

MAY 2025
VERSION 1.0

DEFINITION

Neuromuscular Medicine is the area of enhanced competence within Neurology and Physical Medicine and Rehabilitation concerned with the evaluation and management of adult and pediatric patients with disorders of the motor neuron, nerve root, peripheral nerve, neuromuscular junction, and muscle.

ELIGIBILITY REQUIREMENTS TO BEGIN TRAINING

Royal College certification in Neurology or Physical Medicine and Rehabilitation, or equivalent

OR

Eligibility for the Royal College examination in Neurology or Physical Medicine and Rehabilitation

OR

Registration in a Royal College accredited residency program in Neurology or Physical Medicine and Rehabilitation, or equivalent

ELIGIBILITY REQUIREMENTS TO COMPLETE A ROYAL COLLEGE COMPETENCY PORTFOLIO

All trainees must be Royal College certified in their entry route discipline, or equivalent, in order to be eligible to complete a Royal College competency portfolio in Neuromuscular Medicine.

MAJOR TASKS OF NEUROMUSCULAR MEDICINE

The discipline of Neuromuscular Medicine includes responsibility for the following:

1. Diagnosis of neuromuscular disorders
2. Interpretation of neuroelectrophysiological studies
3. Management of neuromuscular disorders
4. Coordination of collaborative care for patients with neuromuscular disorders

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5. Evaluation of diagnostic tests and therapies for neuromuscular disorders, including new tests and therapies, and facilitation of access
6. Advancement of the field of Neuromuscular Medicine through scholarship and education

At the completion of training, the diplomate will have acquired the following competencies and will function effectively as a:

Medical Expert

Definition:

As *Medical Experts*, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centred care. Medical Expert is the central physician Role in the CanMEDS Framework and defines the physician's clinical scope of practice.

Key and Enabling Competencies: Neuromuscular Medicine physicians are able to...

1. Practise medicine within their defined scope of practice and expertise

- 1.1. Demonstrate a commitment to high-quality care of their patients
- 1.2. Integrate the CanMEDS Intrinsic Roles into their practice of Neuromuscular Medicine
- 1.3. Apply knowledge of the clinical and biomedical sciences relevant to Neuromuscular Medicine
 - 1.3.1. Neuromuscular anatomy
 - 1.3.1.1. Major central nervous system (CNS) tracts, ascending and descending
 - 1.3.1.2. Motor nerve roots of common clinically affected levels (C5-8/T1, L2-S1)
 - 1.3.1.3. Sensory neurons and dorsal root ganglia
 - 1.3.1.4. Brachial and lumbosacral plexuses
 - 1.3.1.5. Major peripheral nerves
 - 1.3.1.6. Reflex arc
 - 1.3.1.7. Individual muscles accessible for clinical and neuroelectrophysiological assessment
 - 1.3.1.8. Innervation of muscles by the more commonly affected peripheral nerves and nerve roots
 - 1.3.1.9. Autonomic nervous system
 - 1.3.1.10. Common peripheral nerve anatomic variants, including a Martin-Gruber anastomosis and accessory peroneal nerve

- 1.3.2. Physiology of the motor neuron, nerve root, peripheral nerve, neuromuscular junction, and muscle
 - 1.3.2.1. Action potential transmission
 - 1.3.2.2. Mitochondria
 - 1.3.2.3. Molecular physiology involved in neuromuscular disorders
 - 1.3.2.4. Muscle excitation contraction
 - 1.3.2.5. Neurotransmission required for the autonomic nervous system
 - 1.3.2.6. Protein components of the muscle and nerve membranes
 - 1.3.2.7. Synaptic transmission at the neuromuscular junction

- 1.3.3. Genetics
 - 1.3.3.1. Normal and abnormal gene structure and normal function
 - 1.3.3.2. Common mechanisms of inheritance, including principles of Mendelian and mitochondrial inheritance
 - 1.3.3.3. Genetics of common hereditary neuromuscular disorders
 - 1.3.3.4. Principles of genetic classification of variants and basic approach to resolving variants of uncertain significance
 - 1.3.3.5. Principles and application of molecular genetic techniques and biochemical investigations
 - 1.3.3.5.1. Genetic testing methods, including their indications, interpretation, and strengths and weaknesses
 - 1.3.3.5.2. Significance of genetic results
 - 1.3.3.5.3. Interpretation of variants of uncertain significance

