

Curriculum Vitae

Michael A Dimyan, MD
Assistant Professor
Department of Neurology, Division of Rehabilitation
Adjunct Assistant Professor, Department of Physical Therapy and Rehabilitation
Science
University of Maryland School of Medicine
Staff Neurologist, VA Maryland Health Care System

Date: September 6, 2016

Contact Information

Bressler Research Building, 12-049
655 W Baltimore St
Baltimore, MD 21201
410-706-4467
mdimyan@umm.edu

Education

- 1997 BS, *magna cum laude*
University of California, Irvine
Biology with Specialization in Neurosciences
Honors Thesis: *Basal forebrain stimulation induces discriminative receptive field plasticity in the auditory cortex*
Thesis Advisor: Norman M. Weinberger, PhD
- 2002 MD, University of California, San Francisco

Post Graduate Education and Training

- 2002-2003 Intern, Internal Medicine, Massachusetts General Hospital
- 2003-2006 Resident, Neurology
Harvard Partners: Massachusetts General Hospital and Brigham & Women's Hospital
- 2006-2011 Clinical Fellow
Human Cortical Physiology and Stroke Neurorehabilitation
Division of Intramural Research
National Institute of Neurological Disorders and Stroke
National Institutes of Health

Certifications

2008 American Board of Psychiatry and Neurology, Certified

Medical Licensures

2006-2008 Massachusetts, Inactive
2008- Maryland, Active

Employment History

Academic Appointments

2002-2006 House Officer, Harvard University School of Medicine, Supervisors:
Hasan Bazari, MD, Anne Young, MD, PhD
2006-2011 Clinical Fellow, Human Cortical Physiology and Stroke
Neurorehabilitation, Division of Intramural Research, National Institute
of Neurological Disorders and Stroke, National Institutes of Health,
Supervisor: Leonardo G. Cohen, MD
2011- Assistant Professor, Department of Neurology, Division of
Rehabilitation
Adjunct Assistant Professor, Department of Physical Therapy and
Rehabilitation Science, University of Maryland School of Medicine

Affiliations

Staff Neurologist, VA Maryland Health Care System
Attending Neurologist, University of Maryland Rehabilitation &
Orthopaedic Institute (formerly James Lawrence Kernan Hospital)

Professional Society Memberships

1997-2002 Member, American Medical Student Association
1997-2002 Member, American Medical Association – Medical Student Section
2004- Member, American Academy of Neurology
2006- Member, American Society for Neurorehabilitation
2013- Member, American Heart Association

Honors and Awards

1993-1997 University of California Regent's Scholarship
1996 UC Irvine Chancellor's Scholarship
1996 President's Undergraduate Fellowship, UC Irvine
1997 Medical Student Summer Research Fellowship, UCSF School of
Medicine
2000 Medical Student Clinical Research Training Program Fellowship, NIH
2008 NIH Clinical Center Award for Service
2009 NINDS Group Merit Award for Service
2013 Washington Post Super Doctors Rising Stars Edition

2013 Physician of the Year, University of Maryland Rehabilitation and Orthopaedic Institute (formerly Kernan Hospital)

Clinical Activities

2006-2008 Fellow, NINDS Human Cortical Physiology Section
Single, paired, and repetitive pulse transcranial magnetic stimulation for measurement of motor evoked potentials in the upper extremities of patients and healthy controls

2008-2011 Attending, NINDS Stroke Neurorehabilitation Clinic
Clinical assessment of chronic stroke patients and healthy volunteers in an outpatient clinic
History, physical examination, interpretation of structural brain MRI
Evaluation of eligibility for clinical research protocols

2006-2011 Fellow, NINDS Neurology On Call Service
Coverage of inpatient neurology and neurosurgery service
Inpatient assessment of acute medical and neurological issues including Neurological consultation for other medical and surgical services

2008-2011 Fellow, NINDS Neurology Consult Service
First call with senior attending back-up when needed for clinical evaluation of neurological complaints and complications in patients on medical and surgical services of the NIH Clinical Center.

2011- Attending, University of Maryland Rehabilitation and Orthopaedic Institute (formerly Kernan Hospital)
Rotating attending, Stroke Unit, TBI Unit, Spinal Cord Unit
Ambulatory Neurorehabilitation and Spasticity Management Practice, approximately 250 procedures per year

2011- Attending, VA Baltimore Medical Center
General Neurology Clinic Attending approximately 4-8 weeks per year with coincident resident and medical student teaching and supervision duties.

