

Produire du soin, produire du savoir en neurosciences. Le cas de la stimulation cérébrale profonde

Baptiste Moutaud
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- ◉ « *Il y avait un patient qui appelait [une neurochirurgienne] la nuit pour lui déclarer sa flamme. On l'a repris ici en neurologie et on a changé la stimulation. Et voilà ! Il ne voulait plus l'épouser.* »
 - ◉ Un neurologue.

A case of experimental depression (Bejjani, 1999 NEJM)



Brief Report

TRANSIENT ACUTE DEPRESSION INDUCED BY HIGH-FREQUENCY DEEP-BRAIN STIMULATION

BOULOS-PAUL BEJJANI, M.D.,
PHILIPPE DAMIER, M.D., PH.D., ISABELLE ARNULF, M.D.,
LIONEL THIVARD, M.D., ANNE-MARIE BONNET, M.D.,
DIDIER DORMONT, M.D., PHILIPPE CORNU, M.D.,
BERNARD PIDOUX, M.D., PH.D., YVES SAMSON, M.D.,
AND YVES AGID, M.D., PH.D.

=> “This experiment has marked a turning point: from them on we could act on mental states and emotions, not just on motricity.” (A neurologist)

Pathological Crying After Subthalamic Nucleus Stimulation

Pornjira Pariwatcharakul, MD, MSc, FRCPsychT,^{1,2,3*} Chris Clough, MB, ChB, FRCP,⁴ Paul Shotbolt, MA, MBBS, MRCPsych,
PhD,^{2,5} Robert Morris, MBChB, FRCS(SN),⁶ Na
Michael Samuel, MA, MD, FRCP,⁴ ar

PAPER

Behavioural disorders, Parkinson's disease and subthalamic stimulation

J L Houeto, V Mesnage, L Mallet, B Pillon, M Gargiulo, S Tezenas du Moncel,
A M Bonnet, B Pidoux, D Dormont, P Cornu, Y Agid

J Neurol Neurosurg Psychiatry 2002;72:701–707

Brain (2008), 131, 2720–2728

- Behavioral side effects :
Mania/hypomania
Depression
Hypersexuality
Euphoria
Aggressivity
Apathy
Panic and fear
Pathological gambling...

Movement Disorders
Vol. 21, No. 11, 2006, pp. 1941–1946
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Pathological Gambling in Parkinson's Disease Improves on Chronic Subthalamic Nucleus Stimulation

Claire Ardouin, MA,¹ Valerie Voon, MD,² Yulia Worbe, MD,³ Nehman Abouazar, MD,¹

SHORT REPORT

Panic and fear induced by deep brain stimulation

N A Shapira, M S Okun, D Wint, K D Foote, J A Byars, D Bowers, U S Springer, P J Lang,
B D Greenberg, S N Haber, W K Goodman

Acta Neurochir (Wien) (2006) 148: 895–898
DOI 10.1007/s00701-006-0795-4

Acta Neurochirurgica
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Case Report

Hypomania as an adverse effect of subthalamic nucleus stimulation: report of two cases

CLINICAL CASE STUDY ARTICLE
published: 06 May 2014
doi: 10.3389/fnbeh.2014.00152



frontiers in
BEHAVIORAL NEUROSCIENCE

A case of musical preference for Johnny Cash following deep brain stimulation of the nucleus accumbens

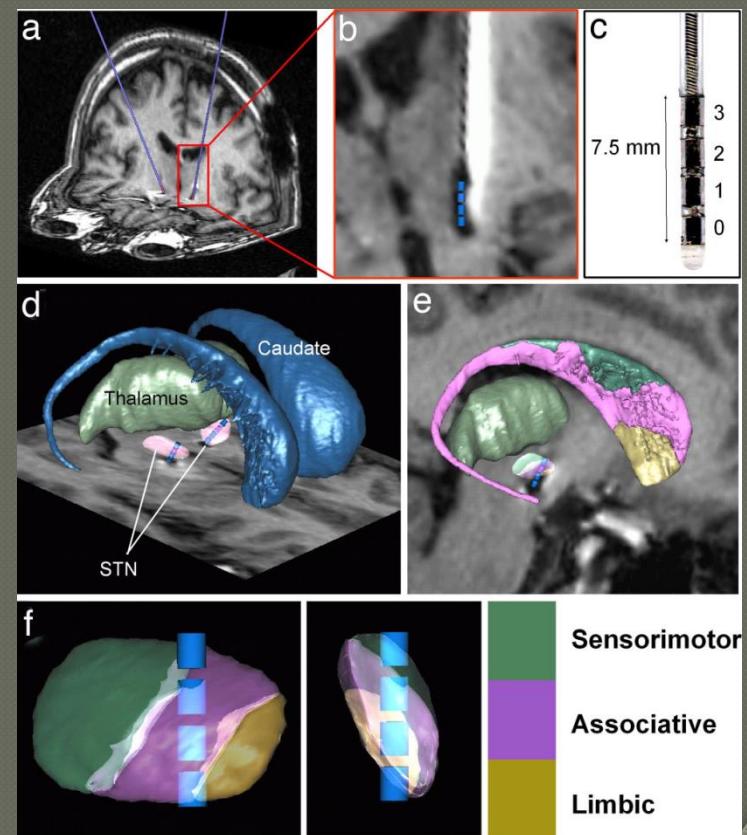
Mariska Mantione^{1*}, Martijn Figee¹ and Damiaan Denys^{1,2*}

