



# Introduction to Musculoskeletal Ultrasound with Interventional Cadaver Lab & Advanced/Regenerative Medicine Musculoskeletal Ultrasound

August 15 – 19, 2022

Monday, August 15, 2022		
7:25	Welcome and Continental Breakfast	
7:35	Interactive Polling Session	
7:40	Shoulder Anatomy & Scanning Techniques	Steven Soliman, DO, RMSK
8:25	Break	
8:35	Live Demo: US Evaluation of the Shoulder	Steven Soliman, DO, RMSK
8:55	Break-Out Groups	
	Group A	Group B
9:00	Hands-On Scanning: Shoulder	Ultrasound Evaluation of Shoulder Pathology Jon Jacobson, MD, RMSK
10:15	Group Change	
10:25	Ultrasound Eval of Shoulder Pathology Jon Jacobson, MD, RMSK	Hands-On Scanning: Shoulder
11:40	All Groups Return to Main Lecture Room	
11:45	Elbow Anatomy & Scan Techniques	Paul Lento, MD, RMSK, CAQSM
12:20	Lunch	
1:20	Live Demo: US Evaluation of the Elbow	Paul Lento, MD, RMSK, CAQSM
1:50	Ultrasound Evaluation of Elbow Pathology	Jon Jacobson, MD, RMSK
2:30	Break-Out Groups	
	Group A	Group B
2:40	Ultrasound Guided Injection Techniques Jon Jacobson, MD, RMSK	Hands-On Scanning: Elbow
3:45	Group Change	
3:55	Hands-On Scanning: Elbow	Ultrasound Guided Injection Techniques Jon Jacobson, MD, RMSK
5:00	Adjourn	
Tuesday, August 16, 2022		
7:25	Continental Breakfast	
7:40	Wrist & Hand Anatomy, Scan Techniques	Ralf Thiele, MD, RhMSUS
8:15	Break	
8:25	Live Demo: US Evaluation of the Wrist & Hand	Ralf Thiele, MD, RhMSUS
8:50	Break-Out Groups	
	Group A	Group B
9:00	Ultrasound Evaluation of W/H Pathology Jon Jacobson, MD, RMSK	Hands-On Scanning: Wrist & Hand
10:15	Group Change	
10:25	Hands-On Scanning: Wrist & Hand	Ultrasound Evaluation of W/H Pathology Jon Jacobson, MD, RMSK
11:40	All Groups Return to Main Lecture Room	
11:50	Ultrasound Evaluation of the Ankle & Foot	Paul Lento, MD, RMSK, CAQSM
12:30	Lunch	
12:40	<b>Optional Lunch Lecture:</b> Use of Ultrasound in Rheumatology Applications	Ralf Thiele, MD, RhMSUS
1:30	Ultrasound Evaluation of Ankle/Foot Pathology	Paul Lento, MD, RMSK, CAQSM
2:20	Break-Out Groups	
	Group A	Group B
2:25	Hands-On Scanning: Ankle/Foot	Ultrasound Evaluation of the Hip & Live Demo Jon Jacobson, MD, RMSK
3:40	Group Change	



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3:45	Ultrasound Evaluation of the Hip & Live Demo Jon Jacobson, MD, RMSK	Hands-On Scanning: Ankle/Foot
5:00	Adjourn	
5:00	Welcome Reception/Networking Event	
Wednesday, August 17, 2022		
7:30	Continental Breakfast	
7:45	US Evaluation of the Knee: Normal Anatomy & Scanning Techniques	Craig Chappell, DO, RMSK
8:25	Interactive Post-Polling Session	All Faculty
8:45	Break	
8:55	Break-out Groups	
	Group A	Group B
9:00	Hands-On Scanning: Knee & Hip	Knee Pathology & Live Demo Craig Chappell, DO, RMSK
10:15	Group Change	
10:30	Knee Pathology & Live Demo Craig Chappell, DO, RMSK	Hands-On Scanning: Knee & Hip
11:45	Lunch (Provided for Cadaver Lab Participants)	
12:30	Interventional Cadaver Lab: Upper Extremity Injection Techniques	All Faculty
2:30	Break & Station Change	
2:45	Interventional Cadaver Lab: Lower Extremity Injection Techniques	All Faculty
4:45	Adjourn	

