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## BIPOLAR DISORDERS Factsheet

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### What is functional magnetic resonance imaging (fMRI)?

fMRI measures blood flow to determine activation and deactivation of the specific brain regions associated with particular tasks.

### What is the evidence for fMRI findings in people with bipolar disorder?

Compared to controls, moderate quality evidence finds decreased activation in adults with bipolar disorder in the inferior frontal gyrus during cognitive and emotion tasks, and during a mania phase. There were also decreases in the lingual gyrus during cognitive tasks and euthymia, and in the putamen during cognitive tasks. There were increases in activation in the medial temporal lobe, putamen, pallidum, and caudate during cognitive tasks.

In children and adolescents with bipolar disorder, there was decreased activation in the right ventrolateral prefrontal cortex, right dorsolateral prefrontal cortex, right superior frontal gyrus, right dorsal cingulate cortex, and right dorsal striatum compared to age-matched controls. There was increased activation in the right amygdala, right limbic lobe, right parahippocampal gyrus, right medial prefrontal cortex, right subgenual cingulate cortex, right somatosensory association cortex, left ventral striatum, left ventrolateral prefrontal cortex, left cerebellum, left lentiform nucleus, putamen, and lateral globus pallidus.

There was increased activation in children with a parent with bipolar disorder in the right dorsolateral prefrontal cortex, right insula, right inferior parietal lobule, and left cerebellum compared to age-matched controls. Compared to children and adolescents with a parent with bipolar disorder, there was decreased activation in children and adolescents with bipolar disorder in the right dorsolateral prefrontal cortex, right insula, and left cerebellum.

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 bipolar disorder or its treatment with your doctor or other health care provider.*