

# PHYSICAL THERAPY PROTOCOL

## TOTAL KNEE ARTHROPLASTY

Mary Langhenry, PT, OCS  
(with the advisement of Mitchell Sheinkop, MD)

This is a general protocol for rehabilitation for Dr. Sheinkop's patients. Progression through each phase should be individualized and take into consideration patient status and physician advisement. Remember the response and needs of each patient will vary. The following are principles and not necessarily applicable in all cases. Aggressive exercises and strong motivation by the patient and rehab team will afford greater success for the patient. Please consult with the office if there are any questions (773)250-0480.

### **General Guidelines:**

- ◆ Weight bearing as tolerated (WBAT) throughout rehab (usually progressing to 1 crutch/cane in 2-3 weeks in contralateral hand)
- ◆ Achieve max knee range of motion (ROM) as allowed by the prosthetic design and limited only by the patient's potential (avg ROM achieved 125 °)
- ◆ Individual ROM goal is equal to what was obtained intraoperatively
- ◆ **Initial, aggressive, early knee flexion ROM emphasized over strengthening: 128-132° necessary for optimal function!**
- ◆ **Terminal knee extension ROM emphasized!**
- ◆ Ice the knee for swelling and pain relief as needed – 20 minutes on/20 minutes off
- ◆ 9-12 weeks mild warmth/swelling expected in the knee and possibly in the calf/foot up to 1 year
- ◆ Contemporary primary and revision arthroplasties follow this same protocol. The initial and intermediate phases are somewhat more conservative with a revision due to additional bone loss and soft tissue dissection. The end point may not be reached for 6-9 months
- ◆ Home and outpatient progress and discharge reports to the physician should include the following data: gait quality, distance ambulating, assistive device, ROM: active (A) flexion and extension in sitting- passive (P) extension in prone with anterior thigh roll, quadriceps strength, circumferential measurements of the knee and thigh (3" proximal), number of PT visits

Intra-op ROM	°
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### **INITIAL POST-OP PHASE (weeks 1 & 2)**

#### **Goals:**

- 1). Independent, safe ambulation, transfers, and activities of daily living (ADLs) with appropriate assistive device
- 2). Facilitate and enhance quadricep/hamstring muscular contraction
- 3). Teach pain management and edema control
- 4). Improve ROM 5°-10° weekly
- 5). Independent home exercise program (HEP)

#### **Program:**

- ✓ Post-operative day 1: Twice a day in PT department for transfer/gait training and teach ADLs/exercise
- ✓ Length of hospital stay: 1-3 days
- ✓ Home-PT daily for one week, then three times a week
- ✓ Quadriceps/hamstring facilitation and strengthening, continued ambulation
- ✓ NMES to quads if necessary
- ✓ Passive knee extension overpressure to assure terminal extension ROM, prone hangs, backwards walking with toe→heel gait pattern with quad set
- ✓ Towel roll under operative ankle at rest with toes pointed towards ceiling, not externally rotated, for passive knee extension
- ✓ A/AA/P flexion ROM
- ✓ Progressive resistive exercise (PRE) for LE strengthening (hip, knee, calf)
- ✓ Patellar and soft tissue mobilization techniques
- ✓ Bridging progression
- ✓ Core strengthening
- ✓ Home program instruction
- ✓ Begin closed chain exercise

## **INTERMEDIATE PHASE (weeks 3-6)**

### **Critical Issues:**

- ◆ Full extension ROM!
- ◆ **Minimum 90° flexion ROM by end of week 3!** If this is not achieved contact the office Mary Langhenry, PT at 773-250-0480. Further intervention (injection or manipulation) by surgeon may be necessary to prevent arthrofibrosis
- ◆ Staples out at week 3, scar tissue mobilization initiated when wound healed
- ◆ Aggressive soft tissue mobilization to prevent adhesions
- ◆ Advance/eliminate assistive device utilization where relevant only if minimal gait deviation
- ◆ **Progression to an outpatient physical therapy setting** from home care or rehab should be initiated as early as tolerable when appropriate. If a new prescription is necessary contact the office
- ◆ Aquatic rehabilitation initiated if possible in addition to land based when wound closed and medically stable
- ◆ Driving allowed when off narcotics, for a left surgical knee at 3 weeks and right surgical knee at 6 weeks
- ◆ Discharge ted-hose at 4 weeks or whenever off Coumadin

### **Goals:**

- 1). Independent ambulation on level surface/stairs with assistive device if needed
- 2). Enhance muscular strengthening and endurance / resistance training
- 3). Full extension ROM as measured prone with anterior thigh roll by week 3
- 4). ROM 0-115°
- 5). Enhance balance/proprioception

- 6). Gradual return to prior level of activity/normal lifestyle
- 7). Begin endurance training (walking or stationary cycle)
- 8). Evaluate and treat proximal and distal joints for mobility, flexibility and Strength
- 9). Normalize sit→stand mechanics

**Program:**

- ✓ Continue initial phase program
- ✓ Stationary cycle (hi/low seat and progress to unilateral)
- ✓ Progressive strengthening/resistance/endurance (concentric/eccentric control & open/closed kinetic chain)
- ✓ NMES if needed for quad activation and strengthening
- ✓ Balance & proprioceptive work/dynamic joint stability
- ✓ Flexion & extension ROM
- ✓ Sit→stand retraining to correct compensatory strategies

**ADVANCED PHASE (weeks 7-12)**

**Goals:**

- 1). Functional ambulation-quality and distance
- 2). ROM 0°-132°
- 3). Functional strength and endurance of LE
- 4). Flexibility program
- 5). Upgraded, independent HEP (include education in progressive advanced strength training for at least one year post-op)

**Program:**

- ✓ Continue intermediate phase
- ✓ Emphasize eccentric knee control during functional activities
- ✓ Neuromotor control activities
- ✓ Perturbation activities
- ✓ Normalize muscle lengths (hamstrings, gastrocnemius/soleus, quadriceps, iliotibial band, hip flexors and external rotators)
- ✓ Sport specific rehabilitation if appropriate

**MAINTENANCE: (indefinite)**

- ✓ Aquatic based exercises
- ✓ Closed kinetic chain strengthening and neuromotor control
- ✓ Endurance activity
- ✓ Follow-up PT visit at 6 and 12 months to upgrade home exercise program

❖ Acceptable activities: swimming, biking, walking, dancing, golfing and bowling

- ❖ Elastic stockings (ted-hose) should be worn with airplane travel for up to 1 year post-operatively
- ❖ Exercise should become a lifetime commitment to lengthen the survivorship of your new joint

### **LIFELONG RESTRICTIONS:**

- ❖ **No high impact activities (ie- running and jumping)**
- ❖ **No continual carrying heavy loads >40 lbs (ie-20 times a day, 5 days a week). Occasional lifting allowed**

