



**Unit of Functional Neurosurgery**

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Professor Marwan I Hariz Chair of Functional Neurosurgery Tel: +44 (0) 20 7419 1860 Email: <a href="mailto:m.hariz@ion.ucl.ac.uk">m.hariz@ion.ucl.ac.uk</a>	Dr Patricia Limousin, Senior Lecturer Consultant Neurologist Tel: +44 (0) 20 7837 3611 Ext 3040 Email: <a href="mailto:p.limousin@ion.ucl.ac.uk">p.limousin@ion.ucl.ac.uk</a>	Mr Keyoumars Ashkan, Senior Lecturer Consultant Neurosurgeon Tel: +44 (0) 20 7837 3611 Ext 3054 Email: <a href="mailto:k.ashkan@ion.ucl.ac.uk">k.ashkan@ion.ucl.ac.uk</a>	Professor Marjan Jahanshahi Consultant Neuropsychologist Tel: +44 (0) 20 7837 3611 Ext 3055 Email: <a href="mailto:m.jahanshahi@ion.ucl.ac.uk">m.jahanshahi@ion.ucl.ac.uk</a>
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**PARKINSON'S APPEAL: Unit of Functional Neurosurgery**

**Progress Report November 2006**

The Unit of Functional Neurosurgery at the Institute of Neurology (IoN), Queen Square was established in October 2002 when Professor Marwan Hariz was appointed to the first established University Chair of Functional Neurosurgery (The Edmond J. Safra Chair); Professor Hariz was also appointed Consultant Neurosurgeon at the National Hospital for Neurology and Neurosurgery (NHNN). The Unit of Functional Neurosurgery was established through the generous support of The Parkinson's Appeal, led by Mrs Lyn Rothman. The Unit is dedicated to the treatment of patients with Parkinson's disease and other movement disorders using the technique of Deep Brain Stimulation (DBS), a new technique for correcting abnormal function in brain circuits that control movement.

The mission for the Unit is both to provide a first-rate treatment for patients with Parkinson's Disease and other movement disorders, and to carry out extensive research aimed at understanding, improving and extending the use of DBS as a treatment. This research is carried out at the Institute of Neurology.

**Recent Developments in the Unit**

**Clinical Activity in the Unit**

By November 2006, a total of 105 patients have been treated with DBS in the Unit. 38 patients are part of the MRC PD Surgery Trial. 35 patients suffer from dystonia, for which DBS is also a very effective treatment. 2 patients with chronic deafferentation pain also benefited from DBS. The success rate of the Unit remains extremely good.

**Current Staff Members in the Unit**

Professor M Hariz (*Edmond J. Safra Chair of Functional Neurosurgery*)  
Mrs P Forsdick (*PA to Professor Hariz*)  
Dr P Limousin (*Consultant Neurologist and Senior Lecturer*)  
Professor M Jahanshahi (*Consultant Neuropsychologist*)  
Mr K Ashkan (*Consultant Neurosurgeon and Senior Lecturer*)  
Dr S Tisch (*Clinical Research Fellow, PhD student*)  
Mr L Zrinzo (*Specialist Registrar and Clinical Research Fellow*)  
Dr L Wilkinson (*Postdoctoral Research Fellow*)  
Ms E Tripoliti (*Speech Therapist, PhD student*)  
Ms E Borrell (*Specialist Movement Disorder Nurse*)

UCL Institute of Neurology • National Hospital for Neurology & Neurosurgery • Unit of Functional Neurosurgery (Box 146), Sobell Department, Queen Square • London WC1N 3BG

Secretary: Ms Patricia Forsdick ☎ +44 (0)20 7837 3611 Ext 3656 • Fax: +44 (0)20 7278 9836 • Email: [p.forsdick@ion.ucl.ac.uk](mailto:p.forsdick@ion.ucl.ac.uk)  
Movement Disorder Specialist Nurse: Ms Ellie Borrell ☎ +44 (0)20 7837 3611 Ext 4459 • Email: [ellie.borrell@uclh.nhs.uk](mailto:ellie.borrell@uclh.nhs.uk)

### **Long-term support for the Unit**

We are delighted to report that both the Edmond J Safra Philanthropic Foundation and the Monument Trust have agreed to extend their financial support for the Unit into the next five-year period of the Unit (2007-2012). UCL, ION and the NHNN are all very grateful for this very welcome news. The new grants will help to secure the long-term future of the Unit and its important work.

