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ACL Reconstruction with Patellar Tendon Autograft Rehabilitation Protocol

- Assume 8 weeks for complete graft revascularization
- CPM not commonly used
- ACL reconstructions performed with meniscal repair or transplant follow the ACL protocol with avoidance of open kinetic chain hamstring work for 6 weeks. Time frames for use of brace and crutches may be extended by the physician
- Supervised physical therapy takes place for 3-6 months.

GENERAL PROGRESSION OF ACTIVITIES OF DAILY LIVING

- Patients may begin the following activities at the dates indicated (unless otherwise specified by the physician):
- Bathing/Showering without brace after suture removal
- Sleep with brace locked in extension for 1 week
- Driving: 1 week for automatic cars; left leg surgery; 4-6 weeks for standard cars; or right leg surgery
- Brace locked in extension for 1 week for ambulation
- Use of crutches, brace for ambulation for 4-6 weeks if altered gait. DC assistive device when FWB without limp, ROM 0-90, and patient able to perform SLR without extensor lag.
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- Weight-bearing as tolerated immediately post-op

PHYSICAL THERAPY ATTENDANCE

The following is an approximate schedule for supervised physical therapy visits:

Phase I (0-4 weeks): 1 visit/week
Phase II (4-6 weeks): 2-3 visits/week
Phase III (6 weeks - 6 months): 2-3 visits/week
Phase IV (6-9 months): Discharge after completion of appropriate functional progression

REHABILITATION PROGRESSION

The following is a general guideline for progression of rehabiltation following ACL patellar tendon autograft reconstruction. Progression through each, phase should take into account patient status (e.g. healing, function) and physician advisement. Please consult the physician if there is any uncertainty concerning advancement of a patient to the next phase of rehabilitation.

PHASE I

Begins immediately post-op through approximately 4 weeks

Goals:
- Protect graft fixation
- Minimize effects of immobilization
- Control inflammation
- Full extension range of motion
- Educate patient on rehabilitation progression

Brace:

0-1 week: Locked in full extension for ambulation, sleeping
1-4 weeks: Unlocked for ambulation, remove for sleeping

Weightbearing Status:

0-4 weeks: Weightbearing as tolerated with two crutches

Therapeutic Exercises:

- Heel slides
- Quad sets, hamstring sets (Consider NMES for poor quad sets)
- Patellar mobilization
- Non-weightbearing gastroc/soleus, hamstring stretches
- SLR, all planes, with brace in full extension until quadriceps strength is sufficient to prevent extension lag
- Quadriceps isometrics at 60° and 90°

PHASE II

Begins approximately 4 weeks post-op and extends to approximately 6 weeks

Criteria for advancement to Phase II:

- Good quad set, SLR without extension lack
- Approximately 90º of knee flexion
- Full knee extension
- No signs of active inflammation

Goals:

- Restore normal gait
- Maintain full extension, progress flexion range of motion
- Protect graft fixation

Brace / Weightbearing Status:

Discontinue use of brace and crutches as allowed by physician when the patient has full extension and can perform SLR without extension lag.

Patient must exhibit nonantalgic gait pattern, consider using single crutch or cane until gait is normalized.

Therapeutic Exercises:

- Wall slides 0-45°, progressing to mini-squats
- 4-way hip
- Stationary bike (begin with high seat, low tension to promote ROM, progress to single leg)
- Closed chain terminal extension with resistive tubing or weight machine (Resistance placed proximal to knee)
- Toe raises
- Balance exercises (e.g. single-leg balance, KAT)
- Hamstring curls
- Aquatic therapy with emphasis on normalization of gait
- Continue hamstring stretches, progress to weight-bearing gastroc/soleus stretches

PHASE III

Begins at approximately 6 weeks and extends through approximately 6 months

Goals:

- Full range of motion
- Improve strength, endurance and proprioception of the lower extremity to prepare for functional activities
- Avoid overstressing the graft fixation
- Protect the patellofemoral joint

Therapeutic Exercises:

- Continue flexibility exercises as appropriate for patient
- Stairmaster (begin with short steps, avoid knee hyperextension)
- Nordic Trac
- Knee extensions 90°-45°, progress to eccentrics
- Advance closed kinetic chain strengthening (one-leg squats, leg press 0-45°, step ups begin at 2" progress to 8", etc.)
- Progress proprioception activities (slide board, use of ball, raquet with balance activities, etc.)
- Progress aquatic program to include pool running with a vest, swimming (no breaststroke)

PHASE IV

Begins at approximately 6 months and extends through approximately 9 months

Criteria for advancement to Phase IV:

- Full, pain-free ROM
- No evidence of patellofemoral joint irritation
- Sufficient strength and proprioception to initiate functional activities
- Physician clearance to initiate advanced closed kinetic chain exercises and functional progression

Goal:

- Progress strength, power, proprioception to prepare for return to functional activities

Therapeutic Exercises:

- Continue and progress flexibility and strengthening program
- Initiate plyometric program as appropriate for patient's functional goals

- Functional progression including, but is not limited to:
- Walk / Jog progression
- Forward, backward running, 1/2, 3/4, full speed
- cutting, cross-over, carioca, etc.
- Initiate sport-specific drills as appropriate for patient

PHASE V

Begins at approximately 9 months post-op

Criteria for advancement to phase V:

- No patellofemoral or soft tissue complaint
- Necessary joint ROM, strength, endurance, and proprioception to safely return to work or athletics
- Physician clearance to resume partial or full activity

Goals:

- Safe return to athletics
- Maintenance of strength, endurance, proprioception
- Patient education with regards to any possible limitations

Therapeutic Exercises:

- Gradual return to sports participation
- Maintenance program for strength, endurance

Bracing:

Functional brace may be recommended by the physician for use during sports for the first 1-2 years after surgery