

Deep brain stimulation effects may last for 10 years in patients with Parkinson's disease

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One decade after receiving implants that stimulate areas of their brains, patients with Parkinson's disease (PD) appear to sustain improvement in motor function, although part of the initial benefit wore off mainly because of progressive loss of benefit in other functions, according to a report published Online First by *Archives of Neurology*, one of the JAMA/Archives journals.

According to background information in the article, several previous clinical studies have shown [deep brain stimulation](#) of the [subthalamic nucleus](#) (STN-DBS) for PD to be effective and safe. Studies have shown that the technique, which stimulates a part of the [brain](#) involved in motor function, may have advantages compared with other medical treatments in terms of controlling motor complications and improving quality of life. "The motor improvement induced by STN stimulation has been reported to be sustained for up to five to eight years after surgery, although part of the initial benefit progressively deteriorates, mainly because of worsening axial signs," write the authors. "To date, studies with postoperative follow-up for longer than eight years are lacking."

Anna Castrioto, M.D., from the Università degli Studi di Perugia, Perugia, Italy, and colleagues conducted a study of 18 patients with advanced PD who had received DBS [implants](#) for PD between 1996 and 2000. Motor assessments were conducted before implantation and at one, five and 10 years. All motor assessments were videotaped. Patients were assessed without medication, without stimulation, without either, and with both. At each assessment, the researchers recorded every

patient's medications and dosages.

At 10 years, the combination of medication and STN-DBS was associated with significantly better motor, resting and action tremor, bradykinesia (slowed movement) and rigidity scores. Compared with baseline, reductions were also seen in the scores in the medication and no medication conditions, the dyskinesia (difficulty controlling movement) and motor fluctuation scores and the levadopa-equivalent daily dose. However, axial signs (such as posture, gait and balance) showed the most progressive decline in stimulation and medication response.

"Our findings further support the long-term response to STN stimulation in patients with advanced PD, showing a prolonged motor improvement up to 10 years," conclude the authors.

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