Deep brain stimulation

What is deep brain stimulation?
Deep brain stimulation (DBS) is the main type of surgery for Parkinson’s. It involves inserting very fine wires, with electrodes at their tips, into targeted parts of the brain – this can be done under general or local anaesthetic.

The wires are then connected to a battery powered pacemaker-like device called a neurostimulator, which is implanted under the skin of the chest. Some centres do this at the same time as inserting the wires, others do it as part of a separate procedure.

The device contains batteries and electronics that create an electric current. The current stimulates the targeted areas of the brain and has an effect on a person’s symptoms.

Who can have DBS?
The surgery only works for people who have Parkinson’s and who have shown a positive reaction to levodopa. It doesn’t work for other forms of parkinsonism, for example vascular Parkinson’s or progressive supranuclear palsy (PSP).

Generally, people suitable for surgery have:

• been unable to take any Parkinson’s medication – for example it makes them very sick or causes low blood pressure
• stopped responding to oral medication and their symptoms are fluctuating
• responded to oral medication but have complications, such as impulsive and compulsive behaviour
• had mental health problems that became worse while taking Parkinson's medication

You also need to be generally fit and well. Your mental fitness will be considered, as will your expectations about how much your condition may change after the surgery.

How effective is DBS?
DBS is not a cure for Parkinson’s, and it can’t slow the progression of the condition. But it may help you manage your symptoms, especially movement symptoms such as tremor. The stimulation lengthens the time Parkinson’s medication lasts for and as a result dosages are often lowered and your medication may be significantly reduced.

It’s worth noting, though, that it can take six months or more for your condition to settle after the surgery and to find the right level of medication for you, which can be challenging.

What are the risks of DBS?
There are some potential risks involved. Although the chance of complication is small, your specialist should discuss them with you before you go ahead. Risks may include bleeding in the brain, stroke, seizures, an infection or medical problems from the general anesthesia, such as deep vein thrombosis (clot in the leg). You may also have post-operation confusion or disorientation.

Find out more
If you are interested in finding out more about DBS, speak to your specialist or Parkinson’s nurse. You can also download our booklet, Surgery for Parkinson’s for free at parkinsons.org.uk/publications or go to page 39 for details of how to order.
Bob Taylor, diagnosed in 1998
I had been struggling with my mobility for a couple of years before I had DBS in December 2013. There were times when I was stuck waiting for my medication to work and other times when it worked too well and my body was wracked with involuntary movements. During the nights I had extreme cramp that I could only relieve with injections of apomorphine.

The facts were staring me in my blank, expressionless face. My quality of life was, at best, frustrating. It was also hard for my wife and family, who were doing their best to live with my condition too.

When my neurologist suggested I go through the assessment procedure for surgery I thought to myself, “What do I have to lose?”

The testing lasted two days and included physical, psychological and memory assessments, and a medication assessment. Then you get a chance to ask questions. Afterwards, I found out I was suitable to go ahead.

Finding a team you have absolute trust in is very important. Unfortunately I had doubts, which did not make me feel confident enough to go ahead.

My neurologist put me forward to go to another hospital and this time, it was an easy decision. I completely trusted the surgical team. It’s much easier to make informed choices when you are given full answers to your questions – and when you feel that nothing is left to chance.

Some hospitals only do the operation ‘awake’ under a local anaesthetic, but I feel fortunate that I was fast ‘asleep’ for mine! Having the surgery has given me hope for the future. My cramps have gone, and so has my blank face. I don’t have to have an injection during the night anymore, and have, so far, reduced my medication by 25%.

Martine Lewis, diagnosed in 2000
Over time, my tremor gradually became more and more unbearable. It mainly affected my left leg and arm – and if it was particularly bad, my right arm too. It was making day-to-day things like cooking dangerous – I couldn’t move a hot saucepan or use a sharp knife. I’m also a French teacher, tutoring people at my house, and it was becoming embarrassing – my students were good about it, but it was still upsetting and frustrating.

In February 2013 my neurologist suggested I consider surgery. Initially I rejected the idea. I was worried about the risk of having a stroke, but fortunately my neurologist found a hospital where the risk was low – and where, as an added bonus, I wouldn’t have to have my hair shaved! So, I decided to go ahead. This was in June. In July, I went for a two-day assessment to see if I would be a suitable candidate, and luckily, for me, I was.

My operations took place in November 2013. I was in hospital for about 10 days and had to wait for seven weeks before the electrodes were turned on. I felt quite depressed during these weeks. My tremor was much worse. But on the day of the appointment to get ‘switched on,’ I was full of hope. The nurse turned to me and said: “Look, have you noticed? Your leg has stopped shaking.” It was amazing. Afterwards it was so lovely to leave the appointment and go to the pub without anyone staring at me.

I’m glad I had the operation. My symptoms are still settling down, but my tremor is much better and my confidence has grown. I’m on less medication and there’s hope it can be reduced even further.