

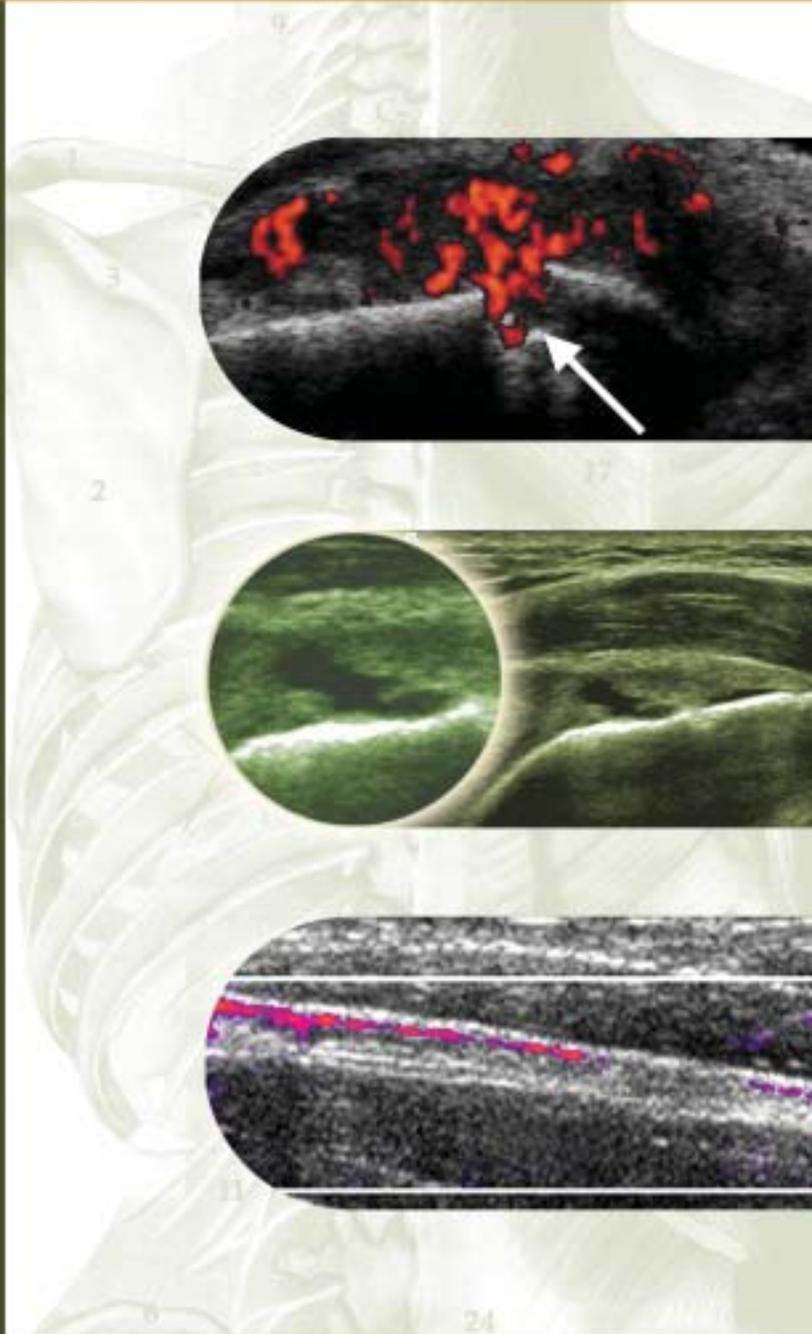


Musculoskeletal Sonography

Diagnostic Ultrasound Imaging

National Clinical Technology

Musculoskeletal Sonography, not to be confused with ultrasound therapy, is a convenient and cost-effective imaging modality that provides diagnostic information for musculoskeletal injuries or abnormalities. Patients and clinicians alike benefit from the convenience of musculoskeletal sonography and its savings of time and money with increased patient comfort. The use of this modality is increasing due to the rapid development of newer sonography techniques, such as 3-D and Power Doppler. Recent radiology literature documents the clinical and economical benefits of musculoskeletal sonography.



Over the last several years, NCT has performed over two thousand musculoskeletal sonography examinations of the extremities and compared them, not only to MRI results, but to surgical findings. The results show that musculoskeletal sonography exams compare very favorably with the results obtained from MRI. In addition to the obvious economical benefits, noninvasive ultrasound is more tolerable for the patient and gives even more valuable diagnostic information.

Clinical Applications of Musculoskeletal Sonography

For diagnosis of:

SHOULDER

- Rotator Cuff: Full vs. Partial Thickness Tear
- Calcific Tendonitis
- Biceps Tendon Rupture
- Biceps Tendon Subluxation or Dislocation
- Bursitis
- Joint Effusion

HIPS

- Effusion
- Bursitis
- Tendonitis

WRIST & HAND

- Carpal Tunnel Syndrome
- Synovial Cyst
- Ganglion Cyst
- Tendon Rupture
- Scaphoid Fracture
- Tendonitis and Tenosynovitis
- Rheumatoid Arthritis
- Guyon's Canal Syndrome

FOOT AND ANKLE

- All Tendon Pathology
- Plantar Fasciitis
- Neuromas
- Bursitis
- Foreign Bodies
- Achilles Tendon Pathology

