



## Electrode operation brings hope for sufferers of severe disorders

# Battle for the brain

Kate Sikora  
 Jorja Orreal

NOEL Green underwent parts of brain surgery while awake.

Under anesthetic, the 66-year-old's head was sliced open, his scalp pulled back 10cm to expose his brain, and two electrodes were inserted deep inside his brain to stop a life-long condition that caused him to shake uncontrollably.

There was complete silence from the 11-strong operating theatre team and the room was in near darkness except for a spotlight over his brain, ready for Brisbane-based neurologist Professor Peter Silburn to do his thing.

After the procedure, Mr Green was woken up and a water bottle filled with purple liquid was placed in his left hand. It shook uncontrollably and then the shaking stopped.

Mr Green, from Redland Bay,

could not lift his head to see his steady hand for the first time in decades. He had a metal brace screwed into his head which locked to the bed so he did not move during the operation.

Within seconds he was sent back to sleep as neurosurgeon Dr Terry Coyne prepared the right side of the brain to have an electrode inserted. The electrode would, hopefully, stop the constant tremors. This was deep brain stimulation.

The *Courier-Mail* was granted rare access to witness the ground-breaking operation used to treat Parkinson's disease and primary dystonia.

But neurologists believe DBS will be used to treat dozens more neurological disorders – trials have proved successful in treating severe depression, epilepsy and Tourette's syndrome.

Since the first DBS procedure

was performed in France in 1987, 60,000 people have undergone the therapy and doctors Coyne and Silburn have performed about 500.

"It's not a cure," Dr Silburn said. "It's restoring function, independence and self-esteem. This is going to get bigger and bigger."

During the operation Dr Silburn anxiously bounced on his toes as he pored over X-rays, MRI and CT scans that showed Mr Green's brain. He had to pinpoint to within 1mm where the malfunction was occurring.

When Mr Green, who was in an anaesthetic sleep, was wheeled in at 8.30am, the room was thrown into darkness, and a foul smell spread, the smell of bone burnt by the drill.

Once the hole had been cut and the electrodes dropped in it was time to wake him up. Then

came "the moment" when a supermarket water bottle tested if the operation was a success.

"The patient has to be awake enough but calm so they don't move," Dr Silburn said.

"Most of them remember it. We need them to be awake so we can check everything is working and get the sign that it's OK. It's fantastic because you see years of disability just go like that."

The operation took just under three hours.

Mr Green said life for the couple of months since the operation had been "good – 100 per cent".

"I haven't been able to sign my name or pick up a coffee without spilling it for years, and now I can do everything again," he said. "I can do everything myself now."



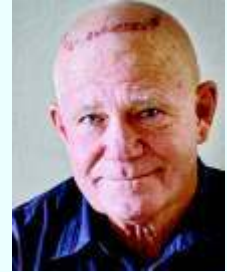
## HOW THEY DID IT

- 1 Head sliced open and scalp pulled back
- 2 Doctors pinpointed to within 1mm where the brain cell malfunction causing the tremors was occurring
- 3 They then drilled a hole 2mm thick and 10cm deep to insert an electrode (electrodes fire about 130

- times a second, sending up to 10 volts to the part of the brain that caused tremors)
- 4 The electrode was then connected to a battery (the size of a small mobile phone)
- 5 It was inserted into the chest (it lasts up to six years before it needs replacing) and the battery was switched on

- 6 A crackling sound like radio static signalled there was brain cell activity
- 7 When a water bottle filled with purple liquid was placed in Mr Green's left hand, it first shook uncontrollably and then the shaking stopped

**COMPLEX:** The operation (below) and Noel Green (right).



Picture: Jodie Richter