

After 15 years, deep brain stimulation still effective in people with Parkinson's

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Deep brain stimulation continues to be effective in people with Parkinson's disease 15 years after the device is implanted, according to a study published in the June 2, 2021, online issue of *Neurology*.

Researchers found that compared to before [deep brain stimulation](#), study participants continued to experience significant improvement in motor symptoms, which are symptoms that affect movement, as well as a reduction in medications 15 years later.

Parkinson's disease can progressively affect speech, walking and balance due to a gradual reduction of a chemical in the brain called dopamine. Parkinson's symptoms of muscle stiffness, tremor and slowness of movement can be treated with a [medication](#) call levodopa that temporarily restores dopamine. However, that process of rising and falling levels of dopamine throughout the day can cause dyskinesia, a side effect of medication that may include twisting, swaying or head bobbing.

Deep brain [stimulation](#) controls [motor symptoms](#) from Parkinson's disease with electrodes that are placed in certain areas of the brain. The electrodes are connected to a [device](#) placed under the skin in the upper chest. The device controls the [electrical impulses](#).

"Deep brain stimulation benefits seem to last for several years but not enough data have been available to show that these effects are still present more than 15 years after surgery," said study author Elena Moro, MD, Ph.D., of the Grenoble Alpes University in France and a Fellow of the American Academy of Neurology. "We wanted to know if people with Parkinson's disease continue to benefit from this treatment. It is exciting to report that our study found in the long run, deep brain stimulation continues to be effective in people with Parkinson's disease."

For the study, researchers identified 51 people who had a deep brain stimulation device implanted at the university hospital. The average age for diagnosis of Parkinson's disease was 40. The average age for device implantation was 51. Study participants had the device an average of 17 years.

Researchers reviewed data for each participant on movement problems, quality of life, medication and scores on tests that measure the severity and progression of Parkinson's disease.

Researchers found that when comparing data on participants before having a device implanted to data 15 years later, the amount of time participants experienced dyskinesia was reduced by 75%.

Researchers also found the amount of time spent in an "off state," when medication was no longer working well, was reduced by 59%. Also, the use of medications to control dopamine levels was reduced by 51%.

Researchers found few side effects of having the stimulation for 15 years and such side effects were mostly manageable.

"Our study also found that despite the natural progression of Parkinson's disease and the worsening of some symptoms that become resistant to medications over the years, participants still maintained an overall improvement in quality of life," said Moro. "Future studies should continue to examine the benefits of deep brain stimulation over longer periods of time and in larger groups of people."

A limitation of the study was that many of the people who had deep brain stimulation at the hospital were not available for study 15 years later, either because researchers were no longer able to contact them or because they had died. It is possible that the people in the study may have been healthier than those not included, meaning the results may not fully reflect the experience of all people using deep [brain](#) stimulation.

Provided by American Academy of Neurology

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