

## 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