

# **DUKE ORTHOPAEDICS OF RALEIGH**

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## **ACL PATELLAR TENDON AUTOGRAFT RECONSTRUCTION GUIDELINES**

### **PHASE I (Weeks 1-4)**

#### **GENERAL GUIDELINES**

- Focus on protection of graft during primary revascularization (8 weeks) and graft fixation (4-6 weeks)
- Showering is permitted when the wounds have been dry for 48 hours
- 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. Discontinue when gait is normalized (ie – no limp present)
- Brace use:
  - WBAT locked in extension for 1 week
  - Sleep with brace locked in extension for 1 week
- 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 activation

#### **EXERCISES**

- Quad sets
- Patellar mobilizations
- Heel slides, AAROM prone knee flexion, seated flexion stretch
- Passive knee extension
- Hip SLR in 4 planes (in brace until can perform without quad lag)
- Hamstring and gastrocnemius stretch
- 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