ANDREWS INSTITUTE
ORTHOPAEDICS & SPORTS MEDICINE
An Affiliate of Baptist Health Care

REHABILITATION FOLLOWING PATELLA TENDON DEBRIDEMENT

GENERAL PRINCIPLES / PRECAUTIONS

- Wear brace / immobilizer at all times locked in extension except during bathing and physical therapy for 4 weeks. Bilateral crutches for 2 weeks then wean to none.
- Keep incisions clean & dry until sutures are removed and incisions are healed.
- Edema / Effusion management & attaining full extension are top priority for proper treatment.
- Bilateral crutches should be used for ambulation for 2-4 weeks and criteria must be met for independent ambulation.
- Track or treadmill running should not be started before 3 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 (days 1 to 7)

- **Goals**:
  - Diminish joint swelling and pain
  - Restore full passive knee extension
  - Restore patellar mobility
  - Re-establish quadriceps control
  - Gradually improve knee flexion
  - Normalize gait pattern with assistive device

- **Precautions**
  - Brace / immobilizer applied to knee, locked in full extension and worn at all times except for bathing and physical therapy.
  - Weight Bearing – two crutches, WBAT in locked immobilizer

- **Exercises / Treatment (day 1)**
  - Ankle pumps
  - Overpressure into full, passive knee extension
  - Isometric quadriceps setting with muscle stimulation
  - Gastroc towel stretch
  - Ice for 20 minutes every hour if needed.

- **Exercises / Treatment (day 2 to 3)**
  - Continue all previous exercises / treatment
  - Initiate heel slides (0-45°)
  - Patellar mobilizations x 4 directions (3-4 times per day)
  - Straight leg raise in locked immobilizer (4 directions if able)
  - Weight shifts while in brace

- **Exercises / Treatment (day 4 to 7)**
  - Continue all previous exercises / treatment
  - Sub-maximal multi-angle isometrics at 90 and 60°
  - Hip hinge dominant mini-squats and weight shifts
  - Proprioception and balance activities (i.e. cone walking / step overs)

EARLY REHABILITATION PHASE (Week 2-4)

- **Criteria to progress to this phase**
  - Minimal joint effusion
  - Full passive knee extension
  - Good patella mobility
  - Appropriate quadriceps control (ability to do SLR w/ no extension lag)
  - PROM 0-90°
  - Independent, pain-free ambulation

- **Goals**
  - Maintain symmetrical knee extension / hyperextension
  - Gradually increase knee flexion
  - Diminish swelling and pain
  - Normalize patella mobility
  - Improve muscle control and activation
  - Restore proprioception / neuromuscular control

- **Precautions**
  - Avoid deep squatting, lunging, stair negotiation utilizing affected leg

- **Exercises / Treatment (day 8-21)**
  - Continue all relevant previous treatment
  - Progress LE flexibility (hamstring, calf, hip mobility)
  - Eccentric quadriceps strengthening (40-100°)
  - ½ Squats
  - Standing hamstring curls
  - Seated Stepper or Stationary Upright Bicycle (~ 115° required for bicycle)
  - Progress closed-chain proprioception drills

PROGRESSIVE STRENGTHENING / NEUROMUSCULAR CONTROL PHASE (week 4-10)

- **Criteria to progress to this phase**
  - Full pain-free AROM
  - No pain with knee extension manual muscle testing
  - Minimal to no joint effusion
  - Minimal to no subjective pain

- **Goals**
  - Restore full knee ROM
  - Improve LE strength and endurance
  - Enhance proprioception, balance, and neuromuscular control

- **Precautions**
  - May gradually wean from knee immobilizer at Week 4

- **Exercises / Treatment (day 22 through 35)**
  - Continue all relevant previous treatment and progress resistance as tolerated
  - Eccentric Leg press (0-60°)
  - Long hold (0:45) multi-angle isometric leg extension (90 and 60°)
  - Progress hip and core musculature strengthening
  - Lateral mini band walks
  - Forward Step-up (2-4" box)
  - Lateral Heel taps (2-4" box)
  - Initiate pool program when incisions are fully healed

- **Exercise / Treatment (week 6-7)**
  - Continue all relevant treatment options
  - Concentric/Eccentric Leg Press (0-100°)
  - Initiate dynamic stretching
  - Retro-walking on treadmill
  - Pool running and agility
  - Reverse lunges
    - Progress to multi-directional lunging

- **Exercise / Treatment (week 8-10)**
  - Basic plyometric training drills
  - Retro-running on treadmill
  - Linear ladder agility drills

ADVANCED ACTIVITY PHASE (Week 10-16)

- **Criteria to enter phase V**
  - No pain or joint effusion
  - Full ROM
  - Quad strength 5/5 or higher
  - Subjective / functional knee scoring to 80% or higher

- **Goals**
  - Normalize functional LE strength
  - Enhance muscular power and endurance
  - Improve neuromuscular control
  - Perform selected sport-specific drills.

- **Exercises / Treatment (Weeks 10-12)**
  - Continue all relevant, previous treatment
  - Light sport-specific drills

- **Exercises / Treatment (Weeks 12-16)**
  - Continue all relevant, previous treatment
  - Lateral agility drills
  - May begin interval running program
    - **Criteria to Enter Phase VI / Interval running**
      - 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 brisk walk for 20 minutes
      - Able to perform reciprocal bounding for 50 feet with good form

RETURN TO ACTIVITY PHASE (Week 16-24)

- **Goals**:
  - Achieve maximal strength and endurance
  - Progress skill training
  - Progress proprioception / balance skills
  - Progress power

- **Exercises / Treatment**
  - Continue all relevant exercises / treatment
  - Progress overall strengthening / plyometric exercise
  - Progress sport specific drills

DISCHARGE TESTING / PLANNING. RETURN TO SPORT (usually done 5-6 months post-op)

- 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 CKC 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 patella debridement are candidates for functional testing. Those undergoing these tests should be chosen with proper consideration given to what they plan to return to and their 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