

Movement Disorders Fellowship

Program Overview

This 2 year program is designed to train clinician-scientists focused on Movement Disorders. A large component is research training. Our research not only encompasses patient-oriented research but also basic and translational research that covers a broad range of scientific areas. We tailor the specifics of a training program to meet the needs and interests of our fellows – some focus on basic research and others focus on patient-oriented research. All have the opportunity to gain substantial clinical skills. For the last 20 years, our Movement Disorders program led by Dr. Joel S. Perlmutter has trained 16 fellows with more than 85% remaining in academics as clinician scientists with highly successful careers.



Training Overview

First year: This year focuses on identifying a particular research interest and clinical training. The Clinical training includes attendance in the Movement Disorders Clinic; participation in deep brain stimulation (DBS) surgeries and programming; learning botulinum injections and hospital consultations. During the first year, fellows identify a research interest and begin background work in that particular area. Others who already have identified an area of research interest will begin and develop work in a particular lab or research group. Fellows review journal articles submitted for publication and are expected to write at least one paper for publication. Fellows also take didactic courses through the CTSA educational programs at Washington University.

Second year: This year, the fellow gains greater depth of understanding about less common movement disorders increases clinical skills in the technical aspects of movement disorders. Fellows must continue their research activities with the expectation of producing at least one peer-reviewed journal publication. Fellows learn how to write grants, develop research protocols and design experiments -- working closely with their research mentor. Many fellows choose to write a training grant during this year to support additional research. This can be either a foundation or an NIH grant.

Clinical Training

Scope of Diseases: The clinical goals include education in a wide variety of Movement Disorders including: Parkinson and Huntington diseases, dystonia, Tourette syndrome, essential tremor, and related conditions. This also includes training in pediatric movement disorders. The goals include an in-depth understanding of the clinical manifestations, pathophysiology, etiology, treatment and social issues for each condition. This includes a basic understanding of the pathology and relevant genetics for each disorder.

Deep Brain Stimulation (DBS): A 2nd goal is to gain experience and expertise with DBS including selection of appropriate candidates, stereotactic mapping of implantation coordinates, programming

stimulator devices, and managing complicated medication changes associated with this treatment.

Botulinum Toxin Injections: A 3rd goal is to develop expertise in identifying proper candidates for botulinum toxin injections, understand the limitations of these procedures, gain technical expertise in the procedures for different areas.

Presymptomatic Testing: Understand the role of presymptomatic testing of relevant neurologic disorders, including the role of a multidisciplinary approach. Gain experience in evaluating people for these tests and learn about relevant societal factors.

Pediatric Movement Disorders: A 5th goal of the program is to have a thorough understanding of the common movement disorders that affect children.

Research Training

Each fellow is expected to participate in research. This may be clinical or preclinical research. Research topics vary depending upon the interests of the trainees. The intent is to learn a skill sufficient to be able to develop a relevant research program including design of experiment, implementing studies, data analysis and

preparation of manuscripts. Two additional components of this training include learning to write grants and review papers submitted for publication. Each fellow will have an identified mentor to assist with research training. Each fellow will be expected to publish during the fellowship.

Possible research topics include:

- Neuroimaging
- Motor physiology
- Motor control
- Genetics & Epidemiology
- Molecular mechanisms
- Neuropathology
- Cognition & dementia
- Neurochemistry
- Clinical Trials



Didactics & Evaluation

Didactics:

- Weekly Movement Disorders Journal Club
- Weekly Neurology Grand Rounds
- Weekly Neurology Research Seminar
- Brain Cutting
- Best Clinical Practice & Research Ethics
- Other departmental & medical school seminars

Evaluation:

- Rating Scale reliability
- Weekly review of new patient evaluations and write-ups by attending.
- Review of all in-patient consultations by attending.
- Clinical evaluation of a patient with a formal oral presentation.

Faculty

Director of training: Joel S. Perlmutter, M.D.

has overall supervision of all aspects of training including clinical and research components.

