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KNEE REPLACEMENT REHABILITATION PROTOCOL

The following is a protocol for post-operative patients following Total Knee Arthroplasty (TKA) or Partial Knee Arthroplasty (PKA) rehabilitation. The primary goal of this protocol is to protect the reconstruction while steadily progressing towards maximizing functional potential. Each patient following reconstruction will progress at a different rate. Achieving the criteria of each phase should be emphasized more than the approximate duration.

Medications

- Tylenol (Acetaminophen) 500 mg 3x per day scheduled (unless there are contraindications)
- Celebrex (Celecoxib) 100 mg 2x per day scheduled (unless there are contraindications)
- Aspirin 81 mg 2x per day for 30 days scheduled. This is to prevent blood clots. For individuals at high risk of blood clots, we may have the PCP manage an alternative stronger blood thinner
- Oxycodone 5 mg up to every 4 hours as needed for pain. Try to minimize usage.
- Phenergan (Promethazine) 12.5 mg every 6 hours as needed for nausea/vomiting
- Colace (Dulcolax) 100 mg twice daily for constipation

Key Points

- Achieving **FULL** range of motion is critical to a full recovery (**Goal: 0 – 120 degrees AROM**)
- At **MINIMUM** AROM should be 5 – 90 degrees by week 4
- Full functional return without restrictions should occur at approximately 12 weeks
- Be sure to take prescribed medications that will aid in post-operative healing and pain control during PT
- **DO NOT sleep with pillow underneath knee at any point after surgery**
- When at rest, position knee into full extension (straight): you can place a rolled towel or pillow behind your calf to aid in achieving full extension
- Ice 10-15 minutes every 2-3 hours for the first week post-surgically
- Emphasize terminal knee extension stretching at 3 weeks if knee is not completely straight on table

PHASE I – 0-3 DAYS POSTOPERATIVE:

Goals:

- Progressive reduction in swelling
- PROM: 0-90 degrees
  - Prevent postoperative stiffness
- Progress knee extension strength to >/= 3+/5
- Independent with ambulation using rolling walker
  - Weight-bearing as tolerated

Activities:

Patellar Mobilizations

- Superior and Inferior Glides Modalities to control pain
- Ice limb 5-6x/day 15-20 minutes Elevate limb as able when lying supine or sitting Gait training with rolling walker
- Stairs – If needed

Stretching - Passive Therapist-Assisted

- Extension: Quad set with overpressure at distal thigh using heel prop
- Patient education on importance of achieving terminal knee extension for normal gait *Flexion*: Seated in chair and/or lying supine

Active Assisted ROM

- Completed throughout the day *Extension*: Quad Set w/ overpressure in long-sit using heel prop (Bed or Chair). 10-second holds x 5 repetitions (Moderate Pressure)

Flexion

- Heel Slides – 10-second holds x 5 repetitions (Moderate Pressure)

Proprioception

- Bilateral Heel Raises, Lateral weight- shifting with walker, and modified tandem stance with walker.

Gait Training

- Education on knee extension Strengthening: Seated ankle pumps, Long arc quads (active assist if needed), hip flexion, and hip abduction

PHASE II – ~ 3 DAYS - 4 WEEKS POSTOPERATIVE:

Goals:

- Add core strengthening and aerobic conditioning as appropriate
- Progressive reduction in swelling
- AROM 0-120 Degrees (knee straight to knees over toes)
- Knee Extension Strength >/= 4/5
- Independent straight leg raise without extensor lag
- Independent with ambulation using least restrictive device

Activities:

Patellar Mobilizations

- Modalities for pain control Limb elevation as needed

Gait/stair training

- Wean Devices Stretching - Add as needed

Extension

- If appropriate - Prone Knee extension (w/ or w/o overpressure), Prone Quad Set

Flexion

- Seated knee dangle, prone knee flexion stretch with strap/hand, hook-lying wall slide (w/ or w/o overpressure)
- *Stationary bike when knee flexion > 90 degrees*

Strengthening/Proprioceptive Exercises*

- Add SLR (Therapist assist - if needed) Short arc quads supine, supine hip flexion, Squats with assist as needed

Prioritize stretching - No post-op stiffness

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PHASE III – ~4 – 8 WEEKS POSTOPERATIVE

Goals:

- Swelling < 2cm of contralateral limb
- Pain free with activities of daily living
- AROM: Symmetrical to contralateral limb
- Quadriceps Index 85%
- Independent with ambulation (No Device)

Activities:

- Continue Stretching
- Continue Open Chain long arc quads, knee flexion Advance Closed Chain Exercises
- Bilateral squats, partial split squats, single limb balance, step-ups (6-8inch), banded walks, leg press, and lunges

PHASE IV – ~ 8-12 WEEKS POSTOPERATIVE:

Goals:

- Swelling <1cm of contralateral limb
- Pain free with activities of daily living and moderate recreational activity
- Quadriceps Index 90%
- Girth within 2cm of contralateral limb
- Unrestricted ambulation distance (Varies based on prior levels of function)

Activities:

- Advance strengthening as tolerated
- Lunges (Forward, Backward, and Lateral), resisted squats, elliptical, treadmill, standing knee flexion, long arc quads, leg press
- Add core strengthening and aerobic conditioning as appropriate

At this point the patient may slowly return to the gym/health-club for continued land based training with therapist-approved exercises

PHASE V – ~ 12-16 WEEKS POSTOPERATIVE:

Average person and recreational athlete:

Goals:

- Swelling < 1cm of contralateral limb
- Pain free with all activities
- Quadriceps Index 95%
- Full Return to all competitive activities
- AROM: Symmetrical to contralateral limb

Activities:

Continue stretching as needed 2-3x/week Engage in progressive resistive strengthening to maximize limb strength and full functional return

Competitive Athlete

Consult with surgeon and/or therapist regarding specific program design involving high-risk sports/activities.