

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST, PUDUCHERRY - 605 502.

[ Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME ( P -II ) dt. 11/07/2011 ]

[ Affliated to Bharath University, Chennai - TN ]

Date: 18/1/2.2.

From
Dr.Vijayakumar,
Professor and Head,
Orthopaedics,
SLIMS,
Pondicherry.

To The Dean, SLIMS, Pondicherry.

Sub: Permission to conduct value-added course: FRACTURE MANAGEMENT

Respected Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: **\_FRACTURE MANAGEMENT\_** on **\_**16/2/22**\_\_**. We solicit your kind permission for the same.

Kind Regards

Dr.Vijayakumar

Department of Orthopaedics Sri Lakshmi Narayana Institute of Medical Sciences Pondicherry - 605 502.

#### FOR THE USE OF DEANS OFFICE

Names of Committee members for evaluating the course:

The Dean: Dr.Jayalakshmi

The profesor: Dr.Vijayakumar

The Expert: Dr.Boblee james

The committee has discussed about the course and is approved.



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Dean

Subject Expert

HOD

Dr. G. JAYALAKSHMI, BSC,MBBS.DTCD,MD., DEAN S/ Lakshmi Narayana Institute of Nedical Sciences Osuda, Agerram Kadapakkam, Post, Villanur Commune Purkucherry-605 502. Department of Orthopaedics Sri Lakshmi Narayana Institute of Medical Sciences Pondicherry - 605 502.

PROFESSOR & HOD
Department of Orthopaedics
Sri Lakshmi Narayana Institute of Medical Sciences
Pondicherry - 605 502.



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#### Circular

07.04.2022

Sub: Organising Value-added Course: FRACTURE MANAGEMENT

With reference to the above mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, **Bharath Institute of Higher Education and Research** is organizing **FRACTURE MANAGEMENT** 30 hrs February 22 – MAY 2022

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/speed post only so as to reach on or before <u>FEB 2022- MAY 2022</u>. Applications received after the mentioned date shall not be entertained under any circumstances.

Dean

Jugarli.

Dr. G. JAYALAKSHMI, BSC.,MBBS.,DTCD.,M.D., DEAN Sri Lakshmi Narayana Institute of Medical Sciences Osucu, Ageram Kudapakkam, Post, Wilser Communia Pubucherry-605 502.



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#### VALUE ADDED COURSE

1. Name of the programme & Code

Principle of Fracture Management -OR04

2. Duration & Period

30 hrs February 27 - MAY 2022

3. Information Brochure and Course Content of Value Added Courses

Enclosed as Annexure- I

4. List of students enrolled

Enclosed as Annexure- II

5. Assessment procedures:

Short notes- Enclosed as Annexure- III

6. Certificate model

Enclosed as Annexure- IV

7. No. of times offered during the same year:

1 February - MAY 2022



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8. Year of discontinuation: 2022

9. Summary report of each program year-wise

Value Added Course- FEB- MAY 2022					
Sl. No	Course Code	Course Name	Resource Persons	Target Students	Strength & Year
1	OR04	Principle of Fracture Management	Dr. Vijayakumar	THIRD YEAR MBBS	20 (FEB –MAY 2022)

10. Course Feed Back Enclosed as Annexure- V

RESOURCE PERSON DR.VIJAYA KUMAR

Department of Orthopaedics Sri Lakshmi Narayana Institute of Medical Sciences Pondicherry - 605 502. COORDINATOR DR. JAYALAKSHMI

Dr. G. JAYALAKSHMI, BSC.,MBBS.,DTCD.,M.D., DEAN Sri Lakshmi Narayana Institute of Medical Sciences Osudu, Ageram Kudapakkam, Post, Villanur Commune Puducherry-605 502.



