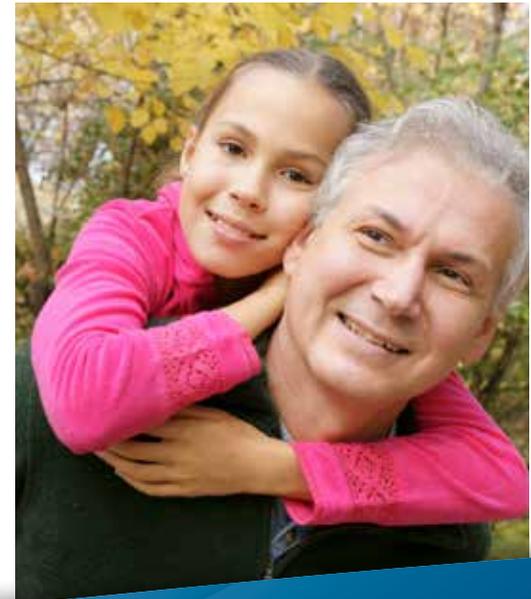


Is DBS for you?

Are you considering deep brain stimulation (DBS) for Parkinson's disease, essential tremor, dystonia, or obsessive-compulsive disorder? Use this guide to help you determine if DBS might be right for you.



This guide is meant to help you determine if you or a loved one is a candidate for DBS. Our Patient Concierge is also happy to help answer any questions. Call us for a free phone consultation at 1.855.202.9303 (toll-free).



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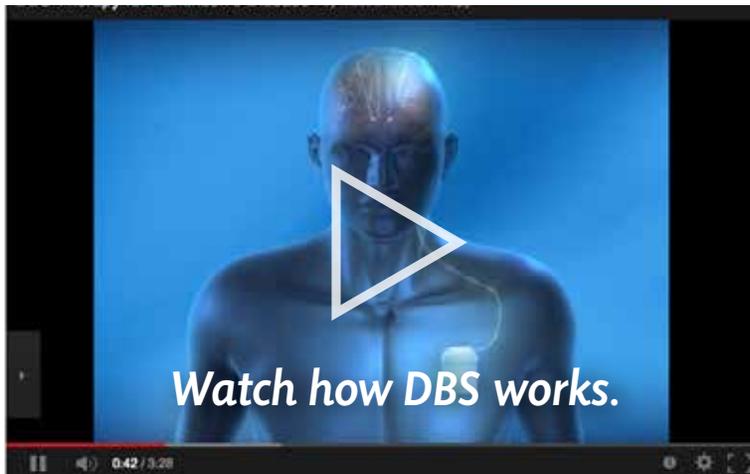
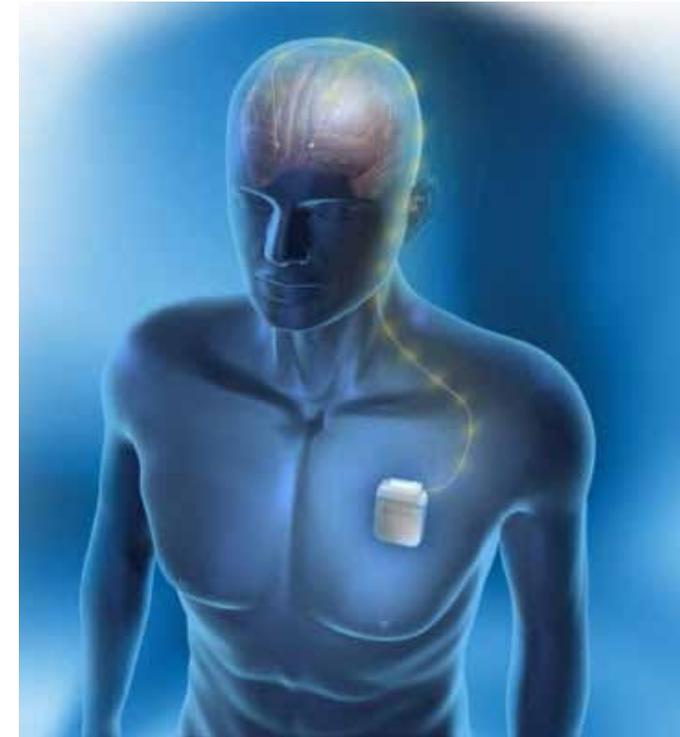


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What is DBS?

