



## SCHIZOPHRENIA Factsheet

September 2020

### What are neurological soft signs (NSS)?

NSS are neurological abnormalities that can be identified by clinical examination using valid and reliable testing measures. They are referred to as 'soft' because they are not related to a specific brain area, or part of a defined syndrome. Categories of NSS are commonly grouped into three categories; integrative sensory functioning, motor coordination, and complex motor sequencing. Integrative sensory functioning includes impairments in sensory perception such as audio-visual integration or tactile recognition. Motor coordination involves general coordination, balance and gait. Complex motor sequencing involves complex motor tasks, such as repetitive alternating hand positions.

### What is the evidence for NSS?

Moderate to high quality evidence suggests medium to large effects of increased NSS in people with schizophrenia or first-episode psychosis compared to people without a psychiatric disorder (controls). There is a small and less widespread effect when comparing people with a first-degree relative with schizophrenia to controls. Compared to people with bipolar disorder and no psychotic symptoms, moderate to high quality evidence shows a small to medium-sized effect of more NSS in people with schizophrenia on motor coordination tasks only.

There are medium-sized associations between increased NSS scores and increased symptom severity and poorer cognitive performance in people with schizophrenia. Both people with remitting or chronic schizophrenia showed improvements in NSS over time, although remitting symptoms were associated with greatest NSS improvements. Increased severity of NSS in people with schizophrenia was associated with; reduced activation of the basal ganglia and inferior frontal cortex, increased activation of the superior temporal gyrus, reduced grey matter volume in the precentral and inferior frontal gyri and thalamus, and reduced white matter volume in the middle temporal and cerebellum regions.

For more information see the technical table



*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).