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## Use of magnetic resonance imaging in tracking the course and treatment of schizophrenia.

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### Abstract

Confirming the early conceptualization of Bleuler (1911) and Kraepelin (1919), **magnetic resonance imaging** (MRI) studies have demonstrated structural and functional brain abnormalities, predominantly involving the frontal and temporal lobes, in **schizophrenia**. Most of the abnormalities are already present at illness onset. However, there is, growing evidence for **treatment**-related neural changes in **schizophrenia**, such as enlargement of the caudate nucleus (neurotoxic effect) with the use of typical antipsychotics and increases in cortical volumes and improved functional responses (neurotrophic effect) with the use of atypical antipsychotics. More recently, brain changes during the prodrome and transition-to-illness stages of **schizophrenia** have begun to be characterized. Another area of importance is the use of MRI, as a biological marker, to monitor and define partial or full resistance to medication. Understanding the trait- and state-related influences of brain abnormalities during the **course** of the illness is critical for developing effective **treatment** and possibly prevention strategies in **schizophrenia**.

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