Deep brain stimulation (DBS) has benefited more than 100,000 patients over a quarter of a century. The DBS system sends electrical signals into one of three target areas of the brain that control movement: Subthalamic Nucleus-STN; Globus Pallidus pars interna-GPi; and Ventral Intermediate Nucleus of the Thalamus-Vim. Studies have shown that these signals translate into improved symptoms for patients with movement conditions – mainly Parkinson’s disease, dystonia and essential tremor. DBS surgery does not cure the disease, but can help reduce the severity of symptoms, such as:

- Tremors
- Freezing
- Facial expression
- Rigidity
- Slow movements



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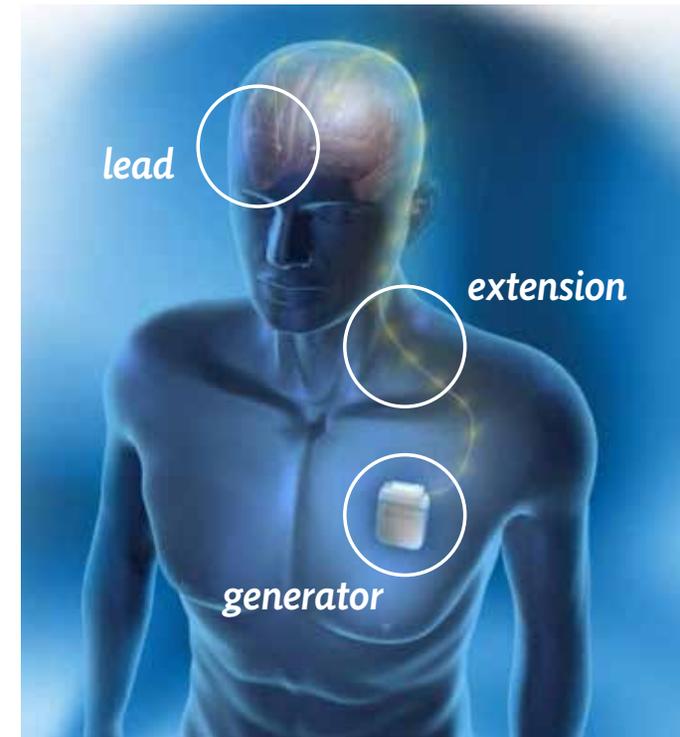
Components of DBS

Deep brain stimulation (DBS) consists of three components:

- An extremely thin, insulated wire known as a lead (electrode), which is inserted into the brain
- A pacemaker-like device known as a generator (neurostimulator), which is implanted near the collarbone
- A thin, insulated wire known as an extension, which connects the lead to the generator

The Denver DBS Center is pleased to offer patients the new two-step Asleep DBS that reduces the number of procedures and surgery time, allows patients to remain asleep during all surgeries, and improves electrode placement.

Guidelines for DBS differ for each condition, but generally patients must have moderate to severe symptoms of their disease. Doctors commonly recommend that DBS be performed before the patient loses any abilities that may be critical to his/her quality of life. Use this guide to determine if DBS might be right for you.



