

New brain stimulation target identified for Tourette syndrome

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Specifically targeted deep-brain stimulation improves symptoms in patients with severe Tourette, a study reports in the current issue of *Biological Psychiatry*.

Gilles de la Tourette syndrome, often just called Tourette syndrome, is best known for the vocal and motor tics that are the most common symptoms of the disorder. Usually, these symptoms respond to a growing array of medications. However, some patients experience severe tics that do not respond to medications and may be disabling or even life-threatening. In these rare cases, [deep brain stimulation](#) may provide relief.

Deep brain stimulation is a neurosurgical technique that involves implanting a neurostimulator into the brain to deliver electrical signals. It is most commonly used to treat symptoms of Parkinson's disease and other movement disorders. It was first used an experimental treatment for severe Tourette in 1999 and has since shown therapeutic promise, but the optimal neural targets have remained unclear.

For this study, researchers at the University of Cologne conducted an open-label trial to treat eight patients with severe Tourette syndrome for whom medication was not beneficial.

Over a one year period, deep brain stimulation targeted at the thalamus significantly improved patients' Tourette-related symptoms, quality of life, and overall functioning. It was also generally well-tolerated. The

thalamus is a complex structure deep in the brain that relays sensory and motor signals and is part of the brain network responsible for motor control.

"Tourette syndrome is most commonly associated with the [basal ganglia](#), but the thalamus receives the output from the basal ganglia. It appears that stimulating the thalamus may be helpful when medications have failed," commented Dr. John Krystal, Editor of *Biological Psychiatry*. "This study suggests that when the basal ganglia are dysfunctional, that one may intervene by altering the activity of a target of the basal ganglia output, such as the [thalamus](#)."

Although more research is still necessary, these findings suggest that, despite the risks, thalamic deep [brain stimulation](#) may be beneficial for patients with severe Tourette.

More information: Daniel Huys et al. Motor Improvement and Emotional Stabilization in Patients With Tourette Syndrome After Deep Brain Stimulation of the Ventral Anterior and Ventrolateral Motor Part of the Thalamus, *Biological Psychiatry* (2016). [DOI: 10.1016/j.biopsych.2014.05.014](#)

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