

MUSCULOSKELETAL ULTRASOUND TRAINING

Day 1 – Musculoskeletal Ultrasound Training: Elbow, Knee, Ankle, and JADE

March 07, 2026

October 06, 2026

Day 2 - Musculoskeletal Ultrasound Training: Hip, Shoulder, and Spine

March 08, 2026

October 07, 2026

Location

The course will be held at the UC San Diego Center for Bleeding and Clotting Disorders, which is near the UC San Diego campus.

UC San Diego Health Center for Bleeding and Clotting Disorders

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Course Description

The UC San Diego Musculoskeletal Ultrasound and Joint Injection Education Activities have been created to provide a comprehensive modular curriculum to teach point-of-care musculoskeletal ultrasound for the evaluation of ankles, knees, elbows, hips and spine, and to guide intra-articular needle placement for injections and aspirations. Small groups with a high faculty to participant ratio provide highly interactive learning environment with ample opportunity for hands-on practice with each other and patient volunteers. Course participants will learn basic ultrasound physics, how to operate ultrasound machines (including the use of small emerging small hand-held devices), sono-anatomy and sono-pathology of important arthritic conditions as well as ultrasound-guided joint injection techniques. The curriculum will also teach how to recognize joint bleeds and distinguish between simple and complex effusions, as well as the Joint Activity and Damage Exam (JADE), a validated joint ultrasound protocol for evaluation of hemophilic joints.

Learning Objectives

Musculoskeletal Ultrasound Training: Elbow, Knee, Ankle, and JADE Protocol

- Describe MSKUS basics, basic physics and knobology
- Discuss the basic operations of an ultrasound machine
- Interpret and apply sono-anatomy of ankles, knees, and elbows
- Interpret basic structural abnormalities by sono-pathological findings
- Apply standard MSKUS transducer positions for ankles, knees, and elbows
- Describe the Joint Tissue Activity and Damage Exam (JADE) Hemophilia joint ultrasound protocol
- Describe the diagnosis of effusions
- Distinguish bloody from non-bloody effusions
- Perform a diagnostic musculoskeletal ultrasound recognizing hemarthrosis, synovitis and structural abnormalities (such as meniscus, tendons, ligaments)
- Quantify synovitis by Power Doppler
- Quantify cartilage health, soft tissue and synovial hypertrophy, and osteochondral lesions

Musculoskeletal Ultrasound Training: Shoulder, Hip and Spine

- Describe the normal sonoanatomy of the hip, shoulder, and lumbar spine
- Perform systematic and comprehensive diagnostic scan protocols of the hip, shoulder, and lumbar spine
- Identify abnormal sonographic findings of common musculoskeletal disorders of the hip and shoulder (tenosynovitis, tendinosis as precursor to tendon failure, rotator cuff disease, hip effusion vs psoas bleed, trochanteric pain, Piriformis imaging)
- Describe the benefit of ultrasound-guided injections of the hip and shoulder

Needs Assessment with Identified Practice Gap(s)

Musculoskeletal Ultrasound Training: Elbow, Knee, Ankle, and JADE Protocol &

Musculoskeletal Ultrasound of the Shoulder, Hip and Spine Training Course

Arthritic conditions are frequent, and benefit from symptomatic relief measures as a bridge to joint replacement. Especially hemophilic arthropathy is a debilitating condition, caused by frequent joint bleeding. The clinical exam to diagnose and treat arthritic conditions, joint problems and musculoskeletal abnormalities, including hemarthrosis is unreliable, since range of motion deficits, warmth, swelling and pain are non-specific and don't permit the distinction between conditions. Therefore, point-of-care imaging is rapidly advancing and has become critical to practice state-of-the-art musculoskeletal medicine. High resolution Musculoskeletal Ultrasound (MSKUS) with Power Doppler capacity is an imaging technique, increasingly available due to technological advances, that permits point-of-care hand-held ultrasound scanning. Therefore, MSKUS is now introduced into many musculoskeletal disciplines, including orthopedics, rheumatology, sports medicine, primary care, and hemophilia treatment centers. MSKUS permits ultrasound-guided interventions on multiple levels. MSKUS is a rapid, convenient, highly sensitive and a non-invasive imaging method for the diagnosis of cartilage abnormalities, joint effusions, joint bleeds, muscle tears, tendon tears and inflammation, soft tissue masses, and peripheral nerve conditions. It is also a valuable tool to follow joint health long-term by individual assessment of synovial hypertrophy, inflammation and cartilage health. However, training to diagnose and manage arthritic conditions, including hemophilic arthropathy is required.

This CME course will provide training in MSKUS, and also provide specific knowledge regarding hemophilic arthropathy, enabling hemophilia providers to use MSKUS as point-of care imaging tool to assist with diagnosis and treatment of musculoskeletal pains similar to other disciplines.

MSKUS: Why does the Practice Gap exist?

- *Lack of Knowledge:* There is an increasing demand to diagnose and manage arthritic conditions with point-of-care ultrasound, supplementing the physical exam. This is because ultrasound is an imaging technology, which is rapid and convenient, and permits to answer easily specific questions due to high tissue resolution and sensitivity. With the advent of new coagulation products, the hemophilia population is aging, and hemophilic arthropathy, requiring pain management, is coming rapidly into focus, similar to other arthritic conditions. These factors trigger the need for point-of-care MSKUS to adequately address joint disease in a variety of musculoskeletal disciplines, and also in hemophilia. In addition, objectivity in interpretation and measurements of MSKUS findings is of the upmost importance for reasons including but not limited to tracking tissue healing, longitudinal monitoring of tissue health, and precise data collection for research studies. For these reasons, training participants in the J.A.D.E. protocol is imperative
- *Lack of Competence:* Physicians and providers treating arthritic conditions, including hemophilia, and/or participating in research studies are not sufficiently trained in the J.A.D.E. protocol

Target Audience

This educational program is designed for any health care provider, but in particular for physicians, physician assistants, nurse practitioners, nurses, and physical therapists involved and/or interested in MSKUS as point-of care imaging tool to assist with diagnosis and treatment of joint and muscle pains in patients or people with and without hemophilia. Athletic trainers may also benefit from this course. Pediatric practitioners are welcomed. While ultrasound techniques for adults and children are similar, readings mainly apply to adolescents and adults with a mature skeleton. To complete pediatric training, we refer to the online module **Pediatric Considerations for the Use of Musculoskeletal Ultrasound in Hemophilia**