

# Clinical Indications for musculoskeletal ultrasound Referral



## Guidelines based on *European Society of Musculoskeletal Radiology Consensus 2017*

Sconfienza LM, Albano D, Allen G et al. Clinical indications for musculoskeletal ultrasound updated in 2017 by European Society of Musculoskeletal Radiology (ESSR) consensus. *Eur Radiol.* 2018 Dec;28(12):5338-5351. doi: 10.1007/s00330-018-5474-3. Epub 2018 Jun 6. PMID: 29876703.

# Exclusion Criteria

For Referrals that fall under the following criteria cannot be undertaken:

- Any patient with suspected cancer. These should be referred through the two week wait referral pathway in the hospital.
- Under 18s
- Any ultrasound guided interventional procedures
- Suspected pathology of intimate areas (Including male/female genitalia, breast or endocavity)
- Investigations of the eyes or mouth
- Superficial masses/lumps in the neck, axilla or groin
- Open or infected wounds

It is also worth considering/alerting patients to the conditions where ultrasound imaging can be less effective:

- High body mass index/obesity
- Scanning over areas where superficial scar formation is present
- Scanning where a prosthesis or significant metal implants are present
- Intolerance to pressure over the area being scanned
- Pathology/structures 7cm or greater in depth from the skin surface

# Key

For each joint/region, there is a detailed list of the most common presenting clinical conditions. Each condition has been reviewed by a group of 21 musculoskeletal imaging experts from the European Society of Musculoskeletal Radiology and a consensus reached, based on their experience and evidence based medicine, as to the appropriateness for the use of musculoskeletal ultrasound to diagnose/assess these conditions.

The four levels of appropriateness are

- 0- Not Indicated for Ultrasound:** Ultrasound is considered to hold **no** diagnostic value in diagnosing this condition and **does not justify an ultrasound scan.**
- 1- Only if other imaging techniques are not appropriate:** Other imaging techniques (MRI, CT etc.) are preferred over ultrasound in diagnosing this condition with ultrasound typically having a poor success rate. However, if all other modalities are contraindicated (i.e. MRI is often incompatible with pacemakers), **it may be justified to undertake an ultrasound examination *following a discussion with the sonographer.***
- 2- Equivalent at diagnosing as other imaging modalities:** Ultrasound is considered to be comparable to other imaging modalities and therefore may provide useful diagnostic information regarding this condition. However, other modalities may also provide significant information. **Therefore, this does justify an ultrasound scan**
- 3- Ultrasound is the first choice:** Ultrasound is considered to be the primary choice for examining this condition with other modalities/techniques rarely providing more information. **Therefore, this does justify an ultrasound scan**

**Therefore, referrals to Inner-vision Musculoskeletal Ultrasound Imaging must meet level 2 or above to justify booking an ultrasound scan without consultation with the sonographer.**

Any referrals at level 1 require discussion with the sonographer

Referrals at level 0 are not justified for an ultrasound scan and a recommendation to consult their GP should be made. Occasionally, a level 0 pathology may be identified incidentally or in the correct circumstances but the occurrence is too low to justify an ultrasound scan.

**\*\*This is not an exhaustive list of common clinical conditions, please contact the sonographer if uncertain or have any questions\*\***

# Shoulder

Clinical Indication	0- Not Indicated for Ultrasound	1 - Only if other imaging techniques are not appropriate	2 - Equivalent at diagnosing as other imaging modalities	3 - Ultrasound is the first choice
<b>Tendons/Soft tissue</b>				
Bursitis (Impingement)				✓
Full thickness cuff tear				✓
Partial thickness cuff tear			✓	
Rotator cuff muscle atrophy (Muscle Wastage)		✓		
Postoperative cuff failure			✓	
Calcific tendonitis/tendinopathy				✓
Long head biceps tendon: rupture/tear				✓
Long head biceps tendon: dislocation				✓
Long head biceps tendon: tendinopathy			✓	
Adhesive capsulitis – (frozen shoulder)		✓		
Pectoralis/deltoid tears			✓	
Septic arthritis				✓
<b>Bones</b>				
Loose bodies		✓		
Acromion-clavicular joint osteoarthritis			✓	
Acromion-clavicular joint trauma/instability			✓	
Sterno-clavicular joint disease			✓	
Occult tuberosity fracture			✓	
Gleno-humeral joint: traumatic instability	✓			
Gleno-humeral joint: dynamic instability	✓			
<b>Nerves</b>				
Suprascapular nerve entrapment			✓	
Quadrilateral space syndrome		✓		
Parsonage-Turner syndrome	✓			
Thoracic outlet syndrome		✓		

# Elbow

Clinical Indication	0- Not Indicated for Ultrasound	1 - Only if other imaging techniques are not appropriate	2 - Equivalent at diagnosing as other imaging modalities	3 - Ultrasound is the first choice
<b>Tendons/Soft tissue</b>				
Olecranon bursitis (Students elbow)				✓
Lateral collateral ligament assessment			✓	
Lateral epicondylitis (Tennis elbow)				✓
Medial epicondylitis (Golfers elbow)				✓
Medial collateral ligament assessment			✓	
Biceps tendon insertion assessment			✓	
Bicipitoradial bursitis			✓	
Synovitis				✓
Septic arthritis/effusion				✓
Triceps tendon injury				✓
Snapping triceps injury				✓
<b>Bones</b>				
Loose bodies		✓		
Lateral condyle fractures		✓		
Radial head subluxation/fracture		✓		
Screening trauma			✓	
Supracondylar elbow fracture; postoperative positioning	✓			
Osteochondral injury		✓		
<b>Nerves</b>				
Radial nerve compression			✓	
Median nerve entrapment, pronator syndrome			✓	
Ulnar nerve neuropathy (Nerve pain/numbness/tingling)			✓	
Ulnar nerve subluxation			✓	

