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ACL Reconstruction with Hamstring Autograft Rehabilitation Protocol

GENERAL GUIDELINES

- Presuppose 8 weeks for complete graft re-vascularization
- CPM not commonly used
- ACL reconstructions performed with meniscal repair or transplant follow the ACL protocol. For semitendinosus/gracilis autografts, isolated hamstring strengthening for 6 weeks. Physician may extend time frames for use of brace or crutches.
- Supervised physical therapy takes place for 3-9 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 6 weeks if altered gait. DC assistive device when FWB without limp, ROM 0-90, and patient able to perform SLR without extensor lag.
- Weightbearing as tolerated immediately post-op

PHYSICAL THERAPY ATTENDANCE

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

- | | | |
|-------------|--------------|-------------------|
| • Phase I | (0-6 weeks) | 1 visit/week |
| • Phase 11 | (2-3 weeks) | 2-3 visits/week |
| • Phase 111 | (2-6 months) | 2-3 visits/week |
| • Phase IV | (6-9 months) | 1 visit/1-2 weeks |

REHABILITATION PROGRESSION

The following is a general guideline for progression of rehabilitation following ACL semitendinosus/gracilis 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 6 weeks

Goals:

- Protect graft fixation (assume 8 weeks fixation time) 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
- 1-6 weeks: Unlocked for ambulation, remove for sleeping

Weightbearing Status:

- 0-6 weeks: Weightbearing as tolerated with two crutches

Therapeutic Exercises:

- 4-way multi-hop
- Knee pendulum
- Heel slides
- Quad sets
- Patellar mobilization (emphasis on early superior/inferior glides)
- Non-weightbearing gastroc/soleus, begin hamstring stretches at 4 weeks
- SLR, all planes, with brace in full extension until quadriceps strength is sufficient to prevent extension lag
- Quadriceps isometrics at 60° and 90°
- Stationary bike (high seat, low tension with emphasis on promoting ROM. Begin partial revolution to full revolution as tolerated).

PHASE II

Begins approximately 6 weeks post-op and extends to approximately 8 weeks.

Criteria for advancement to Phase II:

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

Goals:

- Restore normal gait
- Maintain full extension (especially hip extension), progress flexion range-of-motion
- Protect graft fixation
- Initiate open kinetic chain hamstring exercises

Brace/Weightbearing Status:

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

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

Therapeutic Exercises:

- Wall slides 0°-45°, progressing to mini-squats
- Continue stationary bike
- Closed chain terminal extension with resistive tubing (proximal to knee) or weight machine
- 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 weightbearing gastroc/soleus stretches

PHASE III

Begins at approximately 8 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 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" and progress to 8", etc.)
- Progress proprioception activities (slide board, use of ball, racquet with balance activities, perturbation activities, etc.)
- Progress aquatic program to include pool running, 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
- Strength and proprioception approximately 70% of uninvolved leg
- Physician clearance to initiate advanced closed kinetic chain exercises and functional progression

Goals:

- 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 not limited to:
 - Walk/jog progression
 - forward, backward running, 1/2, 3/4, full speed
 - cutting, crossover, 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 complaints

- 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 (continue to work on hip extension)
- Patient education with regard to any possible limitations

Therapeutic Exercises:

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

Bracing:

The physician may recommend a functional brace for use during sports for the first 1-2 years after surgery.