See ABOUT WIKISTIM

NEWSLETTER #106 AUGUST 2022

The Neuromodulation Foundation is Fifteen!

By August 2007, when Dr. North left Johns Hopkins to join another Baltimore medical center, we had been working together for a few years and wanted to continue our collaboration, so we created The Neuromodulation Foundation as a non-profit corporation in Maryland. Because the purpose of the Foundation is to contribute to efforts to improve the health and well-being of patients suffering from various debilitating neurological and medical conditions by providing education about neuromodulation and reporting the results of scientific research in the field, we were able to gain charitable organization status with the United States Internal Revenue Service so that donations to our efforts would be tax deductible.

In addition to Dr. North, who remains President of the Foundation, our board comprises Donlin M. Long, MD, PhD, a retired Hopkins neurosurgeon and a pioneer in neurostimulation; J. Peter Gaskins, a retired Harvard MBA; and B. Todd Sitzman, MD, MPH, who continues in clinical practice in Mississippi and is Past President of the North American Neuromodulation Society. I (Jane) serve as Executive Director, Secretary/Treasurer.

Highlights of our first year were completing print publication of Spinal Cord Stimulation versus Reoperation for Failed Back Surgery Syndrome: A Cost Effectiveness and Cost Utility Analysis Based on a Randomized, Controlled Trial and the Practice Parameters for the Use of Spinal Cord Stimulation in the Treatment of Neuropathic Pain. We also built a website to accompany the print publication of the Practice Parameters. We are updating and expanding this project to include dorsal root ganglion and peripheral nerve stimulation as well as ischemic pain for a new publication and an extensive website entitled, *Neurostimulation Implants to Treat Chronic Pain: A Guide to Current Practice*. We will link sections of this website to dynamic search results on wikistim.org (which we launched in October 2013).

Since our inception, we have consulted on study design for all of the major device companies (e.g., 1) and published letters, papers, and book chapters, notably about spinal cord stimulation (e.g., 2, 3), cost effectiveness (e.g., A Review of Spinal Cord Stimulation Cost Studies in 4), and study design (e.g., Clinical Study Designs for Neuromodulation in 4 and 5) as well as a paper describing WIKISTIM (6) and one presenting the Glossary (7) that we refined from our 2007 website with the help of members of the International Neuromodulation Society and the Institute of Neuromodulation (part of the North American Neuromodulation Society).

We supported our activities with our consulting work and with grants from all of the major device companies as well as individual donations. We are in the process of applying for grants. If you are in a position to put in a good word for us, we would be most grateful.

WIKISTIM Quality Control and a Planned Enhancement

We continue to search for and add full-text links in the DBS section, with approximately a third of the citations remaining to be checked. After that, we will complete this task with the only outstanding section (SNS). We are, of course, adding new full-text links to all new citations added in all sections. We will make it easier to find citations with full-text links by adding a sortable column to the table that displays all of the searchable papers in each section.

Thank You to Dr. Slavin

We thank Dr. Konstantin Slavin, our DBS editor, for the generous donation he made to WIKISTIM last month.

Other News

WIKISTIM now has 1628 subscribers. Thank you for spreading the word!

Citations Added From Search on August 6, 2022 (if necessary, please click “View Entire Message”)

Whenever possible, we provide free full-text links. For journals where a full-text PDF downloads immediately when a page is opened or has a “watermark,” we link to the link rather than to the PDF.

Deep Brain Stimulation (now 7061 citations)

1. Akwa Y, Di Malta C, Zallo F, Gondard E, Lunati A, Diaz-de-Grenu LZ, Zampelli A, Boiret A, Santamaria S, Martinez-Preciado M, Cortese K, Kordower JH, Matute C, Lozano AM, Capetillo-Zarate E, Vaccari T, Settembre C, Baulieu EE, Tampellini D. **Stimulation of synaptic activity promotes TFEB-mediated**

clearance of pathological MAPT/Tau in cellular and mouse models of tauopathies. Autophagy 2022 epub 1-18 PubMed Free Full Text