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#### FRACTURE MANAGMENT

16/2/2022



#### PRINCIPLE OF FRACTURE MANAGMENT

Particulars	Description
Course Title	Principle of Fracture Management



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Course Code	OR04
Objective	
Objective	1. Introduction
	2. Basic biomechanics of bone
	3. Classification of fractures
	4. Stress fracture
	5. Mechanism of injury
	6. Reduction
	7. Splints
	8. Bracing
	9. Internal fixator
	10. External fixator
Further learning	Principle of Fracture Management
opportunities	
Key Competencies	On successful completion of the course the students will have skill in fracture management
Target Student	Pre final year Students
Duration	30hrs FEB – MAY 2022
Theory Session	10hrs
Practical Session	20hrs
Assessment	Short notes
Procedure	

#### Introduction

□ **Defintion** : A fracture is a break in the structural continuity of bone.

• It may be no more than a crack, a crumpling or a splintering of the cortex; more often the break is complete and the bone fragments are displaced.

#### Basic Biomechanics of bone

Anisotropic



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- Mechanical properties dependent upon direction of loading
- Bone is weakest in shear, then tension, then compression.
- Viscoelastic Sensitive to the speed at which the load is applied
- Wolff's law The ability to adapt, by changing its size, shape, and its structure, to the mechanical demands placed on it

#### **CLASSIFICATION OF FRACTURES:**

Classifying fractures into those with similar features advantages:
$\square$ it allows treatment or prognosis and
$\square$ it facilitates a common dialogue between surgeons and others
Classification of fracture Based on the cause
(1) injury;
(2) repetitive stress
(3) abnormal weakening of the bone (pathological'fracture).

#### Fracture due to trauma

fracture can happpen after injuries like MVA, guns, fall down....

High vs low energy trauma

#### Stress fracture

- When exposure to stress and deformation is repeated and prolonged, resorption occurs faster than replacement and leaves the area liable to fracture
- patients with chronic inflammatory diseases who are on treatment with steroids or methotrexate.



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• most often seen in the tibia, fibula or metatarsal

Pathological
• Fractures may occur even with normal stresses if the bone has been weakened by a change in its structure
• the causes are,
* local bone diseases –osteomyelitis ,cysts , tumours
*generalized bone diseases-oseoporosis,hyperthyroism,paget's
☐ Mechanism of injury
• Direct
- Tapping
– Crushing
- Penetrating
• Indirect
- Traction or Tension
- Angulation
- Rotational
– Compresion
A O /OTA

#### AO/OTA system

☐ Müller and colleagues ;An alphanumeric classification based on anatomy "A classification is useful only if it considers the severity of the bone lesion and serves as a basis for treatment and for evaluation of the results." Maurice E Müller



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CONT
$\square$ In this system, the first digit specifies the bone
(1 = humerus, 2 = radius/ulna, 3 = femur, 4 = tibia/fibula) and the second the segment
(1 = proximal, 2 = diaphyseal, 3 = distal, 4 = malleolar).
$\hfill\Box$ A letter specifies the fracture pattern (for the diaphysis:
$\label{eq:approx} A = simple, \ B = wedge, \ C = complex; \ for \ the \ metaphysis: \ A = extra-articular, \ B = partial \ articular,$
C = complete articular).
$\hfill\square$ Two further numbers specify the detailed morphology of the fracture
Diaphyseal Fractures
• Type A
- Simple fractures with two
fragments
• Type B
- Wedge fractures
• Type C
- Complex fractures with no contact between main fragments
Simple
1. Spiral
2. Oblique
3. Transverse

Wedge



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1. Spiral wedge
2. Bending wedge
3. Fragmented wedge
Complex
1. Spiral multi-fragmentary
2. Segmental
3. Irregular
Fracture displacement
• Displacement of fracture fragments caused by force of injury, gravity or muscle pull
• Discribed by translation, alignment, rotation and altered length
• Always describe distal fragment in relation to proximal fragment
Translation (shift) – $The fragments may be shifted$ sideways, backward or forward in relation to eachother
Angulation
Extent to which Fx fragments are not anatomically aligned
• In a angular fashion
<b>Convention</b> : describe angulation as the direction the <i>apex</i> is pointing relative to anatomical long axis of the bone (e.g. apex medial, apex valgus)or direction of distal fragment
$\Box$ <i>Rotation (twist)</i> – <i>One of the fragments may be</i> twisted on its longitudinal axis; the bone looks straight but the limb ends up with a rotational deformity.
$\Box$ Length – The fragments may be distracted and separated, or they may overlap, due to muscle spasm, causing shortening of the bone