Administrative Service

Institutional Service

2006-2007 NINDS Fellow Representative to the NIH Fellows Committee

2006-2007 Fellow Member, NINDS IRB Audit Committee
**Evaluation of ongoing research protocols via medical record and research record review, including development of recommendations and guidelines to improve standard operating procedures and ensure regulatory compliance

2007-2008 Co-Chair NIH Fellows Committee

2007-2008 Co-Chair NIH Clinical Fellows Subcommittee
**Leadership of committee consisting of 2 fellows from each of 21 intramural NIH centers and institutes, representing approximately

4000 postdoctoral fellows, including 300 clinical fellows. Liaison between fellows and NIH administration including Office of the Director, Office of Intramural Training and Education

****Achievements:** Successful advocacy for establishment of Professional License Reimbursement. Assisted with establishment of fellow liaison committee to the department of clinical informatics to improve electronic medical records system for patient care. Assisted with development and improvement in website for office of clinical research training and medical education, including recruitment questionnaire.

- 2007-2011 Lead Associate Investigator, NINDS Protocol 07-N-0122: Modulation of motor function by stimulation of the central and peripheral nervous system.
****Oversee** protocol writing, editing, submission and response to IRB for protocol covering a collection of substudies carried out by approximately 15-20 postdoctoral fellows. Organized and supervised database of subjects, tested interventions, basic outcomes and toxicity evaluation
- 2012- University of Maryland Rehabilitation and Orthopaedic Institute, Rehabilitation Research Center Public Relations and Community Outreach Committee
- 2012- VA Maryland Healthcare System, Maryland Exercise and Robotics Center of Excellence, Scientific Steering Committee, Participant
- 2013- University of Maryland Rehabilitation and Orthopaedic Institute Grand Rounds Committee
- 2013- University of Maryland Rehabilitation and Orthopaedic Institute Ambulatory EMR Super-User
- 2013- University of Maryland, Baltimore Institutional Review Board, Member and VAMHCS Research and Development Representative

Local and National Service

Ad-Hoc Peer Review for the following journals in the last 5 years:

Brain, PNAS, Cerebral Cortex, Journal of Physiology, Stroke, Archives of Physical Medicine and Rehabilitation, BMC Neuroscience, Clinical Neurophysiology, Human Brain Mapping, Cerebellum, European Journal of Neurology, Journal of Motor Behavior

- 2005-2006 Appointed Resident Representative, Association of University Professors of Neurology to the Association of American Medical Colleges
- 2009 Grant Review Consultation, Neurological Foundation of New Zealand
- 2008-2010 Member, American Society for Neurorehabilitation/American College of Rehabilitation Medicine Joint Educational Conference Planning Committee
- 2014 Society For Neuroscience BrainFacts.org Expert Reviewer

- 2015 American Academy of Neurology Annual Meeting 2016 –
Neurorehabilitation Abstract Reviewer
- 2016 Reviewer, VA Maryland Health Care System, Maryland Exercise and
Robotics Center of Excellence Pilot Grants
Reviewer, University of Maryland Claude D. Pepper Older Americans
Independence Center Pilot Grants

Teaching Service

Small Group Format

- 2011-2015 Pathology 2
University of Maryland School of Medicine
3 hours/year

Lecture Format

- 2012-2013 DPTE 513: Basic Science II
University of Maryland School of Medicine – Department of Physical
Therapy and Rehabilitation Science -- Doctorate in Physical Therapy
5 hours/year

Research and Graduate Degree Advising

- 2008-2009 Erick Tarula, M.D. Charles Drew University School of Medicine.
Thesis: *Transcranial Magnetic Stimulation induced Spatial Temporal
Disruption of Cerebellar Error Processing in Reach Adaptation*
Mentored student in the design, conduct, analysis, and writing of
research thesis, 10-20 hours per week for 9 months
- 2009-2010 Tobias Krieger, M.S. in Cognitive and Clinical Neuroscience,
Maastricht University. Thesis: *The effects of local on transcallosal
inhibitory circuits in human motor cortex*
Mentored student in the design, conduct, analysis, and writing of
research thesis, 10-20 hours per week for 7 months
- 2013-2014 Wan-Wen Liao, M.S., Department of Physical Therapy and
Rehabilitation Science, University of Maryland, Baltimore. PhD
Candidate. Comprehensive Examinations Committee Member.

Grant Support

Active Grants

- 07/01/2014-06/30/2019
PI, Mentored, 75% effort

“Modulation of interhemispheric interactions and arm activity after stroke”

NIH/NINDS K23NS088107

Annual Direct Costs: \$183,994

Total Direct Costs: \$919,970

07/10/2014-04/10/2018

Site PI, 3% effort

Adult Spasticity International Registry on Botox Treatment (ASPIRE)

Allergan, Inc. 86850

Total Potential Direct & Indirect Costs: \$102,528

07/01/2015-06/30/2019

Co-Investigator, 3 VA Calendar Months (~8% of total effort, uncompensated)

“Neurophysiological and kinematic predictors of response in chronic stroke”