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DBS for Parkinson's disease



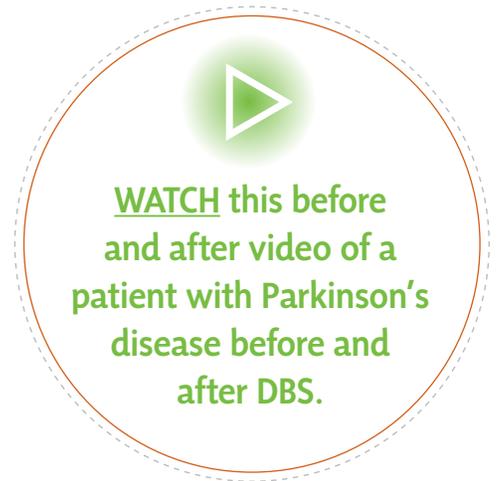
First approved by the FDA for **Parkinson's disease** in 2002, deep brain stimulation (DBS) has almost completely replaced previous surgeries to treat Parkinson's disease. DBS offers many benefits for Parkinson's disease patients, from fewer tremors to more "on time" to reduced medications. New research shows that undergoing DBS in the earlier stages of Parkinson's disease is effective, contrary to earlier recommendations that patients must have the disease for at least four years to benefit. The study also found DBS to be more effective than medications in controlling tremors in patients with Parkinson's disease.¹

Is DBS for You Questionnaire:

1. Do you have a clear diagnosis of idiopathic (arising spontaneously) Parkinson's disease?
2. Do you show fluctuations in symptoms with levodopa therapy (Parcopa, Sinemet, Stalevo)?
3. Do you show at least some improvement in symptoms with levodopa therapy?
4. Are medications alone not helping control your symptoms enough?
5. Do you lack a serious disease that would prevent surgery?
6. Are you 75 or younger and have not experienced dementia*?

**Patients 75 and older may be candidates for DBS. However, younger patients generally do better.*

If you answered 'yes' to several of the questions above, then DBS may be right for you.



¹ Schuepbach WM, Rau J, Knudsen K, et al. Neurostimulation for Parkinson's disease with early motor complications. *N Engl J Med.* 2013;368(7):610-22.



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DBS for Essential Tremor

Close to 10 percent of US adults suffer from **essential tremor**, a hereditary condition that causes uncontrollable movements in any part of the body. Approved by the FDA for essential tremor in 1997, deep brain stimulation (DBS) has helped people better control their tremors. Typically recommended for those with moderate to severe tremors who have failed medications or for those whose tremors interfere with quality of life by causing issues with writing, drinking, and other functional tasks. DBS has been shown to effectively suppress essential tremor for more than six years after implantation.²

Is DBS for You Questionnaire:

1. Are medications ineffective in controlling your tremors?
2. Are tremors interfering with your ability to socialize and preventing you from participating in activities you previously found enjoyable?
3. Are tremors complicating everyday tasks like eating and writing?

If you answered 'yes' to any of the questions above, then DBS may be right for you.



WATCH this before and after video of a patient with essential tremor before and after DBS.

² Rehnrcrona S, Johnels B, Widner H, Tornqvist AL, Hariz M, Sydow O. Long-term efficacy of thalamic deep brain stimulation for tremor: double-blind assessments. *Movement Disorders*. 2003;18:163-170.



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DBS for Dystonia

Affecting approximately 300,000 in North America of all ages, dystonia causes uncontrollable twisting and jerky movements. Deep brain stimulation (DBS) may be considered for dystonia patients who have not responded to oral medications or Botox injections. DBS for dystonia was approved by the FDA under a Humanitarian Device Exemption (HDE) in 2003 for individuals 7 year of age and older. DBS has been found to reduce medication use to treat dystonia.³ The Denver DBS Center is approved to offer DBS for patients with dystonia under the FDA exemption.

Is DBS for You Questionnaire:

1. Have medications, including Botox, been unable to control your dystonia?
2. Are you seven years of age or older?

If you answered 'yes' to both of the questions above, then DBS may be right for you.



³ Kupsch A, Benecke R, muller J, et al. Pallidal deep-brain stimulation in primary generalized for segmental dystonia. *N Engl J Med.* 2006;355:1978-90.



