

Knee pain Assessment

History:

Present History

Narration by patient

Duration of symptoms:

Mechanism of injury:

Mode of onset & progression:

Pain History

Intensity:

Type of pain:

Aggravating and Relieving factors:

Past History

Any history of Tuberculosis:

Diabetes:

History of trauma:

Exercise history:

Radiological Investigations / Lab tests

- Any previous X-Rays or scans
 - X-Ray scan

Joint space narrowing

Osteophytes

Fractures

Patellar shift

Osteopenia

- MRI Scan

Ligament injury

Meniscal injury

Tendon injury

Vascular injury

Knee pain Assessment

- Recent blood tests (To detect the level of infection, inflammation, level of calcium precursors and to rule out gouty arthritis)

Complete haemogram with total and differential count

ESR

25-OH-Vit D3

CRP

Serum Uric acid

Additional inquiries only if the past history indicates need

- Any back or leg pain? (Is pain in a dermatomal region - pain in the knee can be referred from the back)
- Is there hip or ankle pain? (Knee pain can be referred from the hip or biomechanically affected by the ankle)
- Did the patient hear a pop/click at time of injury?
- Does the knee give way? (instability/rupture of ligaments)
- Does the knee lock? (meniscus)
- Did the knee swell? How quickly? Where is the swelling? (Intra articular / extra articular; immediate swelling usually indicates trauma within the knee such as ligament damage)
- Was there bruising? (Immediate bruising indicates significant trauma)
- Cough/sneeze cause pain?
- Does the patient experiencing locking (may indicate a bucket handle meniscal tear)
- Age – The following conditions are not exclusive to these age groups but a higher prevalence is noted in these populations (elderly – OA, young – osgoods schlatters, middle aged- meniscal).
- Type of shoes (wear patterns/age of shoes/proper design)

Clinical reasoning based on subjective assessment i.e. possible factors for knee pain

Knee pain Assessment

Observation

- Patient Build:
- Posture
- Gait
- Observable signs of inflammation

Red Flags

- Bilateral pins and needles or numbness in the LL.
- Problems with bowel and bladder function where the patient is unable to feel themselves going to the toilet/incontinence/urgency/retention.
- Paraesthesia in the lower limb.
- Decreased pulses in the LL (Vascular compromise).
- Obvious deformity.

Examination

Tenderness

Grading

- 1 : Patient complains of pain
- 2 : Patient complains of pain & winces
- 3: Patient winces & withdraws
- 4: Patient will not allow palpation of the joint

Palpation

- Joint Line
- Patella
- Retinacula
- Patellar Tendon
- Hamstrings Tendons
- Popliteus
- Homans sign
- End feel

Knee pain Assessment

Range of Movement Assessment - Active/Passive

Movement	Knee		Hip		Ankle	
	Active	Passive	Active	Passive	Active	Passive
Flexion						
Extension						
Adduction						
Abduction						
Plantar flexion						
Dorsi Flexion						
Inversion						
Eversion						

Resisted Muscle Tests

Knee flexors
Knee extensors
Hip Abductors
Hip Adductors

Joint Accessory Movements

Tibiofemoral joint:

- Anterior
- Posterior
- Capsule stretch

Knee pain Assessment

Patellofemoral joint:

- Superior
- Inferior
- Lateral
- Medial

Neurological evaluation

If neurological deficits or referral from lumbar spine are suspected

Reflexes

- Patella Ligament (L3/L4)
- Achilles Tendon (S1/S2)

Dermatomes

- L1 to S4

Myotomes

- L2 Hip Flexion
- L3 Knee Extension
- L4 Dorsiflexion
- L5 Big Toe Extension OR 4 Lesser Toes Extension
- L5/S1 Knee Flexion
- S1 Plantarflexion OR Foot Eversion
- S2 Toe Flexion

Special Tests

ACL

- Lachman's Test
- Anterior drawer

Knee pain Assessment

PCL

- Sag sign
- Posterior Drawer

MCL/LCL

- Valgus stress test

LCL

- Varus stress tests

Meniscus

- McMurrays
- Bounce home
- Joint line tenderness
- Apley's Test
- Ege's Test
- Steinman Test
- Thessaly test

Patellofemoral

- Apprehension
- Grind Test (Clarkes sign)

ITB

- Noble's compression
- Ober's Test

Osteochondritis Dissecans

- Wilson's Test

Flexibility tests

- Quadriceps
- Hamstrings

Knee pain Assessment

Functional tests

- Knee bend
- Sit to stand
- Squat
- Jump
- Hop
- Run

SMART Goals

1. Patient education about the condition and prognosis of knee pain
2. Pain reduction using (VAS or NPRS as reference) within a set period of time.
3. Swelling / Oedema reduction using quantifiable methods such as girth and temperature.
4. Improve Joint ROM and muscle flexibility. Quantify the improvement.
5. Improve muscle strength and endurance with grading.
6. Improve gait pattern with strategic approach using measurable data as reference for improvement.
7. Correct deformity by identifying the root cause and quantifying the deformity with reference to normal.

Knee pain Assessment

Aims and approach	Treatment measures	Progress notes
Patient education		
<p>Decrease Pain</p> <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>Understand the underlying causes of pain</p> <ul style="list-style-type: none"> - Inflammatory - Chronic - Structural - Muscle guarding - Effusion <p>Modalities</p> <ul style="list-style-type: none"> - TENS - Cryotherapy (once in every 6 hours till 6th post op day) 	<p>Pain rating (VAS / NPRS), quality and compliance at each visit.</p>
Oedema control	<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)
Restore ROM and Muscle flexibility	<p>Increase Range of motion Identify the end feel</p> <p>AROM – Identify active structure function (Activation/ Inhibition) IF inhibited start with facilitation techniques Stretching Use techniques based on examination & reasoning</p> <ul style="list-style-type: none"> - Passive structure tightness (use static stretching) - Active structure shortening (use PNF techniques) <ul style="list-style-type: none"> - Quadriceps sets - Straight leg raise (SLR) with brace - Prone hamstring curls - Supine heel slides, - Supine heel wall slides - Short arc Extension - Sit to stand squats - Supine leg press (on pillows) 	

Knee pain Assessment

Improve gait	<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 / pedo cycle	
Address deformity	<ul style="list-style-type: none">- Appropriate weight bearing- Shoe modifications- Proprioceptive training- Biofeedback- Orthotic training- Correction via orthoses- Taping techniques- Referral for corrective surgeries	