

Department of Neurology and Neurosurgery Clinical and Clinical Research Fellowship

TWO YEAR FELLOWSHIP

Type of Fellowship: **Neuromuscular Medicine**

Name of the Fellowship Supervisors: Dr. Erin O'Ferrall (main contact), Dr. Bernard Brais & Dr. Colin Chalk

Fellowship Information:

- Number of fellowship positions requested: 1-2
- Duration: 2 year
- Hospitals involved in training:
 - Montreal Neurological Hospital (main site)
 - Montreal General Hospital
 - Montreal Children's Hospital
 - Royal Victoria Hospital, Glen site

Candidates must secure [**funding**](#).

Please see opportunities for funding through the MNI here:

<https://apps.mni.mcgill.ca/mnifellowships/>

Additional funding opportunities may be available through <https://www.cnsfederation.org>.

Description of Fellowship

The Neuromuscular group at McGill University was originally established by the late Dr. George Karpati, a world recognized expert in Neuromuscular Disease. Today the Neuromuscular group at the Montreal Neurological Institute and Hospital (MNH) is co-directed by Dr. B. Brais and Dr. E. Shoubridge and continues to be an integrated clinical and basic science environment for research and clinical training in Neuromuscular Diseases. The Neuromuscular clinic and EMG laboratory at the MNH, the Neuropathy and Myasthenia Clinics at the Montreal General Hospital and the Neuromuscular Clinic and EMG laboratory at the Montreal Children's Hospital are provincial referral centers for neuromuscular patients and provide excellent exposure to patients with neuromuscular diseases.

The Neuromuscular Fellowship provides the trainee with exposure to patients with diseases of the nerve, neuromuscular junction and muscle and will be under the supervision of Drs. Chalk, Brais and O'Ferrall with the participation of other leading clinicians such as Drs. Massie, Gendron, Oskoui, and Poulin. Dr. Colin Chalk is the director of the Neuropathy and Myasthenia clinics at the Montreal General Hospital. Dr. Bernard Brais is a Neurogeneticist with expertise in the clinical and genetic aspects of

neuromuscular diseases. Dr. Erin O'Ferrall, in conjunction with two neuropathologists, Drs. Jason Karamchandani and Joshua Sonnen, will provide exposure to muscle and nerve pathology as part of the fellowship. Dr. Massie is an expert in Motor Neuron Diseases and Diseases of the Peripheral Nerves. Dr. Gendron is the director of the EMG laboratory at the MNH. Drs. Oskoui and Poulin are Pediatric Neurologists with expertise in Neuromuscular Disorders. They offer a monthly multidisciplinary Neuromuscular Clinic. Dr. Poulin also performs EMG evaluations for pediatric patients.

This fellowship offers the opportunity to train in the EMG departments of the MNH, MCH, RVH and MGH. The fellow may wish to obtain EMG certification through the Canadian Neurological Sciences Federation (see website for details:

https://www.cnsfederation.org/societies/society/canadian-society-of-clinical-neurophysiologists/5_).

In addition, within the environment of the Neuromuscular Group at the MNI/MNH, there are excellent opportunities for participating in basic science research on neuromuscular diseases. As part of the fellowship training, the fellow may wish to develop clinical or basic science research projects in accordance with his/her career plans that will lead to publications and presentations at international meetings.

Academic Facilities

In addition to the fellowship supervisors, the Montreal Neurological Hospital, the Montreal General Hospital and McGill University host a number of excellent clinical and basic science researchers who may collaborate with the fellow. The Rare Neurological Disease Research Group at the MNI is directed by Dr. B. Brais and includes the following researchers: E. Shoubridge, G. Armstrong, H. McBride, H. Durham, K. Hastings, and E O'Ferrall (please see website for up to date list:
https://www.mcgill.ca/neuro/people/field_mprofile_research_areas/rare_neurological_diseases).

