THE BOARD OF ELECTROMYOGRAPHY TECHNOLOGISTS OF CANADA
B.R.E.T.C.

REQUIREMENTS FOR REGISTRATION EXAMINATION CANDIDATES

This document has been accepted as the basis for the written and practical portions of the registration examination and serves as a training or study guide. The BRETC does not endorse specific publications, workshops or websites, recognizing that the list is exhaustive and fluid and that individual labs may have preferred references. Whatever those references are, the following information will be accessible.

Decision Making:

In the EMG laboratory, the ultimate responsibility for all aspects of the visit rests with the electromyographer. However, candidates for the BRETC Registration examination are expected to be able to function independently in all phases of nerve conduction studies. For the purpose of the examination, candidates may be given a patient's history and clinical findings for common neuromuscular disorder case(s) and asked to make decisions about appropriate techniques and which nerves should be tested.

Anatomy and Physiology:

All candidates are expected to know:
·Neuroanatomy and functional anatomy of the limbs, head, neck and lower back as it relates to EMG and NCS technology.
·Appropriate anatomical and function nomenclature.
·Basic nerve and muscle physiology as it pertains to excitation and propagation of action potentials in peripheral nerves, neuromuscular junction transmission and the electrochemical/mechanical coupling in skeletal muscle.
·The type of nerve(s) and their connections responsible for phenomena observed in EMG technology.
·The essential nature of common neuromuscular problems in the EMG laboratory.

Electronic and Machine Considerations:

Essential knowledge and understanding (including how altering the machine parameters affects waveforms) about:
·Gain (sensitivity)
·Sweep speed
·Filters (high and low pass)
·Averaging
·Calibrations
·Stimulating electrode and stimulating parameters
·Recording electrodes
·Impedance
·Stimulus (shock) artifact
·60 Hz artefact
·Grounding (current limiters and signal isolation)
·Electrical safety
·Ohm's Law
·Leakage current
·Stimulus leakage

Patient Considerations:

·Good bedside manner and patient handling skills
·Appropriate history taking
·Proper skin preparation
·Consideration of patient comfort
·Management and effect of limb temperature
·Management of muscle artifact
·Ability to deal with limb edema, intravenous sites, etc.
·Understanding the effect of age
·Adequate infection control techniques

Nerve Conduction Studies:

Candidates will be evaluated on points previously stated in addition to:
·General knowledge of normal electrophysiological values and recognition of abnormal results
·Recording electrode placement
·Stimulation
·Quality of traces
·Accuracy of latency, amplitude, distance and velocity measurement
(including the ability to manually calculate CV)
·Electrode handling and preparation
·Stimulus spread/stimulus lead

Needle EMG:

Candidates must have knowledge about:
·Machine set up for needle electromyography
·Types and properties of needle EMG electrodes
·Infection control techniques: sterilization, handling, storage and disposal of electrodes

Motor Nerves:

Be prepared to perform NCS on:
·Median
·Ulnar
·Radial
·Musculocutaneous
·Peroneal
·Tibial
·Femoral
·Facial
·Anomalies

Note: Questions on the written examination will not be restricted to these nerves.

Sensory Nerves:

·Median
·Ulnar
·Radial
·Lateral antebrachial cutaneous
·Medial antebrachial cutaneous
·Sural
·Superficial peroneal
·Medial and lateral plantars
·Saphenous

Note: Questions on the written examination will not be restricted to these nerves.

Additional Techniques and Knowledge:

·Myasthenia and Myasthenic Syndrome studies (proximal and distal techniques)
·F waves
·Axon reflexes
·H reflexes
·Blink reflexes
·PPE consideration