Exploring human brain functions *in vivo*

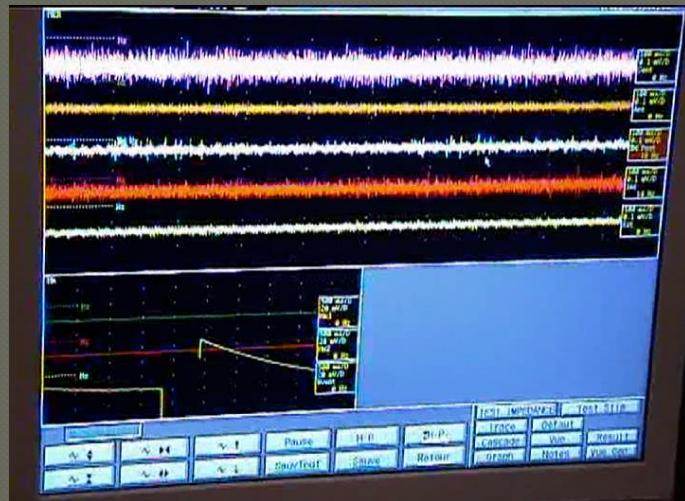
Stimulation of subterritories of the subthalamic nucleus reveals its role in the integration of the emotional and motor aspects of behavior

Luc Mallet^{**†}, Michael Schüpbach[†], Karim N'Diaye[§], Philippe Remy[¶], Eric Bardinet[§], Virginie Czernecki^{||}, Marie-Laure Welter[†], Antoine Pelissolo^{**}, Merle Ruberg^{††}, Yves Agid^{†,††}, and Jérôme Yelnik^{††}

Mallet & al. 2007 PNAS



An experimental body



“La différence entre 0 et 1”

SWEET W., 1976, “The difference between zero and one”,
Clinical Neurosurgery, 23, 32-51

Deep Brain Stimulation and the Neuroethics of Responsible Publishing

When One Is Not Enough

Thomas E. Schlaepfer, MD

Joseph J. Fins, MD

unsuccessful DBS treatment of an anxiety disorder was primarily published because of concomitant remission of alcohol dependence,⁴ and another case of likewise unsuccessful treatment of obesity was primarily published because of

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- « Je ne sais pas si elle [la neurologue] me l'avait mis trop fort [la stimulation] parce qu'une fois j'ai été très énervé quand ils m'ont remis le courant. Je ne devais pas le savoir, mais j'ai senti parce que chez moi je ne faisais que parler, je tournais en rond et puis je ne mangeais pas, je ne dormais plus. Et puis j'ai été hospitalisé d'urgence à X, et à X ils m'ont emmené à l'hôpital psychiatrique Y. J'étais tellement énervé qu'ils ont cru que j'étais fou, je tournais autour du lit, ils m'ont enfermé dans la chambre d'isolement. Alors c'est là que je me suis aperçu que j'avais des fluctuations : à des moments j'allais bien et puis je commençais à devenir fou. Il y a des moments j'avais mauvais moral, je croyais qu'ils m'avaient enfermé pour faire des expériences, je commençais à devenir fou. Et puis, quand j'avais été hospitalisé, j'étais un peu irritable, j'étais désagréable avec les infirmiers. »



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Scientific and Ethical Issues Related to Deep Brain Stimulation for Disorders of Mood, Behavior and Thought

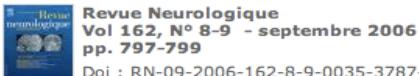
Peter Rabins, M.D., M.P.H.¹, Brian S. Appleby, M.D.¹, Jason Brandt, Ph.D.¹, Mahlon R. DeLong, M.D.², Laura B. Dunn, M.D.³, Loes Gabriëls, M.D., Ph.D., Msc.Eng.⁴, Benjamin D. Greenberg, M.D., Ph.D.⁵, Suzanne N. Haber, Ph.D.⁶, Paul E. Holtzheimer III, M.D.⁷, Zoltan Mari, M.D.⁸, Helen S. Mayberg, M.D.^{2,7}, Evelyn McRasimus, M.D., M.M.S.⁵, Thomas E. Schlaepfer, Jerrold L. Vitek, M.D., Ph.D.¹², John Walkup, M.D.¹⁰

