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ACL HAMSTRING TENDON AUTOGRAFT RECONSTRUCTION GUIDELINES

PHASE I (Weeks 1-4)

GENERAL GUIDELINES

- Focus on protection of graft during primary revascularization (8 weeks) and graft fixation (8-12 weeks)
- No bathing/swimming until after suture removal and wounds healed
- Showering permitted with water-proof covering over sutures (Tegaderm/OpSite)
- Driving: Off all narcotic pain meds when operating vehicle
 - 1 week for automatic cars, left leg surgery
 - 2-4 weeks for standard/manual cars or right leg surgery
- Crutches for ambulation for 1-4 weeks as determined by MD/PT. Discontinue when gait is normalized (ie – no limp present)
- Brace use:
 - WBAT locked in extension for 1-2 weeks per MD/PT. Must demonstrate good quad control and SLR without lag to unlock brace.
 - Sleep with brace locked in extension for 2-3 weeks or per MD/PT order
- Return to work as determined by MD/PT dependent on work demands
- Use ice and elevation for swelling/pain control
- If performed in conjunction with meniscal repair or other surgery, defer to most restrictive guidelines

GOALS

- Protect repaired structures
- Educate patient on rehab progression
- Decrease inflammation and swelling
- Control pain
- Symmetrical active and passive knee extension/hyperextension ROM. Avoid hyperextension greater than 10 degrees.
- Passive knee flexion to 90 degrees
- Restore normalized gait on level surfaces within precautions
- Restore full patellar mobility
- Demonstrate good quad contraction

EXERCISES

- Quad sets
- Patellar mobilizations
- Heel slides limit to 90 degrees, AAROM prone knee flexion, seated flexion stretch
- Passive knee extension
- Hip SLR in 4 planes (in brace until can perform without quad lag)
- Gentle hamstring and gastrocnemius stretch
- Active assisted leg curls for 1 week. Progress to active and resisted as tolerated
- Aquatic therapy after sutures removed and wounds completely healed
- Stationary bike for ROM/strength
- Closed kinetic chain quad strengthening (wall sits, step-ups, mini-squats, leg press)
- Initiate proprioceptive exercises (single leg balance, ball toss, balance beam, BOSU, Airex)
- Calf strengthening

CRITERIA TO ADVANCE TO PHASE II

- Knee ROM: 0-90 degrees, AKHE
- Perform SLR without quad lag
- Normalized gait per precautions
- Normal patellar mobility
- Minimal swelling/inflammation

PHASE II (Weeks 4-12)

GOALS

- Eliminate inflammation and swelling
- Full knee ROM (0-135 degrees)
- Active knee hyperextension
- Normal gait on all surfaces without brace or assistive device
- Improve lower extremity strength
- Demonstrate stability with dynamic knee activities (no varus/valgus deviations)

EXERCISES

- Advance ROM
- Progress hip, quad, hamstring, calf strengthening. Avoid open chain quad strengthening 30-0 degrees.
- Cross-training machines for conditioning
- Advance lower extremity flexibility
- Advanced aquatic exercises

CRITERIA TO ADVANCE TO PHASE III

- Full knee ROM, including AKHE
- Demonstrates good quad strength with exercises
- Normal gait on all surfaces at community level distances
- Minimal swelling/inflammation
- No pain with exercises

PHASE III (Weeks 12-24)

GOALS

- Increase strength to >85% non-involved extremity
- Advance proprioception exercises
- Improve aerobic endurance
- Initiate plyometric exercises
- Physician clearance to initiate return to running and functional progression

EXERCISES

- Spin bike
- Cybex training
- Pre-running exercises (low skips, punch steps, double punch steps, hurdle walks, high skips, kickbacks, step-overs)
- Advance proprioceptive exercises (BOSU, single leg dynamic balance, dual task balance)
- Agility drills (ladder, side shuffles, crossovers, backwards run, quick start/stops, zig-zags, cutting)
- Jump training (shuttle training, trampoline, landing technique, box jumps, single leg hops, tuck jumps)
- Return to running – treadmill, with transition to level outdoor surfaces
- Continue strengthening - advance resistance and repetitions (ball hamstring curls, single leg press, core stabilization)

CRITERIA TO ADVANCE TO PHASE IV

- Lower extremity strength greater than or equal to 85% of non-involved by Cybex test
- Single leg hop test greater or equal to 85% of non-involved
- No pain with forward running, agilities, jump training, or strengthening
- Good knee control with single leg dynamic proprioceptive activities

PHASE IV (Weeks 24-full return)

GOALS

- Full return to sport activity
- Equal bilateral lower extremity strength
- Equal bilateral balance, proprioception, power in lower extremity
- 100% global function rating

EXERCISES

- Advance above exercises
- Gradually increase level of participation in sports-specific activities
- Running on all surfaces