\*Cadaver Lab Required advanced registration



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Thursday, August 18, 2022		
7:30	Welcome and Continental Breakfast	
7:45	Interactive Polling Session	
8:00	Tendinopathy and Ultrasound-Guided Tenotomy	Jon Jacobson, MD, RMSK
8:30	Other Ultrasound-Guided Interventions: carpal Tunnel release, Hydrodissections & more	Craig Chappell, DO, CAQSM, RMSK
9:00	Break	
9:10	Advanced Musculoskeletal Ultrasound- Guided Procedures in Rehabilitative Medicine: What, When, Why, Where	Timothy J. Mazzola, MD, CAQSM, RMSK
9:50	5 Minute Stretch Break	
9:55	Prolotherapy: General Principles/Practical Applications	David Wang, DO
10:45	5-minute stretch Break	
10:50	PRP: General Principles/Practical Applications	Craig Chappell, DO, CAQSM, RMSK
11:50	Lunch	
12:00	<b>Optional Lunch Lecture:</b> Bone Marrow and Lipoaspirate: General Principles & Practical Applications	Tariq Awan, DO, RMSK
1:00	All Groups: Gown for Cadaver Lab	
1:15	Hands-On Scanning: Interventional Cadaver Lab <ul style="list-style-type: none"> <li>• UE &amp; LE Injection Techniques</li> <li>• Bone Marrow &amp; Liopaspirate*</li> </ul>	All Faculty
3:10	Break	
3:20	Hands-On Scanning: Interventional Cadaver Lab <ul style="list-style-type: none"> <li>• UE &amp; LE Injection Techniques</li> <li>• Bone Marrow &amp; Liopaspirate*</li> </ul>	All Faculty
5:15	Adjourn	

\* Bone Marrow & Lipoaspirate rotations REQUIRE advanced registration. Please indicate on your information sheet of you wish to participate in these rotations during the interventional cadaver lab.



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Friday, August 19, 2022		
7:30	Continental Breakfast	
7:45	Ultrasound Evaluation of the Spine: <ul style="list-style-type: none"> <li>• Ultrasound anatomy and scan techniques</li> </ul>	David Wang, DO
8:25	Break	
8:35	Advanced Peripheral Nerve Applications: Diagnosis & Treatment Options	Jeffrey Strakowski, MD
9:20	Break	
9:30	Hands-On Scanning: Live Models <ul style="list-style-type: none"> <li>• Nerve &amp; Spine</li> </ul>	All Faculty
11:30	Advanced & Regenerative Medicine Case Studies	
12:15	Post Polling session	
12:25	<b>Optional Lunch Lecture</b> Part 1: Regenerative Medicine Interventions: Knee OA, rotator cuff tears, epicondylitis, jumpers knee, & achilles tendon injuries Part 2: Billing & Coding	Tariq Awan, DO, RMSK
1:10	Break – Out Groups – Choose Your Track	
1:15	Optional Supplemental Hands-On Scanning Live Models: Choice of Joint(s)	Regenerative Medicine Procedures Live Patient Demos Performed by: Craig Chappell, DO, CAQSM, RMSK Tariq Awan, DO, RMSK John Broussard, DO, CAQSM
4:30	Adjourn	

\*\* This is a tentative course itinerary. Lecture faculty/times/dates may be subject to change. Times listed are Eastern Time (ET).

[Includes Pre-Course Online Video: "MSK Ultrasound Imaging Fundamentals" by Lori Green, BA, RDMS, RDCS, RVT](#)



## Introduction to Musculoskeletal Ultrasound with Interventional Cadaver Lab & Advanced/Regenerative Medicine Musculoskeletal Ultrasound

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### Introduction to Musculoskeletal Ultrasound w/Interventional Cadaver Lab

The Gulfcoast Ultrasound Institute is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Gulfcoast Ultrasound Institute designates this live educational activity for a maximum of 24.0 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the educational activity.