☐ Excessive shortening is a hallmark of more severe soft tissue injury

### Managment



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☐ The Advanced Trauma Life Support (ATLS) guidelines with attention to <b>Airway</b> , <b>Breathing</b> and <b>Circulation on presentation</b>
☐ The patient should be optimally resuscitated before any fracture treatment is considered
• The treatment of fractures may be divided into three phases:
□ emergency care, definitive treatment, and rehabilitation.
Emergency principles
• Align the fracture
• Splint
• Analgesics
Splinting
<ul> <li>One of the most highly taught and least frequently obeyed</li> </ul>
• Adequate splinting is desirable for the following reasons:
- Further soft-tissue injury (especially to nerves and vessels) may be averted and, most importantly, closed fractures are saved from becoming open.
– Immobilization relieves pain.
- Splinting may well lower the incidence of clinical fat embolism and shock.
— Patient transportation and radiographic studies are facilitated.
Types of splints
☐ Improvised Splints
Excuse should never be used that no splints were available. Almost anything rigid can be pressed into service-walking sticks, umbrellas, slats of wood-padded by almost any material

that is soft.



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Conventional Splints
- Basswood Splints
– Universal Splints
– Cramer Wire Splints
– Thomas Splints
- Inflatable Splints
- Structural Aluminum Malleable (SAM) Splints
Definitive Managment
☐ The objectives of the treatment of a fracture are to have the bone heal in such a position that the <b>function</b> and <b>cosmesis</b> of the extremity are unimpaired and to return patients to their vocation and avocations in the shortest possible time with the least expense.
Principles of fracture treatment
• Resuscitation
• Reduction
– Open
- Closed
• Manupulation
• Traction
• Gravity
• Retention

- Traction /Gravity

- External splints

- Internal fixation



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- External fixation
- Soft tissue managment
- Rehabilitation

#### Reduction

- The sooner the reduction of a fracture is attempted the better,
- Before embarking on the manipulative reduction, adequate x-ray films must be obtained to determine what the objectives of the manipulation are to be or if, indeed, a reduction is necessary.
- X ray rules of two

#### Reduction

- Methods of reduction
- 1. Closed
  - 1. Gravity
  - 2. Manipulation
- 2. Open

Closed reduction

#### □ Indication

- 1. all minimally displaced fractures,
- 2. most fractures in children
- 3. fractures that are not unstable after reduction and can be held in some form of splint orcast
- 4. Unstable fractures can also be reduced using closed methods prior to stabilization with internal or external fixation.



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#### contraindicated

- 1. There is no significant displacement.
- 2. The displacement is of little concern (eg, humeral shaft).
- 3. No reduction is possible (eg, comminuted fracture of the head and neck of humerus)
- 4. The reduction, if gained, cannot be held (eg, compression fracture of the vertebral body)
- 5. The fracture has been produced by a traction force (eg., displaced fracture of the patella).
- To achieve a reduction, the following steps usually are advised:
- apply traction in the long axis of the limb;
- reverse the mechanism that produced the fracture;

and

- align the fragment that can be controlled with the one that cannot.
- This is most effective when the periosteum and muscles on one side of the fracture remain intact; the soft-tissue strap prevents over-reduction

#### OPEN REDUCTION

☐ Operative reduction of the fracture under direct vision
☐ First step in internal fixation indicated:
1) when closed reduction fails,
2) when there is a large articular fragment that needs accurate positioning or
3) for traction (avulsion) fractures in which the fragments are held apart.

