



For many people suffering from the debilitating effects of Parkinson disease, deep brain stimulation (DBS) can significantly improve quality of life by reducing symptoms and one's dependence on medication. While effective at managing symptoms, DBS is not a cure and does not change the course of Parkinson disease. Deep brain stimulation is often referred to as an "advanced treatment" or "advanced therapy." This language sometimes leads a person to think that their disease must be advanced before they can discuss this type of treatment option. Or they think that if they start thinking about it or are asked to consider it, then their disease is in the advanced stages – and that can be frightening. In this article we will go over the ins and outs of DBS.

What is Deep Brain Stimulation?

Deep brain stimulation (DBS) functions like a pacemaker for the brain with electrodes signalling certain cells and chemicals within the brain ideally resulting in some motor symptom improvement. Symptoms that respond well to intervention include:

- » Bradykinesia (slowness of movement)
- » Dystonia (sustained or repetitive muscle twisting, spasm or cramp)
- » Dyskinesia
- » Stiffness
- » Tremor

The impulses generated by the DBS device interfere with, and block, the electrical signals that cause Parkinson's symptoms. It is important to acknowledge that DBS does **not** replace medication; however, often timing and/or dosages can be reduced once desired programming levels are obtained.

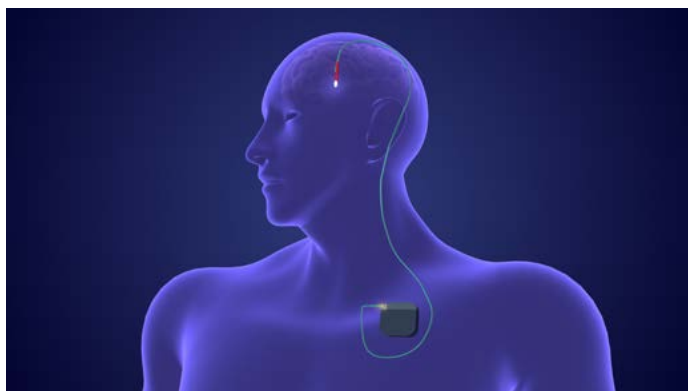
About the Procedure:

Deep brain stimulation surgery has come a long way over the years. Once primarily done with the patient awake, there are now some instances where the patient does not have to be awake. During the procedure the neurosurgeon implants electrodes deep into a precisely targeted area of the brain that controls movement; these electrodes then produce electrical impulses that affect certain cells and chemicals which in turn can positively impact some motor symptoms. The amount of stimulation is controlled by a neurostimulator (pacemaker-like device) placed under the skin in one's upper chest with a wire (that travels under the skin) connecting this device to the electrodes in the brain.

The neurostimulator is not turned on immediately. Recovery from the surgery takes time. Sometimes there is a "honeymoon" period after surgery when one's Parkinson's symptoms are less bothersome as a result of the electrode being placed in the brain – this can also be referred to as "incisional effect."

After a few weeks of recovery, the initial programming appointment will be scheduled. It is at that time that the neurostimulator will be turned on. It is very important to note that much like finding the right combination of medications to treat one's unique Parkinson's symptoms can take time; it often takes multiple programming appointments to determine the best setting for optimal control of symptoms.

In general, DBS can be used as a treatment option for multiple years (replacing the battery periodically) with a general rule of thumb being that it will remain effective so long as the Parkinson's symptoms respond to dopaminergic medications.



Who is DBS For?

Given the seriousness of the procedure, there is a substantial screening process (that can take up to a year) to determine if a person is a suitable candidate and not everyone will be a good candidate for this surgery. Being Young Onset or of an older age does not exclude those who are otherwise healthy from being a possible candidate for DBS. The decision to recommend and ultimately undergo surgery depends on a critical assessment of each person's specific symptoms. Some of the criteria used to determine if you might be a good candidate include:

1. You must have been diagnosed with Parkinson disease and have a response to Parkinson's medications.
2. You experience disabling dyskinesias (involuntary movements of the face, arms, legs or trunk).
3. You experience disabling tremors that impact activities of daily living.
4. You experience severe motor fluctuations that cannot be controlled with adjustments to medication schedules.
5. You often experience significant dyskinesias in combination with rapid wearing off and/or significant off time throughout the day.

Surgery may potentially provide more effectiveness for those who experience complications with medications, such as dyskinesias, but continue to respond well to levodopa.

Deep brain stimulation is not recommended for individuals with balance concerns, cognitive concerns, or other potential health conditions. Additional reasons someone is not an ideal DBS candidate include:

- » Not having typical Parkinson's
- » Not responding well to levodopa
- » Having dementia, apathy, or depression
- » Being in poor health
- » Having poor or no family support

Side Effects

As with any surgical procedure, there is the potential for complications. Temporary or reversible complications associated with DBS include changes in memory, thinking, and mood patterns, seizures, infection, problems with movement and speech, along with headaches, dizziness, tingling, and electrical jolt sensations.

Other things to Consider

It is beneficial to have a family member or loved one attend DBS-related appointments with you. There are a lot of appointments necessary when considering or receiving DBS, and it can be helpful to have an extra person to ensure all the details are covered and necessary questions are asked. If you become a potential candidate for DBS surgery, it is extremely important that loved ones or care partners understand the DBS system and how it operates.

It is important to understand what DBS does and does not do, to help manage one's expectations. For example, the use of this treatment option does not mean that one's Parkinson's symptoms will not progress; DBS can only help relieve some symptoms, it cannot cure, delay, or stop the progression of Parkinson's.

Though the idea brain surgery can be intimidating, deep brain stimulation is an innovative technology that has proven effects for those suffering from Parkinson's; talk to your neurologist if this treatment is something you might be interested in.