VA RR&D I01RX001667

PI: George F. Wittenberg, MD

Annual Direct Costs: \$275,000

Total Direct Costs: \$1,100,000

Completed Grants

7/24/2007-7/23/2010

PI, Mentored, 100% effort

“The role of ventral premotor cortex in chronic motor stroke recovery”

NINDS Intramural Competitive Postdoctoral Fellowship F32

Annual Direct Costs: \$50,000

Total Direct Costs: \$150,000

07/01/2012-6/30/2015

PI, Mentored, 35% effort

“Investigating brain network interactions in stroke and aging using concurrent transcranial magnetic stimulation and functional magnetic resonance imaging (TMS-fMRI)”

National Institute on Aging (NIA) Claude D. Pepper Older

Americans Independence Center Older Americans Independence

Center Research Career Development Award

P30-AG028747

NIA

Peer reviewed

Annual Direct Costs: \$25000

Total Direct Costs: \$75000

07/01/2014-06/30/2015

PI, Pilot

“Modulation of interhemispheric interactions and arm activity after stroke”

National Institute on Aging (NIA) Claude D. Pepper Older Americans Independence Center Pilot Grant

P30-AG028747

NIA

Annual Direct Costs: \$30,000

Total Direct Costs: \$30,000

7/01/2012-4/01/2014

co-PI, 15% effort (co-PI: Mary Stuart, DSc)

“Baseline Brain MR Imaging to Predict Response to Robotic Rehabilitation After Stroke”

University of Maryland, Baltimore County – University of Maryland, Baltimore fMRI Seed Funding Initiative

University Pilot Grant

Committee Reviewed

Annual Direct Costs: \$15000

Total Direct Costs: \$15000

Publications

Peer Reviewed Journal Articles

1. Bjordahl TS, **Dimyan MA**, Weinberger NM. Induction of long-term receptive field plasticity in the auditory cortex of the waking guinea pig by stimulation of the nucleus basalis. *Behav Neurosci*. 1998 Jun;112(3):467-79.
2. **Dimyan MA**, Weinberger NM. Basal forebrain stimulation induces discriminative receptive field plasticity in the auditory cortex. *Behav Neurosci*. 1999 Aug;113(4):691-702.
3. Hanakawa T, Immisch I, Toma K, **Dimyan MA**, Van Gelderen P, Hallett M. Functional properties of brain areas associated with motor execution and imagery. *J Neurophysiol*. 2003 Feb;89(2):989-1002.
4. Sohn YH, Voller B, **Dimyan M**, St Clair Gibson A, Hanakawa T, Leon-Sarmiento FE, et al. Cortical control of voluntary blinking: a transcranial magnetic stimulation study. *Clin Neurophysiol*. 2004 Feb;115(2):341-7.
5. Jun S, **Dimyan M**, Jones KD, Ladabaum U. Obstipation as a paraneoplastic presentation of small cell lung cancer: case report and literature review. *Neurogastroenterol Motil*. 2005 Feb;17(1):16-22.
6. Hanakawa T, Honda M, Zito G, **Dimyan MA**, Hallett M. Brain activity during visuomotor behavior triggered by arbitrary and spatially constrained cues: an fMRI study in humans. *Exp Brain Res*. 2006 Jun;172(2):275-82.

