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course



**8<sup>th</sup> Annual Hands-on Diagnostic and  
Interventional Musculoskeletal Ultrasound:  
A Problem-Solving Approach**



**Jay Smith, MD, Course Chair**  
July 10–12, 2014  
Mayo Clinic  
Rochester, Minnesota

Earn up to 24.75 *AMA PRA Category 1 Credits™* (accepted by the ARDMS) or ARRT Category A Credits.

**LIMITED REGISTRATION!**

Registration is open to AIUM members only until April 15, 2014.

**NOT A MEMBER?**

This is one course you don't want to miss. It has sold out the past 7 years.

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# Hands-on Diagnostic and Interventional Musculoskeletal Ultrasound: A Problem-Solving Approach

Thursday, July 10, 2014.....7:15 AM–5:30 PM

Friday, July 11, 2014.....7:15 AM–5:30 PM

Saturday, July 12, 2014.....7:15 AM–5:30 PM

## Course Description

This 3-day course comprehensively reviews the techniques and applications of diagnostic and interventional musculoskeletal ultrasound in the upper and lower limbs. Using a problem-solving approach, expert faculty demonstrate the examination protocols, pathologies, and relevant ultrasound-guided procedures for patients presenting with regional complaints in the shoulder, elbow, hip, knee, and ankle-foot regions. Core lectures are supplemented by numerous live demonstrations, clinical focus sessions (clinical applications of rotator cuff ultrasound and rehabilitation following percutaneous proximal hamstring tenotomy and PRP injection), special topics sessions (hip impingement syndromes, inguinal hernias, and buttock pain), and over 13 hours of hands-on experience scanning live models and performing sonographically guided procedures on unembalmed cadavers.

## Target Audience

This comprehensive upper and lower limb hands-on musculoskeletal ultrasound course is designed to meet the needs of learners at the beginner level as well as intermediate/advanced levels. As much as possible, attendees will be grouped by experience and profession for hands-on sessions. The course material is appropriate for physicians, chiropractors, podiatrists, sonographers, and other health care professionals who evaluate and treat patients with regional musculoskeletal disorders.

## Course Objectives

At the completion of this course, participants should be able to:

- Optimize an ultrasound image and demonstrate a basic ultrasound examination of upper and lower limb target structures (joints, tendons, nerves, ligaments, muscles).
- Demonstrate protocols to perform an ultrasound examination of commonly affected upper and lower limb regions (eg, shoulder, lateral elbow, hip, anterior and medial knee, posteromedial ankle/tarsal tunnel, and midfoot-forefoot).
- Describe the sonographic appearance of commonly encountered pathologies in selected upper and lower limb regions, as well as the adjunctive role of ultrasound-guided procedures in the treatment of these pathologies.
- Outline the steps necessary for successful completion of an ultrasound-guided procedure and dynamically track needles using ultrasound guidance.
- Discuss the role of ultrasound-guided procedures in the evaluation and management of buttock pain syndromes.
- List the steps necessary to perform advanced ultrasound-guided procedures, including percutaneous needle tenotomy, percutaneous tenotomy and debridement, platelet rich plasma injection, and tendon scraping.
- Describe the clinical utility of rotator cuff ultrasound in the management of patients presenting with shoulder pain.
- Recognize the sonographic appearance of commonly encountered inguinal hernias.
- Compare and contrast Etoh (alcohol) and cryoablation for the treatment of refractory Morton's Neuroma.



Due to the unique format and limited space (120 registrants) available for this course, registration will be taken on a first-come, first-served basis. AIUM members have exclusive registration privileges until April 15, 2014. After this date, registration will be open to nonmembers if space allows.

**Want to register early to ensure your space, but you're not an AIUM member?**

**Complete the registration form on page 6 and become an AIUM member today!**

*Don't miss this unique opportunity for hands-on scanning in both diagnostic and interventional musculoskeletal ultrasound. This course is an essential experience for those who are interested in using musculoskeletal ultrasound imaging in their practices.*

## Course Chair

### Jay Smith, MD

Professor and Vice-Chair of Physical Medicine and Rehabilitation  
Departments of Physical Medicine and Rehabilitation, Radiology and Anatomy  
Director of Musculoskeletal Ultrasound & Regenerative Sports Medicine,  
Mayo Clinic Sports Medicine Center  
Mayo Clinic  
Rochester, Minnesota

