Sir H. N. Reliance Foundation Hospital and Research Centre,
Mumbai

About Us - Sir H. N. Reliance Foundation Hospital and Research Centre is a 345-bed, world class multi-Speciality tertiary care hospital with following thrust areas: Cardiac Sciences, Orthopaedics & Spine, Gastroenterology & Hepatobiliary Sciences, Liver Transplant, Nephro-Urology, Neuro Sciences, Oncology, Woman & Child Health. The Hospital has progressive diagnostic services, including Laboratories, Radiology & Imaging, and Nuclear Medicine with state of the art equipment.

This is a technologically-advanced institution designed to international standards and the most stringent criteria in infrastructure, medical care, fire-safety norms, and environmental guidelines. This is because every element that comprises The Hospital's making, from the premises, to the processes, to its professionals, contributes to the overriding principle:

Respect for Life.

From its foundation in 1918, Sir Hurkisondas Nurrotumdas Hospital and Research Centre was at the forefront of cutting-edge technology. Many noted freedom fighters, politicians, philanthropists and doctors patronised the hospital, including Mahatma Gandhi, Sardar Vallabhbhai Patel, and Lok Nayak Jayaprakash Narayan.

Sir H. N. Reliance Foundation Hospital and Research Centre carries forward Sir Hurkisondas' legacy of excellence in care and service to all. The Hospital's values define the delivery of this commitment, realised through action and constant application. Today our hospital has been awarded one of the best hospitals in India by many premier organisations

Chairperson's Message:

"When we set out to build a hospital that offers world-class patient care,
there were a number of questions we asked ourselves:
How will we be different from other hospitals?
How do we make the best healthcare practices accessible to all?
How do we ensure that our patients are treated with dignity?
And without a hint of hesitation, without a doubt in our minds, we answered.
Sir H. N. Reliance Foundation Hospital and Research Centre
will not just be a hospital, but an institution of care.
Where words like 'religion', 'caste',
'social strata', 'age' and 'gender' will be just that - mere words - and not
interfere with the kind of treatment our patients receive.
Where quality will meet affordability.
Where we won't just treat health, we will respect life." – **Nita M. Ambani – Founder & Chairperson**

Sir H. N. Reliance Foundation Hospital
RESPECT FOR LIFE

Fellowship in Musculoskeletal imaging

Aim of the Course: Primary objectives: The fellow must acquire a working knowledge of the theoretical basis of the specialty, including its foundations in the basic medical sciences and research.

Fellow must demonstrate the requisite knowledge, skills, and attitudes for effective patient-centered care and service to a diverse population.

Secondary objectives: To be able to participate and contribute effectively to research projects initiated by experienced colleagues and/or to initiate research - Increase the research output. The Fellow is encouraged to complete a project and at least one publication during the year.

Name(s) of the department offering the course:

Department of Radiology and Imaging Sciences in collaboration with Dept. of Orthopaedics, Sir HN Reliance Foundation Hospital and Research centre

Department equipment: Our department is equipped with most advanced and versatile 'state of the art' equipment system

We are equipped with - Two 3.0T MRI machine, 0.55T High V MRI for sports and implant imaging, 1.2T High field open MRI, one Dual source dual energy 384 slice scanner, one 256 slice dual energy CT scanner, 30 USG machines, IITV, C-arm , Digital X-ray equipment

Course Director: Dr Himanshu Choudhury

Faculty: Dr Bhujang Pai, Dr Himanshu Choudhury, Dr Somesh Lala, Dr Vaibhav Bagaria (Director, Orthopaedics) , Dr Arjun Dhawale (Consultant Spine Surgeon)

Visiting Faculty: Dr Aditya Daftary, Dr Aswin Lawande

Duration of the course: *Six months*

Intake: 1 seat per batch

***Course fee**: A non-refundable course fee of Rs. 1 lakh will be collected at the beginning of the course.*

***Stipend:** A fix sum of Rs. 60000/ pm and hospital accommodation will be provided during the course.*

Knowledge and skills required for admission to the Course

Entry criteria: *MD / DNB in Radiology. Preference will be given to those who have worked in a teaching institute or tertiary centre.*

Selection will be based on a multiple choice questions, entrance exam, and interview.

