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