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Post-Operative PT Protocol for ALLOGRAFT ACL Reconstruction

Overview:

Range of Motion Goals:

- 0-90° by week 4
- 0-120° by week 6
- 0-135° by week 8

Weightbearing Status:

- Non-weightbearing x2 weeks
- 50% weightbearing x2 weeks
- Progress to full weightbearing by week 6

Strengthening:

- Avoid hamstring flexion curls and knee extension quadriceps exercises for 6 weeks

Other:

- Avoid straight-line running activities for 6 months
- Begin agility drills at 8 months
- Anticipate full return to sporting activities between 9-12 months

Post-Operative Weeks 0-2:

Goals:

1. Obtain full knee extension and 90° of knee flexion

Weight-bearing:

1. Non-weightbearing

Brace:

1. 0-90° for knee flexion; gradually unlock further as flexion increases

Ice:

1. Ice 4-6 times per day for 15-30 minutes per session

Exercises:

1. Range of motion:
 - a. Flexion: Knee bends, wall slides, and heel slides to patient tolerance
 - b. Extension: Passive knee extension using prone hangs and towel roll
2. Strengthening:
 - a. Quad sets with knee support
 - b. Hamstring digs with knee support
 - c. Begin ankle strengthening exercises (plantarflexion/dorsiflexion, inversion/eversion)

Post-Operative Weeks 2-6:

Goals:

1. Top priority - obtain full (0°) knee extension.
2. Increase knee flexion to 120° by week 6 and 135° by week 8.

Weight-bearing:

1. Begin 25% weightbearing at week 2 and progress to 50% weightbearing by week 4
2. Begin 75% weightbearing at week 5 and progress to full weightbearing by week 6

Brace:

1. Unlock brace when quad control is adequate for knee support

Exercise Program:

1. Flexion Exercises:
 - Active assisted knee flexion (goal is 120°; try to increase 10°/week).
 - Heel slides
 - Wall slides

- Biking as tolerated to 30 minutes (zero to low resistance; increase progressively).
- First two weeks of exercise bike backwards (no resistance).

2. Extension Exercises:

- Prone hangs
- Passive terminal knee extension with overpressure to tolerance

3. Progressive Resistance Exercises: (30-50 repetitions, 0-5 pounds, 3 times/day)

- Straight leg raises (maintain full extension)
- Hip flexion, extension, abduction, adduction
- Heel raises
- Trunk stabilization exercises

4. Manual Interventions:

- Patellar mobilizations as needed
- Tibiofemoral mobilization into extension
- Soft-tissue as indicated

* If any of these exercises seem to aggravate the knee (swelling, pain, or tenderness), then that specific exercise which causes the difficulty should be postponed until you have discussed the effects of the exercise with us (480-219-3342).

Modalities:

Modalities as needed for VMO re-education, pain modulation, control of inflammation, and edema control.

Post-Operative Weeks 7-12:

Goals:

1. Achieve full extension to near full flexion.
2. Improve quadriceps tone (return of VMO definition)

Brace:

1. Unlock brace when quad control is adequate for knee support (discontinue brace at week 8)

Exercise Program:

1. Quadriceps - straight leg raises (10 sets of 30 repetitions each), quads setting (10 sets of 30 repetitions each), and short arc quadriceps extension.
2. Hip muscle groups. May progress by adding weights above the knee. Hip abductors, flexors, adductors, and extensors (10 repetitions, 4 sets daily). An isometric variation can be performed by pushing down on the hip being worked on and sustaining a contraction for 10 seconds.
3. Hamstrings curls - may add weights around the ankle (10 repetitions, 4 times daily).
4. Calf raises. 3 sets, 10 repetitions - fast and slow sets (each).
5. Swimming. Flutter kick only - gentle. No whip kick.
6. May begin outdoor biking program - avoid hills. A good rule of thumb for those interested in returning to athletics is that you need three minutes of biking to substitute for one minute of running.
7. Accelerated program - start with sand bags on tibial tubercle. Perform straight leg raises (10 sets, 10 repetitions each) and progress fulcrum distally one inch per week).
8. Walking (level ground). Build up pace gradually. Feel big toe of affected foot push off as you walk to ensure normal gait pattern. Start off at one mile at brisk pace, increase to three miles. No limping allowed.
9. Sissy squats. Stand facing the edge of a door and place hands on the door knobs on each side of the door. Feet should be shoulder width apart. Perform a half-squat (never past 90 degrees) and slowly raise to a starting position. Build up to 100 repetitions per day.