#### **Immobilization**



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• Methods
1. Splint
a. Body strapping
b. External splint
c. POP
2. Continuous mechanical traction
3. Fixation
a. External
b. Internal
Immobilization by POP
□ POP Casts
- Upper extremity Casts
– Lower extremity Casts
- Patellar tendon-bearing casts
- Cast braces
- Hip and Shoulder spica
□ POP splints
– Slabs dorsal/volar
– Posterior gutters
□ Fiberglass Casts
☐ There are three principles that apply to the treatment of unstable fractures with a cast
☐ Utilization of intact soft tissues
☐ Three-point fixation



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Hydrostatic pressure
□ THREE-POINT FIXATION
$\Box$ is achieved by molding the wet cast in a similar manner to the way the fracture was reduced initially. Two of these three points, therefore, are applied by the hands.
• Two forces acting alone cannot stabilize a fracture; a third force must be present. This third force is supplied by the portion of the cast over the proximal portion of the limb With overreduction, the bridge is under the greatest tension and the reduction is even more stable
• A straight cast will usually contain a crooked bone; a curved cast will generally contain a well-aligned bone.
Immobilization by POP
Complication of cast
1. Plaster sore
2. Compartment syndrome
3. Burn
4. Thrombophilibits
5. Redisplacement
6. Joint stiffness
7. Allergic rxn
FUNCTIONAL BRACING
☐ using either plaster of Paris or one of the lighter thermoplastic materials,
☐ prevents joint stiffness while still permitting fracture splintæe and loading
☐ Segments of a cast are applied only over the shafts of the bones, leaving the joints free; the

cast segments are connected by metal or plastichinges that allow movement in one plane.



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- $\hfill\Box$  The splints are 'functional' in that joint movements are much less restricted than with conventional casts
- · used most widely for fractures of the femur or tibia, but
- since the brace is not very rigid, it is usually applied only when the fracture is beginning to unite, i.e. after 3–6 weeks of traction or conventional plaster.

#### Immobilization by traction

- Some fractures are so unstable that maintenance of a reduction by plaster-of-Paris casts is impossible, or casts may be, for one reason or another, impractical. In these circumstances the bone can be reduced and held to length by means of continuous traction, provided a soft-tissue linkage still exists.
- Traction is applied to the limb distal to the fracture, so as to exert a continuous pull in the long axis of the bone, with a counterforce in the opposite direction
- This is particularly useful for shaft fractures that are oblique or spiral and easily displaced by muscle contraction.
- which reduces fracture fragments through *ligamentotaxis* (*ligament pull*)

### Immobilization by traction

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1. Skin traction
– Used
– for children
– for adults temporarily
– Weight more than 5Kg result in skin slough
2.Traction by gravity – This applies only to upper limb injuries.

e.g a U-slab with wrist sling for humeral shaft fracture

3. Skeletal traction – A stiff wire or pin is inserted



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- Distal femur - may result tethering of quadriceps
– proximal tibial – safest site
– Distal tibia
- Calcanus - difficult to eradicate calcaneal infection
- Olecranon

#### Indications

cranium

Sites

- 1. Vertically **unstable fractures of the pelvic ring** where external fixation cannot maintain vertical stability,
- 2.Fractures of **the acetabulum with minimal displacement** where internal fixation is not indicated,Unstable fractures of the acetabulum
- 3. Fractures of the hip (basilar neck, intertrochanteric, or subtrochanteric) where local soft-tissue or bone conditions or systemic conditions contraindicate surgerythe shaft and supracondylar area
- 4. Fractures of of the femur for which internal or external fixation is contraindicated
- 5. Comminuted fractures of **the tibial plateaus** where traction is necessary to maintain alignment and facilitate early motion, and where internal or external fixation is not possible or feasible.
- 6. Fractures of the shaft of **the tibia and fibula** where delay in initial treatment or unacceptable shortening in a plaster cast requires correction.
- 6.Comminuted pylon fractures

#### Complication

- 1. Pressure ulcer
- 2. Equines contracture
- 3. Pin tract infection



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4. Damage growth plate
5. Neurovascular injury
6. Incorrect placement
7. Distraction
8. Redisplacement
9. Scar on the skin
external fixator
☐ Stabilize a fracture at a distance from frature site with out further soft tissue damage
Indication
1. # with extensive soft tissue injury
2. Comminuted & unstable #
3. Segmental defect
4. Infected #
5. Emergency use in pelvic #
6. Fixation of Polytrauma patients
Technique
☐ the bone is transfixed above and below the fracture with screws or tensioned wires and these are then connected to each other by rigid bars.
$\Box$ permit adjustment of length and alignment after application on the limb.
☐ Knowledge of 'safe corridors' is essential so as to avoid injuring nerves or vessels;
$\Box$ the entry sites should be irrigated to prevent burning of the bone
☐ The fracture is then reduced by connecting the various groups of pins and wires by rods.