Competencies:

- *Patient Care*
- *Medical Knowledge*
- *Practice-Based Learning & Improvements*
- *Interpersonal & Communication Skills · Professionalism*
- *System-Based Practice*

Responsibilities:

a. Protocoling, monitoring and interpreting MSK radiographs, Ultrasonogram, CT and MR imaging

studies under faculty supervision.

b. Protocoling and performing patient procedures, including arthrography,

therapeutic and diagnostic injections, ultrasound, and CT guided biopsies under

faculty supervision.

c. Performing diagnostic MSK ultrasound examinations and presenting the findings

to the attending for review.

d. Preparing interdisciplinary conferences. Consulting with referring physicians.

e. Effectively communicating study results by timely signing of reports and

appropriate direct communication.

f. Performing imaging guided pain management procedures

Publications and Presentations:

***** Complete at least one original research project as principal author with the purpose

of preparation of a manuscript suitable for publication in a peer-reviewed journal

***** Present academic work at local, national or international scientific meetings

* Preparation of a formal weekly lecture on a topic to be presented to the department

and undergo formal assessment

* Teach diagnostic radiology residents as well as residents from other clinical services

and medical students

Method of evaluation:

Formative assessment:

- The fellow will undergo initial fully supervised rotation in each modality and will undertake independent role after assessment from the concerned faculty. The level of supervision will be tapered according to the experience and confidence gained.

- Formal assessment should be done by faculty and fellowship supervisor every 3 monthly

Summative assessment (at the end of course):

- The Fellow is expected to maintain a log book of interesting cases reported and total number of cases during each modality rotation

-A theory and practical exam will be conducted at the end of the course as an exit exam with one internal and one external examiner from India.

- Patient care Medical Knowledge Professionalism Practice – based learning System- based practice Ability to work as health care team Medical record keeping/Documentation Leadership Qualities Interpersonal and communication skills, Participation in department programme, Log book, Achievements during the period under review

CERTIFICATION:

- CME ATTENDED -
- CONFERENCES ATTENDED –
- GUEST LECTURES ATTENDED –

(OBTAINED DURING THE ABOVE PROGRAMME)

Structured format of the fellowship programme:

I. TITLE OF THE COURSE: FELLOWSHIP IN MUSCULO SKELETAL (MSK) IMAGING

The Fellow will have rotation in the following areas:

MSK Radiographs / Ultrasound imaging and interventions	*1 Month*
Musculoskeletal CT /MRI imaging and CT guided interventions	*4 Month*
Dept. of Orthopaedics (OPD)	*15 days*

Elective	*15 days*

SYLLABUS:

Musculoskeletal Radiology

Knowledge and skills to be acquired by the students on completion of the Course:

The fellow will be equipped to independently

- Report CT and MRI of bone and joints

-Perform and interpret musculoskeletal ultrasound

-Perform USG guided joint injections, biopsies, FNAC

1. Basics of musculoskeletal cross sectional imaging

- Available cross-sectional imaging modalities and appropriate indications
- Anatomy of musculoskeletal tissues

2. Imaging of pathology of joints

- SHOULDER –Shoulder impingement
- Tendon tears, degeneration and dislocation
- Shoulder impingement
- Rotator interval abnormalities
- Shoulder instability
- SLAP
- Arthritis
- Post operative shoulder
- Nerve abnormalities
- ELBOW –
- Fractures
- Ligament injuries
- Muscle and tendon injuries
- Joint pathology
- Nerve related pathologies
- WRIST & HAND
- Ligament & TFCC injury
- Tendon Pathology
- Carpal tunnel and nerve related pathology
- Osseous abnormalities & Instability
- Impaction syndromes
- Occult Fractures.
- Physeal Injuries.
- Osteonecrosis
- Congenital Osseous Lesions.

