



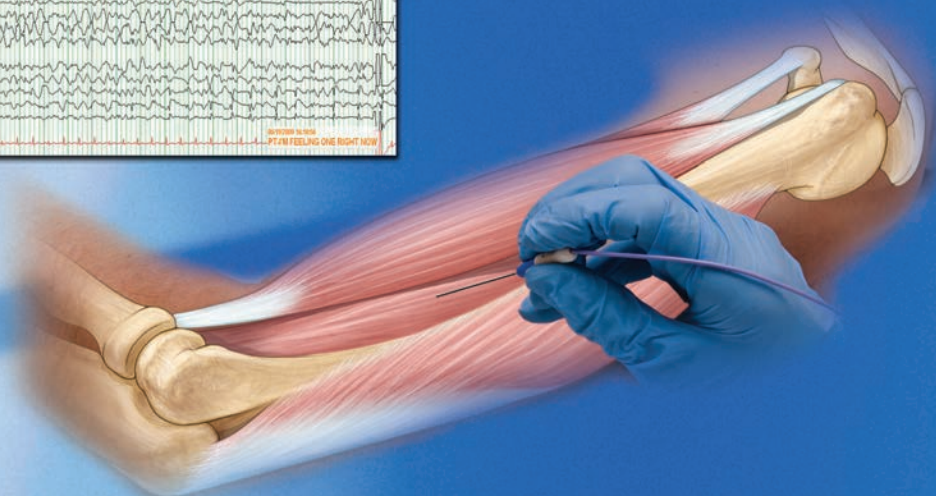
Mayo Clinic Electromyography (EMG), Electroencephalography (EEG), and Neurophysiology in Clinical Practice

Sunday, February 22 - Saturday, February 28, 2015

*Ritz-Carlton
Amelia Island, Florida*



COURSE DIRECTOR(S)
Devon I. Rubin, M.D.
Jerry J. Shih, M.D.



Featuring an
ABPN Approved Self-Assessment Activity



For more information:
www.mayo.edu

Course Description

This course is designed as a review of techniques and topics pertaining to Clinical Neurophysiology which includes: basic physiology; pathophysiology; EEG; evoked potentials; EMG; movement disorders; and intraoperative monitoring. There is a focus on clinical correlation of various neurophysiological tests used for the evaluation of patients with epilepsy, sleep disorders, movement disorders, peripheral nerve, and neuromuscular disorders. Presentations will be made by members of the staff of Mayo Clinic and faculty of the Mayo Clinic College of Medicine from the Department of Neurology in Jacksonville, Florida; Rochester, Minnesota; and Scottsdale, Arizona.

Course Learning Objectives

Upon conclusion of this program, participants should be able to:

- Develop a logical approach to the use of standard clinical electrophysiological techniques in the evaluation of common and uncommon neuromuscular disorders
- Identify technical pitfalls associated with NCS and needle EMG and understand methods to correct and minimize technical problems
- Interpret the findings and clinical significance of abnormalities on nerve conduction studies
- Recognize and interpret the significance of EMG waveforms on needle EMG
- Identify technical pitfalls associated with EEG and the normal and variant patterns of pediatric and adult patients
- Interpret the findings and clinical significance of abnormalities on EEG studies
- Integrate the various clinical neurophysiology studies (evoked potentials, autonomic tests, sleep studies, vestibular testing) in the evaluation of patients with disorders of the central nervous system

Intended Audience

This course is intended for neurologists and physiatrists interested in the basics of clinical EMG, EEG, and Neurophysiology. Attendance at this Mayo course does not indicate nor guarantee competence or proficiency in the performance of any procedures that may be discussed or taught in this course.

Credit

College of Medicine, Mayo Clinic, is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

College of Medicine, Mayo Clinic, designates this live activity for a maximum of 55.5 *AMA PRA Category 1 Credits*[™] and Self-Assessment 8.0 *AMA PRA Category 1 Credits*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

American Board of Psychiatry and Neurology

Mayo Clinic College of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. Mayo Clinic College of Medicine designates this Self-Assessment for up to 8.0 *AMA PRA Category 1 Credits*[™]. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The American Board of Psychiatry and Neurology has reviewed the "EMG, EEG and Clinical Neurophysiology, Feb 22-28, 2015 course, (awarding Self-Assessment 8.0 *AMA PRA Category 1 Credits*[™]) and has approved this program as part of a comprehensive self-assessment program, which is mandated by the ABMS as a necessary component of Maintenance of Certification.

Educational Grants

This course is supported, in part, by educational grants from multiple industry sponsors in accordance with ACCME Standards. At the time of this printing, a complete listing of commercial supporters was not available. Appropriate acknowledgment will be given to all supporters at the time of the meeting.