Available data suggest that the results of DBS and ablation of the subthalamic nucleus and internal pallidum in patients with PD are comparable. In OCD, published and unpublished data (Gabriëls and colleagues;²¹) suggest that capsulotomy can produce equivalent results to DBS of the internal capsule. One case has been reported of DBS following ablative cingulotomy in a patient with treatment resistant depression²². Comparative studies may be more complex ethically in cases where the DBS target region has never been a lesioning target. For target regions with existing lesioning data, conference participants concluded that studies comparing the outcomes of focal lesions versus DBS are ethical in part because of the high initial and ongoing costs of

DBS technology (e.g., for regular battery replacements), which make it unavailable to those with inadequate funds or insurance coverage, in both the developed and developing world. The need for indefinite access to highly specialized teams makes DBS impractical for some patient populations. DBS also carries risks and burdens, such as stimulation interruption due to battery depletion, not present in lesioning. As such, researchers should investigate treatments that might produce equivalent results without DBS's high costs and ongoing need for follow-up care. That said, and in

Réguler pour prévenir le scandale (1)

- Deux modalités : initier le débat éthique (ALB et CCNE) ou alerter la communauté scientifique ou le grand public des usages mais aussi de potentielles dérives des pratiques



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Attention, la psychochirurgie est de retour !

The return of psychosurgery

A.L. Benabid

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Tirés à part : A.L. BENABID

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Editorial

**Stereotactic
and Functional
Neurosurgery**

Stereotact Funct Neurosurg 2013;91:198–200
DOI: [10.1159/000342782](https://doi.org/10.1159/000342782)

Surgery for Aggressive Behavior Disorder

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Pour Marc Lévéque, neurochirurgien, les progrès de la stimulation cérébrale profonde permettent aujourd'hui d'élargir leur indication à de nombreuses maladies neuropsychiatriques. Mais s'accompagnent d'importantes questions éthiques

Le retour discuté de la psychochirurgie

| TRIBUNE |

Réguler pour prévenir le scandale (2)

- Deuxième modalité: multiplier les recommandations, règles de bonnes pratiques et outils de régulation (guidelines, groupes d'experts indépendants, bases de données, etc).

PERSPECTIVES

Scientific and Ethical Issues Related to Deep Brain Stimulation for Disorders of Mood, Behavior, and Thought

Peter Rabins, MD, MPH; Brian S. Appleby, MD; Jason Brandt, PhD; Mahlon R. DeLong, MD; Laura B. Dunn, MD; Loes Gabriels, MD, PhD, MScEng; Benjamin D. Greenberg, MD, PhD; Suzanne N. Haber, PhD; Paul E. Holtzheimer III, MD; Zoltan Mari, MD; Helen S. Mayberg, MD; Evelyn McCann; Sallie P. Mink, RN, BS; Steven Rasmussen, MD, MMS; Thomas E. Schlaepfer, MD; Dorothy E. Vawter, PhD; Jerrold L. Vitek, MD, PhD; John Walkup, MD; Debra J. H. Mathews, PhD, MA

RESEARCH PAPER

Consensus on guidelines for stereotactic neurosurgery for psychiatric disorders

Bart Nuttin,^{1,2,3,4} Hemmings Wu,¹ Helen Mayberg,^{3,5} Marwan Hariz,^{4,6}

Tourette Syndrome Deep Brain Stimulation: A Review and Updated Recommendations

Lauren E. Schrock, MD,¹ Jonathan W. Mink, MD, PhD,² Douglas W. Woods, PhD,³ Mauro Porta, MD,⁴ Dominico Servello, MD,⁵ Veerle Visser-Vandewalle, MD, PhD,⁶ Peter A. Silburn, MD,⁷ Thomas Fotynie, MRCP, PhD,⁸ Harrison C. Walker, MD,⁹

Brain Stimulation (2011) ■■■



LETTER TO THE EDITOR

A neuromodulation experience registry for deep brain stimulation studies in psychiatric research: rationale and recommendations for implementation

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*ACTA PSYCHIATRICA
SCANDINAVICA*

Applicants for stereotactic neurosurgery for psychiatric disorders: role of the Flemish advisory board

Gabriëls L, Nuttin B, Cosyns P. Applicants for stereotactic

L. Gabriëls¹, B. Nuttin², P. Cosyns³