust and IoP comments: 'Although we can trace the origins of schizophrenia to early brain development we still do not know what triggers the onset of the full blown symptoms. Our study suggests that at least part of the answer lies in problems affecting the "wiring" of key brain areas.'

The team used [Diffusion Tensor Imaging](#), a state-of-the-art neuro-imaging technique, to examine white matter connections in adolescents

and adults with schizophrenia. Abnormalities in white matter appeared first in posterior parts of the [brain](#) in the younger patients and became more prominent in the frontal lobes in adult patients. In interpreting the results, Dr. Kyriakopoulos, the lead author, explained that the scans capture the interaction between [brain](#) development and disease mechanisms.

Dr Frangou on the value of this research: 'We believe this study is unique as it approaches schizophrenia research from a new perspective. It takes a life-long view on schizophrenia and thereby bridges traditional barriers between child and adult patients.'

The study adds new insight to mounting evidence that abnormalities in white matter play a critical role in what turns schizophrenia on and may provide clues to new treatments.

More information: Marinos Kyriakopoulos, Rocio Perez-Iglesias, James B Woolley, Richard AA Kanaan, Nora S Vyas, Gareth J Barker, Sophia Frangou and Philip K McGuire (all from the Institute of Psychiatry, King's College London): Effect of age at onset of [schizophrenia](#) on [white matter](#) abnormalities. *The British Journal of Psychiatry* (2009) 195, p346-353. [bjp.rcpsych.org/cgi/content/abstract/195/4/346](http://bjp.rcpsych.org/cgi/content/abstract/195/4/346)

Source: King's College London ([news](#) : [web](#))

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