## Laboratory Faculty

Tariq Awan, DO  
Darryl E. Barnes, MD  
Marko Bodor, MD  
John C. Cianca, MD  
Meg Chiavaras, MD  
Jonathon T. Finnoff, DO  
Victor Flores, MD  
Katrina N. Glazebrook, MB, ChB  
Brian Grogg, MD  
Wendy Gustafson, RVT, RDMS, RMSK  
Joshua Hackel, MD  
Nelson Hager, MD  
Mederic Hall, MD  
Jonathon Halperin, MD  
Troy Henning, MD  
Douglas Hoffman, MD  
Mark F. B. Hurdle, MD  
Elena Jelsing, MD  
Nirusha Lachman, PhD  
Paul Lento, MD  
Gerard A. Malanga, MD  
Kenneth R. Mautner, MD

William Medford, RDMS, RMSK  
Patrick R. Meyers, BS, RDMS, RVT, RMSK  
Robert Monaco, MD  
Naveen S. Murthy, MD  
Wojciech Pawlina, MD  
Jeffrey M. Payne, MD  
Evan R. Peck, MD  
Matthew J. Pingree, MD  
Scott Primack, DO  
Adam M. Pourcho, DO  
Wenchun Qu, MD, PhD  
Jacob L. Sellon, MD  
Shane Shapiro, MD  
John Skinner, MD  
Wayne Smith, DPT, MEd, ATC, SCS, RMSK  
Jeffrey Strakowski, MD  
Chris Visco, MD  
Mark Winemiller, MD  
Steven Wisniewski, MD

## Lecturing Faculty

J. Antonio Bouffard, MD  
Michael Fredericson, MD  
Jon A. Jacobson, MD  
Carlo Martinoli, MD  
Johan Michaud, MD  
Samer Narouze, MD  
Levon N. Nazarian, MD  
Gregory R. Saboeiro, MD  
Sharlene A. Teefey, MD

## Continuing Medical Education (CME) Information

### Accreditation Statement

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

### Designation Statement

Mayo Clinic College of Medicine designates this live activity for a maximum of 24.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

### Credits for Sonographers

Sonographers participating in AIUM educational activities may earn credits toward maintaining their professional certification from the following organizations:

#### American Registry for Diagnostic Medical Sonography (ARDMS)

The ARDMS accepts AMA PRA Category 1 Credits™.

#### American Registry of Radiologic Technologists (ARRT)

The AIUM is a Recognized Continuing Education Evaluation Mechanism (RCEEM) for the ARRT. This educational activity is approved by the AIUM for ARRT Category A Credits.

### Disclosure Policy

As a provider accredited by ACCME, Mayo Clinic College of Medicine (Mayo School of Continuous Professional Development) must ensure balance, independence, objectivity, and scientific rigor in its educational activities. Course director(s), 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.

### Disclaimer

The information presented in this program represents the opinion of the presenters and is not necessarily the view of the AIUM and Mayo Clinic. The AIUM and Mayo Clinic make no representation as to the truth or warranty, accuracy, or originality of the information in this program.

### Commercial Support

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.



## Accommodations

### Rochester Marriott Hotel

101 First Avenue SW  
Rochester, Minnesota  
877-623-7775 or 507-280-6000  
\$152 single/double

### Kahler Grand Hotel

20 Second Avenue SW  
Rochester, Minnesota  
800-533-1655 or 507-282-2581  
\$95 Standard King single/double  
\$149 Executive King single/double

### DoubleTree Hotel

150 South Broadway  
Rochester, Minnesota  
507-281-8000  
\$139 single/double

## Hotel Reservations

In order to receive the listed discounted room rates, reservations must be made no later than June 18, and guests should identify themselves as an attendee of the AIUM/Mayo ultrasound course.

## Travel

Rochester, Minnesota, is a friendly city that greets thousands of visitors from around the world each year. Travelers may arrange to fly directly into the Rochester International Airport (RST), which is located approximately 10 miles from the downtown Mayo Clinic campus. Travelers may also choose to fly into the Minneapolis-St. Paul International Airport (MSP), located 80 miles north of Rochester, MN. Access to and from both airports is provided by taxi, shuttle service, and rental car. Rochester Direct shuttle provides transportation between Minneapolis Airport and several Rochester locations. For reservations, call Rochester Direct at 800-280-9270 or visit: [www.gorochesterdirect.com](http://www.gorochesterdirect.com). Travel arrangements are the sole responsibility of the individual registrant.

# Hands-on Diagnostic and Interventional Musculoskeletal Ultrasound: A Problem-Solving Approach

Registrants will be provided with free access to these online lectures as soon as they become available (approximately 1 month prior to the course).