- 1.3.4. Epidemiology, pathology, pathogenesis, pathophysiology, risk factors, and clinical features, including symptoms and signs, natural history, investigation, diagnosis, management, and prognosis for
 - 1.3.4.1. Radiculopathy
 - 1.3.4.2. Plexopathy
 - 1.3.4.3. Mononeuropathy
 - 1.3.4.4. Polyneuropathy
 - 1.3.4.5. Motor neuron disorders
 - 1.3.4.6. Neuromuscular junction disorders
 - 1.3.4.7. Muscle disorders

- 1.3.5. Investigations used in the assessment and follow-up of patients
 - 1.3.5.1. Basic principles of physics applied in the neuroelectrophysiological assessment
 - 1.3.5.2. Nerve and muscle biopsy
 - 1.3.5.2.1. Role in investigation of neuromuscular disorders
 - 1.3.5.2.2. Indications, contraindications, and risks
 - 1.3.5.2.3. Principles for selection of biopsy site
 - 1.3.5.2.4. Interpretation of histology and pathology reports of neuromuscular disorders
 - 1.3.5.2.5. Indications for further tissue testing
 - 1.3.5.3. Indications for, contraindications to, risks, and interpretation of
 - 1.3.5.3.1. Blood tests for specific disease markers
 - 1.3.5.3.2. Neuroelectrophysiological studies
 - 1.3.5.3.3. Genetic testing
 - 1.3.5.3.4. Neuromuscular imaging
 - 1.3.5.3.4.1. Ultrasound of muscle and nerve
 - 1.3.5.3.4.2. Magnetic resonance imaging (MRI)
 - 1.3.5.4. Outcome measures, including available assessments, their administration, and their role in monitoring disease progression and response to therapy
 - 1.3.5.4.1. Cognition
 - 1.3.5.4.2. Gross and fine motor function
 - 1.3.5.4.3. Muscle strength
 - 1.3.5.4.4. Respiratory function
 - 1.3.5.4.5. Endurance
 - 1.3.5.4.6. Patient-reported outcomes
 - 1.3.5.4.6.1. Quality of life
 - 1.3.5.4.6.2. Pain
 - 1.3.5.4.6.3. Fatigue
- 1.3.6. Therapeutic options for patients with neuromuscular disorders, including
 - 1.3.6.1. Indications for, alternatives to, and expected response to
 - 1.3.6.1.1. Rehabilitation therapies
 - 1.3.6.1.1.1. Physical
 - 1.3.6.1.1.2. Occupational

- 1.3.6.1.1.3. Speech-language (communication)
- 1.3.6.1.1.4. Respiratory
- 1.3.6.1.2. Assistive devices
 - 1.3.6.1.2.1. Mobility aids
 - 1.3.6.1.2.2. Orthoses
 - 1.3.6.1.2.3. Adaptive equipment for activities of daily living and occupational activities
- 1.3.6.2. Pharmacotherapies, including mechanisms of action, indications, adverse effects, contraindications, and alternatives, relevant to
 - 1.3.6.2.1. Preventive management
 - 1.3.6.2.1.1. Bone health
 - 1.3.6.2.2. Symptomatic treatments
 - 1.3.6.2.2.1. Pain
 - 1.3.6.2.2.2. Spasticity
 - 1.3.6.2.3. Disease-specific pharmacotherapies, including
 - 1.3.6.2.3.1. Enzyme replacement
 - 1.3.6.2.3.2. Genetic therapies
 - 1.3.6.2.3.3. Biological agents
 - 1.3.6.2.3.4. Immunomodulation
- 1.3.6.3. Plasmapheresis
- 1.3.6.4. Dysphagia care, including nutrition and speech-language (swallowing)
- 1.3.6.5. Palliative care options
- 1.3.6.6. Medical assistance in dying (MAID)
- 1.4. Perform appropriately timed clinical assessments with recommendations that are presented in an organized manner
- 1.5. Carry out professional duties in the face of multiple competing demands
- 1.6. Recognize and respond to the complexity, uncertainty, and ambiguity inherent in medical practice

