



# NeuRA

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## SCHIZOPHRENIA Factsheet

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### What is executive functioning?

Executive functions are a group of cognitive processes involving control, mental flexibility, planning, inhibition, decision-making, initiation, abstraction, self-monitoring and pursuit of goals. Any impairment in executive functioning can also reflect impairments in other cognitive functions such as processing speed, attention, and memory. Executive functioning is most commonly measured using the Wisconsin Card Sorting Task (WCST). This task requires the ability to shift cognitive sets. Other common tasks include the Trail Making Test (TMT), which requires participants to connect, in order, letters and/or numbers as quickly as possible, and the Stroop Colour Word Test (SCWT), which presents colour names printed in an ink congruent to the colour name (e.g. blue), or incongruent to the colour name (e.g. blue); participants are asked to either read the word or name the ink colour. Verbal fluency tests involve participants naming as many words as possible from a particular category in a given time, and Go/No-Go tasks involve presenting participants stimuli in a continuous stream and asking them to make a 'go' or a 'no-go' response to each stimulus.

### What is the evidence for executive functioning?

Compared to people without schizophrenia, moderate to high quality evidence finds people with schizophrenia show medium-sized impairments on the WCST, verbal fluency tasks, inhibition tasks, planning tasks, the TMT, the SCWT, and the Go/No-Go task. Compared to people with affective psychoses (including bipolar disorder) there were small impairments on verbal fluency tasks, the TMT, and the WCST. There were small to medium-sized impairments on the WCST in first-degree relatives of people with schizophrenia compared to people without schizophrenia. There were similar, small improvements on executive functioning tasks over time (1 to 5 years) in people at ultra-high risk of psychosis, in people with first-episode psychosis, and in people with no risk of psychosis.

Moderate to high quality evidence shows a medium-sized association between higher levels of executive functioning and higher levels of insight and lower levels of negative or disorganised symptoms. Moderate quality evidence suggests no association between executive functioning and positive symptoms, however moderate to low quality evidence finds more impaired executive functioning in people with formal thought disorder. There were greater improvements in verbal fluency in people receiving second-generation antipsychotics compared to people receiving first-generation antipsychotics. People receiving quetiapine, olanzapine, or clozapine may show improvements on verbal fluency tasks post-treatment, however people receiving risperidone may show no improvement.

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

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