7. Reis J, Swayne OB, Vandermeeren Y, Camus M, **Dimyan MA**, Harris-Love M, et al. Contribution of transcranial magnetic stimulation to the understanding of cortical mechanisms involved in motor control. *J Physiol*. 2008 Jan 15;586(2):325-51. PMID: PMC2375593
8. Buch E, Weber C, Cohen LG, Braun C, **Dimyan MA**, Ard T, et al. Think to move: a neuromagnetic brain-computer interface (BCI) system for chronic stroke. *Stroke*. 2008 Mar;39(3):910-7.
9. **Dimyan MA**, Dobkin BH, Cohen LG. Emerging subspecialties: neurorehabilitation: training neurologists to retrain the brain. *Neurology*. 2008 Apr 15;70(16):e52-4.
10. Hanakawa T*, **Dimyan MA***, Hallett M. (***The first 2 authors contributed equally to this work**) The representation of blinking movement in cingulate motor areas: a functional magnetic resonance imaging study. *Cereb Cortex*. 2008 Apr;18(4):930-7.
11. Hanakawa T, **Dimyan MA**, Hallett M. Motor planning, imagery, and execution in the distributed motor network: a time-course study with functional MRI. *Cereb Cortex*. 2008 Dec;18(12):2775-88. PMID: PMC2583155
12. Celnik P, Paik NJ, Vandermeeren Y, **Dimyan M**, Cohen LG. Effects of combined peripheral nerve stimulation and brain polarization on performance of a motor sequence task after chronic stroke. *Stroke*. 2009 May;40(5):1764-71. PMID: PMC2692264
13. Ragert P, Camus M, Vandermeeren Y, **Dimyan MA**, Cohen LG. Modulation of effects of intermittent theta burst stimulation applied over primary motor cortex (M1) by conditioning stimulation of the opposite M1. *J Neurophysiol*. 2009 Aug;102(2):766-73. PMID: PMC2724345
14. **Dimyan MA**, Cohen LG. Contribution of transcranial magnetic stimulation to the understanding of functional recovery mechanisms after stroke. *Neurorehabil Neural Repair*. 2010 Feb;24(2):125-35. PMID: PMC2945387
15. Censor N, **Dimyan MA**, Cohen LG. Modification of Existing Human Motor Memories Is Enabled by Primary Cortical Processing during Memory Reactivation. *Current Biology*. 2010;20(17):1545-9.
16. **Dimyan MA**, Cohen LG. Neuroplasticity in the context of motor rehabilitation after stroke. *Nat Rev Neurol*. 2011; 7(2):76-85.
17. **Dimyan MA**, Perez MA, Auh S, Tarula E, Wilson M, Cohen LG. Nonparetic arm force does not overinhibit the paretic arm in chronic poststroke hemiparesis. *Arch Phys Med Rehabil*. 2014 May;95(5):849-56. doi: 10.1016/j.apmr.2013.12.023. Epub 2014 Jan 16. PubMed PMID: 24440364; PubMed Central PMCID: PMC4004647.
18. Wittenberg GF, **Dimyan MA**. How do the physiology and transcallosal effects of the unaffected hemisphere change during inpatient rehabilitation after stroke? *Clin Neurophysiol*. 2014 doi:10.1016/j.clinph.2014.02.016. [Epub ahead of print Feb 28] PubMed PMID: 24636734.
19. Zorowitz RD, Wein TH, Dunning K, Deltombe T, Olver JH, Davé SJ, **Dimyan MA**, Kelemen J, Pagan FL, Evans CJ, Gillard PJ, Kissela BM. A Screening Tool to Identify Spasticity in Need of Treatment. *Am J Phys Med Rehabil*. 2016 Aug 22. [Epub ahead of print] PubMed PMID: 27552355.

Invited Speeches

1. February 17, 2009, NINDS Division of Intramural Research Grand Rounds
2. November 12, 2010 Symposium 2010: Focus on The Young Adult Stroke Survivor, Weill Cornell Medical College, New York Presbyterian Hospital Dept of Rehabilitation Medicine
3. November 11, 2011, American Society for Neurorehabilitation Satellite: The new science of brain repair and rehabilitation: CNS physiology in recovery of function after injury or Back to the Mechanisms. A Satellite conference of the Society for Neuroscience 41st Annual Meeting, Walter E. Washington Convention Center, Washington, DC. "Task-dependent changes in interhemispheric inhibition post-stroke."
4. April 26, 2013, Plenary and Concurrent Session, North Carolina Eastern Area Health Education Center Regional Stroke Conference, 2013: Prevention, Treatment, and Recovery: A Multi-Dimensional Perspective, Hilton Greenville, Greenville, NC. "Rivalry or Rumba – the 2 sides of the brain and their interactions during stroke rehabilitation" "Exercise and Robots – translating rehabilitation research into clinical practice at the University of Maryland"
5. October 24, 2013, Featured Presentation, The University of Maryland, College Park Maryland Neuroimaging Center and The University of Maryland, Baltimore School of Medicine, Maryland Neuroimaging Retreat. "Physiological & imaging markers of post-stroke recovery and rehabilitation"

Proffered Communications

1. **Dimyan MA**, Perez MA, Tarula E, Cohen LG. Functional changes in the primary motor cortex ipsilateral (M1ipsi) to an active hand in chronic stroke patients. Third International Conference on Transcranial Magnetic and Direct Current Stimulation, Göttingen, Germany, 2008.
2. **Dimyan MA**, Perez MA, Tarula E, Cohen LG. Excitability changes in the ipsilateral primary motor cortex (M1ipsilateral) during unimanual force production in chronic stroke. American Neurological Association Conference, Salt Lake City, Utah, 2008.
3. **Dimyan MA**, Perez MA, Tarula E, Cohen LG. Modulation of interhemispheric interactions by force generation after chronic stroke. The Society for Neuroscience Conference, Washington, DC, 2008.
4. **Dimyan MA**, Perez MA, Tarula E, Cohen LG. Mechanisms underlying task-dependent motor cortical function during a unimanual force generation task in

stroke patients. American College of Rehabilitation Medicine – American Society for Neurorehabilitation Joint Educational Conference, Toronto, Canada, 2008.

5. **Dimyan MA**, Perreault J, McCarthy P, Kuchonov P, Stuart M, Wittenberg GF. Study Protocol: Rationale and methods for a pilot study of brain imaging to predict response to robotic rehabilitation during inpatient rehabilitation. American Society for Neurorehabilitation Conference, San Diego, CA 2013.