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Complication
1. Pin tract infection
2. Pin loosening
3. Neurovascular damage
4. Epiphyseal injury
5. Scar
INTERNAL FIXATION
□ Types
□ screws
□ Plates
□ Wires (transfixing, cerclage and tension-band)
☐ Intramedullary nails
Biology and biomechanics
☐ Mechanical stability:absolute vs relative
☐ Absolute stability; is defined as rigid fixation that does not allow any micromotion between the fractured fragments under physiologic loading
☐ Relative stability; allows limited motion at the fracture site under functional loading(locked intramedullary nail, bridge plate, or external fixator)

#### **INDICATIONS**

- 1 .Fractures that cannot be reduced except by operation.
- 2. Fractures that are **inherently unstable and prone to re-displace** after reduction (e.g. mid-shaft fractures of the forearm and some displaced ankle fractures).



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- 3.fracture liable to **be pulled apart** by muscle action (e.g.transversefracture of the patella or olecranon).
- 4. Fractures that **unite poorly and slowly**, principally fractures of the femoral neck.
- 5. Pathological fractures in which bone disease may prevent healing
- 6. **Multiple** fractures where early fixation
- 7. Fractures in patients who present **nursing difficulties** (paraplegics, those with multiple injuries and the very elderly)

Screws
☐ Screws are the basic and most efficient tool for internal fixation, especially in combination with plates.
☐ A screw is a powerful element that converts rotation into linear motion.
□ some common design features
☐ A central core that provides strength
☐ A threadthat engages the bone and is responsible for the function and purchase
☐ A tip that may be blunt or sharp, self-cutting or self-drilling and -cutting
☐ A head that engages in bone or a plate
☐ A recess in the head to attach the screwdriver
CLASSIFICATION
☐ They are typically named according to their design, function, or way of application.
☐ Design (partial or fully threaded, cannulated, self tapping, etc.)
☐ Dimension of major thread diameter (most commonly used: 1.5-mm, 2.0-mm, 2.7-mm, 3.5-mm, 4.5-mm, 6.5- mm, 7.3-mm, etc.)
☐ Area of typical application (cortex, cancellous bone, bicortical or monocortical)



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☐ Function (lag screw, locking head screw, position screw, Interlocking screw, Anchor screw, Poller screw etc.)
PLATE
□ Function
1.Neutralization – when used to bridge afracture and supplement the effect ofinterfragmentary lag screws; the plate is to resist torque and shortening.
2. Compression – Axial compression of a transverse fracture of a forearm bone is best obtained by a compression plate
3. Buttressing (anti glide)— any secondary displacement of an oblique fracture in the metaphysis of bones (e.g. in treating fractures of the proximal tibial plateau)
4.Bridging :comminuted diaphyseal or metaphyseal fractures that are not suited for intramedullary nailing
5.Tension band: in fracture around proximal femor where the are compressive force in lateral aspect and tensile ones on medial aspect
Immobilization - internal fixation
• Complication
1. Soft tissue damage
2. Infection
3. Scar

- 4. Delay healing
- 5. Failure of fixations Soft tissue managment
- Every fracture is associated to a certain extent with injury to the tissues surrounding the bone



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- "every fracture is a soft tissue injury where the bone happens to be broken,"
- As a rule, it is much safer to temporarily immobilize the zone of injury by traction or more adequately by an external fixator, postponing definitive fixation until the soft tissues have recovered.