### **National Specialist Advisory Service (NSCAG) Report on the work of the Unit**

The NHS National Specialist Advisory Service (NSCAG) for Deep Brain Stimulation visited Queen Square in September 2005 to make their assessment of the DBS service here. The Unit subsequently received an excellent report, which endorsed both the quality of the surgical facilities here and the lack of severe complication in the patients treated to date. Our Unit is one of the foremost in the UK in terms of numbers of patients treated with DBS for movement disorders.

### **NICE backs use of DBS for Tremor and Dystonia**

In August 2006 the National Institute for Health and Clinical Excellence (NICE) issued full guidance to the NHS in England, Wales, Scotland and Northern Ireland on deep brain stimulation for tremor and dystonia. This advice extends the backing of NICE for DBS used to treat Parkinson's disease into two important new areas of movement disorder: tremor and dystonia. Our Unit contributed important evidence to the NICE evaluation of DBS. The NICE recommendation states that "*Current evidence on the safety and efficacy of deep brain stimulation for tremor and dystonia appears adequate to support the use of this procedure*" and recommends that patient selection and management should be carried out in the context of a multidisciplinary team specialising in the long-term care of patients with movement disorders" This last recommendation is exactly the way our Unit operates! The website is [http://www.nice.org.uk/page.aspx?o=IP\\_319](http://www.nice.org.uk/page.aspx?o=IP_319)

### **DBS Support Group**

With the increasing number of operated patients, and increasing demands on the Unit's personnel, it has been considered helpful to set up a DBS Support Group, to provide patients and their families with extra psychological and emotional support in the immediate pre- and post-operative periods. Professor Jahanshahi and Ms Ellie Borrell are in the process of setting up such a DBS Support Group. Initially, the Support Group will be run from Queen Square, with Professor Jahanshahi and Ms Ellie Borrell having a major input. It is envisaged that, over time, one or more of the patients operated in the Unit of Functional Neurosurgery would take over the running of the Support Group. Membership of the Group will be open to any patient who has been operated in the Unit of Functional Neurosurgery.

### **Website**

The Parkinson's Appeal website is completely up-to-date. Please visit it at <http://www.parkinsonsappeal.com/>

### **NEW: Unit features in a new BBC documentary series "The Brain Hospital"**

Patients and staff in the Unit feature regularly in this new BBC 1 series. Screenings are: Wednesdays 22<sup>nd</sup> and 29<sup>th</sup> November and 6<sup>th</sup> December, all at 21.00

### **NEW: Second Major International Meeting to be hosted by the Unit**

On February 8<sup>th</sup> and 9<sup>th</sup> 2007 the Unit of Functional Neurosurgery, Institute of Neurology, will host its second major international meeting "**Functional Neurosurgery for Movement Disorders and Mental Illness**". This meeting will bring together the leading international figures in DBS, with major contributions from all over the world on functional neurosurgery, clinical neurology, neuropsychology

and neuroscience. The meeting will commemorate the 150th anniversary of the birth of Sir Victor Horsley, who worked at the National Hospital and was the founder of stereotactic neurosurgery.

**NEW: Work has started on the new Clinical Neurosciences building, 33 Queen Square, providing new accommodation for the Unit**

In October 2006 work has got underway on our new Clinical Neuroscience Centre on the site of 33 Queen Square. The new building is a joint development between the National Hospital and the Institute of Neurology. It will accommodate the Unit and its patients on the east side of Queen Square, in close proximity to hospital wards, imaging facilities, operating theatre and the intensive care unit. The Wolfson Foundation has awarded a grant of £1m towards the cost of the new building. We hope that the Unit will move to its new accommodation in April 2008.

