

Rehabilitation Following Total Knee Arthroplasty

I. Immediate Postoperative Phase (Day 1 to 10)

- Goals:**
- 1) Active quadriceps muscle contraction
 - 2) Safe (isometric control), independent ambulation
 - 3) Passive knee extension to 0 degrees
 - 4) Knee flexion to 90 degrees or greater
 - 5) Control of swelling, inflammation, bleeding

Day 1 to 2

Weight Bearing - Walker/two crutches WBAT

CPM - 20 to 70 degrees as tolerated

ROM – 0-70°

Cryotherapy - Commercial unit used continuously or ice 20 min of each hour

Exercises:

- * Ankle Pumps with leg elevation
- * Passive knee extension exercise
- * Electrical stimulation to quads
- * Straight leg raises (SLR)
- * Quad sets
- * Knee extension exercise 90-30 degrees
- * Hamstring stretches (gentle)

Day 4 to 10

Weight Bearing - As tolerated

CPM - 0 to 90 degrees as tolerated

ROM – 0-90°

Exercises:

- * Ankle pumps with leg elevation
- * Passive knee extension stretch
- * Active assistive ROM knee flexion
- * Quad Sets
- * Straight leg raises
- * Hip abduction/adduction
- * Knee extension exercise 90-0 degrees
- * Continue use of cryotherapy

Gait Training - Continue safe ambulation. Instruct in transfers

II. Motion Phase (Week 2-6)

- Goals:**
- 1) Improve range of motion
 - 2) Enhance muscular strength/endurance
 - 3) Dynamic joint stability
 - 4) Diminish swelling/inflammation
 - 5) Establish return to functional activities
 - 6) Improve general health

Criteria to enter Phase II

- 1) Leg control, able to perform SLR
- 2) Active ROM 0-90 degrees
- 3) Minimal pain/swelling
- 4) Independent ambulation/transfers

Week 2-4

Weight Bearing - WBAT with assisted device

Exercises:

- * Quad Sets
- * Knee extension exercise 90-0 degrees
- * Terminal knee extension 45-0 degrees
- * Straight leg raises (flexion/extension)
- * Hip abduction/adduction
- * Hamstring curls
- * 1/4 Squats
- * Stretching
 - Hamstrings, Gastrocnemius, Soleus, Quads
- * Bicycle ROM Stimulus
- * Continue passive knee extension stretch
- * Continue use of cryotherapy
- * Discontinue use of TEDS hose at 2-3 weeks (physician's approval)

Week 4-6

Exercises:

- * Continue all exercises listed previously
- * Initiate:
 - Front and lateral step-ups (minimal height)
 - 1/4 front lunge
 - Pool program
 - Continue compression, ice, elevation for swelling

III. Intermediate Phase (Week 7-12)

- Goals:**
- 1) Progression of ROM (0 to 120 degrees and greater)
 - 2) Enhancement of strength/endurance
 - 3) Eccentric/concentric control of the limb
 - 4) Cardiovascular fitness
 - 5) Functional activity performance

Criteria to enter Phase III

- 1) Range of motion 0-110 degrees
- 2) Voluntary quadriceps muscle control
- 3) Independent ambulation
- 4) Minimal pain/inflammation

Week 7-10

Exercises:

- * Continue all exercises listed in Phase II
- * Initiate progressive walking program
- * Initiate endurance pool program
- * Return to functional activities
- * Lunges, 1/2 squats, step ups (2" to start)
- * Emphasize eccentric/concentric knee control

IV. Advanced Activity Phase (Week 14-26)

- Goals:**
- 1) Allow selected patients to return to advanced level of function (recreational sports)
 - 2) Maintain/improve strength and endurance of lower extremity
 - 3) Return to normal life style

Criteria to enter Phase IV

- 1) Full non-painful ROM 0-115 degrees
- 2) Strength of 4+/5 or 85% of contralateral limb
- 3) Minimal to no pain and swelling
- 4) Satisfactory clinical examination

Exercises:

- * Quad Sets
- * Straight Leg Raises (flexion/extension)
- * Hip abduction/adduction
- * 1/2 squats
- * Lateral step ups
- * Knee extension exercise 90-0 degrees
- * Bicycle for ROM stimulus and endurance
- * Stretching
 - Knee extension to 0 degrees
 - Knee flexion to 105 degrees
- * Initiate gradual golf, tennis, swimming, bicycle, walking program