



## **Renny Uppal, M.D.**

### **Knee Multiple Ligament Injury Protocol**

The goals of this protocol are to protect the reconstructions while preventing knee stiffness, so early Passive ROM exercises are very important. In addition, preventing excessive anterior and/or posterior tibia translation is also very important.

#### **Goals:**

- ROM 0-90° – all ROM exercises must be performed in the prone or side lying position for the first 6 weeks
- Non-weight bearing in Brace and crutches for first 4 weeks, then 50% weight bearing weeks 4-6
- Pain/Edema reduction
- Begin and Enhance normalization of quad recruitment
- Prevent anterior/posterior translation and tibia rotation

#### **0-6 weeks post op**

- Modalities as needed
- Brace locked at 0° at all times except for ROM ex's by ATC or PT for first month
- Teach patient to perform Home Stretching Exercises 2 –3x's daily
- ROM Ex's: In prone position or side lying only, grip the heads of the gastroc/soleus group and maintain neutral pressure proximally to the tibia while flexing the knee
- Advance ROM as tolerated
- Begin patella mobilizations
- Scar management
- Quad sets/SLR in Brace at 0° (assist patient with this exercise until solid quad contraction developed, prevent posterior

sag) 13x10 3x's/daily, may use ankle weights as they will increase anterior translation

- No hamstring isometrics for seven weeks
- Seated calf ex's
- Teach Quad ex's for home program
- PT visits 2x/week for first month

#### **4 weeks post op**

- Cont. as above
- Ok to start 50% weight bearing
- Stationary Bike to increase ROM, start with high seat and progress to normal height when able, resistance as tolerated

#### **6-10 weeks post op**

- Cont. as above
- Ok to start full weight bearing
- Leg press with both legs
- Leg extensions with anti shear device or cuff weights progress weight as tolerated, keep resistance proximal
- Begin weaning off crutches, D/C brace and normalize gait mechanics

#### **10-12 weeks post op**

- Cont. as above
- May begin aquatic therapy emphasizing normal gait, marching forwards/backwards
- Full WB as tolerated
- ROM – prone flexion 120° or more, and advance to full ASAP
- Treadmill walking – forwards and retro
- Closed and Open Chain resistive tubing ex's
- Single leg stands for balance/proprioception
- Chair/Wall squats – keep tibia perpendicular to floor
- Unilateral step-ups – start with 2" height and progress to normal step height as able

#### **16 weeks post op**

- Cont. as above
- All ex's should be on affected leg only at this time
- ROM should be progressing, if not contact doctor
- Stairmaster, Versa Climber, Nordic Track and Elliptical Trainers
- Slide Board – start with short distance and progress as tolerated
- Cable Column ex's – retro walking, lateral stepping, NO cross over stepping or shuffling
- Standing leg curls with cuff weights or seated leg curls
- Advance strengthening for quads as tolerated

### **20 weeks post op**

- Cont. as above
- Advance hamstring strengthening into prone position
- Assessment of jogging on treadmill
- Lateral Movement supervised by ATC or PT
  - Stepping, shuffling, hopping, carioca
- Isokinetic Exercises

### **24 – 32 weeks post op**

- Cont. as above
- Initiate plyometric program as appropriate to patient's functional goals
- If plyometric exercise intensity is high the volume must be decreased, give ample recovery time between sets
- 2-3 sessions a week preferably on weight lifting days
- Initiate sport specific activities under supervision by ATC or PT

### **32 weeks post op (8 months +)**

- Cont. as above
- Emphasize strength and power development
- Running and sport specific drills under ATC or PT supervision
- Isokinetic test for Quad strength difference  $\leq 15\%$  and unilateral Hamstring/Quad strength ratio of 65% or better
- Cont. strength testing monthly until patient passes then perform functional testing
- Functional testing is appropriate for people returning to advanced recreational activities or sports
- Clearance by doctor prior to return to sport