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## **TOTAL KNEE ARTHROPLASTY POST-SURGICAL REHABILITATION PROTOCOL**

### **Phase I: Acute/Maximal Protection (Post-Op Days 1 - 7)**

#### **Goals:**

1. Perform bed mobility and transfers with the least amount of assistance
2. Control Pain
3. Control Edema and Inflammation
4. Independent ambulation 100 feet
5. AROM: 5- 90 degrees

#### **Education/Precautions:**

- Control edema and inflammation:
- Watch for signs of DVT: increased swelling, erythema, fever, calf pain.
- Assess patients' pain using the visual analogue scale. Ensure that patients are pre-medicated with oral/IV pain medication 30-60 minutes prior to treatment.
- Ice after surgery to reduce swelling and pain. Cryotherapy to be used 5x/day for 20 minutes. Recommend 20 minutes before and 20 minutes after exercises.
- No exercises with weights or resistance.
- Avoid torque or twisting forces across the knee joint.
- Do not place towel or pillow under the operated knee.

#### **Therapeutic Exercises and Functional Mobility:**

- Active/Active Assisted/Passive (A/AAROM/PROM) exercises (seated/supine).
- Ankle pumps supine
- Grade I joint mobilizations and Soft tissue mobilizations as indicated.
- Quadriceps, Hamstrings, Gluteal isometrics
- Straight Leg raises with no extension lag
- Short Arc Quads
- Heel slides to improve flexion (A/AAROM/PROM)
- Passive extension with towel prop
- Transfer training
- Gait training on flat surfaces with walker or crutches: Practice stairs if needed prior to discharge home.
- Calf raises standing

### **Phase II: Range of Motion Phase (1 week – 6 weeks)**

#### **Goals:**

1. Gentle progression of PROM toward 120° by week 6.



2. Improve Knee AROM to  $\geq 110^\circ$  by week 4.
3. No extensor lag.
4. Muscle strengthening of the entire knee with emphasis on extensors and flexors.
5. Control Edema/Inflammation
6. Scar Reduction
7. Proprioceptive training to improve spatial awareness.
8. Endurance training to improve cardiovascular fitness.
9. Functional training to promote independence of ADL's and mobility.
10. Pain free isometric contraction by week 4
11. Gait training: Assistive devices are discontinued when the patient demonstrates adequate LE strength and balance during functional activities.

#### **Education/Precautions:**

- WBAT with AD as needed to minimize compensatory gait
- Gait Training to improve function. Patients are encouraged to wean off their assistive device at least by week 4 post-op.
- Monitor wound healing.
- Continue use of Ice and elevation 3-5x/daily to minimize swelling and pain.

#### **Therapeutic Exercises (1 week – 4 weeks)**

- Continue exercises from Phase 1.
- NMES or electrical stimulation in full extension with quad sets and SLR.
- Stationary bike for ROM with no resistance.
- Patellar mobilizations.
- AROM, AAROM, PROM through full range as tolerated.
- Weight shifts and Mini-Squats ( $0-45^\circ$ ) in parallel bars.
- Stretching: HS, hip flexors, ITB.
- Gentle Grade I-II PFJ and TFJ mobilizations.
- LAQ with NO WEIGHTS.

#### **Therapeutic Exercises: (4 weeks -6 Weeks)**

- Continue above exercises
- Continue PFJ/TFJ mobilizations as indicated.
- Continue NMES of quads if poor muscle control if present.
- Front and lateral step ups and downs.
- Sit-stand activities to increase flexion during functional activity
- Resistive Hamstring curls on machine with light weight ( $0-90^\circ$ )
- Leg Press or shuttle with light resistance up to  $\frac{1}{2}$  body weight.
- Proprioceptive Activities – SLS, rocker board, BAPS.
- Increase resistance and time on stationary bike.

#### **Phase III: Minimal Protection/Early Strengthening (6 Weeks – 12 Weeks)**

#### **Goals:**



1. Maximize post-operative ROM (0-120°)
2. Independent community ambulation distances without AD or antalgic gait.
3. Minimal pain and inflammation.
4. Initiate aerobic activities
5. Continue cryotherapy, but reduce to 2-3x/day.

**Therapeutic Exercises:**

- Continue exercises in Phase II with PRE's and repetition increase.
- Continue PFJ/TFJ mobilization as indicated
- Initiate endurance program: walking, cycling, elliptical or aquatics at week 8.
- ICE after therapeutic exercise and any activity
- Scar massage as needed
- Double Leg Press to Single Leg Press as tolerated
- Sit-stands without use of arms/hands.
- Stair training

**Phase IV: Return to Activity (12 weeks - 6 months)**

**Goals:**

1. Pain-free with activity
2. Normal range of motion
3. Return to all recreational activities as tolerated.
4. Encourage non-impact activities. (Running, jumping, basketball, football, soccer, volleyball and waterskiing are not recommended).
5. Non-Antalgic gait
6. Independent HEP.

SPORT ACTIVITY RETURN

SPORTS	POST-OPERATIVE START
Swimming	8 weeks aquatic walking 3 months - aquatic aerobics
Golfing	8 weeks chipping and putting 3 months - light driving
Tennis	3 months - volleys 4 months - doubles match
Snow Skiing	6 months – Green and Blues
Horseback Riding	3 months - trotting
Cycling	3 months - outdoors