2. Amerika WE, van der Gaag S, Mosch A, van der Gaag NA, Hoffmann CFE, Zutt R, Marinus J, Contarino MF. **Medical and surgical treatment for medication-induced tremor: case report and systematic review.** Mov Disord Clin Pract 2022 9(5):676-687 PubMedFree Full Text
3. Arnts H, Tewarie P, van Erp WS, Overbeek BU, Stam CJ, Lavrijsen JCM, Booij J, Vandertop WP, Schuurman R, Hillebrand A, van den Munckhof P. **Clinical and neurophysiological effects of central thalamic deep brain stimulation in the minimally conscious state after severe brain injury.** Sci Rep 2022 12(1):12932 PubMed Free Full Text
4. Bally JF, Kern DS, Fearon C, Camargos S, Pereira da Silva-Junior F, Barbosa ER, Ozelius LJ, de Carvalho Aguiar P, Lang AE. **DYT-TUBB4A (DYT4 dystonia): clinical anthology of 11 cases and systematized review.** Mov Disord Clin Pract 2022 9(5):659-675 PubMed Free Full Text
5. Baxter JSH, Jannin P. **Combining simple interactivity and machine learning: a separable deep learning approach to subthalamic nucleus localization and segmentation in MRI for deep brain stimulation surgical planning.** J Med Imaging (Bellingham) 2022 9(4):045001 PubMed
6. Baxter W, Salb K, Case M, Billstrom T. **The impact of burr hole device and lead design on deep brain stimulation lead stability in benchtop and ovine models.** Neuromodulation 2022 epub PubMed Free Full Text
7. Bichsel O, Stieglitz L, Oertel M, Baumann C, Gassert R, Imbach L. **The modulatory effect of self-paced and cued motor execution on subthalamic beta-bursts in Parkinson's disease: evidence from deep brain recordings in humans.** Neurobiol Dis 2022 172:105818 PubMed Free Full Text
8. Brown AM, van der Heijden ME, Jinnah HA, Sillitoe RV. **Cerebellar dysfunction as a source of dystonic phenotypes in mice.**Cerebellum 2022 epub PubMed Free Full Text
9. Chang B, Ni C, Mei J, Xiong C, Chen P, Jiang M, Niu C. **Nomogram for predicting depression improvement after deep brain stimulation for Parkinson's disease.** Brain Sci 2022 12(7):841 PubMed Free Full Text
10. Choi YJ, Yacoubi B, Casamento-Moran A, Delmas S, Wilkes BJ, Hess CW, Shukla AW, Foote KD, Vaillancourt DE, Okun MS, Christou EA. **Suppression of axial tremor by deep brain stimulation in patients with essential tremor: effects on gait and balance measures.** Tremor Other Hyperkinet Mov (NY) 2022 12:23 PubMed Free Full Text
11. Chou CZ, Ahlskog JE, Klassen BT, Coon EA, Ali F, Bower JH, Savica R, Hassan A. **Utility of routine surface electrophysiology to screen for**

functional tremor prior to surgical treatment of essential tremor. Clin Park Relat Disord 2022 7:100149 PubMed Free Full Text

12. Cui Z, Chen T, Wang J, Jiang C, Gao Q, Mao Z, Pan L, Ling Z, Zhang J, Li X. **The long-term efficacy, prognostic factors, safety, and hospitalization costs following denervation and myotomy of the affected muscles and deep brain stimulation in 94 patients with spasmodic torticollis.** Brain Sci 2022 12(7):881 PubMed Free Full Text

13. Dai L, Xu W, Song Y, Huang P, Li N, Hollunder B, Horn A, Wu Y, Zhang C, Sun B, Li D. **Subthalamic deep brain stimulation for refractory Gilles de la Tourette's syndrome: clinical outcome and functional connectivity.** J Neurol 2022 epub PubMed Free Full Text

14. Dastin-van Rijn EM, Provenza NR, Vogt GS, Avendano-Ortega M, Sheth SA, Goodman WK, Harrison MT, Borton DA. **PELP: accounting for missing data in neural time series by periodic estimation of lost packets.** Front Hum Neurosci 2022 16:934063 PubMed Free Full Text

