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ISOLATED AND COMBINED PCL RECONSTRUCTION POST-OP REHABILITATION PROTOCOL

General considerations:

- No open chain hamstring work
- Assume 8 week graft to bone healing time
- Caution against posterior tibial translation (gravity, muscle action)
- CPM 5º - 60º
- PCL with posterolateral corner or LCL repair follows different post-op care, i.e., crutches x 3 months.
- Resistance for Hip PREs placed above knee for hip abductio~ adduction. Resistance may be distal for hip flexion.
- Supervised physical therapy takes place for approximately 3-5 months post-op.
- Patients are touch-down weight bearing with crutches for 4 weeks post-operatively.
- Patients will use a hinged neoprene brace for 8 weeks post-op. It will be locked in full extension for 4 weeks and than progressed to 0-30 at 4 weeks and 15 degrees a week until 8 weeks.
- Early emphasis on achieving full passive terminal extension equal to the opposite side.
- **No resisted knee flexion exercises for 8 weeks post-op**. Passive flexion okay.
- Regular manual care of the patella, patella tendon, and portals should be performed to prevent fibrosis.
- All times are approximate with actual progression based upon clinical presentation.

General progression of activities of daily living (ADLs)

- Patient's may begin the following activities at the post-op dates listed (unless otherwise specified by the physician):
    - Bathing/showering without brace (surgical incisions should be healed before immersion in water) - 1 week post-op.
    - Sleep without brace - 8 weeks post-op.
    - Driving - 6-8 weeks post-op.
    - Full weight bearing without assistive devices - 8 weeks post-op (with physician clearance).

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Physical Therapy attendance

- The following is an approximate schedule for supervised physical therapy visits:
  - 0 to 1 month 1 x week
  - 1 to 3 months 2-3 x week
  - 3 to 9 months 2 x month
  - 9 to 12 months: 1 x month

Week 0 - 1:

- Gait training, pain and edema control, and muscle stimulation as needed for quadriceps recruitment.
- Ankle pumps, quad sets, and leg raises into flexion and abduction only.
- Well-leg stationary bike and UBE for cardiovascular. Upper body weight machines and trunk exercises.
- Brace
  - 5º to 60º maximum
- Weight Bearing
  - Weight Bearing as Tolerated (WBAT) with brace locked & crutches
- Special Considerations
  - Pillow under proximal posterior tibia at rest to prevent posterior sag.
- Therapeutic Exercises
  - Quad Sets, SLR, Hip Abduction/Adduction, Ankle pumps, Hip Alphabets

Weeks 2-4:

- Passive flexion and extension stretching.
- Prone hip extension exercises performed in full knee extension only after 2 weeks.
- Submaximal quad and gluteal isometrics.
- Standing calf and hip exercises.
- Balance and proprioception exercises.
- Swimming and pool workouts as soon as incisions are well-healed.
- Brace
  - Locked except for protected range of motion performed by physical therapist or athletic trainer
- Weight Bearing
  - Weight Bearing as Tolerated (WBAT) with brace locked & crutches
- Special Considerations
  - Continue use of pillow under tibia at rest.
  - Electrical Stim may be used for trace to poor quad contraction.

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- Therapeutic Exercises
    - PT/AT Assisted knee flexion ROM- Patient supine
        - For PCL patients maintain anterior pressure on proximal tibia as knee is flexed
        - For combined ACL/PCL patients, maintain neutral-position of proximal tibia as knee is flexed. It is important to prevent posterior tibial sagging at all times.
    - Hamstring and Calf stretching
    - Calf press with Theraband
    - Standing calf raises with full knee extension
    - Standing hip extension from neutral
    - Continue exercises as above

Weeks 4-8:

- Introduce mild isometric resisted knee extension within range of motion restrictions.
- Short range squats/knee bends within range of motion restrictions.
- Introduce hamstring curls against gravity without resistance after 7 weeks. Focus on eccentrics.
- Continue to increase the intensity and resistance of other exercises.
- Passive range of motion should be near normal at the end of 8 weeks
- Brace
    - 4-6 weeks: Brace is unlocked for supervised gait training only (patient must be under the direct supervision of a physical therapist or athletic trainer.)
    - 6 - 8 weeks: Brace is unlocked for all activities.
- Weight Bearing
    - Weight Bearing as Tolerated (WBAT)
- Therapeutic Exercises
    - When patient exhibits independent quad control, may begin open chain extension, if no flexion contracture exists
    - Wall Slides (0º to 45º degrees)
    - Begin isometric, progress to active against body weight. Progress to mini squats, etc.
    - Eagle 4-way hip for flexion, AB, AD, Ext from neutral with knee 0º degrees
    - Ambulation in pool (only while in physica1 therapy)
    - Continue to maintain hamstring flexibility

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Weeks 8-12:

- Wean off the use of the brace for activities of daily living.
- Begin hamstring flexion exercises against light resistance. Increase as tolerated.
- Cautiously add lateral training exercises (i.e. lateral stepping, lateral step ups).
- Brace
    - Discontinue
- Weight Bearing
    - Wean off crutches at 8 weeks post-op
    - May D/C crutches if patient exhibits:
        - No quad lag with SLR
        - Full knee extension
        - Knee flexion 90º-100º degrees
        - Normal gait pattern
- Therapeutic Exercises
    - Stationary bike: Foot forward on pedal (no toe clips), seat high
    - CKS terminal knee extension with Theraband or on Eagle 4-way hip
    - Stairmaster
    - Balance and proprioception
    - Seated calf raises
    - Leg press (within available range of motion)

Weeks 12-16:

- Goals are to increase strength, power and cardiovascular conditioning.
- Sport-specific exercises and training program.
- Maximal eccentric focused strengthening program.
- Begin light running program as able to demonstrate good strength and mechanics.
- Progress functional and symptomatically
- Therapeutic Exercises
    - Slide board
    - Treadmill walking
    - Jogging in pool with Wet Vest or Belt
    - Swimming
        - No breaststroke
        - Emphasize flutter kick from hip (minimize active knee flexion)

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Months 4-6:

- Goals are to develop maximal strength, power and advance to sporting activities.
- Resisted closed-chain rehabilitation through multiple ranges.
- Running program, balance drills and agility program.
- Initiate plyometric training as able to demonstrate adequate strength and proper mechanics.
- Reduce frequency of physical therapy sessions. Patient may continue therapy at gym club if released by physician. During this phase the patient should check in with the supervising physical therapist once every 2 weeks.

Months 9-12:

- Return to full activity per MD release: (e.g. Return to work based on functional capabilities and job description)
- Sports specific functional progression
  - Nordic Track
  - Slide Board
  - Jog/Run progression
  - Figure 8, Carioca, Backward running Cutting
  - Jumping (plyometrics)

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