2. Perform a patient-centred clinical assessment and establish a management plan

- 2.1. Prioritize issues to be addressed in a patient encounter
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- 2.1.1. Identify patients who require emergency and intensive care
- 2.1.2. Identify and manage patients at risk for acute deterioration
- 2.2. Elicit a history, perform a physical exam, select appropriate investigations, and interpret the results for the purpose of diagnosis and management, disease prevention, and health promotion
 - 2.2.1. Perform a clinical assessment of a patient presenting with neuromuscular symptoms and signs, including
 - 2.2.1.1. Patients with neuromuscular emergencies
 - 2.2.1.2. Patients requiring intensive care management
 - 2.2.2. Formulate a differential diagnosis and most likely diagnosis
 - 2.2.3. Select neuroelectrophysiological investigations with consideration of indications, contraindications, and risk, and interpret their reports
 - 2.2.3.1. Electromyography (EMG)
 - 2.2.3.1.1. Nerve conduction studies (NCS)
 - 2.2.3.1.2. Waveform analysis
 - 2.2.3.2. Single-fibre EMG
 - 2.2.3.3. Autonomic testing
 - 2.2.3.4. Recognize results that suggest artefact, technical errors, normal anatomic variations, or incidental findings
 - 2.2.4. Select investigations with consideration of indications, contraindications, and risk, and interpret their reports
 - 2.2.4.1. Blood tests, such as antibodies for autoimmune neuromuscular disorders, metabolic myopathies, and creatine phosphokinase (CPK)
 - 2.2.4.2. Muscle and nerve biopsies, including pathology
 - 2.2.4.3. Neuromuscular imaging
 - 2.2.4.3.1. Ultrasound of muscle and nerve
 - 2.2.4.3.2. MRI
 - 2.2.4.4. Neuromuscular genetic testing
 - 2.2.4.5. Outcome measures assessments
 - 2.2.4.5.1. Cognition
 - 2.2.4.5.2. Gross and fine motor function
 - 2.2.4.5.3. Muscle strength
 - 2.2.4.5.4. Respiratory function

- 2.2.4.5.5. Endurance
- 2.2.4.5.6. Patient-reported outcomes
 - 2.2.4.5.6.1. Quality of life
 - 2.2.4.5.6.2. Pain

2.2.5. Synthesize findings from the clinical assessment and investigations to diagnose neuromuscular disorders

2.3. Establish goals of care in collaboration with patients and their families,¹ which may include slowing disease progression, treating symptoms, achieving cure, improving function, and palliation

2.4. Establish a patient-centred management plan

2.4.1. Implement and monitor approved therapies, incorporating appropriate diagnostic tests and motor and functional outcome measures for disorders of the motor neuron, nerve root, peripheral nerve, neuromuscular junction, and muscle

3. Plan procedures and therapies for the purpose of assessment and/or management

3.1. Determine the most appropriate procedures or therapies

3.1.1. Rehabilitation therapies

- 3.1.1.1. Physical
- 3.1.1.2. Occupational
- 3.1.1.3. Speech-language
- 3.1.1.4. Respiratory

3.1.2. Assistive devices

- 3.1.2.1. Orthoses
- 3.1.2.2. Mobility aids
- 3.1.2.3. Adaptive equipment for activities of daily living and occupational activities

3.1.3. Pharmacotherapies

- 3.1.3.1. Preventive management
 - 3.1.3.1.1. Bone health

¹ Throughout this document, references to the patient's family are intended to include all those who are personally significant to the patient and are concerned with their care, including, according to the patient's circumstances, family members, partners, caregivers, legal guardians, and substitute decision-makers

- 3.1.3.2. Symptomatic management
 - 3.1.3.2.1. Pain
 - 3.1.3.2.2. Spasticity
- 3.1.3.3. Disease-specific pharmacotherapies, including
 - 3.1.3.3.1. Enzyme replacement
 - 3.1.3.3.2. Genetic therapies
 - 3.1.3.3.3. Biologic agents
 - 3.1.3.3.4. Immunomodulation
- 3.1.4. Plasmapheresis
- 3.1.5. Dysphagia care, including nutrition and speech-language (swallowing)
- 3.1.6. Palliative care
- 3.1.7. MAID
- 3.2. Obtain and document informed consent, explaining the risks and benefits of, and the rationale for, a proposed procedure or therapy
- 3.3. Prioritize a procedure or therapy, taking into account clinical urgency and available resources

4. Establish plans for ongoing care and, when appropriate, timely consultation

- 4.1. Implement a patient-centred care plan that supports ongoing care, follow-up on investigations, response to treatment, and further consultation
 - 4.1.1. Adjust the treatment plan based on the patient's response to treatment, progression of the disorder, or toxicities or adverse effects of treatment
 - 4.1.2. Recognize and manage complications of prescribed therapies, including intravenous and intrathecal therapies
 - 4.1.3. Determine the need for and timing of referral to other health care professionals
 - 4.1.4. Determine the need for accommodation for disability

5. Actively contribute, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety

- 5.1. Recognize and respond to harm from health care delivery, including patient safety incidents
- 5.2. Adopt strategies that promote patient safety and address human and system factors

Communicator

Definition:

As *Communicators*, physicians form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective health care.

