Neuromuscular Medicine Fellowship
Curriculum

General

- Review Goals and Objectives
- Attend weekly EMG sessions as assigned
- Take a Directed History and Exam of each EMG patient
- Attend every other week Muscle Disease Clinic (Tues AM)
- Attend every Wed AM Neuromuscular Clinic
- Attend weekly neuropathology session (Wed PM)
- Attend Weekly neuromuscular/EMG didactic lecture (Friday AM)
- Follow Inpatient Neuromuscular admissions and consults with attendings
- Attend monthly nerve and muscle biopsy Conference with NM Faculty
- Attend and participate actively Friday Noon NM Conference
- Prepare and present recent papers in weekly NM Journal Club (Wed Noon)
- Prepare and present at the biweekly NM disorder didactic conference (Tues AM)
- Present at Neurology Grand Rounds (third quarter)

Lectures

- Wednesday PM Journal club
- Friday Noon neuromuscular/EMG didactic lecture
- Friday AM Neurology Grand Rounds
- Tuesday AM NM disorder didactic

Assigned Readings:

- Katirji et al. Neuromuscular Disorders in Clinical Practice, B-H, 2002 (NMDCP)
- Preston and Shapiro. EMG and Neuromuscular Disorders, Elsevier, 2005 (P&S)
- Katirji B. Electromyography in Clinical Practice, Elsevier, 2007 (BK)
- Aids to the Examination of the Peripheral Nervous System (ATEPNS)

Month 1-3

- Read BK Chapters 1-4
  - Introduction to clinical EMG
  - Routine Clinical EMG
  - Specialized EDX studies
  - EDX findings in neuromuscular diseases
- Read P&S Chapters 1-4, 7, 8
  - Approach to NCS and EMG
  - Anatomy and Physiology
  - Basic Nerve Conduction Studies
  - Late Responses
  - Anomalous Innervations
  - Artifacts and Technical Factors
- Read ATEPNS pages1-61
  - Anatomy of the Median and Ulnar Nerves
  - Anatomy of other Upper Extremity Nerves
  - Anatomy of the Lower Extremity Nerves
  - Motor testing
  - Dermatomes and Myotomes
- Read NMDCP Chapters 1, 2, 7
  - Clinical Assessment of NM Disorders
Basic Concepts
Clinical EMG

- Attend 6-7 EMG Sessions
- Attend neuromuscular clinic
- Attend muscle clinic
- Attend neuropathology session

- Practice Upper Extremity NCSs including F waves
- Practice Lower Extremity NCSs including F waves and H reflexes
- Practice writing the Summary and Impression for all EMG reports
- Observe and interpret needle EMG
- Review with supervision nerve and muscle biopsies

- Interactive Session with Dr. Katirji: NCS basics
- Interactive Session with Dr. Preston: NCS patterns
- Interactive Session with Dr. Alshekhlee: Late responses
- Interactive Session with Dr. Katirji: Anomalous Innervations
- Interactive Session with Dr. Preston: Artifacts

Quiz: NCS/EMG Basics & Peripheral Anatomy

Month 4-6

- Read P&S Chapters 12-16, 17-24, 26, 27, 29, 33
  Basic Overview of EMG
  Anatomy for needle EMG
  Analysis of Spontaneous Activity
  Analysis of Voluntary Activity
  Median Neuropathy
  Ulnar Neuropathy
  Radial Neuropathy
  Peroneal Neuropathy
  Femoral Neuropathy
  Tarsal tunnel syndrome
  Scitic neuropathy
  Polyneuropathy
  ALS
  Radiculopathy
- Read BK Cases 1-16
  Case 1 nerve injury, p. 61
  Case 2 lumbosacral radiculopathy, p. 81
  Case 3 sciatic neuropathy, p. 99
  Case 4 femoral neuropathy, p. 109
  Case 5 lumbosacral plexopathy, p. 117
  Case 6 tarsal tunnel syndrome, p. 125
  Case 7 diabetic amyotrophy, p. 133
  Case 8 peroneal neuropathy, p. 143
  Case 9 ulnar neuropathy at the wrist, p. 157
  Case 10 axillary neuropathy, p. 167
  Case 11 cervical radiculopathy, p. 175
  Case 12 radial neuropathy, p. 189
  Case 13 thoracic outlet syndrome, p. 199
  Case 14 carpal tunnel syndrome, p. 209
  Case 15 ulnar neuropathy at the elbow, p. 223
  Case 16 brachial plexitis (neuralgic amyotrophy), p. 239
- Read NMDCP Chapters 3-6, 11, 13-17, 27
  Muscle enzymes
Autoantibodies and Immune Polyneuropathies
Autoantibodies in NMJ and Muscle Disorders
Ischemic exercise testing
Autonomic Testing
Imaging of peripheral nerve
Imaging of Muscle
Imaging of Spine
Molecular and Genetic Analysis
Nerve and Muscle Biopsy
Approach to peripheral neuropathies

- Attend 6-7 EMG Sessions
- Attend neuromuscular clinic
- Attend muscle clinic
- Attend neuropathology session
- Write the Summary and Impressions for all performed EMG studies
- Write the summary and findings of all nerve and muscle biopsies interpreted
- Teach rotating neurology residents
- Teach rotating medical students

