

# **Dr. Mark Gardner**

## **Total Knee Arthroplasty**

### **Physical Therapy Protocol**

#### **TOTAL KNEE REPLACEMENT (TKR) POST-OPERATIVE REHABILITATION PROTOCOL PRE-OPERATIVE PHYSICAL THERAPY**

The patient is seen for a pre-operative physical therapy session which includes:

- review of the TKR protocol.
- instruction for continuous passive motion (CPM), use and range of motion (ROM) exercises.
- ambulation training with standard walker and cane on level surfaces.
- stair training.
- education on the importance of ice.
- discussion on goals for discharge from the hospital.
- review of the financial obligation for home ambulation device.

#### **PHASE I : EARLY FUNCTION (WEEK 1)**

Goals:

1. demonstrate safe and independent transfers from bed and various surfaces.
2. demonstrate safe and independent ambulation with appropriate assistant device.
3. negotiate steps safely with wide based quad cane (WBQC) or crutches.
4. demonstrate fair to good static and dynamic balance with appropriate assistant device.
5. attain full extension (0°) and 100° flexion of the involved knee.
6. demonstrate home exercise program (HEP) accurately.

#### **Day of Surgery**

- CPM 0-100° started in Recovery Room for minimum of 4 hours.
- Ice for 20 minutes every 1-2 hours.
- A towel roll should be placed under the ankle when the CPM is not in use

#### **POD #1**

- Increase CPM approximately 10° (more if tolerated). Continue daily until patient achieves 100° of active knee flexion.
- Ice involved knee for 15 minutes for minimum of 3 times per day (more if necessary).
- Review and perform all bedside exercises which include ankle pumps, quadriceps sets, gluteal sets, and heel slides.
- Sit at the edge of bed with necessary assistance.
- Ambulate with standard walker 15' with moderate assistance.
- Sit in a chair for 15 minutes.
- Actively move knee 0-70°.

**POD #2**

- Continue as above with emphasis on improving ROM, performing proper gait pattern with assistant device, decreasing pain and swelling, and promoting independence with functional activities.
- Perform bed exercises independently 5 times per day.
- Perform bed mobility and transfers with minimum assistance.
- Ambulate with standard walker 75-100' with contact guarding.
- Ambulate to the bathroom and review toilet transfers.
- Sit in a chair for 30 minutes twice per day, in addition to all meals.
- Actively move knee 0-80°.

**POD #3**

- Continue as above.
- Perform bed mobility and transfers with contact guarding.
- Ambulate with standard walker 150' with supervision.
- Ambulate with WBQC 150' with contact guarding.
- Negotiate 4 steps with necessary assistance.
- Begin standing hip flexion and knee flexion exercises.
- Sit in a chair for most of the day, including all meals. Limit sitting to 45 minutes in a single session.
- Use bathroom with assistance for all toileting needs.
- Actively move knee 0-90°.

**POD #4**

- Continue as above.
- Perform bed mobility and transfers independently.
- Ambulate with WBQC 300' with distant supervision.
- Negotiate 4-8 steps with necessary assistance.
- Perform HEP with assistance  Continue to sit in chair for all meals and most of the day. Be sure to stand and stretch your operated leg every 45 minutes.
- Actively move knee 0-95°.
- Discharge from the hospital to home if ambulating and negotiating stairs independently.

**POD #5**

- Continue as above.
- Perform bed mobility and transfers independently.
- Ambulate with WBQC 400' independently.
- Negotiate 4-8 steps with WBQC safely.
- Perform HEP independently.
- Actively move knee 0-100°.
- Discharge from the hospital to home.

## **PHASE II: PROGRESSIVE FUNCTION (WEEKS 2-5)**

Goals:

1. Progress from WBQC to straight cane.
2. Improve involved lower extremity strength and proprioception.
3. Improve static and dynamic balance to good-normal.
4. Maximize function in the home environment.
5. Attain 0-125° active knee motion.

### **Weeks 2-3**

- Monitor incision site and swelling.
- Continue with HEP.
- Progress ambulation distance (increase 1/2 block to 1 block each day) with WBQC.
- Begin stationary bicycle with supervision for 5-10 minutes.
- Begin standing wall slides. DO NOT ALLOW THE KNEES TO MOVE FORWARD OF THE TOES.
- Incorporate static and dynamic balance exercises.
- AROM 0-115°.

### **WEEKS 3-4**

- Continue as above.
- Practice with straight cane indoors.
- Increase stationary bicycle endurance to 10-12 minutes, twice per day.
- Attempt unilateral stance on the involved leg and side stepping.
- Incorporate gentle semi-squats (BODY WEIGHT ONLY) concentrating on eccentric control of the quadriceps.
- Attain AROM 0-120°.

### **WEEKS 4-5**

- Continue as above.
- Ambulate with straight cane only.
- Increase stationary bicycle to 15 minutes, twice per day.
- Progress with gentle lateral exercises, i.e. lateral stepping, carioca.
- Attain AROM 0-125°.

## **PHASE III: ADVANCED FUNCTION (WEEKS 6-8)**

Goals:

1. Progress to ambulating without an assistive device.
2. Improve static and dynamic balance to normal without assistive device.
3. Attain full AROM (0-135°).
4. Master functional tasks within the home environment.

### **WEEKS 6-7**

- Continue as above.
- Ambulate indoors WITHOUT device.
- Focus exercises on strength and eccentric control of muscles. DO NOT USE CUFF

**WEIGHTS UNTIL CLEARANCE FROM SURGEON.**

- Focus on unilateral balance activities.
- Continue aggressive AROM exercise to promote knee range of motion 0-135°

**WEEKS 7-8**

- Continue as above.
- Develop and instruct patient on advance exercise program for continued strength and endurance training.
- Ambulate without straight cane.

**Early in the Rehabilitation Process obtaining FPRM in extension followed by FAROM in extension is essential to good outcomes in TKA.**