Total Knee Replacement Protocol
MARCH 2010

I. Indications:
1. Disabling knee pain
2. Decreased knee function resulting in a reduction in quality of life
3. Severe osteoarthritis and/or rheumatoid arthritis affecting the knee
4. Failure to respond to nonoperative, conservative knee treatment

II. Contraindications:
1. Absolute
   A. Active knee infection
   B. Active systemic infection
   C. Poor or nonfunctioning quadriceps muscles
2. Relative
   A. Peripheral vascular disease or neuropathy affecting the lower extremity
   B. Obesity
   C. Limiting mental dysfunction
   D. Severe osteoporosis

III. Postoperative Precautions:
1. Weightbearing as tolerated (WBAT) with a walker, crutches or cane for 4-6 weeks
2. Continue use of anti-embolism stocking until instructed otherwise
3. Avoid pivoting on the involved extremity when in a weightbearing position
4. Change position of knee every 30 minutes to avoid contractures of the involved extremity
5. Monitor for signs and symptoms of deep vein thrombosis and infection
6. Always inform health care providers of prosthetic knee joint, including dentists
IV. **Goals:**
1. Pain relief
2. Functional ROM
3. Functional strength in quadriceps and hamstring muscles
4. Independence in home exercise program

V. **Criteria for Phase Advancement:**
1. Pain free activities in current phase

VI. **Patient Education:**
1. Preoperative
   A. Anatomy and existing pathology
   B. Surgical procedure
   C. Fit with assistive device and instruct patient on ambulation over level surfaces and stairs
   D. Instruct patient on postoperative precautions
   E. Begin patient on postoperative exercise to maintain ROM and strength
   F. Schedule first postoperative visit 1-3 weeks after surgery

2. Postoperative
   A. Surgical procedure
   B. Precautions
   C. Rehabilitation schedule

**REHABILITATION SCHEDULE**

**Phase I: Acute/Semi-acute – Day 1 to week 3**
1. **Strength**
   a. Quad sets
   b. SLR
   c. Short-arc quad sets
   d. Gluteal sets
   e. Hamstring sets

2. **ROM**
   a. Active-assistive and passive
      1) 0-90 degrees
         - heel slides to increase flexion
         - heel props to increase extension
         - active assistive flexion and extension
      2) Continuous Passive Motion (CPM) Machine

3. **Weightbearing**
   a. WBAT with a walker or two crutches
4. Proprioception & Balance
   a. Medial and lateral weight shifting

5. Other
   a. Ankle pumps
   b. Compression, cryotherapy and elevation
   c. Gait training

Phase II: Beginning of Remodeling Phase – Weeks 3-6

1. Strength
   a. Quad sets
   b. SLR with 0-degree extensor lag
   c. Long arc quads
   d. Hamstring sets
   e. Bilateral leg calf raises
   f. Resisted knee flexion and extension with Thera-Band
   g. Side-lying hip abduction

2. ROM
   a. 0-110 degrees
      i. prone knee hang
      ii. wall slides
      iii. 90-90 stretch
   b. Stationary bike with no resistance

3. Weightbearing
   a. WBAT with assistive device (walker, crutches or cane)

4. Proprioception & Balance
   a. Medial, lateral, anterior and posterior weight shifting
   b. Single leg standing on involved side

5. Other
   a. Ankle pumps
   b. Compression, cryotherapy and elevation
   c. Stretching
      i. hamstrings
      ii. gastrocs
      iii. soleus
      iv. IT band
   d. Patellar mobilizations in all directions
   e. Scar mobilizations
   f. Gait training
Phase III: Remodeling – 6 weeks to 9 weeks

1. Strength
   a. Knee flexion and extension with Thera-Band
   b. Unilateral calf raisers
   c. Lower extremity core strengthening with Thera-Band
   d. Step-ups, progress to 4” & 6”
   e. Front lunges
   f. Mini squats
   g. Biofeedback and/or e-stim

2. ROM
   a. 0 to 115-120 degrees
      i. prone knee hand
      ii. 90-90 stretch
   b. Stationary bike

3. Weightbearing
   a. WBAT; wean to cane or independent ambulation

4. Proprioception & Balance
   a. Compression, cryotherapy and elevation as necessary
   b. Continue stretching from Phase II
   c. Patellar mobilizations
   d. Scar mobilizations
   e. Initiate endurance program
      i. Swimming
      ii. Cycling
      iii. Walking
   f. Gait training

Phase IV: 9 weeks to discharge

1. Strength
   a. Continue exercises from Phase III
   b. Lunge matrix
   c. Leg press
   d. Biofeedback and/or e-stim

2. ROM
   a. Maintain 0 to 115-120 degrees

3. Weightbearing
   a. Independently; use cane only when necessary
4. Balance & Proprioception
   a. Foam block

5. Other
   a. Control pain and swelling
   b. Maintain endurance
   c. Continue scar mobilization techniques
REFERENCES

TOTAL KNEE REPLACEMENT