Kevin Black, M.D. (Neuropsychiatrist)

He has direct supervision for clinical aspects of movement disorders and relevant psychiatric manifestations of these disorders.

Nigel Cairns, Ph.D. (Anatomist)

He directly supervises lab experience regarding pathology of parkinsonism and dementia.

Meghan Campbell, Ph.D. (Neuropsychologist)

She directs studies of dementia in PD and works on behavioral responses to deep brain stimulation.

Susan Criswell, M.D. (Neurologist)

She has expertise in neuroimaging and environmental risk factors of parkinsonism and also has direct supervision of clinical aspects of movement disorders.

Marc Diamond, MD (Neurologist)

He focuses on basic research to identify therapeutic targets and develop small molecules to target abnormal protein conformational changes, which play a key role in neurodegenerative diseases such as Huntington disease (HD) and tauopathies.

Gammon Earhart, Ph.D. (Movement Scientist)

She has expertise in movement studies in people with Movement disorders and helps with teaching motor physiology clinical research methods.

Erin Foster, OTD (Occupational Therapist)

She directs studies of cognitive function, quality of life and performance based activities of daily living as related to movement disorders.

Phyllis Hanson, Ph.D. (Cell Biologist)

She has direct supervision of those working on cellular mechanisms of pathogenesis related to torsin A (the abnormal protein product the DYT1 gene in a genetic form of dystonia).

Tamara Hershey, Ph.D. (Neuropsychologist)

She has expertise in neuropsychological issues relevant to patients with Movement Disorders and is responsible for teaching of clinical research skills regarding cognitive aspects including the effects of deep brain stimulation.

Morvarid Karimi, M.D. (Neurologist)

She has expertise in neuroimaging studies of mechanisms of DBS and dystonia and has direct supervision of clinical training.

Paul Kotzbauer, M.D., Ph.D. (Neurologist)

He has direct supervision of clinical training and for research in molecular mechanisms relevant for neurodegenerative disorders.

Karen O'Malley, Ph.D. (Cell Biologist)

She has direct supervision of lab studies of cellular mechanisms of cell death.

Brad Racette, M.D. (Neurologist)

He has direct supervision of clinical training and training for some research aspects including epidemiology and genetics of Parkinson disease.

Brad Schlaggar, M.D., Ph.D. (Neurologist)

He has direct clinical supervision of pediatric movement disorders and relevant research with language development.

Samer Tabbal, M.D. (Neurologist)

He has direct clinical supervision for clinical aspects of the training including special expertise in clinical aspects of deep brain stimulation treatment.

W. Tom Thach, M.D. (Motor Physiologist)

He is a world's expert in cerebellar physiology and motor control. He also has expertise in rehabilitation and motor recovery in humans.

Kurt Thoroughman, Ph.D. (Neuroscientist)

He has direct supervision of those working in computational neuroscience methods to investigate movement and movement disorders.

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FOR MORE INFORMATION

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Facilities

Location:

Training occurs at the Washington University School of Medicine Medical Center and this includes Barnes-Jewish Hospital and St. Louis Children's Hospital. This includes both in-patient and out-patient care. Occasional off-site training occurs at St. Louis Connect Care.

Clinical Facilities:

Clinical facilities also include the NeuroClinical Research Unit, the Huntington's Disease Center of Excellence and the American Parkinson Disease Advanced Research Center within the Department of Neurology at Washington University School of Medicine.

Research Facilities:

All fellows are provided with adequate space and computer access for clinical and research activities. Depending on the research project, fellows have access to state of the art imaging facilities through the Neuroimaging Laboratory (NIL) and the Center for Clinical Imaging Research (CCIR); animal models and appropriate animal care facilities; specialized equipment for cellular and molecular neurobiology research.

To Apply:

Please send:

- Cover letter
- CV
- Brief statement of career goals
- 3 Letters of Recommendation

Send to:

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