## PREATTENDANCE ONLINE LECTURES

- 1) Introduction to Musculoskeletal Ultrasound: Normal, Abnormal, and Common Artifacts
- 2) Principles of Sonographically Guided Musculoskeletal Interventions
- 3) Knobology — How to Obtain and Optimize an Ultrasound Image

## THURSDAY, July 10, 2014

<b>6:30–7:15 AM</b>	<b>Registration</b> (Leighton Auditorium, Siebens Building, Mayo Clinic)	<b>12:55–1:15 PM</b>	<b>ANTERIOR and MEDIAL KNEE PAIN</b> <b>Ultrasound Protocol for Anterior and Medial Knee Pain</b> (Live Demonstration)
	<b>Breakfast</b> (Marriott Hotel Ballroom)	<b>1:15–1:35 PM</b>	<b>Anterior and Medial Knee Pathology</b>
<b>7:15–7:25 AM</b>	<b>Introduction</b> (Leighton Auditorium, Siebens Building, Mayo Clinic)	<b>1:35–2:00 PM</b>	<b>Ultrasound-Guided Interventions for Anterior and Medial Knee Pain</b> (including tenotomy, debridement, platelet rich plasma and tendon scraping) (Live Cadaveric Demonstration)
		<b>2:00–2:10 PM</b>	<b>Questions and Discussion</b>
		<b>2:10–2:25 PM</b>	<b>POSTEROMEDIAL ANKLE PAIN/ TARSAL TUNNEL SYNDROME</b> <b>Protocol for Posteromedial Ankle Pain/Tarsal Tunnel Syndrome</b>
<b>SHOULDER PAIN</b>		<b>2:25–3:00 PM</b>	<b>Posteromedial Ankle/ Tarsal Tunnel Pathology</b>
<b>7:25–7:45 AM</b>	<b>Ultrasound Protocol for Shoulder Pain</b> (Live Demonstration)	<b>3:00–3:10 PM</b>	<b>Questions and Discussion</b>
<b>7:45–8:15 AM</b>	<b>Rotator Cuff and Biceps Pathology</b>		
<b>8:15–8:35 AM</b>	<b>Clinical Focus: How Can Rotator Cuff Ultrasound Help in the Clinic?</b>	<b>TIPS and TECHNIQUES</b>	
<b>8:35–8:55 AM</b>	<b>Ultrasound-Guided Interventions for Shoulder Pain</b> (Live Cadaveric Demonstration)	<b>3:10–3:30 PM</b>	<b>Pearls and Pitfalls for Ultrasound Needle Guidance – Jockey Up</b>
<b>8:55–9:10 AM</b>	<b>Questions and Discussion</b>	<b>3:30–4:00 PM</b>	<b>Refreshment Break</b> (Marriott Hotel Ballroom)
<b>LATERAL ELBOW PAIN</b>		<b>Hands-on Session #1</b> (Phillips Hall, Siebens Building, Mayo Clinic)	
<b>9:10–9:25 AM</b>	<b>Ultrasound Protocol for Lateral Elbow Pain</b> (Live Demonstration)	<b>4:00–5:30 PM</b>	<b>Knobology, Image Optimization, and Needle Visualization Skills</b>
<b>9:25–9:45 AM</b>	<b>Lateral Elbow Pathology</b>		
<b>9:45–10:15 AM</b>	<b>Refreshment Break</b> (Marriott Hotel Ballroom)		
<b>10:15–10:45 AM</b>	<b>Ultrasound-Guided Interventions for Lateral Elbow Pain</b> (including tenotomy, debridement, and platelet rich plasma injection) (Live Cadaveric Demonstration)		
<b>10:45–10:55 AM</b>	<b>Questions and Discussion</b>		
		<b>DINNER ON OWN</b>	
<b>SPECIAL TOPIC: HIP IMPINGEMENT SYNDROMES</b>			
<b>10:55–11:15 AM</b>	<b>Ultrasound Protocol for Regional Hip Impingement Syndromes</b>		
<b>11:15–11:50 AM</b>	<b>Role of Ultrasound in the Diagnosis and Treatment of Hip Impingement Syndromes</b>		
<b>11:50 AM–12:00 PM</b>	<b>Questions and Discussion</b>		
<b>12:00–12:55 PM</b>	<b>Lunch</b> (Marriott Hotel Ballroom)		