# Wrist/Hand

Clinical Indication	0- Not Indicated for Ultrasound	1 - Only if other imaging techniques are not appropriate	2 - Equivalent at diagnosing as other imaging modalities	3 - Ultrasound is the first choice
<b>Tendons/Soft tissue</b>				
Tenosynovitis/rupture				✓
Mass/lesion/lump				✓
Joint synovitis				✓
Pulley/sagittal band/central slip injury-ruptures				✓
Central slip injury				✓
Finger collateral ligament injury except gamekeeper's thumb and Stener lesion			✓	
Gamekeeper's thumb and Stener lesion				✓
Trigger finger				✓
Ganglion (Bible bump)				✓
Rugby/jersey finger				✓
Flexor carpi ulnaris/flexor carpi radialis tendinopathy (AKI – Tendonitis)				✓
Extensor carpi ulnaris/estensor carpi radialis tendinopathy (AKI – Tendonitis)				✓
Foreign body (Splinter in hand or similar)				✓
De Quervain disease (texting thumb/gamers thumb/washerwomans sprain)				✓
Intersection syndrome			✓	
<b>Bones</b>				
Hamate assessment	✓			
Pisiform triquetral osteoarthritis			✓	
Capitate assessment	✓			
Volar plate avulsion (X-ray negative)				✓
Finger fracture			✓	
Triangular fibrocartilage complex lesions	✓			

Abutment syndromes	✓			
Hammer hand				✓
Kienbock's disease	✓			
Scaphoid assessment		✓		
Trapezium assessment		✓		
Scapho-trapezio trapezoidal osteoarthritis			✓	
Scapho-lunate ligament		✓		
<b>Nerves</b>				
Carpal tunnel syndrome				✓
Guyons canal				✓
Wartenberg syndrome				✓
<b>Muscle</b>		✓		

# Knee

Clinical Indication	0- Not Indicated for Ultrasound	1 - Only if other imaging techniques are not appropriate	2 - Equivalent at diagnosing as other imaging modalities	3 - Ultrasound is the first choice
<b>Tendons/Soft tissue</b>				
Patellar tendinopathy/tear				✓
Quadriceps tendinosis/tear (AKI – Tendonitis)				✓
Pes anserinus tendinobursitis				✓
Semitendinosus tendon assessment				✓
Semimembranosus tendon assessment				✓
Medial collateral ligament assessment			✓	
Iliotibial band friction			✓	
Posterolateral corner (biceps femoris tendon, lateral collateral ligament, popliteus tendon)		✓		
Gastrocnemius origins and insertions			✓	
Baker's cyst				✓
Periarticular bursitis – (Housemaids knee – Clergymans knee-				✓
Extra-articular ganglion				✓
Intra-articular ganglion		✓		
Osgood-Schlatter, Sinding-Larsen				✓
Synovitis, effusion				✓
Retinacula pathology			✓	
Hoffa's fat pad syndrome		✓		
Plica syndrome	✓			
Anterior cruciate ligament tears	✓			
Posterior cruciate ligament tears	✓			
Meniscal tears	✓			
Meniscal cysts			✓	



Synovial tumours	✓			
<b>Bones</b>				
Septic arthritis *				✓
Osteochondritis dissecans	✓			
Knee arthroplasty infection			✓	
Loose bodies		✓		
Knee fractures	✓			
<b>Nerves</b>				✓
<b>Osteoarthritis</b>		✓		

\*Likely to require aspirate and culture to confirm (GP/consultant would need to provide an onward referral if suspected)

# Ankle/Foot

Clinical Indication	0- Not Indicated for Ultrasound	1 - Only if other imaging techniques are not appropriate	2 - Equivalent at diagnosing as other imaging modalities	3 - Ultrasound is the first choice
<b>Tendons/Soft tissue</b>				
Tendinopathy (AKI – Tendonitis)				✓
Tears				✓
Tendon Sheath effusions (swelling)				✓
Peroneal dislocation				✓
Calcific tendinitis				✓
Retrocalcaneal bursitis				✓
Haglund disease – Calcaneal spur/bony spur			✓	
Postoperative tendon tear				✓
Anterior talo-fibular ligament assessment				✓
Posterior talo-fibular ligament assessment	✓			
Calcaneo-fibular ligament assessment				✓
Deltoid ligament assessment			✓	
Spring ligament assessment			✓	
Joint effusions (Swelling)				✓
Intra-articular disease	✓			
Cartilage lesions		✓		
Synovitis				✓
Plantar fasciitis (Policemans heel)				✓
Retinacula injury				✓
Ganglion cysts				✓
Plantar plate			✓	
Ankle joint instability			✓	
<b>Bones</b>				
Distal tibia	✓			
Loose bodies			✓	
Talus assessment	✓			
Bony avulsion (bone “pulled”/”Chipped” off)			✓	

Coalitions	✓			
<b>Nerves</b>				
Entrapment				✓
Morton neuroma - Bursal-neuroma complex				✓
Intermetatarsal bursitis (Ball of foot)				✓