#### Rehabilitation

- · Start immediately
- Phase of rehabilitation
- Resting
- Properioceptive training
- Strengthening exercise
- Work related training references



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#### VALUE ADDED COURSE

Annexure- II

Principle of Fracture Management OR04

4. List of Students Enrolled FEB - MAY 2022

		Pre final year students	
SI.no	Roll no	Name of the student	signature
1	U14MB221	ARUNRAJ. T	Arjunit
2	U14MB222	ARVIND. M	ouvend.
3	U14MB223	ASHOK, V.S.I	Voi
4	U14MB224	ASPIN NIVYA. M	
5	U14MB225	ASWINI @ LAKSHMI.B	Newyor Arrina
6	U14MB226	AYYANAN. R	R. Ayyan
7	U14MB227	AZHARUDDIN, R	R. Acad
8	U14MB228	BALAJI. K	
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9/

RESOURCE PERSON

COORDINATOR DR.JAYALAKSHMI

DR.VIJAYA KUMAR

Department of Orthopaedics
Sri Lakshmi Narayana Institute of Medical Sciences
Providentry - 605 502.

Dr. G. JAYALAKSHMI, BSC.MBBS.DTCD.MD., DEAN Sé Lakshmi Nasyasa Institute of Medical Sciences Cauda. Agreem Kudepoksen, Post. Vistour Communic Publicating 405 500.

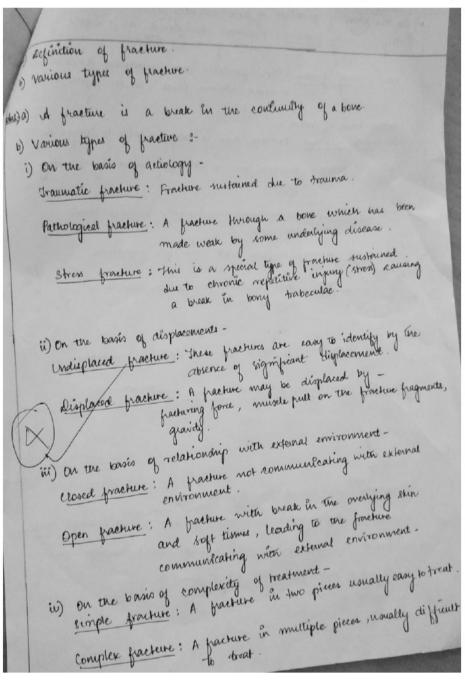


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Annexure 4			
	Course/Training	Feedback Form	
Course:fracture manag	gement		
Date: 24/5/22 Name: arvind . m			
Reg NO. Department: ORTHO			
Department, OKTHO			
Q 1: Please rate your ov	erall satisfaction with the fo	ormat of the course:	
Ø Excellent	b. Very Good c. Satisfact	ory d unsatisfactory	
7 Exterior	o. Very Good C. Sansacc	ory d. disansiactory	
Q 2: Please rate course n	notes:		
a. Excellent	bevery Good c. Satisfact	ory d. unsatisfactory	
Q 3: The lecture sequence a. Excellent	b. Very Good c. Satisfact	ory d. unsatisfactory	
-			
	clear and easy to understand		
a. Excellent	b) Very Good c. Satisfact	ory d. unsatisfactory	
O 5:Please rate the quali	ity of pre-course administrat	tion and information:	
	b. Very Good c. Satisfact		
Q 6: Any other suggestion	ons:		
Comments:			
Thank you for taking th	he time to complete this su	rvey, your comments are mu	ch appreciated.
	ame		
Signature		Date	

