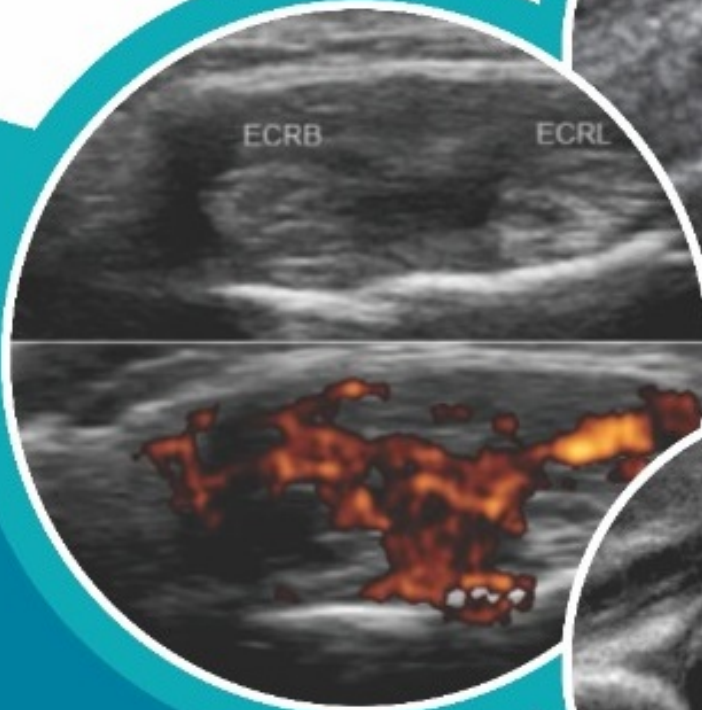


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**NANDA  
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*Where quality is a way of life*



## ROLE OF ULTRASOUND IN MUSCULOSKELETAL SYSTEM

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(A Unit Of Dr. Nanda Diagnostic Centre )

## Introduction:-

Ultrasound by using high resolution probes can produce detailed anatomic images of tendons, nerves, joint capsules and muscles. The axial resolution of a 10 MHz probe is 150  $\mu$ m. A 1.5T scanner with a field of view of 12x6mm, matrix of 256x256 pixel and a slice thickness of 0.5 cm yields a resolution of 469x469  $\mu$ m. At nanda daignostics we are equipped with transducer up to 20MHz. It is relatively inexpensive and easy to perform.

It allows real time dynamic examination as it can show tendon instability such as anterior dislocation of the extensor carpi ulnaris. It plays an important role in the diagnosis of impingement of shoulder by showing which structure is being impinged.

Multiple joints can be evaluated at the same sitting.

Enables rapid contralateral limb evaluation for comparison studies.

Minimally affected by metal artifacts and is ideal for patients who are obese and claustrophobic.

## Application:-

### Paediatrics

Ultrasound is the main imaging modality for the evaluation of paediatric patients with musculoskeletal diseases.

- Development dysplasia of Hip (DDH)
- Painful hip evaluation
- Juvenile idiopathic arthritis
- Other infection, inflammation and trauma related conditions

### Adults:-

#### A: Inflammatory Conditions

1. Rheumatoid arthritis: Ultrasound with the aid of Power Doppler can pick up synovitis, bony erosions and tenosynovitis and is a powerful tool in making an early diagnosis and evaluating the response to treatment.
2. Psoriatic arthritis
3. Osteoarthritis
4. Crystal arthritis (GOUT)
5. Seronegative spondyloarthropathy-Readily diagnoses enthesitis and bursitis.
6. Carpal Tunnel Syndrome-ultrasound can readily diagnose hypoechoic nerve swelling with loss of its fascicular pattern.
7. Polymyalgia Rheumatica

## B: Non Inflammatory Conditions

### Upper limb

#### Shoulder

1. Impingement and rotator cuff disease
2. Rotator cuff tears.
3. Biceps tendon Pathology/Rupture/Instability.

#### Elbow

1. Medial Epicondylitis
2. Lateral Epicondylitis
3. Cubital tunnel Syndrome
4. Ulnar nerve instability
5. Snapping Triceps Syndrome
6. Synovitis

#### Wrist

1. De Quervain Disease
2. Carpel Tunnel Syndrome
3. Wrist masses
4. Dorsal Wrist Pathology
5. Ventral Wrist Pathology

#### Hand

1. Tenosynovitis of Flexor tendons
2. Trigger finger
3. Foreign bodies
4. Ganglion cyst.

### Lower Limb

#### HIP

1. Rectus femoris Tendon Tear
2. Snapping Iliopsoas Tendon
3. Iliopsoas Bursitis
4. Trochanteric Bursitis
5. Joint effusion

#### Knee

1. Prepatellar Bursitis
2. Patellar Tendinopathy
3. Deep and Superficial Infrapatellar bursitis
4. Medial Collateral ligament injury.
5. Pes. Anserinus Bursitis
6. Lateral collateral ligament injury
7. Iliotibial Band Friction Syndrome.
8. Baker Cyst
9. Meniscal Cysts /Tears / Calcifications

#### Ankle

1. Tenosynovitis
2. Split of Peroneus Brevis
3. Abnormalities of Tibialis Posterior Tendon
4. Accessory Navicular Bone.
5. Tarsal Tunnel Syndrome
6. Achilles Tendinopathy/Achilles Tendon Tear.
7. Plantar Fascitis

### Limitations:-

1. Ultrasound has difficulty in penetrating bone and therefore, can only see the outer surface of bony structures and not what lies within (except in infants who have more cartilage in their skeletons than older children adults)
2. There are also limitations to the depth that sound waves can penetrate; therefore deeper structures in larger patients may not be seen easily

We look forward to your support and valuable feedback



# UNIVERSIDAD CATÓLICA SAN ANTONIO

## *The Chancellor of the Catholic University of Murcia*

*in accordance with the provisions envisaged by law*

**CERTIFIES THAT**

**Dr. Anupam Nanda**

*with PASAPORTE no. L9898169*

*has been awarded the*

## **Diploma of Expert in Musculoskeletal Ultrasound**

after successfully fulfilling the requirements of the academic programme consisting of  
20 credits ECTS, as shown on the back of this document.

Murcia, June 11, 2019.

The interested party

The President

The Chancellor



This degree, regulated by the article 34 "Ley Orgánica 6/2001, de 21 de diciembre, de Universidades", in the version of the "Ley Orgánica 4/2007, de 12 de abril", is awarded by the Rector in name of the Universidad Católica de Murcia and does not include the prerogatives established in the article 35 of the previously mentioned "Ley Orgánica de Universidades".