The Gulfcoast Ultrasound Institute designates an additional 1.5 *AMA PRA Category 1 Credits*<sup>™</sup> for the enduring educational activity "MSK Ultrasound Imaging Fundamentals". Physicians should claim only credit commensurate with the extent of their participation in the educational activity.

Successful completion of this CME activity, which includes participation in the evaluation component, enables the participant to earn up to 24.0 Medical Knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

This course also meets CME / CEU requirements for ARDMS. Note: While offering the CME credit hours noted above, activities are not intended to provide extensive training or certification for exam performance or interpretation.

### Advanced Musculoskeletal Ultrasound: Interventional & Regenerative Medicine

The Gulfcoast Ultrasound Institute is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

The Gulfcoast Ultrasound Institute designates this live activity for a maximum of 16.0 *AMA PRA Category 1 Credit(s)*<sup>™</sup>. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Successful completion of this CME activity enables the participant to earn up to 16.0 Medical Knowledge MOC points in the American Board of Internal Medicine's (ABIM) Maintenance of Certification (MOC) program. It is the CME activity provider's responsibility to submit participant completion information to ACCME for the purpose of granting ABIM MOC credit.

This course also meets CME / CEU requirements for ARDMS. Note: While offering the CME credit hours noted above, activities are not intended to provide extensive training or certification for exam performance or interpretation.



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## NEEDS STATEMENT:

The planning committee has determined a need for the following educational activity based on request from the medical community, expanded utilization of ultrasound, and lab accreditation requirements.

## COURSE OBJECTIVES:

At the completion of the program the participant should be able to:

1. Increase the participant's knowledge to better perform and/or interpret MSK ultrasound examinations.
2. List the indications, benefits, and limitations of MSK ultrasound for sports medicine injuries, physical medicine & rehabilitation, and rheumatology applications.
3. Demonstrate proper transducer manipulation and system optimization to produce diagnostic images.
4. Demonstrate scanning protocols for performing shoulder, elbow, wrist/hand, knee, ankle/foot & hip ultrasound examinations.
5. Identify the sonographic appearance of normal MSK anatomy and commonly seen pathology of the shoulder, knee, elbow, wrist/ hand, ankle and foot.
6. Demonstrate the use of MSK sonography for diagnosis and ultrasound-guided interventions and describe "in-plane" and "out of plane" injection/aspiration techniques using inanimate phantoms (Intro) and cadaveric specimens (Advanced).
7. Interpret complex musculoskeletal ultrasound images and list treatment options and patient management strategies.
8. Outline the biology and evidence for use of various regenerative substances.
9. State when, why, and how to integrate regenerative medicine as a practical treatment option.
10. Prepare regenerative substances for performing ultrasound-guided procedures
11. Outline post procedural protocols for regenerative medicine procedures
12. Demonstrate the principles of injection techniques for the performance of upper and lower extremity MSK interventions on cadaver models.
13. State the role of ultrasound in nerve entrapment syndromes.
14. List protocols for ultrasound evaluation and treatment options of the spine.
15. Increase confidence to incorporate protocols, advanced scan techniques, and regenerative medicine applications to improve diagnostic/treatment accuracy.

## Cadaver Lab Track:

16. **Identify the sonographic anatomy during the performance of ultrasound guided MSK injections on cadaver models.**
17. **Demonstrate the principals of imaging techniques for the performance of upper and lower extremity MSK injections on cadaver models.**

While offering CME credits this activity is not intended to provide extensive training or certification for performing or interpreting musculoskeletal examinations. We recommend working under supervised conditions until an accepted level of proficiency has been achieved.

