

Minimally Invasive Total Knee Replacement

Physical Therapy and Recovery Protocol

Overview and Goals

This protocol is designed to reduce postoperative swelling, promote early function, and optimize recovery after knee replacement surgery. Patient education before and after surgery is essential to improving outcomes and minimizing complications.

Phase I: Weeks 1–2 – Early Home Recovery

Goals:

- Reduce swelling
- Manage pain
- Restore initial mobility

Key Components:

1. **Tranexamic Acid (TXA):** 1 dose daily for 14 days is preferred.
2. **Diet:** Maintain a low-sodium, anti-inflammatory diet. See DrTrevor.com/nutrition for recommendations.
3. **Supplements:** Continue amino acids and micronized purified flavonoid fraction (MPFF). A list of commonly used supplements is available at DrTrevor.com/supplements.
4. **Compression and Elevation:**
 - a. Use elastic stockinette or Velcro wrap from foot to mid-thigh.
 - b. Elevate leg 40 minutes every hour (“toes above nose”).
 - c. For your convenience, a list of patient-recommended tools (including ice machines and wraps) is available at DrTrevor.com/equipment.

5. **Ice:** Apply for 40 minutes per hour for the first 10–14 days.
6. **Weightbearing:** Limited with assistive device for a minimum of 1 week.
7. **Physical Therapy:** Perform the following every hour while awake:
 - a. Seated knee flexion / heel slides (10 reps/hour)
 - b. Passive or assisted knee extension (10 reps/hour)
 - c. Ankle pumps (10 reps/hour)
 - d. Walk 5–10 steps per hour
 - e. Heel hangs: 10 minutes, 3x/day
 - f. Isometric quadriceps sets in full extension only
 - g. Focus on range of motion: goal of 0–110° by Postoperative Day 14
8. **Stairs:** Minimize stair ascent/descent.
9. **Step Count Goals:**
 - a. Week 1: 750 steps/day max
 - b. Week 2: 1,200 steps/day max
10. **Milestone Monitoring:**
 - a. If **POD #7:** ROM <90° or edema >35%
 - b. If **POD #14:** ROM <105° or edema >25%
→ Consider interventions like manual lymphatic drainage, compression device, or EMS.

Phase II: Weeks 3–6 – Progressing Recovery

Goals:

- Build strength
- Increase mobility
- Reduce swelling

Key Components:

1. **Continue Diet & Supplements:** Anti-inflammatory diet and MPFF supplementation.
2. **Compression:** Continue daily use of wrap or compression device.
3. **Elevation and Icing:** At least 40 minutes, 3 times per day, more if needed.
4. **Physical Therapy:**
 - a. ROM exercises: 5–8 minutes, 6x/day

- b. Isometric quadriceps sets only (no isotonic/closed-chain strengthening)
 - c. Discontinue assistive device as tolerated
 - d. ROM target: match best intraoperative ROM by end of Week 4
5. **Step Count Goals:**
- a. Week 3: 2,000 steps/day max
 - b. Week 4: 2,750 steps/day max
 - c. Week 5: 3,500 steps/day max
 - d. Week 6: 4,500 steps/day max
 - e. Progressively increase by ~1,000 steps per week as tolerated
6. **Additional Interventions:** If swelling persists or ROM plateaus, consider lymphatic drainage, compression devices, or EMS.
7. **Work Considerations:**
- a. Avoid return to work before 2 weeks.
 - b. For desk jobs, return may be considered if the patient can elevate the leg consistently during work hours.

Final Reminders

- Monitor swelling and range of motion closely.
- Adhere to pre-op and post-op education to ensure best outcomes.
- Use pain and swelling as a guide for progression.
- Contact your surgeon with any concerns.