



# NeuRA

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## SCHIZOPHRENIA Factsheet

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### What is mismatch negativity (MMN)?

MMN is an auditory event-related potential that is generated when a stimulus feature deviates from the regularity of previous auditory stimuli. This deviance can be a simple physical characteristic, such as tone duration, intensity, frequency or location; or more abstract presentation characteristics, such as a lower tone in a series of ascending tones. In this way, MMN generation relies on the creation of an auditory (echoic) memory trace for the preceding tones, in order to identify the subsequent deviance. MMN is thought to be an automatic, pre-attentional process and functions as an index of auditory discrimination and echoic memory integrity. MMN is observed as the difference in event-related potential wave response to the standard stimuli and the deviant stimulus. Larger differences between standard and deviant stimuli and lower probability of deviant occurrence are both associated with larger MMN amplitude.

### What is the evidence for MMN?

Moderate to high quality evidence finds a large MMN deficit in people with schizophrenia compared to controls, which was largest in studies of chronic patients, in studies using duration deviants rather than frequency or intensity deviants, and when tones were unattended rather than attended. Moderate to low quality evidence finds no association between MMN deficits and symptom severity.

Moderate quality evidence finds a medium-sized deficit in duration deviants, but not in pitch deviants, in people with first-episode psychosis. There was a medium-sized MMN deficit in people at clinical high risk of schizophrenia (people with subclinical symptoms), and a small MMN deficit in people at familial high risk of schizophrenia (people with a first-degree relative with schizophrenia).

For more information see the technical table



### NeuRA

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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](https://neura.edu.au/donate/schizophrenia).