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*A special thanks to the following ultrasound equipment manufacturers who provide various (in kind) equipment support to help make our programs possible (companies listed are as of the time of printing).*



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## Disclosure of Relevant Financial Relationships With Commercial Companies/Organizations

Gulfcost Ultrasound Institute, Inc. endorses the standards and essentials of the Accreditation Council for Continuing Medical Education for activities and the speakers at these activities disclose significant relationships with commercial companies.

Speakers having relevant relationships include receiving from a commercial company research grants, consultancies, honoraria and travel, or having a self-managed equity interest in a company.

### LECTURING FACULTY:

**Jon Jacobson, MD, RMSK**  
**(GUI QI Task Force Subcommittee)**  
Professor of Radiology  
Director, Div. of Musculoskeletal Radiology  
University of Michigan Medical Center  
Ann Arbor, MI  
**No relevant financial relationships to disclose**

**Craig Chappell, DO, CAQSM, RMSK**  
**(GUI QI Task Force Subcommittee)**  
IN2IT Medical Non-Surgical Ortho & Sports Medicine,  
Orem, UT  
**No relevant financial relationships to disclose**

**Paul Lento, MD, RMSK, CAQSM**  
360 Orthopedics  
Sarasota, FL  
**No relevant financial relationships to disclose**

**Timothy J. Mazzola, MD, CAQSM, RMSK**  
**(GUI QI Task Force Subcommittee)**  
Breakthrough Regenerative Orthopedics  
Senior Clinical Instructor, CU Denver Medical School,  
Department of Family Medicine  
Boulder, CO  
**No relevant financial relationships to disclose**

**David Wang, DO**  
Regenerative Orthopedics and Sports Medicine  
Director of Training and Education  
Silver Spring, MD  
**No relevant financial relationships to disclose**

**Steven Soliman, DO, RMSK**  
Henry Ford Medical Group, Dept of Radiology  
Detroit, MI  
**No relevant financial relationships to disclose**

**John Broussard, DO, CAQSM**  
Alliance Regen & Rehab  
St. Petersburg, Florida  
**No relevant financial relationships to disclose**

**Jeffrey Strakowski, MD**  
**(GUI QI Task Force Subcommittee)**  
Clinical Professor, Department of PM & R  
The Ohio State University  
Associate Director of Medical Education, Department  
of PM & R  
Ohio Health Riverside Methodist Hospital  
Columbus, OH  
**No relevant financial relationships to disclose**

**Ralf Thiele, MD, RhMSUS**  
**(GUI QI Task Force Subcommittee)**  
University of Rochester  
Department of Medicine  
Division of Allergy/Immunology and Rheumatology  
Rochester, NY  
**No relevant financial relationships to disclose**

**Tariq Awan, DO**  
DMC Orthopaedic & Sports Medicine  
Troy, MI  
**No relevant financial relationships to disclose**

**All presentations for this CME activity were reviewed and approved by member(s) of the GUI staff to determine content validity and ensure that no conflicts of interest exist prior to final course material compilation and printing**





# Introduction to Musculoskeletal Ultrasound with Interventional Cadaver Lab & Advanced/Regenerative Medicine Musculoskeletal Ultrasound

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### Disclosure of Individuals in Control of Content

*In addition to the faculty listed on the previous page the following individuals are recognized by GUI as being in control of content of this program:*

**James Mateer, MD, RDMS (Medical Director-planner & QI Task Force)**

Medical Director, Gulfcoast Ultrasound Institute  
Milwaukee, WI

*No relevant financial relationships to disclose*

**Charlotte Derr, MD, RDMS, FACEP (Co-Medical Director-planner & QI Task Force)**

Assistant Professor of Emergency Medicine &  
Fellowship Director of Emergency Medicine  
Ultrasound Fellowship Program  
University of South Florida Medical School  
Tampa, FL

*No relevant financial relationships to disclose*

**Andreas Dewitz, MD, RDMS (Member of Advisory Board & QI Task Force Subcommittee)**

Associate Professor of Emergency Medicine  
Vice Chair of Ultrasound Education  
Boston Medical Center  
Boston, MA