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DBS for Obsessive-Compulsive Disorder (OCD)

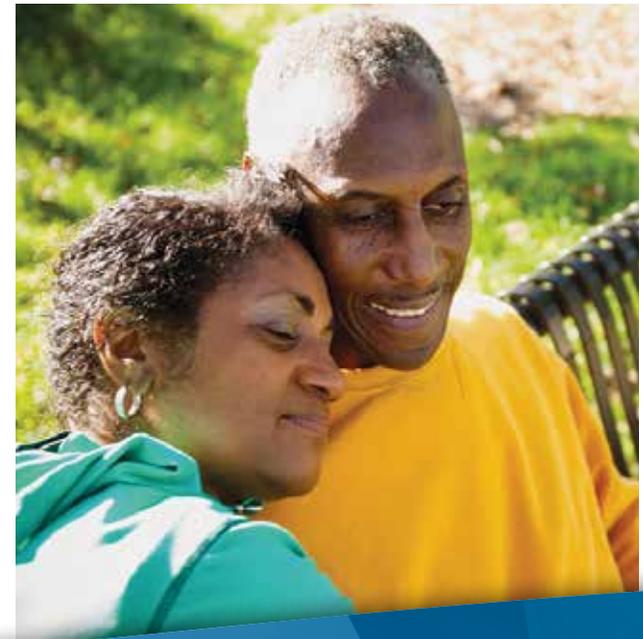
Deep brain stimulation (DBS) is currently being used on a case-by-case basis for **obsessive-compulsive disorder (OCD)** under a Humanitarian Device Exemption (HDE) from the FDA. Patients must meet several criteria in order to be considered a candidate for DBS. The Denver DBS Center is approved to offer DBS for patients with OCD under the FDA exemption.

DBS helps patients with OCD by stimulating the region of the brain where circuits are working overtime. The electrical signal sent by the DBS device interrupts the overactive circuits, leading to reduced anxiety and reduced compulsive behaviors. DBS for OCD should be considered a treatment rather than a cure.

Is DBS for You Questionnaire:

1. Do you have intractable OCD?
2. Have medications and therapies failed to control your OCD?
3. Do you experience a severe level of dysfunction as a result of OCD?
4. Do you lack other psychiatric and neurological disorders?

If you answered 'yes' to many of the questions above, then DBS may be right for you.



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Next Steps

If you determine that deep brain stimulation (DBS) might be right for you after reviewing this guide, your next step is to talk with your primary care physician or neurologist. You also can call the Denver DBS Center toll-free at **1.855.202.9303** for a free phone consultation.

To prepare for your meeting, take a moment to jot a few notes:

What questions do you have about DBS?

What concerns do you have about DBS?

What additional information do you need to help you make a decision about DBS?

Partnering With Your Doctor

The Denver DBS Center is committed to working directly with your neurologist or primary care physician to deliver the best possible care to you. We will talk with your doctors before, during, and after your surgery to ensure continuity of care so that you can return home worry-free. To help coordinate your care, we provide a patient concierge service that will help schedule your appointments and testing, obtain records, arrange travel and accommodations and be available to answer your questions or respond to your physician's needs.



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Call us today toll-free at **1.855.202.9303** to learn if DBS is right for you or email us at **info@DenverDBSCenter.org**.

About The Denver DBS Center

At the Denver DBS Center, we put you first, ensuring that your questions and needs are addressed every step of the way. Our team provides a patient concierge service, neurosurgeons, and a customized inpatient rehabilitation program. Dr. VanSickle, along with our expert DBS team, also partner with your neurologist to ensure customized and personalized care.

Why Choose the Denver DBS Center?

- More than six years of experience performing hundreds of DBS surgeries
- Complication rate well below national average, with a less than 0.5% infection rate
- Attention to detail and increased precision with electrode placement, the most vital aspect of the surgery. Both electrodes are placed in the same surgery, and is completed in less than 2 hours for most patients.
- Customized care and attention, with a patient concierge service, coordinated pre- and post-surgery visits, and inpatient programming
- Partners with your neurologist

David VanSickle, MD, PhD



Dr. David VanSickle specializes in functional neurosurgery, neuro-oncology, deep brain stimulation, and surgery for epilepsy. He is one of only a few neurosurgeons worldwide to perform Asleep DBS. He has performed more robotically guided Asleep DBS procedures than any other neurosurgeon in the world.



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