Key and Enabling Competencies: Neuromuscular Medicine physicians are able to...

1. Establish professional therapeutic relationships with patients and their families

- 1.1. Communicate using a patient-centred approach that encourages patient and family trust and autonomy and is characterized by empathy, respect, and compassion
- 1.2. Optimize the physical environment for patient comfort, dignity, privacy, engagement, and safety
 - 1.2.1. Demonstrate sensitivity to the patient's experience of pain and discomfort during electrodiagnostic procedures
 - 1.2.2. Communicate strategies to accommodate physical limitations
- 1.3. Recognize when the perspectives, values, or biases of patients and families, physicians, or other health care professionals may have an impact on the quality of care, and modify the approach to the patient accordingly
- 1.4. Respond to a patient's and family's non-verbal behaviours to enhance communication
- 1.5. Manage disagreements and emotionally charged conversations
- 1.6. Adapt to the unique needs and preferences of each patient and family and to their clinical condition and circumstances

2. Elicit and synthesize accurate and relevant information, incorporating the perspectives of patients and their families

- 2.1. Use patient-centred interviewing skills to effectively gather relevant biomedical and psychosocial information
- 2.2. Provide a clear structure for and manage the flow of an entire patient encounter
- 2.3. Seek and synthesize relevant information from other sources, including the patient's family, with the patient's consent

3. Share health care information and plans with patients and their families

- 3.1. Share information and explanations that are clear, accurate, and timely, while checking for patient and family understanding
 - 3.1.1. Convey information related to genetic and neuroelectrophysiological testing and implications of the results clearly and compassionately
 - 3.1.2. Convey information about investigations, treatment options, and enrolment in clinical trials in a manner that enhances patient and family understanding

- 3.1.2.1. Identify and discuss patient eligibility for interventional and non-interventional research opportunities, such as trials or registries
- 3.1.3. Use developmentally appropriate language and terminology to facilitate understanding and effective decision-making
- 3.2. Disclose harmful patient safety incidents to patients and their families accurately and appropriately
- 4. Engage patients and their families in developing plans that reflect the patient's health care needs and goals**
 - 4.1. Facilitate discussions with patients and their families in a way that is respectful, non-judgmental, and culturally safe
 - 4.2. Assist patients and their families to identify, access, and make use of information and communication technologies to support their care and manage their health
 - 4.3. Use communication skills and strategies that help patients and their families make informed decisions regarding their health
- 5. Document and share written and electronic information about the medical encounter to optimize clinical decision-making, patient safety, confidentiality, and privacy**
 - 5.1. Document clinical encounters in an accurate, complete, timely, and accessible manner, in compliance with regulatory and legal requirements
 - 5.1.1. Provide complete, concise, and informative consultations, including the results of both the clinical and management plans
 - 5.1.2. Incorporate the results of neuroelectrophysiological assessments into written reports

Collaborator

Definition:

As *Collaborators*, physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care.

Key and Enabling Competencies: Neuromuscular Medicine physicians are able to...

1. Work effectively with physicians and other colleagues in the health care professions

- 1.1. Establish and maintain positive relationships with physicians and other colleagues in the health care professions to support relationship-centred collaborative care
- 1.2. Negotiate overlapping and shared responsibilities with physicians and other colleagues in the health care professions in episodic and ongoing care

- 1.2.1. Demonstrate knowledge of the roles and responsibilities of other professionals within the interdisciplinary health care team, as a member of that team
 - 1.2.2. Communicate effectively with other health professionals, including EMG technologists
 - 1.2.3. Consult and interact effectively with other physicians, health care professionals, EMG technologists, and clinic staff
 - 1.3. Engage in respectful shared decision-making with physicians and other colleagues in the health care professions
- 2. Work with physicians and other colleagues in the health care professions to promote understanding, manage differences, and resolve conflicts**
- 3. Hand over the care of a patient to another health care professional to facilitate continuity of safe patient care**
- 3.1. Determine when care should be transferred to another physician or health care professional
 - 3.1.1. Make clearly formulated consultation requests to other physicians or other health professionals
 - 3.2. Demonstrate safe handover of care, using both oral and written communication, during a patient transition to a different health care professional, setting, or stage of care

Leader

Definition:

As *Leaders*, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.