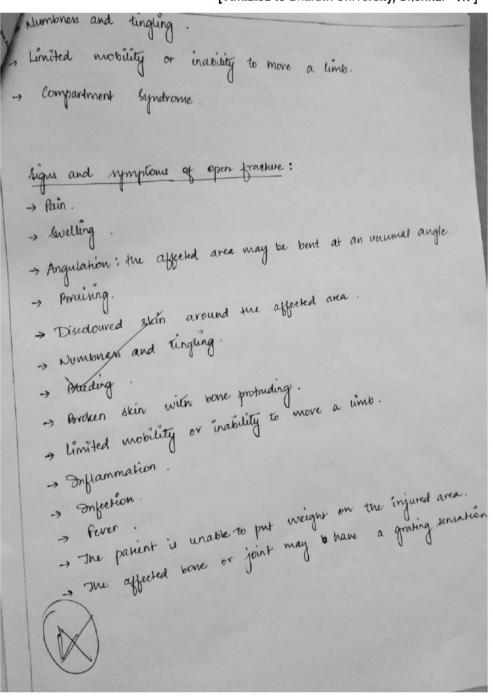


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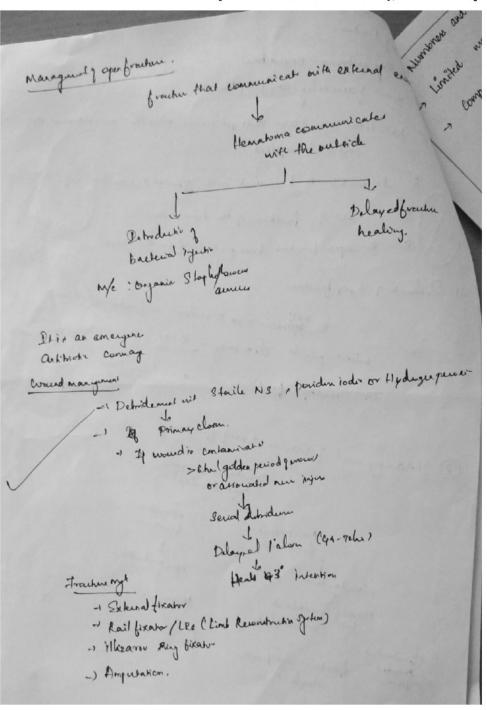


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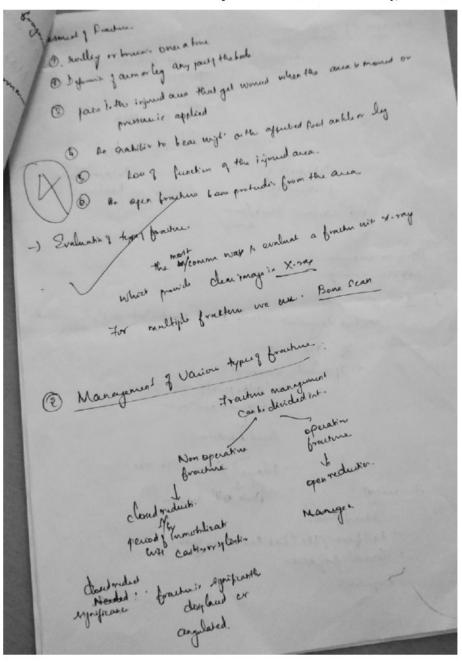


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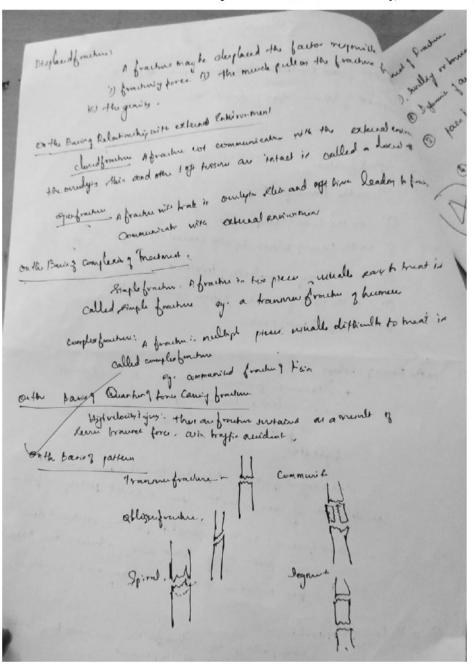