Exhibits will be available for viewing at all scheduled breaks.

Registration

To register online, visit www.mayo.edu/cme/neurology-and-neurologic-surgery-2015j577 or complete the attached registration form and return by mail or fax. The registration fee

includes tuition, comprehensive electronic course syllabus, continental breakfasts, break refreshments, lunch and February 23, 2015 dinner. Although it is not Mayo School of Continuous Professional Development's (CPD) policy to limit the number of registrants for a course, conference room facilities may necessitate closing of enrollment; therefore, early registration is advised. A letter of confirmation will be sent upon receipt of payment and completed registration.

Cancellation Policy

If you cancel your participation in this course, your registration fee, less a \$75 administrative fee, will be refunded when written notification is received by Mayo School of CPD on or before Friday, February 6, 2015 (email cme-jax@mayo.edu). No refunds will be made after Friday, February 6, 2015. Canceled registrations are non-transferable.

Mayo School of CPD reserves the right to cancel or postpone any course due to unforeseen circumstances. In the unlikely event that Mayo School of CPD must cancel or postpone this course, Mayo School of CPD will refund the registration fee, but is not responsible for any related costs, charges, or expenses to participants, including fees assessed by airline/travel/lodging agencies.

Course Syllabus

The course syllabus is provided on a flash drive and distributed to attendees at the course. A printed copy of the syllabus WILL NOT be available unless purchased at the time of registration. Charging stations are available in the general session room and you are encouraged to bring your laptop to access the course syllabus during the lectures.

Lodging Accommodations

The Ritz-Carlton Amelia Island

4750 Amelia Island Parkway, Amelia Island, FL 32034

Phone: (800) 241-3333 or (904) 277-1100

www.ritzcarlton.com/ameliaisland

A block of coastal view rooms single/double/triple/quad occupancy is reserved at a special course rate of \$229 per night, plus tax, until January 23, 2015, or until the room block is filled. Call reservations at 888-239-1217 and identify yourself as a participant of the Mayo Clinic EMG/EEG course or reserve online at <http://tinyurl.com/EMG-EEG-2015> Rooms are limited so we encourage early booking. Reservations made after January 23, 2015 will be confirmed on a space/rate available basis. Group rates will be extended to conference attendees three days prior to and three days after the conference based on availability. Check-in time is after 4 p.m. and check-out time is before noon. All parking at the resort is provided by valet service. Overnight parking at the resort is \$12 per night. Day guest parking is complimentary. Guest room high-speed internet access is complimentary.

Jacksonville International Airport (JAX) is located 35 minutes from The Ritz-Carlton at Amelia Island. Lodging arrangements are the sole responsibility of the individual registrant.

Faculty

Guest Faculty

Randa G. Jarrar, M.D.
Child Neurology
Phoenix Children's Hospital
Phoenix, Arizona

Mayo Faculty

Jeffrey W. Britton, M.D.
Jonathan L. Carter, M.D.
Gregory D. Cascino, M.D.
Brian A. Crum, M.D.
Elliot L. Dimberg, M.D.
Joseph F. Drazkowski, M.D.
P. James B. Dyck, M.D.

Brent P. Goodman, M.D.
Lyell K. Jones, Jr., M.D.
Kathleen D. Kennelly, M.D., Ph.D.
Terrence D. Lagerlund, M.D., Ph.D.
Ruple S. Laughlin, M.D.
Michelle L. Mauermann, M.D.
Katherine C. Nickels, M.D.
Katherine H. Noe, M.D., Ph.D.
Eric T. Payne, M.D.
Mark A. Ross, M.D.
Devon I. Rubin, M.D.
Raj D. Sheth, M.D.

Jerry J. Shih, M.D.
Michael H. Silber, M.B.Ch.B.
Wolfgang Singer, M.D.
Benn E. Smith, M.D.
Elson L. So, M.D.
Eric J. Sorenson, M.D.
Jeffrey A. Strommen, M.D.
William O. Tatum, D.O.
James C. Watson, M.D.
Gregory A. Worrell, M.D., Ph.D.
David A. Zapala, Ph.D.

