

**REHABILITATION FOLLOWING
PATELLA TENDON REPAIR**

GENERAL PRINCIPLES / PRECAUTIONS

- Wear brace / immobilizer at all times except during bathing and physical therapy for 6 weeks. Keep braced locked in extension for this time. This includes while sleeping.
- Bilateral crutches should be used for ambulation for 4-6 weeks and criteria must be met for independent ambulation.
- Keep incisions clean & dry until sutures are removed and incisions are healed.
- Edema / Effusion management & attaining full extension are top priority for proper treatment.
- Track or treadmill running should not be started before 4 months post-op.
- This protocol, as well as most others, is a general guideline. Patients should not be progressed to the next phase until they demonstrate proper form with all activities and all criteria are met in the current phase.
- ROM progressed slowly into flexion over 3-4 months
- Track or treadmill running should not be started before 4 months post-op.
- This protocol, as well as most others, is a general guideline. Patients should not be progressed to the next phase until they demonstrate proper form with all activities and all criteria are met in the current phase.
- Properly assess the whole body and incorporate treatment for loss of mobility and stability throughout. Not doing so can prevent optimal outcomes and increase risks of future injuries.

IMMEDIATE POST-OPERATIVE PHASE (Day 1 to Day 7)

- **Goals:**
 - Restore full passive knee extension.
 - Diminish joint swelling and pain.
 - Restore patellar mobility.
 - Controlled forces on repair site

POST-OPERATIVE DAY 1-4

- **Precautions:**
 - Locked immobilizer with compression wrap
 - Wear brace at all times with exception of showering and physical therapy
 - Toe Touch Weight-Bearing – 25% WB with crutches
- **Treatment**
 - Ankle Pumps
 - Isometric Quadriceps setting
 - Gastroc Towel Stretches
 - PROM knee flexion: 0-30°
 - Ice / Elevation / Compression for 20 minutes 3-4 times per day

POST-OPERATIVE DAY 4-7

- Treatment
 - PROM: 0-45°
 - Continue all listed exercises
 - Initiate gravity eliminated SLR flexion (assisted) with immobilizer
 - Continue ice / elevation / compression

MAXIMUM PROTECTION PHASE (Week 2-6)

- Goals
 - Minimize forces on healing tendon repair
 - Restore symmetrical knee extension
 - Gradually increase knee flexion
 - Diminish swelling and pain
 - Normalize patellar mobility
 - Minimize muscular atrophy
- Precautions
 - PROM:
 - Week 2: 0-60°
 - Week 3-4: 0-75°
 - Week 5: 0-80°
 - Week 6: 0-90°
 - Discontinue use of crutches at 5-6 weeks if no significant gait abnormalities present
- **Treatment (DAY 8-14)**
 - Continue all previous exercises
 - Initiate hip abduction/adduction with immobilizer
 - Continue ice / elevation / compression
 - Evaluate total body mobility and stability within precautions in order to progress training
- **Treatment (Day 15-28)**
 - Continue all previous exercises
 - Initiate weight shifts and proprioception drills in brace
- **Treatment (Weeks 5-6)**
 - Initiate pool exercise program
 - Continue all previous exercises listed above
 - Initiate sub-maximal multi-angle isometric knee extension
 - Initiate anti-gravity SLR flexion

MODERATE PROTECTION / NEUROMUSCULAR CONTROL PHASE (Week 7-10)

- **Criteria to Enter Phase**
 - AROM: 0-90°
 - Minimal to no joint effusion
 - Minimal to no joint line or patellofemoral pain
- **Goals**
 - Normalize ambulation and control force through patella tendon
 - Progress knee flexion ROM
 - Improve lower extremity muscular endurance and strength
 - Enhance proprioception, balance, and neuromuscular control
- **Precautions**
 - Discontinue sleeping in brace
 - Utilize unlocked post-op brace for ambulation until Week 8
 - ROM:
 - Week 7: 0-100°
 - Week 8: 0-105°
 - Week 10: 0-115°
 - Week 12: 0-125°
 - Week 16: Full AROM
- **Treatment (Week 7-10)**
 - Progress isotonic strengthening and proprioceptive control program
 - Initiate:
 - Active knee extension: 90-0°
 - ¼ - ½ squats
 - Leg Press (0-60°)
 - Wall Squats
 - Partial front and lateral lunges
 - Hamstring curls
 - Standing Calf raises
 - SL and DL stiff-legged elevated deadlifts
- **Treatment (Week 12-16)**
 - Continue all listed exercises
 - Initiate:
 - Lateral step-ups
 - Forward step-downs
 - Backward lunges
 - Walking program for lower body endurance

PROGRESSIVE STRENGTHENING / LIGHT ACTIVITY PHASE (Months 4-6)

- Criteria to Enter Phase:
 - Full AROM
 - Pain-free and 4/5 Gross Manual Muscle Testing
 - Minimal to no joint effusion
- Goals
 - Advance functional strength and endurance
 - Improve tensile properties of tendon
 - Initiate functional activities in preparation for return to athletic activities
- Treatment
 - Continue strengthening exercises with emphasis on eccentric control/deceleration and functional movements
 - Initiate at 5 Months:
 - Light plyometric drills
 - Lateral agility drills
 - Interval walk/run program at 5-6 months if criteria is met
- **Criteria required to begin interval running program:**
 - Able to perform brisk walk for 20 minutes
 - Quadriceps torque / body weight ratio (55% or greater)
 - Hamstrings / Quadriceps ratio (70% or greater)
 - Able to perform quality single leg squat to 45°
 - Able to perform 70% maximum contralateral leg press
 - Able to perform reciprocal bounding for 50 feet with appropriate form

RETURN TO ATHLETIC ACTIVITY PHASE (Months 7-9)

- Goals
 - Gradual return to full unrestricted sports
 - Achieve maximal strength and endurance gains
 - Normalize neuromuscular control
 - Progress skill training
- Treatment
 - Continue all strengthening exercises
 - Progress plyometric and power exercises/drills
 - Progress running and agility program
 - Gradual return to sport drills

DISCHARGE TESTING / PLANNING (typically done 9-12 months)

- Based on a patient's age, gender, and level that they are returning to (i.e. recreational, amateur, professional) a decision is made to endorse their return to sport/ higher level activity or to ask the patient to refrain from doing so. Currently our criterion includes, but is not always limited to the following.
 - Demonstrate quality and symmetrical movement throughout the body evaluated with comprehensive movement screen or assessment process.
 - Symmetrical and acceptable comprehensive scores on Y-balance LE testing
 - At least 90% symmetry when comparing right to left side per isokinetic test for the hamstrings and quadriceps
- Biomechanical assessment of their performance helps safe return to sport / higher level activity. Patient's may be videoed and analyzed doing activities such as running, jumping, hitting or throwing to see if sound body mechanics are being utilized.
- Not all patients who have undergone ACL repair are candidates for functional testing. Those undergoing these tests should be chosen with proper consideration given to what they plan to return to and there general fitness level.
- No matter how well a patient is doing with return to sport testing it is prudent to remember how important time is to full healing and safe return to sport / activity.
- Often times, patients are scheduled periodically during the phase in which they are trying to return to sport / higher level activities to assess their progress and properly change their program until they are deemed safe to return to all activities
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