15. Davidson B, Giacobbe P, George TP, Nestor SM, Rabin JS, Goubran M, Nyman AJ, Baskaran A, Meng Y, Pople CB, Graham SJ, Tam F, Hamani C, Lipsman N. **Deep brain stimulation of the nucleus accumbens in the treatment of severe alcohol use disorder: a phase I pilot trial.** Mol Psychiatry 2022 epub PubMed

16. Dhar D, Holla VV, Kamble N, Yadav R, Srinivas D, Pal PK. **Surgical outcomes in rare movement disorders: a report of seventeen patients from India and review of literature.** Tremor Other Hyperkinet Mov (NY) 2022 12:22 PubMed Free Full Text

17. Fung EL, Mo CY, Fung ST, Chan AY, Lau KY, Chan EK, Chan DY, Zhu XL, Chan DT, Poon WS. **Deep brain stimulation in a young child with *GNAO1* mutation -- feasible and helpful.** Surg Neurol Int 2022 13:285 PubMed Free Full Text

18. Garcia X, Mohammad ME, Patel S, Yu XX, Fernandez HH. **Dopamine agonist withdrawal syndrome associated factors: a retrospective chart review.** Clin Park Relat Disord 2022 7:100153 PubMed Free Full Text

19. Hayley J, Hart MG, Mostofi A, Morgante F, Pereira EA. **No adverse effects following off-label magnetic resonance imaging in a patient with two deep brain stimulation systems: a case report.** Stereotact Funct Neurosurg 2022 epub 1-6 PubMed

20. Healy S, Shepherd H, Mooney N, Da Costa A, Osman-Farah J, Macerollo A. **The effect of deep brain stimulation on impulse control related disorders in Parkinson's disease - a 10-year retrospective study of 137 patients.** J Neurol Sci 2022 440:120339 PubMed

21. Hermann JK, Borseth A, Pucci FG, Toth C, Hogue O, Chan HH, Machado AG, Baker KB. **Changes in somatosensory evoked potentials elicited by lateral**

cerebellar nucleus deep brain stimulation in the naïve rodent. Neurosci Lett 2022 786:136800 PubMed

22. Hines K, Matias CM, Leibold A, Sharan A, Wu C. **Accuracy and efficiency using frameless transient fiducial registration in stereoelectroencephalography and deep brain stimulation.** J Neurosurg 2022 epub 1-7 PubMed

23. Holland MT, Jiao J, Mantovani A, Anderson S, Mitchell KA, Safarpour D, Burchiel KJ. **Identifying the therapeutic zone in globus pallidus deep brain stimulation for Parkinson's disease.** J Neurosurg 2022 epub 1-8 PubMed

24. Huh R, Chung M, Jang I. **Outcome of pallidal deep brain stimulation for treating isolated orofacial dystonia.** Acta Neurochir (Wien) 2022 epub PubMed

25. Jokara Z, Khatamsaz S, Alaei H, Shariati M. **Effect of electrical stimulation of central nucleus of the amygdala on morphine conditioned place preference in male rats.** Iran J Basic Med Sci 2022 25(5):604-610 PubMed Free Full Text

26. Kawasaki T, Kikuchi T, Otani K, Mitsuno Y, Yamao Y, Sawamoto N, Takahashi R, Miyamoto S. **Intraoperative cone-beam CT with metal artifact reduction for assessment of the electrode position and the intracranial structures during deep brain stimulation procedure.** Acta Neurochir (Wien) 2022 epub PubMed

27. Kunkler B, Tung A, Patil PG, Chiravuri S, Tarnal V. **Intrathecal catheter for severe low back pain during deep brain stimulation placement: illustrative case.** J Neurosurg Case Lessons 2021 2(3):CASE21285 PubMed Free Full Text

28. Kuo MC, Tai CH, Tseng SH, Wu RM. **Long-term efficacy of bilateral subthalamic deep brain stimulation in the parkinsonism of SCA 3: a rare case report.** Eur J Neurol 2022 29(8):2544-2547 PubMed