Sunday, February 22, 2015 (EMG)

- 7:00 a.m. Registration & Continental Breakfast
7:45 Welcome, Introduction and Pre-Test - *Devon I. Rubin, M.D.*
8:00 Nerve Conduction Studies: Basics - *Brian A. Crum, M.D.*
8:45 Uncommon Motor NCS, Including F Waves and H Reflexes
Lyell K. Jones, M.D.
9:30 Break
10:00 Uncommon Sensory Nerve Conduction Studies –
Technique and Utility - *Mark A. Ross, M.D.*
10:45 Electrodiagnostic Evaluation of Neuromuscular Junction
Disorders - *Brent P. Goodman, M.D.*
11:30 Pitfalls of Nerve Conduction Studies - Technical and Physiologic
Devon I. Rubin, M.D.
12:30 p.m. Lunch
1:30 **Workshops I – Nerve Conduction Studies**
- Upper Extremity Motor – Common
- Upper Extremity Motor – Uncommon
- Upper Extremity Sensory
- Lower Extremity Motor and Sensory
2:30 **Workshop II – Nerve Conduction Studies**
- Upper Extremity Motor – Common
- Upper Extremity Motor – Uncommon
- Upper Extremity Sensory
- Lower Extremity Motor and Sensory
3:30 **Workshop III - Nerve Conduction Studies**
- Upper Extremity Motor – Common
- Upper Extremity Motor – Uncommon
- Upper Extremity Sensory
- Lower Extremity Motor and Sensory
4:30 **Workshop IV - Nerve Conduction Studies**
- Upper Extremity Motor – Common
- Upper Extremity Motor – Uncommon
- Upper Extremity Sensory
- Lower Extremity Motor and Sensory
5:30 p.m. Adjourn

Monday, February 23, 2015 - EMG

- 7:30 a.m. Continental Breakfast
8:00 Technique of Needle Examination - *Devon I. Rubin, M.D.*
8:30 EMG of Uncommon Muscles - *Eric J. Sorenson, M.D.*
9:30 Break
9:45 EMG Waveform Analysis: Introduction - *Devon I. Rubin, M.D.*
11:30 Crafting the EMG Report - *Benn E. Smith, M.D.*
Noon Lunch
1:00 p.m. **Workshop I – Needle EMG**
- Common Upper Extremity
- Common Lower Extremity
- Uncommon Upper Extremity
- Needle Technique and Practical Points
2:00 **Workshop II – Needle EMG**
- Common Upper Extremity
- Common Lower Extremity
- Uncommon Upper Extremity
- Needle Technique and Practical Points
3:00 **Workshop III – Needle EMG**
- Common Upper Extremity
- Common Lower Extremity
- Uncommon Upper Extremity
- Needle Technique and Practical Points
4:00 **Workshop IV – Needle EMG**
- Common Upper Extremity
- Common Lower Extremity
- Uncommon Upper Extremity
- Needle Technique and Practical Point
5:00 Dinner

6:30 An Evening of EMG Waveforms: Food, Fun, and Fibrillations
Devon I. Rubin, M.D. and Lyell K. Jones, Jr., M.D.

10:00 p.m. Adjourn

Tuesday, February 24, 2015 - (EMG Approaches to Common Disorders)

7:30 a.m. Continental Breakfast

8:00 Carpal Tunnel Syndrome- *James C. Watson, M.D.*

8:45 Ulnar Neuropathy - *Benn E. Smith, M.D.*

9:30 Break

9:45 Evaluations of Radiculopathies - *Jeffrey A. Strommen, M.D.*

10:45 Lower Limb Mononeuropathies - *Ruple S. Laughlin, M.D.*

11:45 Electrodiagnostic Approach to Brachial Plexopathy - *Devon I. Rubin, M.D.*

12:30 p.m. Lunch

1:30 Workshops I

Repetitive Stimulation

Single Fiber EMG

Cranial Nerve Testing and Other NCS

Ultrasound as a Complement to NCS and EMG

2:30 Workshops II

Repetitive Stimulation

Single Fiber EMG

Cranial Nerve Testing and Other NCS

Ultrasound as a Complement to NCS and EMG

3:30 Workshop III

Repetitive Stimulation

Single Fiber EMG

Cranial Nerve Testing and Other NCS

Ultrasound as a Complement to NCS and EMG

5:00 p.m. Adjourn

Wednesday, February 25, 2015 - EMG Approaches to Uncommon Disorders

7:00 a.m. Continental Breakfast

7:30 Post-Test

8:00 Evaluation of Common, Distal Sensorimotor Peripheral
Neuropathies - *Michelle L. Mauermann, M.D.*

8:45 Evaluation of Uncommon and Atypical Peripheral
Neuropathies - *Michelle L. Mauermann, M.D.*

9:30 Break

9:45 Pathological Correlates of Electrodiagnostic Studies:
The Use of the Nerve Biopsy - *P. James B. Dyck, M.D.*

10:45 Approach to Motor Neuron Diseases - *Eric J. Sorenson, M.D.*

Noon Lunch

1:00 p.m. Approach to Neuromuscular Junction Disorders
Kathleen D. Kennelly, M.D., Ph.D.