*No relevant financial relationships to disclose*

**Lori Green, BA, RT, RDMS, RDCS, RVT (Program Director-planner, Content Reviewer, QI Task Force)**

Gulfcoast Ultrasound Institute, Inc.  
St. Petersburg, FL

*No relevant financial relationships to disclose*

**Trisha Reo, AAS, RDMS, RVT (Program Coordinator-planner, Content Reviewer, QI Task Force)**

Gulfcoast Ultrasound Institute, Inc.  
St. Petersburg, FL

*No relevant financial relationships to disclose*

### **HANDS-ON INSTRUCTORS:**

At the time of printing **all hands-on instructors for this program have signed disclosure forms and have no relevant financial relationships to disclose.** A verbal disclosure will be made during opening remarks. All scanning sessions are monitored by the program director and/or the program manager to ensure education objectives are met and no commercial bias occurs.

### **Content:**

***All content for this CME activity were reviewed and approved by member(s) of the GUI staff to determine content validity and ensure that no conflicts of interest exist prior to final course material compilation and printing.***

Reviewed & approved:

*Lori Green BA, RT, RDMS, RDCS, RVT*

*Trisha Reo AAS, RDMS, RVT*





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# ***Welcome!!***

The entire staff at Gulfcoast Ultrasound Institute would like to welcome you to our educational facility.

Our goal is to provide the highest quality continuing education possible in a relaxed and personal atmosphere. The content of each program has been carefully planned to provide you with the information needed to obtain a firm foundation to begin gaining the experience to perform and/or interpret ultrasound examinations in the specialty of your choice. The program will be structured with lectures in the morning and hands-on sessions during the afternoon to allow more individualized attention the program participants will be divided into groups for the hands-on workshops based on your experience level and type of equipment you work with.

*To help you get the most out of this program we would like to make the following recommendations:*

1. Attend the lectures and scheduled hands-on sessions.
2. When you are not involved in a scheduled afternoon session, take advantage of the SUPPLEMENTAL SCANNING WORKSHOP or check out a DVD from our library.
3. If you do not understand a particular concept, ASK FOR HELP!
4. Study your course workbook during the evening.
5. Remember excellence is not achieved overnight. Becoming proficient in any ultrasound specialty requires the commitment to continually study and perform multiple (at least 100) exams before an initial level of confidence is achieved. The AIUM guidelines suggest competency for interpretation requires a minimum of 500 exams per specialty.
6. Begin scanning immediately upon return to the ultrasound departments even if it's on a volunteer. We recommend scanning/interpretations under supervised conditions until an accepted level of proficiency has been obtained.

All of our instructors, guest speakers and office staff are here to serve you! If you have any questions of any kind, please do not hesitate to ask.



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***Gulfcoast Ultrasound Institute***  
**EQUIPMENT RECOMMENDATIONS**

Since 1985, Gulfcoast Ultrasound Institute has taken great pride in our ability to provide quality continuing education programs while remaining unbiased regarding the recommendation of ultrasound equipment.

Our programs are supported by most of the major equipment manufactures by providing their systems for use during the hands-on sessions. These companies have learned their products will be used and demonstrated to the best of our abilities in an educational setting and that no selling or promotion is done on our premises.

We realize that some of the course participants may currently be in the process of evaluating equipment for purchase and would like the opinions of our staff to determine the “best” system for your department. Everyone has a “favorite” ultrasound system (usually because it is the one they have worked with the most and are comfortable with) however, Gulfcoast Ultrasound must take an unbiased position in regards to equipment recommendations.

If you are currently evaluating equipment for purchase we suggest you invite the equipment manufacturers to your facility for a private demonstration to determine image quality, ease of use, over-all capabilities etc. on an individual basis.

Thank you!

*Lori Green BA, RT, RDMS, RDCS, RVT*

Lori Green, BA, RT, RDMS, RDCS, RVT  
Program Director