Post-Operative Weeks 12-16:

Goals:

1. Full knee range of motion. Refer back to surgeon for extension restriction of 5° or if less than 110° flexion.
2. Normal gait pattern.
3. Progressively increasing functional strengthening program.

Exercises:

1. Continue with exercise program from week 7-12.
2. Weight room activities:
 - Leg press - press body weight as many times as possible on nonsurgical side (to fatigue). Follow same sequence on surgical side.

- Squat rack - half squats (not past 70°) at one-half body weight, 10 repetitions; progress to full body weight as tolerated.

3. Continue biking and/or swimming on a daily basis. No whip kicks.

4. Balancing on a teeter-totter board or disc on a half-croquet ball

Post-Operative Months 4-6:

Goals:

1. Improve quadriceps strength/function
2. Improve endurance
3. Improve coordination/proprioception

Exercises:

1. Biking - by now the amount of set resistance should be increasing. Perform daily at 20 minutes/day. Legs should feel drained once off the bike.
2. Step-ups - face the step. Put foot of operative knee on step and step up on the step. Repeat with gradual build up in repetitions until doing 100 step-ups/day. Try to lower from the step twice as long as it takes to raise up on the step.
3. Educate patient as to use of functional brace.

Post-Operative months 6-9:

Goals:

1. Improve quadriceps strength/function
2. Improve endurance

Exercises:

1. Begin straight-line jogging at month 6
2. Begin agility drills at month 8:
 - Figure 8's - daily - 5 minutes half-speed - tighten circle size down
 - Shuttle runs daily - 5 minutes - half-speed - repeat 10-12 repetitions
 - Zig-zag running - angle across a distance of 10-15 yards, then angle back across field to another boundary 10-15 yards apart. Continue for 100 yards. Tighten up as strength/endurance permits.

3. Sports on Own (Begin at month 8):

- Basketball - shooting baskets only
- Rollerblades - level surfaces - no hills- no quick stops, cutting, or operative leg cross-overs (parking lots)
- Golf (9-holes, avoid fatigue)

Post-Operative Full Rehabilitation:

1. No competitive or pivot sports until cleared by surgeon. When cleared, patient is to use functional brace for 6 months.
2. It should be at least 9 months post-operatively before patient returns to full unrestricted sporting activities
3. Therapists criteria for return to sports:
 - Full and painless A-ROM
 - No patellofemoral joint pain
 - Gross manual muscle testing strength 90-100% of contra-lateral side
 - Patient can pass single leg hop test for distance, single leg squat test, and figure of eight hop test
4. Quadriceps/thigh circumference should be within 1 cm of non-operative (if normal) side.
5. Weekly strengthening program - independently (2-3 times/week):
 - Full speed jog/run - 20-30 minutes - 6-7 minutes/mile or best pace.
 - Exercise stationary bike - increasing resistance, set bike so low leg is flexed no more than 10-15°, 20 minutes.
 - Agility drills (figure 8's, shuttle runs, turns), teeter-totter balancing
 - Continue quad sets, SLR's (300 repetitions/day)
 - Hills/stairs - running up hills and up stairs can be utilized to help build muscle mass and strength. Care should be taken running downhill and down steps. This can irritate the knee and should be one of the last exercises added to the workout program.