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ACL Reconstruction Post-Operative Care

This protocol was developed to provide the physical therapist with guidelines for treatment of a patient who has undergone ACL reconstruction. These guidelines are not a substitute for appropriate clinical decision making. It is essential that the therapist take into consideration the integrity of the joint surfaces and type of graft used. The protocol is divided into 4 phases. Patients will typically continue with formal physical therapy until late Phase III or early Phase IV (~12 weeks post-op). Anticipated number of visits range from 16 to 24 formal PT sessions. Progression from phases should not occur prior to the appropriate post-op timeframes; however, phase progression should be delayed if the patient does not meet the progression criteria. Tolerance to exercise should be closely monitored. Patients should not have a significant increase in pain after treatment or exercise. If this occurs, treatment is too vigorous and should be modified accordingly.

Phase I: Post-Op Phase
POD 1 to Week 3

Immobilization:
- Knee brace locked at 0° extension for ambulation, WBAT with bilateral crutches
- Brace can be unlocked/removed when sitting and sleeping
- Brace unlocked for ambulation as appropriate
- Discontinue crutches **or** brace when gait is non-antalgic
- Discontinue brace **and** crutches by POD 14

Formal Physical Therapy:
- Patients will be scheduled for 1st PT visit ~ POD 3
- Most patients will be seen 2 times a week during Phase I
- Exercises from this phase should be continued until they are no longer challenging
- **Sutures can be removed on POD 10-14 per surgeon**

Goals:
- Discontinue crutches and brace by POD 14
- Absolute control of external forces and protection of graft
- Nourish articular cartilage
- Decrease fibrosis
- Stimulate collagen healing
- Decrease swelling
- Prevent quadriceps atrophy
- Prepare patient for ambulation without crutches (week 2)

Precautions:

- Monitor wound healing closely
- Avoid hyperextension >10°
- Avoid knee extension AROM: 40-0°
- No heel props, prone hangs, stool scoots, wall slides

Physical Therapy Treatment:

Week 1

- Issue patient home e-stim unit
- E-stim to quads during quad exercises (1-2 hours a day)
- Ankle pumps
- Knee extension PROM: to 0°
- PROM/AAROM knee flexion
- 4-way SLR (with brace locked in extension)
- Quad sets, glut sets
- Hamstring and calf stretching
- Multi-angle quadriceps isometrics at 90° and 60°
- Knee extension AROM: 90-40°
- Patellar mobilization
- Standing weight shifts and mini-squats (0-30° ROM)
- Hamstring curls (no weight)

Week 2

- Continue week 1 exercises/treatment as appropriate
- PROM: 0-105°
- Gait training
  - Goal: discontinue crutches and brace by POD 14
- Multi-angle quadriceps isometrics at 90°, 60°, and 30°
- Mini squats (0-40°)
- Single leg stance
- Bicycle for ROM stimulus and endurance
- Proprioception training
- Scar mobilization once incision healed

Week 3

- Continue week 2 exercises/treatment as appropriate
- PROM: 0-115°
- Eccentric quadriceps strengthening: 40-100°
- Leg press: 0-60°

Recommended HEP:

- E-stim to quads with quad exercises (1-2 hours a day)
- Flexion/extension ROM 4-5 times a day
- CPM machine per MD instructions
  - Goal: discontinue home use by POD 10-14
- Ice 15 minutes out of every hour as needed
  - Elevate with knee in extension

Criteria for Progression to Phase II:

- AROM: 0-115+°
- Quad strength: ≥ 60% of contralateral side
  - Isometric test @ 60° knee flexion angle
- Pain-free unilateral weight bearing
- SLR without quad lag
- No use of crutches and brace
- Minimal effusion
- Satisfactory clinical exam

Phase II: Controlled Ambulation Phase
Weeks 4 to 7

Formal Physical Therapy

- The majority of patients will be treated 2 times per week
- If there is significant knee stiffness (defined as not meeting Phase II progression criteria) the patient can be seen 3 times a week until ROM is on schedule

Goals:

- Control forces during walking
- Restore normal stair negotiation
- Maintain full extension
- Improve proprioception

Precautions:

- Avoid exercises/activities that cause patellofemoral pain

Physical Therapy Treatment:

- Continue week 3 exercises/treatment as appropriate
- PROM: 0-130°
- Step ups (start with 2" and gradually increase)
- Progress CKC activities
  - Step ups, step downs, mini lunges, leg press
- Progress proprioception training

Recommended HEP:

- Phase I and II exercises as appropriate

Criteria for Progression to Phase III:

- AROM: 0-125°
- Quad strength: ≥60% of contralateral side
- Normal gait pattern
- Ascend 8" step
- Minimal effusion
- No patellofemoral complaints
- Satisfactory clinical exam

Phase III: Moderate Protection Phase
Weeks 7 to 12

Formal Physical Therapy:
- Most patients will continue with formal PT 2 times a week with anticipated discharge by week 12

Goals:
- Restore full ROM
- Protect articular cartilage of patellofemoral joint
- Maximal strengthening for quads/lower extremity

Precautions:
- Avoid exercises/activities that cause patellofemoral pain
- Avoid running and sports activities until adequate strength and control are developed

Physical Therapy Treatment:
- Continue/progress Phase II exercises as appropriate
- Emphasize eccentric quad strengthening
- Continue knee extension AROM: 90-40°
- Calf raises
- Progress proprioception training (e.g. perturbations)
- Bicycle for endurance
- Walking program
- Begin return-to-jogging program per MD

Recommended HEP:
- Phase I, II, and III exercises as appropriate

Criteria for Progression to Phase IV:
- AROM: ≥0-125°
- Quad strength: ≥70% of contralateral side
- Minimal/no effusion
- No patellofemoral complaints
- Descend 8” step with good control and no pain
- Satisfactory clinical exam

Phase IV: Return to Activity Phase
Weeks 12 onward

Formal Physical Therapy:
- Most patients will be discharged in late Phase III or early Phase IV
- The patient will be instructed in which exercises to continue and how to progress

Goals:
- Development of strength, power, and endurance
- Begin to prepare for return for functional activities
- Achieve maximal strength and further enhance neuromuscular coordination and endurance
- Normal running mechanics

Precautions:
- Avoid exercises/activities that cause patellofemoral pain

Criteria to initiate running program:

- Functional test: ≥70% contralateral side
- Satisfactory clinical exam

Criteria to return to activities

- Functional test: ≥85% of contralateral side
- Proprioceptive test: 100% of contralateral side
- Satisfactory clinical exam

Physical Therapy Treatment:

Weeks 12 to 16

- Continue strengthening exercises
- Initiate plyometric program
- Initiate running program
- Initiate agility drills
- Sport-specific training and drills

Week 17 onward

- Progress strengthening, plyometric, running, agility, and sport specific exercises and drills as tolerated

Recommended HEP:

- Continue Phase I, II, III, and IV exercises as appropriate

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