**Simon Sainsbury**

It was with great sadness that we learnt in September of the sudden death of Simon Sainsbury. Simon was one of our most loyal, long-standing and charming supporters. He did a great deal through his work for the Unit to help those suffering from Parkinson's disease, and he will be greatly missed.

**Roger Lemon**

Director  
Institute of Neurology

November 2006

**Marwan Hariz**

Edmond J Safra Chair of Functional Neurosurgery  
Institute of Neurology

## Research Grants/Awards

### **Professor Hariz**

- 2005-2007 Improving the Accuracy and Efficiency of Surgical Implantation of Therapeutic DBS Electrodes: Intra-operative Use of Local Field Potentials to Identify the Subthalamic Nucleus  
DANA Foundation Clinical Neuroscience Research Grant: Prof P Brown  
Co-Applicants: Prof M Hariz and Dr P Magill.  
**\$136,000**
- 2006-2008 Effective target volume from DBS and RF electrodes for functional neurosurgery – theoretical and experimental analysis.  
The Swedish Research Council  
Co-Applicants: Prof M Hariz and Prof Karin Waardell (Univ of Linköping, Sweden)  
**1,800,000 SEK**
- 2005- Functional Connectivity of the motor system in healthy subjects and in patients with Movement disorders or stroke – to test if surgery changes the pattern of functional connectivity in the motor system using transcranial magnetic stimulation methods to detect connections from premotor and parietal areas to the motor cortex  
Medical Research Council: Prof J Rothwell, in collaboration with the Unit  
**£1,031,803**

### **Professor Jahanshahi**

- 2005-2007 Does provision of visual cues through virtual reality glasses improve mobility in Parkinson's disease? A controlled study  
Project Grant from the Parkinson's Disease Society  
Co-applicants: Dr R Greenlaw, Professor N Quinn  
**£98,193**
- 2004-2006 ESRC/MRC Postdoctoral Fellowship for Dr Leonora Wilkinson  
**£61,860**
- 2005-2007 ParkService – Telematics application service for people with Parkinson's disease. A market validation proposal.  
European Commission eTen (Trans-European Telecommunications Networks)  
Co-applicant with OCC, MESTOR, ICCS, PROMITHEAS, PARKAID, GRIGIONI, SCHENECKENHAUS  
**€640,000**

### **Dr Limousin**

- 2005-2010 STN Stimulation – Neural Control of Movement and Posture  
Medtronic  
Co-applicant: Prof Rothwell  
**\$175,000**
- 2006-2009 A therapeutic approach to freezing in Parkinson Disease  
MRC  
Co-applicant: Dr Day
- 2005-2008 Impact of Deep Brain Stimulation on speech in patients with Parkinson's disease  
Project Grant from the Parkinson's Disease Society  
**£99,698**

2004-2005	Pump priming grant for the position of specialist PD Nurse Parkinson's Disease Society	<b>£40,000</b>
2004-2005	Effect of DBS on speech in Parkinson's disease and dystonia Federation Francaise des Groupements Parkinsoniens	<b>£12,000</b>
2005-2006	Mechanisms by which effective subthalamic nucleus stimulation alters spatial and temporal patterns of motor cortical activity based on the following terms and conditions. NIH/Medtronic Co-applicants: J Rothwell, D Corcos, E Tripoliti	<b>\$175, 000</b>
2003-2005	Study of Brain Plasticity following GPi stimulation for dystonia BRT	<b>£55,194</b>
2006-2007	Quantification of the effect of stimulation parameters adjustment in Parkinson's disease Rosetrees Trust	<b>£5,000</b>

### **Research Publications from the Unit 2004-2006**

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