

Lower Limb Evaluation Format

LOWER LIMB FRACTURE ASSESSTMENT FORM

Demographic Data:

Name :
Age:
Gender:
IP Number:
Occupation:
Address:

History relevant to present condition:

Mode of injury:
orthopedics management:
surgical management:

Investigation:

Lab reports
Radiology

Co-Morbidities:

Diabetes mellitus
Hypertension
Osteoporosis

Observation:

General body appearance
Limb is positioned in BB splint with traction-Yes/No
Position of comfort adapted by patient when not in traction (if any):
Extent of cast/external fixator/ Surgical Incision
Swelling
Drain(if any)

Palpation:

Edema/Swelling
Capillary refill
Muscle spasm/guarding (if relevant)
Pulse

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Testing:

Sensory Examination:

*In area below the fracture (Present/Absent)

Pain Examination:

pain in area other than the fracture area (if relevant)

Screening of other limbs

Motor Examination:

Muscle Girth:

	Right	Left
Thigh		
Leg		
Arm		
Forearm		
Hand		

Range of motion:

ROM of Joint proximal and distal to the fracture site

Active range

Muscle strength:

-Manual Muscle Testing of joints proximal and distal to fracture site.

Functional Movement analysis :

- Lying to side lying / sitting

- Sit to stand

- Walking

- Stair climbing

Functional Evaluation:

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FIM

Bed mobility

Transfer-bed –chair-bed

Sit-stand

Balance

Expected Function (Prognosis)

Proximal and distal joint mobility/strength

Self dependency during bed mobility/transfer/sit to stand/gait

Plan of Care: Pre-operative/Post-Operative

SMART GOALS

Treatment Plan:

*Treatment based on recent evidence /guidelines

Progress Note:

Functional range with assistance/without assistance

Active Lower limb function

Discharge Goals:

No swelling in ankle/knee

Functional range of joints proximal and distal to fracture

Minimal dependency while transfer

Ambulation upto 50 mts with assistive device

Can climb atleast 5 steps with crutch/canes

Home –exercise Program:

Exercise	diagram	No. of sets	Repetition	Do's	Don't

Follow-Up:

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Clinical Reasoning

	Clinical relevance / contributing factors / Hypothesis / Reasoning	Important Information	Special attention
Age	Healing / degenerative changes /osteoporosis/ balance / strength / mobility		
Surgical history and co-morbidities	Reason for surgery Surgical History – Incision / type of implant Relevant medical conditions Presenting complaints (list) Relevant Past history (Body Function status/ Activity Status) / contributing factors that may influence the exercise planning)	HT/IHD/DM/ osteoporosis / previous trauma Previous Functional status Activity Status Assisted devices used for supports, transfers and mobility	
Lab investigation	To correlate with the present condition of the patient	To get information on the level infection, inflammation and to test the level of calcium precursors	
Radiology	To identify the type ,extent of fracture	Severity of the injury	
Observation	General – (whole body appearance)	BMI To understand obesity / overweight contributing to OA, Joint loading	
	Surgical Incision, Swelling, Presence of drain tubes	Healing (stages-inflammatory/ remodelling etc.,) Scar (grading)	
	Position of comfort adapted by patient when not in traction (if any):	To understand which position relieves pain and also it would help in educating them regarding the position of limb	
	Extent of cast/external fixator/ Surgical Incision	To understand the mobility and stability of proximal and distal joint	
Palpation	Edema/Swelling	Sign of inflammation/Pain	
	Capillary refill	To understand peripheral perfusion(normal/decrease)	

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Examination	Sensory	To understand if there is any nerve involvement	
	pain	To identify flags, relate to surgical history, healing, medication	If pain intensity is more than other motor examination should not be performed. Discuss with nurse in charge regarding pain medication and patient need to be followed up after pain reduction.
	Girth measurement (differentiate between swelling / wasting) - Limb Oedema (identify possible causes (decreased mobility, DVT, etc.,))	Relate with observation Test – Homan’s sign	Tests for effusion / Clinical reasoning
	Active Range of Motion of joints proximal and distal to fracture site.	Movement pattern, quantity, muscle activity, kinematics, protective mechanism) Identify - Lag - Muscle inhibition - Muscle power	Perform on plinth not on bed in supine and sitting to evaluate the muscle activity (torque)
	Strength (MMT)	Strength of muscles proximal and distal to fracture site.	
	Isometric Resisted Test	To observe the activity of muscle	Perform test to rule out tightness of capsule or muscles
	Functional Movement analysis (relate with normal pattern, identify the possible	- Lying to side lying / sitting - Sit to stand - Walking - Stair climbing	

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	structure)		
	Functional Status	Total assist/ max/mod/min assist / Independent Movement pattern at knee (available flexion) Distance walked (observe for discomfort during function and gait)	
	balance	-sitting and standing	

PT Plan of care

Pre- op / Prehabilitation

Mode	Reasoning
Exercise counselling	To Gain confidence
Upper limb exercise	Assistance in mobility / crutches
Bed mobility exercise	To prevent DVT, Pressure sores
Exercises to affected side(knee/ Hip and ankle)	Activation for Quads/ hams/ Hip Abd/Extensors / Calf muscles (aid in re-education during inhibition post-surgery)
Exercises to Un affected side (knee/ Hip and ankle)	training for Quads/ hams/ Hip Abd/Extensors / Calf muscles (aid in re-education during inhibition post-surgery)
Functional education and training	
Mobility	

