

# information

## SURGERY FOR PARKINSON'S

Parkinson's is a progressive neurological condition, which is characterised by both motor (movement) and non-motor symptoms.

Levodopa (a medication taken orally or directly into the small intestine) remains the gold standard treatment for Parkinson's.

Deep brain stimulation (DBS) uses mild electric impulses to stimulate a chosen area of the brain which may be the subthalamic nucleus within the basal ganglia. Other areas may also be considered depending on the symptoms.

Neurosurgery such as DBS may be considered as a treatment (not a cure) for suitable candidates and is available in most states in Australia. The procedure may vary from centre to centre and in most cases the patient is awake during the procedure. Your treating physician will discuss the methods practiced in the various centres.

Recent research indicates a rationale for DBS earlier than was previously considered. Candidates for surgery are selected by a panel of movement disorder experts, as not all patients are suitable and not all Parkinson's symptoms will respond to DBS.

As a result of DBS, the patient may be able to reduce the amount of medication previously required.

As with any surgery, there are risks involved. In the case of DBS these include death, stroke, speech changes or infection. In addition some people may experience increased depression and anxiety which may or may not be reversible.

Anecdotal evidence suggests there may be unexpected problems with co-ordination during some sequences of movements e.g. swimming – caution should be used.

The main symptoms which respond to DBS are:

- Dyskinesia - involuntary movements which can affect any part of the body and vary in intensity. These are a side effect of Parkinson's medication.
- Motor fluctuations - response to medication may become unpredictable and vary between being 'on' when medication is working and 'off' when the patient experiences stiffness, rigidity and slowness.
- Tremor - an involuntary regular motion which occurs mostly at rest and may affect any limb and the lips and less frequently the head. DBS may be considered if tremor does not respond to medication.

The criteria for selection for DBS are:

- A good response to levodopa.
- Age - while there is no definite age limitation, general fitness and ability to undergo the surgical procedure is essential.
- Intact cognition - research shows that cognitive decline does not respond well to DBS.
- Emotionally stable with no evidence of psychosis.

Research indicates that 10 - 15 years after surgery some patients are still demonstrating good results. However, it is important to remember that Parkinson's is a progressive condition and having DBS does not stop the progression. Ongoing monitoring and review of medication is required.

For further information contact  
your state Parkinson's organisation:  
Freecall 1800 644 189 [www.parkinsons.org.au](http://www.parkinsons.org.au)

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In some centres, surgery is carried out in two stages. Following the initial surgery, the patient may experience a transient positive response. This is due to the swelling of the target area affecting the nerve cells in the same way the stimulator will do when inserted and turned on. It is necessary for this swelling to subside before the stimulator is activated (turned on) and programmed.

The first stage of the surgery is the insertion of DBS wires into the area of the brain which has been targeted. Current preference is to insert the wires bilaterally following mapping of the brain by CT scan. This stage involves the wearing of a 'halo' to assist with mapping, measuring and monitoring of wire insertion. This stage can take up to seven hours.

The second stage of the procedure is carried out under general anesthetic and the stimulator is placed under the skin of the chest. The DBS wires sit under the scalp and run down behind the ear into the stimulator which resembles a cardiac pacemaker.

Programming of the stimulator may take several weeks to reach an optimum effect. The stimulator is a sealed unit which is run by batteries lasting approximately four to five years at which time the stimulator is changed.

In the past it was not possible to undergo an MRI if a stimulator was in place. Since 2016, some DBS devices can now undergo full body MRI under specific conditions.

Please refer to your neurologist if an MRI is required (to confirm eligibility). All forms of diathermy treatments (shortwave, microwave and ultrasound) are contraindicated for people who have a Deep Brain Stimulator in place.

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