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ACL RECONSTRUCTION FOR PATELLAR TENDON GRAFT OR ALLOGRAFT

Phase I - Immediate Post-Operative Phase (Weeks 0-2)

Goals:

1. 0-90 degrees
2. Prevent quadriceps inhibition
3. Control post op pain/swelling
4. Emphasis on full passive extension

Post-Op Week 1:

- Drain will be pulled as ordered by M.D.
- Leave dressings and brace intact until ordered by M.D. to be removed by medical professional
- Knee Immobilizer- Only Sleep in immobilizer for 1 week post-op; do not wear during waking hours.
 - *Caution:* Watch for increased pain or swelling.
 - May need to loosen straps or dressing.
 - TED hose or tubigrip for edema control.

Weight Bearing:

- Weight bearing as tolerated using 2 crutches until ambulates without limp
- ****ACL with Meniscal Repair:** TTWB weight-bearing for 4 weeks.

Therapeutic Exercise:

- Ankle Pumps
- Passive knee extension to 0 degree, heel prop
- Multi-angle isometrics at 90, 60, 30 degrees (for quads)
- Patellar mobilizations
- Straight leg raises (All 4 directions- maintain good quadriceps contractions)
- Quad Sets, Gluteal Sets, Hamstring Sets
- Hamstring Stretch
- Heel slide
 - ROM: 0-90 degrees
 - ****ACL with Meniscal Repair,** limit ROM to 110 degree for first 3 weeks

Modalities:

- Electrical muscle stimulation may be used for quadriceps re-education.
- Cryotherapy with knee in extension should be applied for 20 minutes every waking hour.

Special Activities:

- Follow up with physician at 7-10 days.
- Shower after staples are removed
- May drive when achieve quad control.

Criteria for Advancement to Phase II:

- Ability to SLR without quadriceps lag
- ROM 0-90 degrees

Phase II: Maximum Protection Phase (Weeks 2-6)

Goals:

1. Minimal swelling
2. Pain Free ROM 0-125 degrees
 - a. ****ACL with Meniscal Repair:** 0-110 degrees through week 4 then gradually increase to 135 degrees by week 6
3. Good patellar mobility
4. Restore normalized gait
5. Reduce Quadriceps atrophy

Weight Bearing:

- Prepare patient for ambulation without crutches if not already crutch free
- ****ACL with Meniscal Repair:** TTWB weight-bearing for 4 weeks
 - **Week 4:** PWB (30-60%) with 2 crutches. Progressing to FWB by week 6.

Therapeutic Exercise:

- Continue all previous exercises
- Bicycle for ROM and endurance
- Hamstring and Calf stretching
- Standing weight shifts and mini squats (0 to 40 degrees ROM) unless NWBing
- Proprioception training
- Active knee extension to 0 degrees
 - If not achieved full extension: terminal extension, prone hangs (2 pounds)
- PRE Program: Start with 1-3 pounds, progress 1-3 pounds per week as tolerated.
- Initiate eccentric quads 40-100 degrees (isotonic only)
- Leg press (0-60 degrees)
- Begin scar massage as soon as incision is healed
- **NOTE:** Contact M.D. if patient does not have full knee extension by week 4

Modalities:

- Electrical muscle stimulation may be used during quad sets, multi-angle isometrics and SLR's as needed to reduce atrophy.
- Cryotherapy with knee in extension

Criteria for Advancement to Phase III:

- AROM/PROM 0-135 degrees (FULL)
- Quad strength 60% of unaffected LE (isometric test 60 degree knee flexion angle)
- Minimal effusion

Phase III – Controlled Ambulation Phase (Weeks 6-9)

Goals:

1. Restore full ROM
2. Improve LE flexibility
3. Improve ADL endurance
4. Control Forces during ambulation

BRACE: Fit for ACL brace. Physician will order if patient is to return to high activity/sport.

Therapeutic Exercise:

- Continue previous exercises
- Bicycle – 20 minutes
- Increase closed kinetic chain rehab
- Increase proprioception training
- Progress squat program and lunges
- Agility exercise

Modalities:

- Electrical muscle stimulation may be used PRN
- Cryotherapy with knee in extension

Special Activities:

- Pitching and putting for golf. (No Cleats)
- Throwing sports may throw (soft toss) – No pitching, No hitting, (no cleats)
- Bike on level ground
- Ambulate on level ground
- May swim easy for ROM and endurance using sidestroke or scissor kick – no flutter kicks, NO breast stroke kicks, NO butterfly

Criteria for Advancement to Phase IV:

1. Full ROM
2. Minimal effusion
3. Satisfactory clinical exam
4. No patellofemoral complaints
5. Quad strength 60% of unaffected LE
 - a. (Isokinetic test for athlete/high activity patient at 3-4 months at M.D. discretion)

Phase IV – Moderate Protection Phase (Weeks 9-12)**Goals:**

1. Protect patellofemoral joints articular cartilage
2. Maximal strengthening for quadriceps, lower extremity

Isokinetic Test:

- Full ROM 180 & 240 degrees/seconds (week 12-16) at M.D. discretion based on quad control and type of graft.

Therapeutic Exercise:

- Emphasize eccentric quad work
- Continue closed chain exercises, step ups, mini squats, leg press
- Continue knee extensions 90-40 degrees
- Hip abduction/adduction

- Hamstring curls and stretches
- Calf raises and stretches
- Bicycle for endurance
- Pool running (forward/backward)
Walking program
- Stair climber
- Initiate isokinetic work 100-40 degrees

Special Activities:

- Bowling, outdoor bike, jog on level ground, pitch & putt (No Cleats), lift/carry 20 pounds increasing by 20 pounds per month.

Criteria for Advancement to Phase V:

1. Full ROM
2. Minimal/no effusion
3. Satisfactory clinical exam

Phase V – Light Activity Phase (Weeks 12-16)

Goals:

1. Development of strength, power, and endurance
2. Begin to prepare for return to functional activities

Isokinetic Test: WEEK 12-16: at M.D. discretion based on quad control and type of graft.

Therapeutic Exercise:

- Continue strengthening exercises
- Initiate plyometric program
- Initiate running program
- Initiate agility drills – start easy 3 months (use discretion)
- Sport specific training and drills

Criteria to initiate running program:

1. Satisfactory clinical exam
2. Satisfactory isokinetic test
3. Functional test 70% of unaffected LE

Special Activities:

- 16 weeks– swim, shoot free throws, golf (NO cleats), volleyball (serving only, 2 man drills – NO diving. Only controlled lateral movements)
- 20 weeks – baseball, softball- hitting allowed now

Criteria for Advancement to Phase VI:

1. Isokinetic test that fulfills criteria
2. Functional test 80% - unaffected LE
3. Proprioceptive test 100% of unaffected LE

Phase VI – Return to Activity Phase (Weeks 20-24)

Goals:

1. Achieve maximal strength
2. Hop test > 85% limb symmetry
3. Further enhance neuromuscular coordination and endurance.

Therapeutic Exercise:

- Continue plyometric program
- Continue strengthening program
- Continue running and agility program
- Accelerated sport specific training and drills
- Continue closed chain strengthening program

6 MONTHS FOLLOW-UP

- Unlimited return at 6 months if isokinetic results are greater than 90% strength of unaffected LE.