- Perform and interpret with supervision upper extremity NCS including F waves
- Perform and interpret with supervision Lower Extremity NCS including F waves & H reflexes
- Perform and interpret with supervision needle EMG
- Interpret and discuss the findings of EDX studies
- Write and discuss the Summary and Impressions for all EMG reports
- Observe and interpret repetitive nerve stimulation
- Observe, perform and interpret Forearm exercise testing
- Observe and interpret autonomic studies
- Review and interpret with supervision nerve and muscle biopsies

- Interactive Session with Dr. Preston: Spontaneous Activity
- Interactive Session with Dr. Katirji: Repetitive nerve stimulation
- Interactive Session with Dr. Preston: Voluntary Activity
- Interactive Session with Dr. Katirji: Approach to Peripheral Neuropathies
- Interactive Session with Dr. Chelimsky: Autonomic Testing
- Interactive Session with Dr. Alshekhlee: Safety and complications of EDX studies
- Interactive Session with Dr. Preston: Imaging of the Spine

- MOCK exam; Video and written Mock exam

Month 7-9

- Read BK Cases 1-16
  - Case 17 myasthenia gravis, p. 253
  - Case 18 chronic acquired demyelinating neuropathy, p. 275
  - Case 19 amyotrophic lateral sclerosis, p. 291
  - Case 20 polymyositis, p. 305
  - Case 21 Lambert-Eaton myasthenic syndrome, p. 321
  - Case 22 Charcot-Marie-Tooth disease, p. 333
  - Case 23 Guillain-Barré syndrome, p. 345
  - Case 24 botulism, p. 363
  - Case 25 multifocal motor neuropathy, p. 373
  - Case 26 alcoholic peripheral polyneuropathy, p. 387
  - Case 27 vasculitic neuropathy, p. 397
- Read P&S Chapters 28, 30, 32, 34-36
  - Atypical motor neuron disease
  - Plexopathies
  - NM junction disorders
Myopathy
Myotonic disorders

- Read NMDCP Chapters 9, 10, 12, 22-26, 33, 41-43, 46-49, 82, 84
  - Somatosensory evoked potentials
  - Quantitative EMG
  - Quantitative Sessory testing
  - Poliomyelitis and postpolio syndrome
  - ALS
  - Spinal Muscular Atrophy
  - Atypical motor neuron disorders
  - Dorsal Root Ganglion Disorders
  - Diabetic Neuropathies
  - Peripheral Nerve Injury
  - UE compressive/entrapment neuropathies
  - LE compressive/entrapment neuropathies
  - Cervical Radiculopathy
  - Lumbosacral Radiculopathy
  - Brachial plexopathy
  - Lumbosacral plexopathy
  - Neuropathic pain
  - Restless leg syndrome

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- Perform and interpret with supervision Lower Extremity NCS including F waves and H reflexes
- Perform and interpret with supervision needle EMG
- Perform and interpret repetitive nerve stimulation
- Observe and interpret facial studies and blink reflexes
- Observe and interpret phrenic nerve studies
- Observe and interpret single Fiber EMG studies
- Interpret and discuss the findings of EDX studies
- Write and discuss the Summary and Impressions for all EMG reports
- Perform and interpret Forearm exercise testing
- Observe and interpret autonomic studies
- Review and interpret with supervision nerve and muscle biopsies

- Interactive Session with Dr. Preston: UE Neuropathies
- Interactive Session with Dr. Katirji: LE Neuropathies
- Interactive Session with Dr. Katirji: Peripheral nerve injury
- Interactive Session with Dr. Miller: Diabetic Neuropathies
- Interactive Session with Dr. Katirji: ALS and other MNDs

- MOCK exam; Video and written Mock exam

Month 10-12

- Read P&S Chapters 59, 37, 38
  - Blink reflex
  - EDX in ICU
Pediatric EMG

- Read NMDCP Chapters 8, 30, 31, 50-54, 57-64, 67, 69, 70, 73-78
- Single Fiber EMG
- GBS
- CIDP
- Myasthenia gravis
- Lambert-Eaton myasthenic syndrome
- Botulism
- Congenital myasthenia
- Drug induced NM junction disorders
- Dystrophinopathies and other muscular dystrophies
- Inflammatory Myopathies
- Toxic myopathies
- Endocrine myopathies
- Rhabdomyolysis and myoglobinuria
- Cramps and fasciculation syndrome
- Stiff man syndrome
- Tetanus
- Neuroleptic malignant syndrome
- Fascitis syndromes
- Chronic fatigue syndrome
- Fibromyalgia
- Spinocerebellar atrophies
- Familial spastic paraplegias

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- Present at Neurology Grand Rounds

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- Perform and interpret with supervision Lower Extremity NCS including F waves & H reflexes
- Perform and interpret with supervision needle EMG
- Perform and interpret repetitive nerve stimulation
- Perform and interpret with supervision Single fiber EMG studies
- Perform and interpret facial studies and blink reflexes
- Perform and interpret phrenic nerve studies
- Perform and interpret single Fiber EMG studies
- Write and discuss the Summary and Impressions for all EMG reports
- Observe and interpret autonomic studies
- Review and interpret with supervision nerve and muscle biopsies

- Interactive Session with Dr. Preston: Radiculopathy
- Interactive Session with Dr. Katirji: GBS and CIDP
- Interactive Session with Dr. Katirji: Inherited Muscle Diseases
- Interactive Session with Dr. Katirji: Therapy in NM Disorders

- EXAM: National ANNEM TPSAE & NUROMUSCULAR exam