Post operative

Treatment	Reasoning / Progression	Progress note
Gain confidence	Exercise education	
Decrease Pain	Understand the underlying	Pain rating (VAS /

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<ul style="list-style-type: none"> - Cryotherapy - CPM - Positioning - Muscle activation (active exercise / isometric exercises) <p>Support /bracing (to avoid knee contractures/ FFD as patient tends to keep in resting position because of pain)</p>	<p>causes of pain</p> <ul style="list-style-type: none"> - Inflammatory - Chronic - Structural - Muscle guarding - Effusion - Cryotherapy (once in every 6 hours till 6th post op day) 	<p>NPRS), quality and compliance at each visit.</p>
<p>Oedema control</p>	<ul style="list-style-type: none"> - Compression - Elevation - ST mobilization (If required) 	<ul style="list-style-type: none"> - Active exercises with elevation - Activity modification (elevation in between with active exercises)
<p>Restore ROM</p> <p>Active extension without lag</p> <p>Note: ROM returning to prior level. If they had contracture, they are more likely to have in post op</p>	<p>Increase Range of motion</p> <p>AROM – Identify active structure function (Activation/ Inhibition)</p> <ul style="list-style-type: none"> - Quadriceps sets - Straight leg raise (SLR) - Supine heel slides, - Short arc Extension - Sit to stand - Supine leg press (on pillows) <p>Slowly progress to</p> <ul style="list-style-type: none"> - Resisted exercises (minimal weights / 30% EST RM) in available range - Controlled flexion and extension in high Sitting (support if required) - Static cycle <p>Modalities</p> <ul style="list-style-type: none"> - Electrical Stimulation 	<p>Increasing each visit (10-15 days)</p>

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	<ul style="list-style-type: none"> - COLD PACK - CPM 	
Safe transfers and ambulation with assistive device	Distance (50 meters) Observe and train use of knee flexion during gait	Increase incrementally at each visit (10- 25%) Add functional training for lower limb (sit to stand, stepping, stair climbing, over obstacles)
Prevention of Tightness and Contracture Skin / Incisional scar Joint - PF joint / Capsule	Positioning / brace (0 degrees while sleeping / resting in bed Active exercises during sitting Stretching exercises ST mobilization / scar mobilization	Progress to stretching exercises and ST mobilization if tightness of structures are identified
Gait training / Mobility	Based to type of implant decide on weight bearing NWB-TTWB-PWB- Weight bearing as tolerated (WBAT) – (walker / crutches/ canes)	Progress to <ul style="list-style-type: none"> - Normal gait without assistive device - Stair climbing - Gait obstacles
Home exercise program (HEP)		

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Progress Notes

Components	0- 2 weeks	3-6 weeks	6-12 weeks
Exercise education	<ul style="list-style-type: none"> - Emphasis on Importance of Exercise - Provide education on “hurt (vs) harm 	<ul style="list-style-type: none"> - Emphasis on Importance of strength, balance and function 	<ul style="list-style-type: none"> - Emphasis on precautions and preventive measures
Pain	<ul style="list-style-type: none"> - Cryotherapy - Positioning of Knee and related joints - Muscle activation (active exercise / isometric exercises) - Support /bracing (to avoid knee contractures/ FFD as patient tends to keep in resting position because of pain) <p>Pain must decrease gradually after 24 – 48 hours, indicate if there is increase. Observe for pain pattern during movements. Educate about pain, during exercise</p>	<p>Pain must decrease during rest at this stage.</p> <p>Pain during movement must be identified and patient must be given exercise education.</p> <p>Eg. Pain at the end of flexion may be due to stretch in anterior structures / Qaud (identify and treat the cause)</p>	<ul style="list-style-type: none"> - Pain must decrease at this stage. - Identify pain due to fatigue, educate patient appropriately - Identify structures causing pain (possibly due to tight structure)
Oedema	<ul style="list-style-type: none"> - Compression - Elevation - ST mobilization (If required) 	<ul style="list-style-type: none"> - ST mobilization - Active exercises of knee with elevation. 	Usually minimal or no swelling at this stage.
Modalities (Pain and oedema management)	<ul style="list-style-type: none"> - CPM –Knee (0-100) (progress to 125) - TENS if necessary - Cryotherapy (once in every 6 hours till 6th post op day) - Electrical Stimulation (ES) 	<ul style="list-style-type: none"> - ES - Cryotherapy after exercises 	<ul style="list-style-type: none"> - Ultra sound (US) – Flexion contracture/ scar - Moist heat - Contrast bath - Whirl pool bath or pool (after 6 weeks and incision is completely healed)