Key and Enabling Competencies: Neuromuscular Medicine physicians are able to...

- 1. Contribute to the improvement of health care delivery in teams, organizations, and systems**
 - 1.1. Apply the science of quality improvement to contribute to improving systems of patient care
 - 1.1.1. Develop and revise guidelines and algorithms for the diagnosis and treatment of neuromuscular disorders
 - 1.2. Contribute to a culture that promotes patient safety
 - 1.3. Analyze patient safety incidents to enhance systems of care
 - 1.4. Use health informatics to improve the quality of patient care and optimize patient safety

2. Engage in the stewardship of health care resources

- 2.1. Allocate health care resources for optimal patient care
 - 2.1.1. Recognize when resources are limited and utilize resources effectively to balance patient care and societal needs
- 2.2. Apply evidence and management processes to achieve cost-appropriate care

3. Demonstrate leadership in health care systems

- 3.1. Demonstrate leadership skills to enhance health care
 - 3.1.1. Assume a leadership role on the interdisciplinary rehabilitation team
 - 3.1.2. Lead team and family conferences when appropriate
- 3.2. Facilitate change in health care to enhance services and outcomes

4. Manage career planning, finances, and health human resources in personal practice(s)

Health Advocate

Definition:

As *Health Advocates*, physicians contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.

Key and Enabling Competencies: Neuromuscular Medicine physicians are able to...

1. Respond to an individual patient's health needs by advocating with the patient within and beyond the clinical environment

- 1.1. Work with patients to address determinants of health that affect them and their access to needed health services or resources
 - 1.1.1. Facilitate access to community support groups that can assist patients with neuromuscular disorders, including patient advocacy organizations
 - 1.1.2. Facilitate access to health care services for patients with neuromuscular disorders, including occupational therapy, physiotherapy, respiratory therapy, speech-language pathology, and nursing, as well as to other relevant medical and surgical specialties
 - 1.1.3. Recognize the unique challenges faced by patients with rare diseases in accessing costly therapies, including genetic therapy

- 1.2. Work with patients and their families to increase opportunities to adopt healthy behaviours
- 1.3. Incorporate disease prevention, health promotion, and health surveillance into interactions with individual patients
 - 1.3.1. Provide recommendations for physical activity and nutrition
 - 1.3.2. Recommend genetic screening for relatives of patients, where appropriate

2. Respond to the needs of the communities or populations they serve by advocating with them for system-level change in a socially accountable manner

- 2.1. Work with a community or population to identify the determinants of health that affect them
 - 2.1.1. Promote public awareness of the abilities of individuals with neuromuscular disorders and the challenges and barriers they face
 - 2.1.2. Identify socio-economic factors that can affect patients and communities, as related to neuromuscular disorders
 - 2.1.3. Recognize the unique challenges faced by patients with rare diseases in accessing costly therapies, including genetic therapy
- 2.2. Improve clinical practice by applying a process of continuous quality improvement to disease prevention, health promotion, and health surveillance activities
- 2.3. Contribute to a process to improve health in the community or population
 - 2.3.1. Participate in patient associations, providing expertise and guidance on research projects, new therapies, or clinical trials
 - 2.3.2. Recognize the role of national organizations in shaping public policy on care for individuals with neuromuscular disorders and on the prevention of disability

Scholar

Definition:

As *Scholars*, physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.

Key and Enabling Competencies: Neuromuscular Medicine physicians are able to...

1. Engage in the continuous enhancement of their professional activities through ongoing learning

- 1.1. Develop, implement, monitor, and revise a personal learning plan to enhance professional practice
- 1.2. Identify opportunities for learning and improvement by regularly reflecting on and assessing their performance using various internal and external data sources

- 1.3. Engage in collaborative learning to continuously improve personal practice and contribute to collective improvements in practice

2. Teach students, residents, the public, and other health care professionals

- 2.1. Recognize the influence of role modelling and the impact of the formal, informal, and hidden curricula on learners
- 2.2. Promote a safe learning environment
- 2.3. Ensure patient safety is maintained when learners are involved
- 2.4. Plan and deliver a learning activity
- 2.5. Provide feedback to enhance learning and performance
- 2.6. Assess and evaluate learners, teachers, and programs in an educationally appropriate manner

