

Many people have experienced shaky hands, especially in times of high stress or anxiety. But for 5 million Americans, involuntary shaking — or essential tremor — is a constant problem.

Essential tremor is an uncontrollable shaking of the muscles, usually upon movement. It can occur at any age, but most commonly begins at middle age. While the cause of essential tremor remains unknown, a family history of tremor exists in about half the cases.



Ilia Itin, MD, meets with a patient diagnosed with essential tremor.

CONFUSION WITH PARKINSON'S DISEASE

Essential tremor does not affect life expectancy, so it has also been termed benign essential tremor, but it can become disabling for many common activities, such as writing, eating or even signing a check.

Because there is less recognition of essential tremor, this involuntary shaking is often confused with Parkinson's disease. Symptomatically, the difference between these movement disorders lies in when the tremor occurs.

- In Parkinson's disease, tremors are most prominent when the body part is at rest, and they diminish when it is moving or in action. Also, Parkinson's patients typically feel stiffer and slower in their movements.
- In essential tremor, shaking typically occurs with activity and disappears with rest. Additional symptoms may include a shaky voice, nodding head and balance problems.

While it can be tricky, it is important to correctly distinguish essential tremor from Parkinson's disease because the treatments for these conditions are different.

TREATMENT OPTIONS

Medical

Treatments can reduce essential tremor in many patients. The most widely used medication is propranolol, a beta-adrenergic blocking drug. A second option is primidone, an anticonvulsant drug that can also reduce tremors. Another treatment option, botulinum toxin, is injected directly into the muscles involved in the tremors, partially weakening the muscles for three to four months, which reduces the tremors.

While many patients are helped with medication, the response is unpredictable: One person may experience a substantial reduction in tremors with one therapy, while another may notice only a slight change.

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Surgical

Surgical treatment, known as deep brain stimulation (DBS), is considered for people with tremor who have not been helped by medical therapies. DBS involves the implantation of a very thin lead containing four electrode contacts into a specific target area in the brain. The lead extends through a small opening in the skull and is connected to an extension wire. This wire, in turn, is connected to a pulse generator, or pacemaker, which is implanted under the skin in the chest.

Patients are awake during electrode implantation to allow the surgical team to assess brain function. Due to the human brain's inability to generate pain signals, patients feel no pain. The pacemaker is implanted either concurrent with electrode implantation or later, with the patient under general anesthesia for this part of the procedure. The pacemaker is stimulated for the first time within weeks of implantation.

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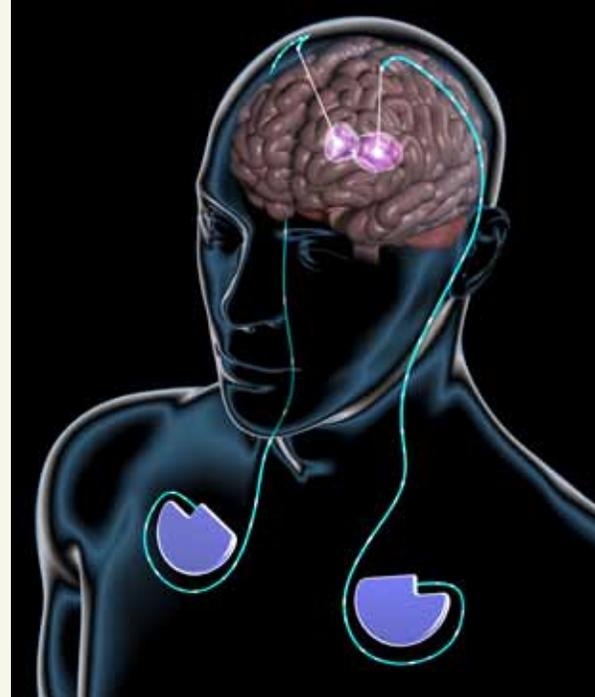
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The center — focused on advancing treatment through ongoing basic and clinical research — is nationally recognized for expertise in medical management and for innovations in the surgical treatment of movement disorders (Parkinson's disease, essential tremor and dystonia) as well as obsessive-compulsive disorders, depression and chronic pain.

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To schedule an appointment, please call the Center for Neurological Restoration at **216.444.8001** or toll-free at **800.223.2273, ext. 48001**.

For more information, please visit our website at clevelandclinic.org/neurorestoration.



Deep brain stimulation electrodes are implanted in targeted brain areas, with wires connecting to pulse generators under the collarbone.

Cleveland Clinic Neurological Institute

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