29. Lázaro-Muñoz G, Pham MT, Muñoz KA, Kostick-Quenet K, Sanchez CE, Torgerson L, Robinson J, Pereira S, Outram S, Koenig BA, Starr PA, Gunduz A, Foote KD, Okun MS, Goodman W, McGuire AL, Zuk P. **Post-trial access in implanted neural device research: device maintenance, abandonment, and cost.** Brain Stimul 2022 epub PubMed Free Full Text

30. Loh A, Boutet A, Germann J, Al-Fatly B, Elias GJB, Neudorfer C, Krotz J, Wong EHY, Parmar R, Gramer R, Paff M, Horn A, Chen JJ, Azevedo P, Fasano A, Munhoz RP, Hodaie M, Kalia SK, Kucharczyk W, Lozano AM. **A functional connectome of Parkinson's disease patients prior to deep brain stimulation: a tool for disease-specific connectivity analyses.** Front Neurosci 2022 16:804125 PubMed Free Full Text

31. Mar-Barrutia L, Ibarrondo O, Mar J, Real E, Segalàs C, Bertolín S, Aparicio MA, Plans G, Menchón JM, Alonso P. **Long-term comparative effectiveness**

of deep brain stimulation in severe obsessive-compulsive disorder. Brain Stimul 2022 epub PubMedFree Full Text

32. Mei S, Yu K, Ren Z, Hu Y, Guo S, Li Y, Li J. **Techniques of frameless robot-assisted deep brain stimulation and accuracy compared with the frame-based technique.** Brain Sci 2022 12(7):906 PubMed Free Full Text

33. Melo-Thomas L, Tacken L, Richter N, Almeida D, Rapôso C, de Melo SR, Thomas U, de Paiva YB, Medeiros P, Coimbra NC, Schwarting R. **Lateralization in hemi-parkinsonian rats is affected by deep brain stimulation or glutamatergic neurotransmission in the inferior colliculus.** eNeuro 2022 9(4):ENEURO.0076-22.2022 PubMed Free Full Text

34. Pan Y, Zhang H, Xie Y, Chai Y. **Role of coupling distances in a coupled thalamocortical network for regulation of epilepsy.** J Theor Biol 2022 epub 111206 PubMed

35. Runge J, Nagel JM, Cassini Ascencao L, Blahak C, Kinfe TM, Schrader C, Wolf ME, Saryyeva A, Krauss JK. **Are transventricular approaches associated with increased hemorrhage? A comparative study in a series of 624 deep brain stimulation surgeries.**Oper Neurosurg (Hagerstown) 2022 23(2):e108-e113 PubMed

36. Sanabria DE, Aman JE, Amaya VZ, Johnson LA, Farooqi H, Wang J, Hill M, Patriat R, Sovell-Brown K, Molnar GF, Darrow D, McGovern R, Cooper SE, Harel N, MacKinnon CD, Park MC, Vitek JL. **Controlling pallidal oscillations in real-time in Parkinson's disease using evoked interference deep brain stimulation (eiDBS): proof of concept in the human.** Brain Stimul 2022 epub PubMed Free Full Text

37. Sarikhani P, Ferleger B, Mitchell K, Ostrem J, Herron J, Mahmoudi B, Miocinovic S. **Automated deep brain stimulation programming with safety constraints for tremor suppression in patients with Parkinson's disease and essential tremor.** J Neural Eng 2022 epub PubMed

38. Servello D, Saleh C, Zekaj E. **Intraoperative mobile computed tomography in deep brain stimulation: comparison between Airo CT and O-arm CT.** Surg Neurol Int 2022 13:258 PubMed Free Full Text

39. Shi YF, Zhang Y, Li P. **A clinical study of patients with primary Parkinson's disease undergoing bilateral deep brain stimulation (STN-DBS) surgery in the subthalamic nucleus under general anesthesia.** Chinese. Sichuan Da Xue Xue Bao Yi Xue Ban 2022 53(4):583-587 PubMed Free Full Text

40. Soler-Rico M, Peeters JB, Joris V, Delavallée M, Duprez T, Raftopoulos C. **MRI-guided DBS of STN under general anesthesia for Parkinson's disease: results and microlesion effect analysis.** Acta Neurochir (Wien) 2022 epub PubMed