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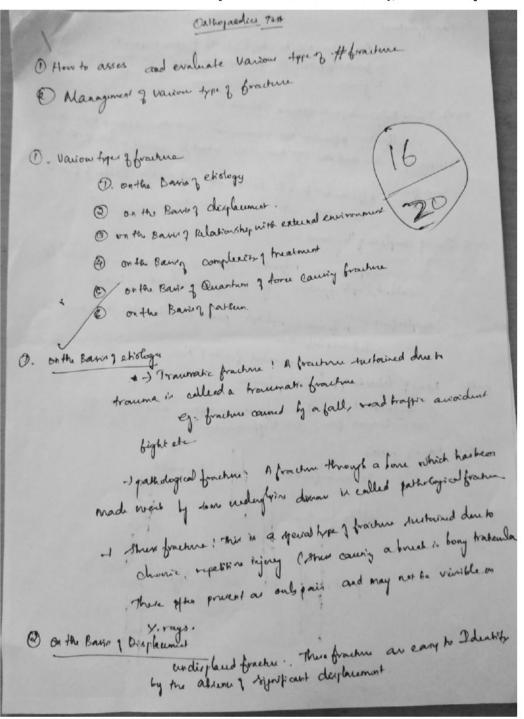


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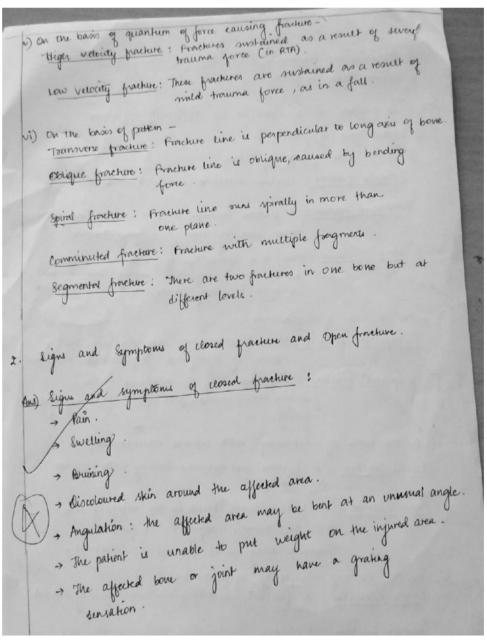


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[ Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME ( P -II ) dt. 11/07/2011 ]

[ Affliated to Bharath University, Chennai - TN ]



### Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research (Deemed to be University under section 3 of the UGC Act 1956)

#### **CERTIFICATE OF MERIT**

This is to certify that \_ARVIND.M\_ has actively participated in the Value

Added Course on Principle of Fracture Management held during FEB 2022 - MAY 2022

Organized by Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502,

India.

Dr. VIJAYA KUMAR

**RESOURCE PERSON** 

Dr. Jayalakshmi

COORDINATOR



OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST, PUDUCHERRY - 605 502.

	eject Code: OR04	,				
Nan	ne of student: Altaf Ahme	<u>d</u>		R	oll No.:	: <u>V14 M B</u> d13
	we are constantly looking to improve	e our cla	sses and	l deliver	the be	st training to you. Your
eval	uations, comments and suggestions will h	elp us to	improve	e our per	formar	nce
SI. NO	Particulars Objective of the course is clear	1	2	3	4	5
1						
2	Course contents met with your expectations					/
3	Lecturer sequence was well planned					/
4	Lectures were clear and easy to understand					/
5	Teaching aids were effective					
6	Instructors encourage interaction and were helpful					/
7	The level of the course					
	Overall rating of the course	1	2	3	4	5
ating:	5 - Outstanding; 4 - Excellent; 3 - Good; 2-	Satisfact	ory; 1-A	lot-Satisf	actory	
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[ Affliated to Bharath University, Chennai - TN ]

Date:24/5/22

From Dr.Vijayakumar orthopaedics, Slims, pondicherry.

Through Proper Channel

To The Dean, Slims, pondicherry.

Sub: Completion of value-added course: fracture management

Respected Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled: \_\_fracture management\_\_ on \_24/5/22\_\_. We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards

Dr.vijayakumar

Department of Orthopaedics
Sri Lakshmi Narayana Institute of Medical Sciences
Pondicherry - 605 502.



# Sri Lakshmi Narayana Institute of Medical Sciences osudu, agaram village, villianur commune, kudapakkam post,

PUDUCHERRY - 605 502.