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Restore ROM	<p>AROM – Identify active structures limiting ROM and function (Activation/ Inhibition) IF inhibited start with facilitation techniques (EST / Isometric exercise)</p> <p>Stretching Use techniques based on examination & reasoning - Passive structure tightness (use static stretching) - Active structure shortening (use PNF techniques)</p> <p>Achieve 0 degrees active extension without lag (100 degrees flexion, and 0 degrees extension – increase to 110 degrees at the end of 2nd week) - Quadriceps sets - Straight leg raise (SLR) - Patellar glides (mobilization) - Supine heel slides, - Short arc Extension - Sit to stand squats - Supine leg press (on pillows) - Resisted exercises (minimal weights / 30% RM) in available range - Controlled flexion and extension in high Sitting (support if required) - Static cycle / pedo cycle</p> <p>Note: ROM returning to prior level. If they had contracture, they are more likely to have in post op</p>	<p>AROM – expected 0 – 110 active / passive</p> <p>If not achieved continue exercise as 2 weeks</p> <p>Knee /Hip - Active Exercises Resisted exercises - 1 RM evaluation (Functional – leg press) - Theraband standing total knee extension (TKE) - High sitting exercises (knee extension and flexion) with weights - Hip (weights at thigh) - Stand to sit / bed transfer training</p> <p>Proprioception and Neuromuscular re-education - Gait / movement/ balance /weight transfers) - Standing balance training – even and uneven surface (wobble board) - Progress to single leg standing (with short duration progress incrementally) - Add functional training for lower limb (with support if required) (sit to stand, stepping, stair climbing, over obstacles)</p>	<p>Increasing each visit (10-15 days) toward 125 degrees flexion, and 0 degrees extension.</p> <ul style="list-style-type: none"> - Functional movements (re-education) - Lateral and multidirectional movements - Strengthening exercise (1RM 60% to 80%) - Quadriceps, hip and core strengthening emphasis on use of the affected side during function such as rising from sitting - Stand to sit (independent) - Proprioception training - Progress Functional training for lower limb without support and increased in the repetition and distance (sit to stand, stepping, stair climbing, over obstacles)
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<p>Safe transfers and ambulation</p>	<p>With assistive device</p> <ul style="list-style-type: none"> - Distance at patients comfort NWB, TTWB, PWB, Weight bearing as tolerated (WBAT) – (walker / crutches/ canes) increase incrementally day by day (based on evaluation) - Observe and train use of knee flexion during gait 	<ul style="list-style-type: none"> - Increase distance incrementally at each visit (10%) – Full Weight bearing with no of minimal support - Attain normal kinematics and weight bearing - Temporal and Spatial parameters of gait normalization and training - Stairs with assistance (rail support) 	<ul style="list-style-type: none"> - Normal gait without assistive device - Stairs with reciprocal gait for without support - Independent transfers to and from the bed/ ground - Independent function
<p>Tightness and Contracture</p>	<p>Positioning / brace (0 degrees while sleeping / resting in bed</p> <p>Active exercises during sitting</p> <p>Stretching exercises</p> <p>ST mobilization / scar mobilization</p>	<p>Progress to stretching exercises and ST mobilization if tight</p>	<p>ST mobilization</p> <p>Stretching (static)</p>
<p>Home exercise program (HEP)</p>	<p>HEP written based on patient goals with special precautions</p>	<p>HEP written based on patient goals with special precautions</p>	<p>HEP written based on patient goals with dos and don'ts</p>
<p>Precautions</p>	<ul style="list-style-type: none"> - Watch incision for signs of separation and/or infection. - Keep incision strain at a minimum, watch blanching during flexion to monitor this. 	<ul style="list-style-type: none"> - PROM to be achieved with minimal force - Avoid rapid forced during Gait and functional movements (sit to stand etc.,) - Incision/ infection issues / scar - Avoid running and jumping 	<ul style="list-style-type: none"> - Lifting more than 10 kgs during functional activities - Body weight (maintenance)

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<p>Progression criteria</p>	<ul style="list-style-type: none"> - Improvement in ROM, muscle function and gait over the first 2 weeks. 	<ul style="list-style-type: none"> - Continuing improvement in ROM - No extension lag - Improvement in quadriceps function, gait and activity tolerance - Single crutch or a cane - Walking short distances without an assistive device. - Non-antalgic gait pattern 	<ul style="list-style-type: none"> - Achievement of ROM - No extensor lag
<p>Discharge summary</p>	<p>Functional range – 100 degrees achieved</p> <p>Gait – 50 meters with minimal support / No support</p> <p>Stair climbing minimum 4 steps up and down with support</p>	<p>Knee range – 110 degrees achieved</p> <p>Gait – 100 meters with minimum support or 50 meters without support</p> <p>Stair climbing minimum 10 steps up and down</p> <p>HEP – adherence</p>	<ul style="list-style-type: none"> - Achievement of ROM 0-125 HEP – adherence
<p>Note</p>	<p>If goals are NOT achieved and patient is maximally dependent for ADL then refer to Physical Medicine and Rehabilitation centre (PMRC) -JSSH for further evaluation and rehabilitation.</p>		
	<p>If Patient is moderately dependent for ADL refer to Physiotherapy OPD</p>		
	<p>If patient is not stable with co-morbidities and not willing to stay in PMR/visit OPD, refer Home care physiotherapy</p>		