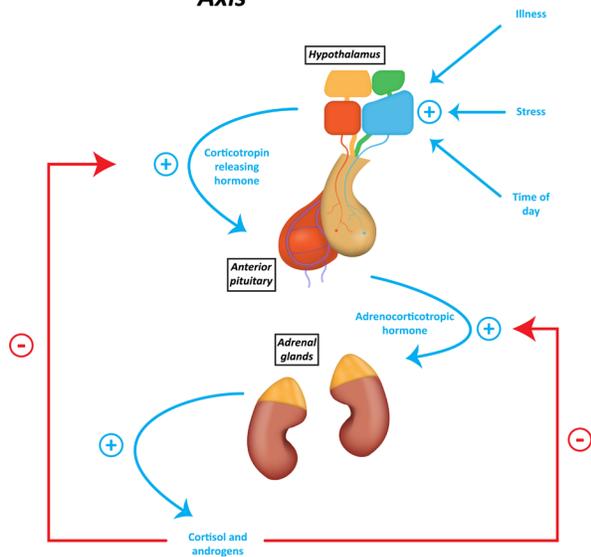


## Hypothalamic - Pituitary - Adrenal Axis



# NeuRA

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## SCHIZOPHRENIA Factsheet

October 2020

### What is the hypothalamic-pituitary-adrenal (HPA) axis?

Stress is defined as a threat to the body's ability to regulate internal processes following exposure to an adverse event. People adapt physiologically and behaviourally in response to stress in order to re-establish internal balance. The biological response to stress is mediated through the HPA axis and the sympathetic nervous system. This is achieved through the release of cortisol and adrenocorticotropin hormone (ACTH). Altered HPA axis activity can result in prolonged exposure to cortisol or ACTH which can be detrimental to physical and psychological health. HPA activity can be measured by basal cortisol and ACTH levels in an unstressed or resting state. HPA activity can also be measured after a stressful stimulus (chemical or psychological). There is evidence that the HPA axis may be dysfunctional in a number of mental disorders, including schizophrenia.

### What is the evidence for HPA axis anomalies?

Moderate to high quality evidence suggests a small to medium-sized increase in blood cortisol levels in people with first-episode psychosis. There was a small overall increase in morning ( $\leq 10$ am) cortisol levels, a lower cortisol awakening response (high quality evidence), and a lower cortisol psychological stress response (moderate to low quality evidence) in people with schizophrenia compared to controls. Moderate to low quality evidence suggests increased cortisol levels are related to increased symptom severity.

There was also a lower cortisol awakening response in people with first-episode psychosis compared to controls (high quality evidence), with no differences in salivary basal cortisol levels (moderate quality evidence). For people with subclinical psychotic symptoms, there was no difference in the cortisol awakening response compared to controls (high quality evidence), but increased salivary basal cortisol levels were found (moderate quality evidence).

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