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October 2020

What is N400 event-related potential?

The N400 wave is an event-related brain potential (ERP) measured using electroencephalography (EEG). N400 refers to a negativity peaking at about 400 milliseconds after stimulus onset. It has been used to investigate semantic processing, which may be dysfunctional in schizophrenia. Semantic processing can be separated into two stages; early automatic semantic activation without the involvement of attention, and late contextualisation that is influenced by attention. The semantic priming effect refers to the reduction of reaction time to a word (e.g. table) when it is preceded by a semantically congruent context (e.g. chair) as opposed to a semantically incongruent context (e.g. lake). With a relatively short stimulus onset asynchrony (SOA; less than 500 milliseconds) in word or picture-pair studies, the priming effect is mainly attributed to early automatic semantic activation. With a long SOA (>500 milliseconds), the priming effect is mainly attributed to late contextualisation processes.

What is the evidence for N400 event-related potential?

High quality evidence shows people with schizophrenia have a medium to large increase in N400 peak latency when compared to people without schizophrenia. They also have a small to medium-sized decrease in N400 amplitude in congruent conditions but not in incongruent conditions. These results are largest in tasks involving long stimulus onset asynchrony. Patients show a decreased N400 semantic priming effect in both short and long stimulus onset asynchrony conditions.

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.

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