# Hands-on Diagnostic and Interventional Musculoskeletal Ultrasound: A Problem-Solving Approach

## FRIDAY, July 11, 2014

- 6:30–7:10 AM** **Breakfast** (Marriott Hotel Ballroom)
- 7:10–7:15 AM** **Announcements** (Leighton Auditorium, Siebens Building, Mayo Clinic)
- SPECIAL TOPIC: INGUINAL HERNIAS**
- 7:15–7:30 AM** **Ultrasound Protocol for Hernia** (Live Demonstration)
- 7:30–7:55 AM** **Ultrasound Evaluation of Inguinal Hernias** (including Athlete's Hernia)
- 7:55–8:05 AM** **Questions and Discussion**

### SPECIAL TOPIC: BUTTOCK PAIN

- 8:05–8:45 AM** **Ultrasound-Guided Procedures for Gluteal Pain Syndromes** (including Facets, Sacroiliac Joint, Piriformis, Obturator, Ischial Bursa)
- 8:45–9:00 AM** **Ultrasound-Guided Proximal Hamstring Percutaneous Tenotomy and Platelet Rich Plasma Injection** (Live Cadaveric Demonstration)
- 9:00–9:20 AM** **Clinical Focus: Rehabilitation Following Ultrasound-Guided Proximal Hamstring Percutaneous Tenotomy and Platelet Rich Plasma Injection**
- 9:20–9:30 AM** **Questions and Discussion**
- 9:30–10:00 AM** **Refreshment Break** (Procedural Skills Lab and Hands-on Scanning Location)

### Hands-On Session #2 (Concurrent Sessions)

- 10:00 AM–12:00 PM** **Hands-on Scanning on Live Models** (Phillips Hall, Siebens Building, Mayo Clinic)
- Ultrasound-Guided Procedures on Unembalmed Cadavers** (Procedural Skills Laboratory, Stabile Building)
- 12:00–1:00 PM** **Lunch** (Marriott Hotel Ballroom)

### Hands-On Session #3 (Concurrent Sessions)

- 1:00–3:00 PM** **Hands-on Scanning on Live Models** (Phillips Hall, Siebens Building, Mayo Clinic)
- Ultrasound-Guided Procedures on Unembalmed Cadavers** (Procedural Skills Laboratory, Stabile Building)

- 3:00–3:30 PM** **Refreshment Break**
- 3:30–5:30 PM** **Hands-on Scanning on Live Models** (Phillips Hall, Siebens Building, Mayo Clinic)
- Ultrasound-Guided Procedures on Unembalmed Cadavers** (Procedural Skills Laboratory, Stabile Building)
- 6:00–8:00 PM** **Course Reception for Attendees and Faculty** (Marriott Hotel Ballroom)

## SATURDAY, July 12, 2014

- 6:30–7:10 AM** **Breakfast** (Marriott Hotel Ballroom)
- 7:10–7:15 AM** **Announcements** (Leighton Auditorium, Siebens Building, Mayo Clinic)
- MIDFOOT and FOREFOOT PAIN**
- 7:15–7:35 AM** **Ultrasound Protocol for Midfoot and Forefoot Pain**
- 7:35–7:55 AM** **Midfoot and Forefoot Pathology** (Including Morton's Neuroma)
- 7:55–8:10 AM** **Ultrasound-Guided Interventions for Midfoot and Forefoot Pain** (Live Cadaveric Demonstration)
- 8:10–8:20 AM** **Ultrasound-Guided Alcohol Ablation for Morton's Neuroma**
- 8:20–8:35 AM** **Cryoablation for Morton's and Other Neuromas**
- 8:35–8:45 AM** **Questions and Discussion**

### SPECIAL TOPIC: ADVANCED SONOGRAPHICALLY GUIDED INTERVENTIONS

- 8:45–9:30 AM** **Needles Gone Wild: Adventures in Sonographically Guided Interventions**
- 9:30–10:00 AM** **Refreshment Break** (Procedural Skills Lab and Hands-on Scanning Location)

### Hands-On Session #4 (Concurrent Sessions)

- 10:00 AM–12:00 PM** **Hands-on Scanning on Live Models** (Phillips Hall, Siebens Building, Mayo Clinic)
- Ultrasound-Guided Procedures on Unembalmed Cadavers** (Procedural Skills Laboratory, Stabile Building)

- 12:00–1:00 PM** **Lunch** (Marriott Hotel Ballroom)
- Hands-On Session #5 (Concurrent Sessions)**
- 1:00–3:00 PM** **Hands-on Scanning on Live Models** (Phillips Hall, Siebens Building, Mayo Clinic)
- Ultrasound-Guided Procedures on Unembalmed Cadavers** (Procedural Skills Laboratory, Stabile Building)
- 3:00–3:30 PM** **Refreshment Break**
- 3:30–5:30 PM** **Hands-on Scanning on Live Models** (Phillips Hall, Siebens Building, Mayo Clinic)
- Ultrasound-Guided Procedures on Unembalmed Cadavers** (Procedural Skills Laboratory, Stabile Building)
- 5:30 PM** **Adjourn**

Receive over 13 hours of hands-on experience scanning live models and performing sonographically guided procedures on unembalmed cadavers.