Fellow Duties and Responsibilities

The fellow will attend Neuromuscular, Neurogenetics, Neuropathy, EMG and Myasthenia Gravis Clinics each week. There are no on-call or in-patient duties. The fellow is expected to attend Grand Rounds and Neuromuscular Journal club meetings. The fellow is also encouraged to participate in the pre-operative muscle biopsy evaluations. She or he will participate in the bi-weekly neuromuscular rounds where muscle and nerve biopsies will be reviewed with the neuropathologist and the geneticist. As part of the first year of fellowship training the fellow should develop research projects. During the second year of fellowship training, a greater emphasis is placed on the completion of the research project that will lead to publication in a peer-reviewed journal and oral or poster presentations at international meetings.

Curriculum

In clinic or EMG, the fellow will evaluate 2-4 patients per half day of clinic. The patient population will vary depending on the clinic. In the Neuromuscular Clinic approximately 50% of the patients have muscle or neuromuscular junction disorders and 50% of the patients have primary nerve disorders. In the Neurogenetics clinic the fellow will learn to use genetic testing and other genetic technologies for the diagnosis, genetic counseling and gene discovery of neuromuscular diseases. The fellow will also be expected to attend or give presentations at the

academic rounds (described above) including the regular neuromuscular journal club. During the second year of fellowship, the fellow will place a stronger emphasis on the completion of the research project.

Evaluation

The fellow will be given regular feedback (both in person and in writing) every 3 months. There is no final examination but the fellow may wish to obtain certification in EMG through the Canadian Neurological Sciences Federation.



**Neurology Residency
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Department of Neurology and Neurosurgery Neuromuscular Fellowship (General and Specific Objectives)

1. Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, education and legal opinions.

Specific Requirements

Provide scientifically based, comprehensive and effective diagnosis and management for patients with diseases affecting the muscle, nerve and neuromuscular junction.

Clinical:

For a patient with a neuromuscular disorder, the fellow will be able to:

- Obtain a complete neurological history and a collateral history from other sources where necessary (adult patients).
- Perform an appropriate detailed neuromuscular physical examination.
- Determine whether a patient's symptoms and signs are the result of a disorder related to diseases affecting the muscle, nerve and neuromuscular junction.
- Formulate an appropriate localization, differential and provisional diagnosis of the neuromuscular disorder if appropriate.
- Outline an appropriate plan of laboratory investigation.
- Interpret the results of EMG, muscle and/or nerve biopsy and genetic testing.
- Outline an appropriate therapeutic plan.

- Exhibit appropriate clinical judgment in outlining a differential diagnosis and an investigative and therapeutic plan, taking into account matters such as the patient's age, general health, risk and cost of investigative procedures, risk and cost of therapeutic interventions, and epidemiology of the disease.

Technical Skills

- To learn/review detailed, practical anatomy of the muscle, nerve and neuromuscular junction
- Other technical skills related to fellowship
 - EMG
 - muscle biopsy
 - histological interpretation of muscle biopsies
 - interpretation of genetic tests

Knowledge

- Acquire and understand the neuroanatomic principles and pathological substrates of diseases affecting the muscle, nerve and neuromuscular junction.
- Become familiar with the neurophysiological principles, the basic mechanisms related to diseases affecting the muscle, nerve and neuromuscular junction.
- Learn the major categories or classifications related to diseases affecting the muscle, nerve and neuromuscular junction.
- Learn clinical neuropharmacology related to diseases affecting the muscle, nerve and neuromuscular junction.
- Acquire expertise in the decision making related to diseases affecting the muscle, nerve and neuromuscular junction.
- Acquire a mastery in the genetic diagnosis of neuromuscular disorders.

2. Communicator

General Requirements

- Establish therapeutic relationships with patients/families.
- Obtain and synthesize relevant history from patients/families/communities.
- Listen effectively.
- Discuss appropriate information with patients/families and the health care team.

Specific Requirements

Communicate effectively with patients, their families and medical colleagues (particularly referring physicians), and other health care professionals in both the inpatient and outpatient settings. The fellow will:

- Communicate effectively and regularly with patients and their families.
- Be considerate and compassionate in communicating with patients and families, willingly provide accurate information appropriate to the clinical situation, with a reasonable attempt at prognosis.
- Learn to write concise reports of the clinical findings with conclusions and recommendations comprehensible to the non-specialist.
- Communicate effectively and appropriately with the nurses and paramedical personnel.
- When ordering investigative procedures, ensure there has been adequate communication about the patient with the person who will actually be doing and/or reporting the diagnostic study.

3. Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

Be an effective teacher of other physicians (including medical students and house officers), other health care personnel, and patients. The fellow will:

- Provide instruction to medical students and more junior physicians at a level appropriate to their clinical education and professional competence.
- Willingly share knowledge with others with whom they are associated, thus ensuring the most effective delivery of health care to patients.

4. Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements

Be proficient in professional skills related to the diagnosis and treatment of neuromuscular diseases.

Demonstrate the following professional skills in time management:

- Recognize that effective use of time depends upon punctuality.
- Recognize that effective use of time requires planning.
- Develop speed as well as accuracy in clinical skills.
- Reserve time for reading and keeping current with the neurological literature.
- Establish routines for carrying out regular activities and adhere to them.

Maintain complete and accurate medical records:

- Record and maintain a complete and accurate medical record for every patient seen; this record will include the patient's history and the findings on physical examination, a differential diagnosis, a provisional diagnosis, Effectively coordinate the work of the health care team.
- Indicate, by the treatment plan, that for the optimal treatment of many patients with neurological disorder, a team approach is necessary -- members of the team may include nurses, rehabilitation personnel (physiotherapists, occupational therapists, speech therapists, etc.), psychologists, social workers, etc.
- Identify where an important role(s) can be played by disease focused lay groups with regard to helping the patient and/or family and to facilitate its happening.

5. Health Advocate

General Requirements

Identify the important determinants of health affecting patients.

Contribute effectively to improved health of patients and communities.

Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

Learn about community resources and related patient support groups; provide assistance to access programs (e.g. home care, occupational and physiotherapy, drug plans, application for nursing homes etc) and participate in their activities.

Educate, be able to generate and access information (e.g. printed material, video tapes web sites) and be available as a resource person to counsel patients effectively on neurological disorders.

Counsel patients on the importance of taking responsibility for their own well-being and recognize the important determinants predisposing to worsening of neurological status

Understand the role of national and international bodies (e.g. AAN, AANEM, Canadian Neurological Sciences Foundation) in the promotion of neurological health, and the prevention, detection, and treatment of peripheral nervous system disorders.

6. Scholar

General Requirements

Develop, implement and monitor a personal continuing education strategy.

Critically appraise sources of medical information.

Facilitate learning of patients, house staff/students and other health professionals.

Contribute to development of new knowledge.

Specific Requirements

Be able to critically assess the neurological literature as it relates to patient diagnosis, investigation and treatment:

- Develop criteria for evaluating neurological literature.
- Critically assess the neurological literature using these criteria.
- Be familiar with the design of experimental and observational studies, especially randomized controlled trials.
- Be able to calculate absolute risk reductions, relative risk reductions and numbers needed to treat or harm.

Be able to participate in clinical or basic science studies as a member of a research team:

- Be able to describe principles of good research.
- Use the above principles, and be able to judge whether a research project is properly designed.
- Be prepared to present research findings to peers at local, national or international conferences.

7. Professional

General Requirements

Deliver highest quality care with integrity, honesty and compassion.

Exhibit appropriate personal and interpersonal professional behaviours with patients/families, peer residents, fellows and other health care professionals.

Practice medicine ethically consistent with obligations of a physician.

Specific Requirements

Demonstrate personal and professional attitudes consistent with a consulting physician role:

- Periodically review his/her own personal and professional performance against national standards set for the specialty.
- Be willing to include the patient in discussions concerning appropriate diagnostic and management procedures.
- Show appropriate respect for the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved.

Be willing and able to appraise accurately his/her own professional performances and show that he/she recognizes his/her own limitations with regard to skill and knowledge by appropriately consulting other physicians and paramedical personnel when caring for the patient.

Be willing and able to keep his/her practice current through reading and other modes of continuing medical education and develop a habit of maintaining current his/her clinical skill and knowledge base through continuing medical education.