41. Wang X, Li N, Li J, Kou H, Wang J, Jing J, Su M, Li Y, Qu L, Wang X. **Optimized deep brain stimulation surgery to avoid vascular damage: a**

single-center retrospective analysis of path planning for various deep targets by MRI image fusion. Brain Sci 2022 12(8):967 PubMed Free Full Text

42. Wang X, Qu L, Ge S, Li N, Wang J, Qiu C, Kou H, Li J, Jing J, Su M, Zheng Z, Li Y, Qu Y, Wang X. **Stereotactic surgery for treating intractable Tourette syndrome: a single-center pilot study.** Brain Sci 2022 12(7):838 PubMed Free Full Text
43. Werning A, Umbarila D, Fite M, Fergus S, Zhang J, Molnar GF, Johnson LA, Wang J, Vitek JL, Escobar Sanabria D. **Quantifying viscous damping and stiffness in Parkinsonism using data-driven model estimation and admittance control.** J Med Device 2022 16(4):041004 PubMed
44. Wessel JR, Diesburg DA, Chalkley NH, Greenlee JDW. **A causal role for the human subthalamic nucleus in non-selective cortico-motor inhibition.** Curr Biol 2022 epub PubMed
45. Woo KA, Kim HJ, Jeon SH, Park HR, Park KW, Lee SH, Chung SJ, Chae JH, Paek SH, Jeon B. **Long-term outcomes of deep brain stimulation in pantothenate kinase-associated neurodegeneration-related dystonia.** J Mov Disord 2022 epub PubMed Free Full Text
46. Xu T, Gao Y, Li B, Jiang J, Guo H, Liu X, Huang H, Cheng Y, Yu H, Hu J, Wu X, Wang W, Wang Z. **The efficacy and safety of deep brain stimulation of combined anterior limb of internal capsule and nucleus accumbens (ALIC/NAcc-DBS) for treatment-refractory obsessive-compulsive disorder: protocol of a multicenter, randomized, and double-blinded study.** Brain Sci 2022 12(7):933 PubMed Free Full Text

Dorsal Root Ganglion Stimulation (still 229 citations)

Gastric Electrical Stimulation (still 518 citations)

Peripheral Nerve Stimulation (now 635 citations)

1. De Wall LL, Bekker AP, Oomen L, Janssen VACT, Kortmann BBM, Heesakkers JPFA, Oerlemans AJM. **Posterior tibial nerve stimulation in children with lower urinary tract dysfunction: a mixed-methods analysis of experiences, quality of life and treatment effect.** Int J Environ Res Public Health 2022 19(15):9062 PubMed Free Full Text

Sacral Nerve Stimulation (now 1139 citations)

1. Elterman D, Michaels J, Margolis E, Harris-Hicks J, Burgess K, Betts C, Harding C, Towers G, Hashim H, Ojo-Carons A, White A, Cannon-Smith T, Grunow N, Bittner K, Xavier K. **Prospective, multicenter study to evaluate performance and safety of a re-engineered temporary lead for InterStim™ therapy evaluation.** Neurourol Urodyn 2022 epub PubMed

2. Szymański JK, Słabuszewska-Jóźwiak A, Jakiel G. **Sacral neuromodulation in pregnant women-a case report and literature review.** Int J Environ Res Public Health 2022 19(14):8340 PubMed Free Full Text

3. Werneburg GT, Werneburg EA, Goldman HB, Mullhaupt AP, Vasavada SP. **Neural networks outperform expert humans in predicting patient impressions of symptomatic improvement following overactive bladder treatment.** Int Urogynecol J 2022 epub PubMed

Spinal Cord Stimulation (now 2938 citations)

1. D'Souza RS, Barman RA, Schappell JB, Hagedorn JM. **Does fibromyalgia affect the outcomes of spinal cord stimulation: an 11-year, multicenter, retrospective matched cohort study.** Neuromodulation 2022 epub PubMed