2:00 Approach to Muscle Diseases - *Elliot L. Dimberg, M.D.*

3:00 Break

3:15 Evaluation of Cranial Neuropathies - *Kathleen D. Kennelly, M.D., Ph.D.*

4:00 Nerve Conduction Studies and Electromyography in the
Pediatric Population - *Randa G. Jarrar, M.D.*

5:00 p.m. Adjourn

Thursday, February 26, 2015 - (Evoked Potentials, Sleep, Autonomic, and Intraoperative Monitoring)

7:30 a.m. Continental Breakfast

8:00 Intraoperative Monitoring - *Jeffrey A. Strommen, M.D.*

9:00 Somatosensory Evoked Potentials - *James C. Watson, M.D.*

10:00 Break

- 10:15 Visual Evoked Potentials - *Jonathan L. Carter, M.D.*
 10:45 Brainstem Auditory Evoked Responses (BAERs)
Jonathan L. Carter, M.D.
 11:15 Basics of Polysomnography - *Michael H. Silber, M.B.Ch.B.*
 12:15 p.m. Lunch
 1:30 Evaluation of Sleep Disorders - *Michael H. Silber, M.B.Ch.B.*
 2:30 Evaluation of Vestibular Dysfunction - *David A. Zapala, Ph.D.*
 3:30 Neurophysiologic Evaluation of Autonomic Disorders
Wolfgang Singer, M.D.
 4:30 pm Adjourn

Friday, February 27, 2015 (EEG)

- 7:30 a.m. Continental Breakfast
 8:00 Introduction and Pre-Test
 8:10 Physiologic Basis of EEG and Electrical Fields
Terrence D. Lagerlund, M.D.
 8:45 Normal Adult EEG and Benign Variants in Adults
Jeffrey W. Britton, M.D.
 9:35 Normal EEGs in Infants and Children - *Katherine C. Nickels, M.D.*
 10:25 Break
 10:40 Abnormal EEGs in Infants and Children - *Katherine C. Nickels, M.D.*
 11:30 Artifacts in the EEG Recordings - *Jeffrey W. Britton, M.D.*
 12:15 p.m. Lunch
 1:15 EEG in Partial and Generalized Seizures - *Jerry J. Shih, M.D.*
 2:05 EEG in Status Epilepticus - *Katherine H. Noe, M.D., Ph.D.*
 2:40 Break
 3:00 **Breakout Sessions (Attendees will choose 3 sessions)**
1. Basics in EEG Interpretation and Reporting
 Approach to orderly analysis of routine EEGs
 Common pitfalls for the beginning reader
 Elements of a complete and useful report
Katherine H. Noe, M.D., Ph.D. and Joseph F. Drazkowski, M.D.
2. Advanced EEG Interpretation
 Re-montaging, filters, EEG source analysis
Terrence D. Lagerlund, M.D. and Gregory A. Worrell, M.D., Ph.D.
3. EEG in the Pediatric ICU - Eric T. Payne, M.D.
4. EEG Reading Session – You Make the Call
Jeffrey W. Britton, M.D. and Jerry J. Shih, M.D.
 4:45 p.m. Adjourn

Saturday, February 28, 2015 (EEG Monitoring and Video EEG)

- 7:30 a.m. Continental Breakfast
 8:00 Ambulatory EEG - *William O. Tatum, D.O.*
 8:30 Video EEG for Spells and Seizures (Adults)
Gregory D. Cascino, M.D.
 9:30 Video EEG for Spells and Seizures (Pediatrics) - *Raj D. Sheth, M.D.*
 10:30 Break
 10:45 Intracranial EEG and HFOs
Gregory A. Worrell, M.D., Ph.D.
 11:25 Video-EEG Reading Session – You Make the Call
Jerry J. Shih, M.D. and Morning Faculty
 12:15 p.m. Lunch
 1:15 EEG in the ICU: Coma, Infections, and Encephalopathies
Elson L. So, M.D.
 2:05 EEG Misadventures - *William O. Tatum, D.O.*
 2:45 Carotid Monitoring and Wada Studies
Joseph F. Drazkowski, M.D.
 3:25 Post-Test
 3:45 p.m. Adjourn

Program schedule is subject to change without notice.

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Faculty Disclosure

As a provider accredited by ACCME, Mayo Clinic (Mayo School of Continuous Professional Development) must ensure balance, independence, objectivity and scientific rigor in its educational activities. Course directors, planning committee, faculty, and all others who are in a position to control the content of this educational activity are required to disclose all relevant financial relationships with any commercial interest related to the subject matter of the educational activity. Safeguards against commercial bias have been put in place. Faculty also will disclose any off-label and/or investigational use of pharmaceuticals or instruments discussed in their presentation. Disclosure of this information will be published in course materials so those participants in the activity may formulate their own judgments regarding the presentation.

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