KNEE

- Medial and Lateral Collateral Ligament Pathology
- Meniscal Tears
- Patellar Tendonitis
- Baker's Cyst
- Effusion
- Quadriceps and Hamstring Tendonitis

ELBOW

- Effusions and Loose Bodies
- Olecranon Bursitis
- Lateral/Medial Epicondylitis
- Biceps / Triceps Tendon Pathology
- Ulnar Nerve Entrapment

EXAMPLES OF MUSCULOSKELETAL SONOGRAPHY



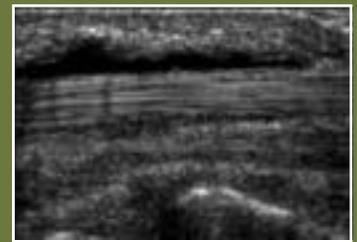
Rotator Cuff Tear



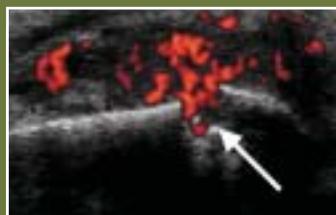
Knee Medial Meniscus



Elbow Lateral Epicondylitis



Wrist Tenosynovitis



Rheumatoid Arthritis with Power Doppler



Morton's Neuroma



Left Torn vs. Right Normal Rotator Cuff



Plantar Fasciitis

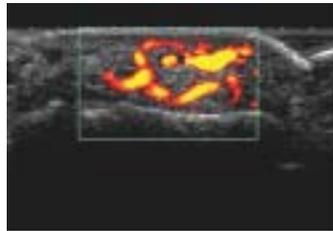
Also for Ultrasound-Guided Injections of Effusions and Bursae

Uses of Power Doppler in Musculoskeletal Sonography

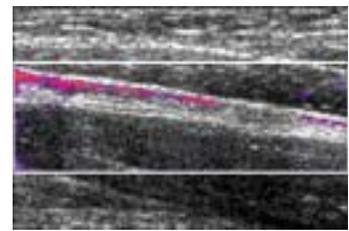
The relatively new Doppler format of Power Doppler is extremely useful in Musculoskeletal Sonography. Continuous Wave, Pulsed Wave and Color Doppler use various methods to display the blood velocity components of speed and direction and are reliant upon angle and pulse repetition frequency to display appropriate data. Power Doppler relies only on the presence of flow, not its speed or direction, to create a color image. While Power Doppler does not supply blood flow velocity information, it is extremely sensitive to the presence of flow in very low flow states and neovascularity. It is not dependant on angle nor is it prone to aliasing. These capabilities make it ideal for the documentation of hyperemic flow and neovascularity in diagnosing the following clinical conditions:

- Tendonitis vs. Tendonosis
- Active Synovitis in Arthritis
- Healing Muscle
- Callus of Healing Fractures
- Hematomas
- Active Pannus Formation
- Inflammatory Tenosynovitis
- Gouty Arthritis
- Nerve Inflammation
- Other Hyperemic Conditions

EXAMPLES OF POWER DOPPLER



Tenosynovitis



Inflamed Median Nerve

Musculoskeletal Sonography in Action



Advantages of Musculoskeletal Sonography vs. MRI and Other Modalities

- **Painless** & noninvasive
- Significantly **less cost**
- **Immediately available** preliminary results
- Scan performed in an **open and nonthreatening** environment
- **Diagnostic accuracy** comparable to MRI with the advantage of real-time imaging
- Use of comparison views within the same procedure for **greater objectivity and accuracy**
- Offers **more sensitivity than MRI** in demonstrating soft tissue changes in superficial joints
- Exams are **real-time, dynamic images**, showing function of muscles, joints and tendons
- **No radiation** is used
- **No contraindications** for ferromagnetic implants or fragments within the body
- Allows post-surgical examination of recent surgical sites to **determine functionality**

NCT is proud to make Musculoskeletal Sonography available in your area. NCT has provided diagnostic imaging services to hospitals and clinics for over two decades. Having served over 400 facilities across 15 states, we have established a long history of excellence by supplying our clients with the highest quality diagnostic ultrasound testing available today.

Building upon this history, NCT began a new venture in 2001 with Musculoskeletal Sonography. We are dedicated to providing the same level of quality that we have adhered to throughout our existence. We are confident that our service in this new modality will become the imaging **STANDARD OF EXCELLENCE**.

NCT offers hospitals and clinics a dynamic alternative to providing this modality themselves. Many accounts are served on a shared service basis with fixed clinic days. This allows the facility to begin offering Musculoskeletal Sonography immediately without the burden of training and retaining qualified personnel or the expenditure of purchasing expensive, diagnostic equipment. . .soon to be obsolete.

NCT provides diagnostic excellence through:

- Staffing our labs with highly-trained, ARDMS Registered/Registry-eligible Vascular Technologists
- Using state-of-the-art equipment to insure the most accurate diagnostic studies available today
- Maintaining a rigorous quality control program overseen by a board-certified physician
- Offering a full battery of Musculoskeletal Sonography procedures to help lead the physician to a quick and accurate diagnosis
- Providing board-certified interpreting physicians specially trained in Musculoskeletal Sonography

We look forward to the opportunity to serve you with this new modality. For more information on Musculoskeletal Sonography services, please contact:

