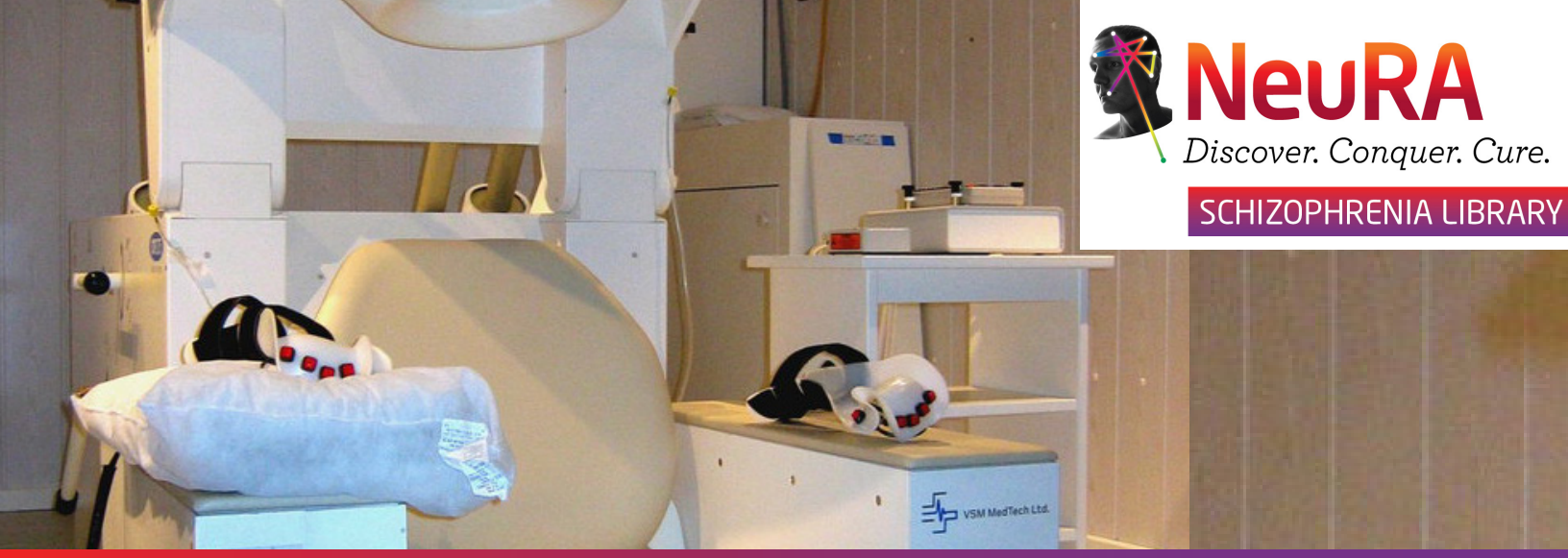

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SCHIZOPHRENIA Factsheet

October 2020

What is magnetoencephalography (MEG)?

MEG uses a helmet-shaped device containing MEG sensors (gradiometers) to noninvasively measure the magnetic fields produced by neural activity of the brain. MEG is able to localise the source of neural activity to particular brain regions, represented as positive and negative charges (dipoles), with greater accuracy than EEG, which is a measure of the electrical fields produced by neural activity. MEG can be used to measure continuous resting-state brain activity (spontaneous MEG), but also to assess event-related changes in brain activity. Spontaneous MEG reflects neural activity in particular brain regions and across a range of frequencies. Delta frequency (up to 4 Hz) is slow wave activity normally seen during deep sleep; theta frequency (4 to 7 Hz) is often seen during drowsiness and early stages of sleep; alpha activity (8 to 12 Hz) commonly occurs during a state of relaxed wakefulness, particularly when eyes are closed; beta frequency (13 to 30 Hz) of low amplitude occurs during intense concentration and mental activity; and gamma frequency (30 to 80+ Hz) occurs during certain cognitive and motor functions. Change in activity is assessed as a dipole density, which measures the representation of each type of wave within a particular region.

What is the evidence for MEG?

Moderate to low quality evidence suggests increased bilateral delta and theta wave activity in the frontal, temporo-parietal and occipital cortices of people with schizophrenia, which appear to be particularly associated with positive symptom severity. Beta activity was reportedly increased in frontal and temporo-parietal regions, and changes in alpha and gamma activity are unclear.

For more information see the technical table

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NeuRA (Neuroscience Research Australia) is one of the largest independent medical and clinical research institutes in Australia and an international leader in neurological research.

Diseases of the brain and nervous system pose the greatest health, economic and social burden of any disease group because they are chronic, debilitating and have no known cures.

Medical research is the cornerstone of efforts to advance the health and wellbeing of families and the community. Our dedicated scientists are focussed on transforming their research into significant and practical benefits for all patients.

While we hope you find this information useful, it is always important to discuss any questions about schizophrenia or its treatment with your doctor or other health care provider.

HOW YOUR SUPPORT HELPS

We are able to make significant advances due to the generosity of countless people. Your donation allows us to continue to work towards transforming lives. For information on how you can support our research, phone **1300 888 019** or make a secure donation at **neura.edu.au/donate/schizophrenia**.

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