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ACL Reconstruction with Deep MCL Protocol:

ACL reconstruction allograft with deep MCL reconstruction protocol: The patient underwent an ACL reconstruction utilizing a posterior tib allograft technique in addition to MCL reconstruction with internal brace (Due to MCL recon please allow for crutch use for at least 4 wks and protect the MCL when performing activities outlined below. A valgus knee alignment is present. Note: time frames for brace use, WB status and crutch use may be altered due to meniscus repairs and knee alignment. Physical therapy begins on postoperative day 3 with an initial focus on graft protection. Supervised PT will be utilized anywhere from 4 to 7 months with the goal being symmetric ROM with dynamic control of the knee. The pt is to sleep with post-op brace locked at 0 degrees extension for the 1st 4 weeks to maintain full extension unless using the CPM at night. The pt should perform patellar mobes every day. Caution should be exercised when stretching hamstrings. No driving for 6wks. PWB with crutches is allowed during the first postoperative week with the brace locked in full extension. Immediately in PACU with a postop hinged brace set from 0 to 90 degrees the pt should use a towel wrapped around the foot to do straight leg raises on their own (thus immediately achieving full extension), then with the same towel flex the knee down to 90 degrees, this is to be done for 60 cycles daily for the 1st 4 weeks. At their 1st postoperative visit WB with crutches and the brace set for motion from a 0 to 90 degrees is allowed. The brace may be weaned between 3 and 4 weeks postoperatively as may the crutches so long as the patient is ambulating well with adequate quad function. Typically, the pt is doing straight ahead running by 3 months and will initiate cutting and pivoting by 6 months postop. A functional ACL brace will be recommended for 1 year duration starting at the 6-month postop date when participating in athletics to allow for complete graft incorporation. Hamstring precautions listed in protocol are not necessary given graft choice.

Rehab Phase I: Weeks 0-4

- Goals: Protect graft and graft fixation with use of brace and specific exercises, Minimize effects of immobilization, Control inflammation and swelling, Full active and passive extension range of motion, Educate pt on rehab progression, Flexion to 90 degrees only (in order to protect graft fixation), Restore normal gait on level surfaces
- Brace:
    - 0-1 week- post-op brace locked in full extension for ambulation (PWB) and sleeping
    - 1-3 weeks- unlock brace (0-90 degrees) at all times except for sleep

  - 3-4 weeks- wean from brace as pt demonstrates good quad control and normal gait mechanics, pt should still wear brace at night locked in 0 degrees for the full 4 weeks for extension maintenance
  - 4-8 weeks- pt should only use brace in vulnerable situations (e.g. crowds, uneven terrain)
- WB status:
  - 0-1 week- PWB with two crutches to assist with balance and brace locked at 0 degrees
  - 1-4 weeks- progress to FWB with normal gait mechanics
  - Wean from crutches/brace for ambulation by 4 weeks as pt demonstrates normal gait mechanics and good quad control as defined as lack of quadriceps lag
- Exercises:
  - Active-assisted leg curls 0-1 week. Progress to active as tolerated after 1 week
  - Heel slides (limit to 90 degrees)
  - Quad sets
  - Gastroc/Soleus stretching
  - Very gentle hamstring stretching at 1 week
  - SLR, all planes, with brace in full extension until quadriceps strength is sufficient to prevent extension lag- add weight as tolerated to hip abduction, adduction and extension
  - Quadriceps isometrics at 60 and 90 degrees
  - If available, aquatic therapy (once sutures removed) for normalizing gait, weightbearing, strengthening, deep-water aqua jogging for ROM and swelling

Rehab Phase II: Weeks 4-12

Criteria for Advancement to phase II: Full extension, Good quad set, SLR without extension lag, Flexion to 90 degrees, Minimal swelling/inflammation, Normal gait on level surfaces

- Goals: Restore normal gait with stair climbing, Maintain full extension (progress toward full flexion range of motion), Protect graft and graft fixation, Increase hip and quadriceps and calf strength, Increase proprioception
- Brace/Weightbearing Status:
  - If necessary, only use brace in vulnerable situations (e.g. crowds, uneven terrain)
  - FWB
- Exercises:
  - Continue with ROM/flexibility exercises as appropriate for the pt
  - Initiate closed kinetic chain quad strengthening and progress as tolerated (wall sits, step-ups, mini-squats, Leg Press 90 to 30 degrees, lunges, eccentric quads if good control)
  - Progressive hip, hamstring, calf strengthening (gradually add resistance to open chain hamstring exercises at week 12)

- Continue hamstring, Gastroc/Soleus stretches
- Stairmaster (begin with short steps, avoid hyperextension)
- Stationary Biking
- Single leg balance/proprioception work (ball toss, balance beam, mini-tramp balance work)
- If available, begin running in the pool (waist deep) at 10-12 weeks

Rehab Phase III: Week 12-18

Criteria for Advancement to phase III: No patellofemoral pain, Minimum of 120 degrees of flexion, Sufficient strength and proprioception to initiate running (unweighted or in pool), Minimal swelling/inflammation

- Goals: FROM, Improve strength and endurance and proprioception of the lower extremity to prepare for sport activities, Avoid overstressing the graft, Progressively increase resistance for hamstring strengthening, Protect the patellofemoral joint, Normalize running mechanics,Strength approximately 70% of the uninvolved lower extremity per isokinetic evaluation
- Exercises:
  - Continue flexibility and ROM exercises as appropriate for pt
  - Progress toward FWB straight ahead running starting at 12 weeks
  - Begin swimming if desired
  - Recommend isokinetic test with anti-shear device at 14-16 weeks to guide continued strengthening
  - Progressive hip, quad, hamstring, calf strengthening
  - Cardiovascular/endurance training via stairmaster, elliptical, bike
  - Advance proprioceptive activities

Rehab Phase IV: Post-operative months 4 ½ through 7

Criteria for Advancement to phase VI: No significant swelling/inflammation, Full, pain-free ROM, No evidence of patellofemoral joint irritation, Strength approximately 70% of uninvolved lower extremity per isokinetic evaluation, Sufficient strength and proprioception to initiate agility activities, Normal running gait

- Goals: Symmetric performance of basic and sport specific agility drills, Single hop and three hop tests 85% of uninvolved leg, Quadriceps and hamstring strength at least 85% of uninvolved lower extremity per isokinetic strength test
- Exercises:
  - Continue and progress flexibility and strengthening program based on individual needs and deficits

- Initiate plyometric program as appropriate for patient's athletic goals
- Agility progression including, but not limited to: Side steps, Crossovers, Figure 8 running, Shuttle running, One leg and two leg jumping, Cutting, Acceleration/deceleration/springs, Agility ladder drills
- Continue progression of running distance based on pt needs
- Initiate sport-specific drills as appropriate for pt

Rehab Phase V: at Post-operative months 6 or 7

Criteria for Advancement to phase V: No patellofemoral or soft tissue complaints, Necessary joint ROM and strength and endurance and proprioception to safely return to work or athletics, Physician clearance to resume partial or full activity

- Goals: Safe return to athletics/work, Maintenance of strength and endurance and proprioception, Patient education with regards to any possible limitations
- Exercises:
  - Gradual return to sports participation
  - Maintenance program for strength, endurance
  - Initiate Functional brace use for activities for 1 year duration