- Arthritis
- HIP –
- Fractures
- Vascular Abnormalities of Bone
- Osteonecrosis (Avascular Necrosis)
- Idiopathic Transient Osteoporosis of the Hip (Transient Painful Bone Marrow
- Edema)
- Avulsion injuries
- Muscle, tendon & ligament pathologies
- Labrador injuries
- Impingement syndromes
- Sciatic Nerve pathologies
- KNEE –
- Fractures
- Meniscal & Ligament pathologiesPosteromedial & Posterolateral corner injuries
- Extensor mechanism
- Avulsion injuries
- Infection / Inflammatory diseases
- Vascular pathologies
- Post op knee
- ANKLE & FOOT–
- Fractures
- Ligament & Tendon injuries
- Impingement syndromes
- Sinus Tarsi Syndrome
- Plantar Fasciitis
- Nerve related injuries & pathologies
- Tarsal Coalition
- Osteonecrosis of the foot and ankle
- Accessory Muscles.
- Pressure Lesions
- Diabetic Foot
- Foreign Bodies
- TEMPOROMANDIBULAR JOINT
- Normal anatomy
- Internal derangement

3. **Imaging of focal lesions of bone and soft tissue**
Principles of staging

- Grade, Local Extent &Metastases
- Bone & Soft Tissue Tumors
- Post treatment evaluation of tumors

4. Marrow pathology imaging

- Normal marrow anatomy and function
- Marrow pathology
- Post chemotherapy & radiation marrow changes
- Miscellaneous Marrow Diseases

5. Spine imaging

- Degenerative disease
- Spinal canal stenosis , Post-operative imaging
- Infections
- Neoplasms
- Trauma
- Vascular pathologies

6. Imaging of peripheral nerves and plexus

- Principles of nerve imaging
- Normal imaging anatomy
- Pathologies of brachial plexus
- Pathologies of lumbosacral plexus
- Pathologies of peripheral nerves of upper and lower limb

7. Arthritis imaging and cartilage imaging

- Cartilage
- Rheumatoid Arthritis
- Ankylosing Spondylitis
- Gout
- Calcium Pyrophosphate Dihydrate Deposition
- Hemophilia
- Amyloid
- Tumors
- Synovial Chondromatosis
- Pigmented Villonodular Synovitis

8. Imaging in trauma

- Acute Osseous Trauma
- Impaction injuries
- Radiographically Occult Fracture
- Avulsion injuries
- Insufficiency fractures
- Fatigue fractures

- Post-traumatic Osteolysis
- Post op imaging
- Trauma to immature skeleton
- Epiphysiolysis, Post-traumatic Physeal Bridges
- Avulsion Fractures

9. Whole body MRI Indications

- Protocol
- Technique
- Myositis
- Multifocal osteomyelitis

Rheumatology:

- MSK ultrasound,
- MSK radiography and CT;
- MSK image-guided procedures, including arthrography, bone and soft-tissue biopsies, spine and other palliative procedures.

Recommended list of Text books & Journals:

Text books:

- Bone and Joint Imaging: Donald L. Resnick, Mark J. Kransdorf
- MRI in orthopaedics & sports medicine - Stoller
- Yochum & Rowe's essentials of skeletal radiology
- Musculoskeletal imaging : The Requisites: B. J. Manaster, David A. May, and David g. Disler
- Ultrasound of the musculoskeletal system - Carlo Martinoli and Stefano Bianchi
- Diagnostic ultrasound – Rumack
- Musculoskeletal Ultrasound – Von Halsbeek
- Fundamentals of Musculoskeletal Ultrasound - Jon Jacobson
- Ultrasound guided musculoskeletal injections - Gina M. Allen, David J. Wilson
- Journals: **Skeletal radiology, RSNA**
  Radiology clinicx & Radiographics , American journal of radiology