2. Darrow DP, Balser DY, Freeman D, Pelrine E, Krassioukov A, Phillips A, Netoff T, Parr A, Samadani U. **Effect of epidural spinal cord stimulation after chronic spinal cord injury on volitional movement and cardiovascular function: study protocol for the phase II open label controlled E-STAND trial.** BMJ Open 2022 12(7):e059126 PubMed Free Full Text

3. Gilbert JE, Zhang T, Esteller R, Grill WM. **Evaluating optimized temporal patterns of spinal cord stimulation (SCS).** Brain Stimul 2022 epub PubMed Free Full Text

4. He Q, Han B, Xia X, Dang Y, Chen X, He J, Yang Y. **Related factors and outcome of spinal cord stimulation electrode deviation in disorders of consciousness.** Front Neurol 2022 13:947464 PubMed Free Full Text

5. Kaijankoski H, Nissen M, Pesonen J, Ikaheimo TM, von Und Zu Fraunberg M, Airaksinen O, Huttunen J. **Disability pension did not reduce opioid use among patients with failed back surgery syndrome who were trialed and implanted for spinal cord stimulation.** Pain Physician 2022 25(5):E739-E748 PubMed Free Full Text

6. Morgalla MH, Domay L. **Analysis of somatosensory profiles using quantitative sensory testing during tonic and BurstDR stimulation for the treatment of chronic pain.** Pain Physician 2022 25(5):373-380 PubMed Free Full Text

7. Petersen EA, Stauss TG, Scowcroft JA, Brooks ES, White JL, Sills SM, Amirdelfan K, Guirguis MN, Xu J, Yu C, Nairizi A, Patterson DG, Tsoulfas KC, Creamer MJ, Galan V, Bundschu RH, Mehta ND, Sayed D, Lad SP, DiBenedetto DJ, Sethi KA, Goree JH, Bennett MT, Harrison NJ, Israel AF, Chang P, Wu PW, Argoff CE, Nasr CE, Taylor RS, Caraway DL, Mekhail NA. **High-frequency 10-kHz spinal cord stimulation improves health-related quality of life in patients with refractory painful diabetic neuropathy: 12-month results from a randomized controlled trial.** Mayo Clin Proc Innov Qual Outcomes 2022 6(4):347-360 PubMed Free Full Text

8. Rajkumar S, Yang LZ, Venkatraman V, Charalambous L, Parente B, Lee HJ, Lad SP. **Health care resource utilization of high-frequency spinal cord stimulation for treatment of chronic refractory low back pain.** Neuromodulation 2022 epub PubMed
9. Reining M, Voigt K, Gonnert F, Stolarczyk Y, Kretzschmar M. **Spinal anesthesia for patients harboring a neurostimulator. German.**Anaesthesiologie 2022 epub PubMed
10. Romaniuk M, Madhi G, Singh R, Haglin J, Brown NJ, Gottfried O. **Recent trends in Medicare utilization and reimbursement for spinal cord stimulators: 2000-2019.** World Neurosurg 2022 epub PubMed
11. Slavin KV, Vannemreddy P. **Cervical spinal cord stimulation for prevention and treatment of cerebral vasospasm after aneurysmal subarachnoid hemorrhage: clinical and radiographic outcomes of a prospective single-center clinical pilot study.**Acta Neurochir (Wien) 2022 epub PubMed
12. Telkes I, Hadanny A, DiMarzio M, Chitnis G, Paniccioli S, O'Connor K, Grey R, McCarthy K, Khazen O, McLaughlin B, Pilitsis JG. **High-resolution spinal motor mapping using thoracic spinal cord stimulation in patients with chronic pain.** Neurosurgery 2022 epub PubMed
13. Thomson S, Helsen N, Prangnell S, Paroli M, Baranidharan G, Belaïd H, Billet B, Eldabe S, De Carolis G, Demartini L, Gatzinsky K, Kallewaard JW, Winkelmüller M, Huygen F, Stoevelaar H. **Patient selection for spinal cord stimulation: the importance of an integrated assessment of clinical and psychosocial factors.** Eur J Pain 2022 epub PubMed Free Full Text

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