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ACL Reconstruction

General Principles:
This protocol was designed to provide the rehabilitation professional with a guideline of postoperative care. It should be stressed that this is only a protocol and should not be a substitute for clinical decision making regarding a patient's progression. Actual progression should be individualized based upon your patient's physical examination, progress, and presence of any complications.

NOTE: Protocol may need to be modified if multiple ligaments or meniscus are involved. Ligament testing should only be performed by the physician throughout the protocol.

PHASE I: (Immediate)

Week 1

Orthotics-
1. Knee brace locked in full extension at all times except for rehab exercises
2. Elastic bandage as needed to control swelling

Weight Bearing-
1. Weight bearing as tolerated with brace

Modalities-
1. Patients are encouraged to use polar care unit/ice for 20 minutes following exercises and as needed for pain control throughout protocol.
2. Other modalities at the discretion of the therapist based on clinical findings

ROM-
1. Active and Passive ROM progressing to full as tolerated

Exercises-
1. Quad sets
2. Ankle pumps
3. Patella Mobilizations
4. Calf, Hamstring, and Knee extension stretching
    a. **IF hamstring graft**, Avoid excessive stretching of the hamstring the first 6 wks
5. Prone Hangs, no resistance
6. May start Heel slides / Wall slides
7. Straight Leg Raises (May use brace if needed to maintain full extension)
    a. All planes, NO resistance
8 Stationary bike or NU-Step
9. Neuromuscular Re-Education as needed to improve quality of muscle contraction

Week 2

Orthotics-
1. Knee brace at all times, may unlock brace as ROM and quad control improves

Weight Bearing-
1. Progress to full as tolerated.
2. May discontinue crutches with normal gait

(cont'd week 2)

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Modalities (PRN)-
1. Continue modalities as needed

ROM-
1. Continue progressing active and passive ROM to full as tolerated

Exercises-
1. Progress Week 1 exercises as tolerated
2. May add resistance to prone hangs to reach full extension
3. After reaching 0 to 90˚ of Active knee flexion:
    a. Shuttle / Leg Press – Bilateral progressing to Unilateral
    b. Standing / Shuttle Calf Raises
4. Standing balance / proprioception as weight bearing allows
5. Active hamstring curls (**IF Hamstring graft**, no active hamstrings until Wk 4)

PHASE II: (Intermediate)

Week 3 – 7

Orthotics-
1. Continue to wear knee brace at all times.
2. May progress into functional ACL brace when available at Wk 6-7 (per physician)

Weight Bearing-
1. Full weight bearing as tolerated with normal gait

Exercises-
1. Continue Phase I exercises *Use of BFR as indicated at 4 weeks
2. Elliptical runner
3. Progress into hamstring strengthening (**IF Hamstring graft**, no resisted hamstrings until Wk 6)
    a. Forward Chair scoots
    b. Biodex eccentric/concentric resistance
    c. Long arc hamstring curls, progress to weight machines as appropriate
4. Isometric Quads Positioned at 60˚ of knee flexion
5. Closed-chain strengthening with focus on VMO control, core stability, and avoidance of varus/valgus movement
    a. Step Ups, Forward Lunges, Mini-Squats
6. Resisted Walking
    a. Forward/Backward initially, progress to Lateral
    b. Maintain proper knee alignment with good eccentric control
7. Progress balance/proprioception to all 3 planes but limit range and speed as patient can control

PHASE III: (Strengthening)

Week 8 – 12

Orthotics-
1. Continue functional brace (per physician)

Exercises-
1. Continue Phase II exercises

Exercises (cont'd weeks 8-12)

2. Progress to Lateral, Backward, and Walking Lunges
3. Backward Elevated Treadmill walking

4. May initiate Open Chain Quad strengthening
    a. Short-arc progressing to Full-arc
    b. Monitor for patella-femoral pain
5. Isokinetics
    a. Limit extension for -20˚ initially
    b. Start with 240 to 300 degrees per second
    c. Progress to 180 to 300 degrees per second as tolerated
6. Continue to focus on balance/proprioception
7. Begin basic ladder series **at Wk 10**
8. Aquatics
    a. Closed chain strengthening and proprioception exercises
    b. Flutter kicks with straight leg, intervals of 30-60" of work
    c. Jogging at Wk 10 starting in deep water, progressing to chest/waist deep

PHASE IV: (Advanced Strengthening)

3 MONTHS POST-OP

Exercises-

1. Continue Phase III exercises
2. Progress to aggressive strengthening of the quad and hamstrings
3. Slideboard lateral gliding
4. Aquatic
    a. 2 leg jumps (Stationary progressing to fwd/bwd and side to side)
    b. Skipping and lateral shuffle
    c. Progress to plyometric / explosive jumps as appropriate
5. Straight ahead jogging, level surfaces
    ***Only with physician approval based on strength, stability, and case by case basis**
6. After 2 weeks of running program, progress to gentle lateral movements/agility work IF good quad control, no pain, and good stability
    a. Defensive slides, floor ladder
    b. Low level stationary jumps focused on proper landing mechanics

4 MONTHS POST-OP

Orthotics-

1. May discontinue functional knee brace for daily activities.
2. Continue functional brace for high risk activity and exercise until 12 months post-op

Exercises-

1. Initiation of light sports activity
    a. Jumping, progressing to unilateral hops with good strength and control
    b. Shuttle bounding
    c. low-level change of direction
    d. Running program should include increased speed, rounded turns, backpedal

5-9 MONTHS POST-OP

1. Initiation of light sports activity
    a. Plyometrics
    b. Sport specific agility
    c. See Interval Golf and Interval Running programs

d. DIME warmup

2. Testing to be completed at 6 months
   LE functional test, see protocol (Goal: 90% of uninvolved leg)
   ***Please complete functional testing sheet and send results to physician**

3. Patients will have full release to play sports during this time frame, but only with physician approval based on strength, functional test results, and overall level of function

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