# Registration Form

## Hands-on Diagnostic and Interventional Musculoskeletal Ultrasound: A Problem-Solving Approach | July 10–12, 2014

This course is open to AIUM members only until April 15, 2014.

### Please type or print

First Name \_\_\_\_\_ Last Name \_\_\_\_\_ AIUM Member ID # \_\_\_\_\_

Address \_\_\_\_\_

City, State, Postal Code \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

E-mail \_\_\_\_\_

Please provide the following information to assist the course director in forming hands-on groups of similar experience and professional background. Failure to provide the information below may result in you being placed into a hands-on group of differing experience and/or professional background. However, groupings by experience and profession are not guaranteed.

### A. INDICATE SPECIALTY

- Physician—Indicate your primary specialty and subspecialization where appropriate (Choose 1):
  - Anesthesia  Family Med–Sports  PM&R General  Podiatry
  - Chiropractor  Neurology  PM&R Pain  Radiology
  - Family Med–General  Orthopedic Surgery  PM&R Sports  Rheumatology
  - Other Physician \_\_\_\_\_
- Physician Assistant/Nurse Practitioner
- Physical Therapist
- Sonographer
- Other \_\_\_\_\_

B. Indicate the number of diagnostic US scans you have personally performed in the past 3 months.

- <50  50–100  101–199  >200

C. Indicate the number of US-guided procedures you have personally performed in the past 3 months.

- <50  50–100  101–199  >200

### Registration Fees

	On or before April 15	After April 15
AIUM Member	<input type="checkbox"/> \$2,300	<input type="checkbox"/> \$2,600
Nonmember*	<input type="checkbox"/> \$2,800	<input type="checkbox"/> \$2,800

- Course fees include 3 breakfasts, 3 lunches, refreshment breaks, reception, and an electronic course syllabus (a printed syllabus will not be provided).
- This course will be limited to 120 participants. Due to the limited space available, registration will be open to AIUM members only until the deadline of April 15, 2014. For members to take advantage of this exclusive registration, all membership dues must be paid through the dates of the course.

\*If space allows.

### Payment

- Check enclosed payable to the AIUM in US dollars
- Charge \$ \_\_\_\_\_ to my:  VISA  MasterCard  American Express
- Credit Card # \_\_\_\_\_ Expiration Date \_\_\_\_\_
- Card Security Code \_\_\_\_\_ Credit Card Billing Address Postal Code \_\_\_\_\_  
(Three- or four-digit value printed on the card or signature strip)
- Signature \_\_\_\_\_

### Register Online at [www.aium.org](http://www.aium.org) or return form to:

American Institute of Ultrasound in Medicine  
Attn: MSK Postgraduate Course Registration  
14750 Sweitzer Ln, Suite 100  
Laurel, MD 20707-5906 USA  
Phone: 800-638-5352 or 301-498-4100  
Fax: 301-498-4450



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### Not an AIUM member?

Join the AIUM to register early  
and ensure your space, and save  
on registration fees!

#### AIUM Membership Fees\*

- Physician \$295
  - Nonphysician \$155
- \* Membership services begin the month dues are received and continue for 12 months.

Please call the AIUM at 301-498-4100  
for international membership pricing.

### Videotaping and Photography Policy

The AIUM and Mayo Clinic do not allow any unauthorized videotaping or photography during the event except by management and its designated agents.

The AIUM and Mayo Clinic reserves the right to photograph or videotape any exhibits or attendee for use in promotional materials or any other AIUM publication. The AIUM may videotape educational courses for inclusion in the AIUM's educational video program library.

### Cancellation Policy

The AIUM reserves the right to cancel the course, and all money paid to the AIUM will be refunded. If registrants choose to cancel their course registration before June 2, 2014, they will receive a 90% refund. After June 2, 2014, and no later than June 16, 2014, a 50% refund will be given. After June 16, 2014, no refund will be given.

### AIUM Office Use:

Date Paid \_\_\_\_\_  
Check # \_\_\_\_\_  
Payee \_\_\_\_\_