3. Integrate best available evidence into practice

- 3.1. Recognize practice uncertainty and knowledge gaps in clinical and other professional encounters and generate focused questions that address them
- 3.2. Identify, select, and navigate pre-appraised resources
- 3.3. Critically evaluate the integrity, reliability, and applicability of health-related research and literature
 - 3.3.1. Contribute to the process for evaluation and approval of new and emerging therapies
- 3.4. Integrate evidence into decision-making in their practice

4. Contribute to the creation and dissemination of knowledge and practices applicable to health

- 4.1. Demonstrate an understanding of the scientific principles of research and scholarly inquiry and the role of research evidence in health care
- 4.2. Identify ethical principles for research and incorporate them into obtaining informed consent, considering potential harms and benefits, and considering vulnerable populations
- 4.3. Contribute to the work of a research program
- 4.4. Pose questions amenable to scholarly investigation and select appropriate methods to address them
- 4.5. Summarize and communicate to professional and lay audiences, including patients and their families, the findings of relevant research and scholarly inquiry

Professional

Definition:

As *Professionals*, physicians are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.

Key and Enabling Competencies: Neuromuscular Medicine physicians are able to...

1. Demonstrate a commitment to patients by applying best practices and adhering to high ethical standards

- 1.1. Recognize and respond to ethical issues encountered in practice with respect to
 - 1.1.1. Genetic testing
 - 1.1.2. MAID
- 1.2. Recognize and manage conflicts of interest
 - 1.2.1. Abide by accepted guidelines for ethical interactions with industry with respect to research, education, and clinical care

2. Demonstrate a commitment to society by recognizing and responding to societal expectations in health care

- 2.1. Demonstrate accountability to patients, society, and the profession by responding to societal expectations of physicians
- 2.2. Demonstrate a commitment to patient safety and quality improvement

3. Demonstrate a commitment to the profession by adhering to standards and participating in physician-led regulation

- 3.1. Fulfil and adhere to professional and ethical codes, standards of practice, and laws governing practice
 - 3.1.1. Adhere to requirements for mandatory reporting, including driving restrictions
 - 3.1.2. Adhere to regulations governing personal health information and privacy in relation to genetic testing
 - 3.1.3. Adhere to regulations, policies, and standards relevant to MAID

4. Demonstrate a commitment to physician health and well-being to foster optimal patient care

REQUIRED TRAINING EXPERIENCES

1. Participate as a consultant in inpatient settings, assessing and managing patients with the breadth of pediatric and adult presentations of neuromuscular disorders²
2. Participate in outpatient settings, assessing and managing patients with the breadth of pediatric and adult presentations of neuromuscular disorders
3. Receive formal instruction in clinical evaluation and management of patients of all ages with neuromuscular disorders
4. Observe the rehabilitation of patients with neuromuscular disorders, including engagement with physical therapy, occupational therapy, and speech-language pathology
5. Observe and interpret neuroelectrophysiological studies
6. Participate in pathology rounds relevant to neuromuscular pathology
7. Attend and present on topics related to neuromuscular disorders to other physicians and health professionals at academic teaching and clinical rounds
8. Participate in scholarly research, either basic science or clinical, including dissemination of the results

RECOMMENDED TRAINING EXPERIENCES

1. Participate in neuromuscular imaging
 - a. Ultrasound (muscle and nerve) technique and interpretation
 - b. MRI interpretation of muscle, nerve, brain, and spine
2. Participate in neuromuscular clinical genetics
 - a. Interpretation of genetic results for neuromuscular disorders
 - b. Instruction on the molecular basis of therapies such as antisense oligonucleotides, gene replacement therapy, and gene editing therapy
3. Observe advanced neuroelectrophysiological studies, such as single-fibre or autonomic testing
4. Observe nerve and muscle biopsy procurement, including open and needle muscle biopsies
5. Participate in the interpretation of neuromuscular pathology
6. Participate in a clinical experience in Physical Medicine and Rehabilitation (for trainees from Neurology entry route) or Neurology (for trainees from Physical Medicine and Rehabilitation entry route)
7. Observe the rehabilitation of patients with neuromuscular disorders, including engagement with gait analysis, orthotics, and seating specialists

² The breadth of presentations in neuromuscular medicine includes disorders of the motor neuron, nerve root, peripheral nerve, neuromuscular junction, and muscle in pediatric and adult populations.

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