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Medial Collateral Ligament and MPFL Repair Rehabilitation Protocol

General Guidelines: Immediate Post-op • **No passive extension or passive flexion exercises** • Gentle AROM or AAROM knee flexion is permitted within MD limitations (usually 90 degree limit for the first 6 weeks and then slow ROM progression as the capsular structures allow- use pain as a guide) • **Only active extension ROM exercises for the first 6 weeks • NWB with bilateral crutches and brace for the first 6 weeks** • Brace locked at 20 degrees for the first week and then opened by MD or lead PT or ATC to the patient's available ROM. Brace can be opened as the patient's active ROM progresses. The brace should never be opened to a range which forces ROM or passively stretches the patients

Minimum ROM goals
• Week 1-2: 0-30 degrees
• Week 3: 0-45 degrees
• Week 4: 0-60 degrees
• Week 6: 0-90 degrees
• Week 8: 0-110 degrees
• Week 10: 0-125 degrees
• Week 12: 0-130/135 degrees

Post-op Weeks 0-2 • Ambulation-2 Crutches and NWB • Perform dressing change-notify MD if any signs of excessive drainage, signs of infection or DVT or any other potential complications • Can use vasopneumatic pump and cryotherapy to decrease swelling • High volt galvanic stimulation (HVG) can also be used along with ice to decrease swelling • Patient should be instructed to keep leg elevated (knee bent 20-30 degrees to take stress off repaired MCL), wear ace bandage and to ice knee for 15-20 minutes at least 4-5 times per day • Pre-modulation or interferential electrical stimulation can be used to decrease postoperative pain • Biofeedback and/or electrical muscle stimulation can be used to facilitate quadriceps contraction • Patellar mobilization (3-4 times per day): Medial, Superior, Inferior (NO lateral mobilization secondary to medial patellofemoral ligaments and VMO being surgically repaired) • Ankle pumps, and quad sets performed with the knee supported within the patient's available ROM • Brace opened in patient's available ROM for flexion • MD will determine when brace is opened for extension. • Supine SLR performed with the knee supported with brace on- instruct the patient to emphasize a quad set with maximum knee extension as they raise the leg • Modalities for pain and swelling

Post-op Weeks 2-4 • Hip abduction and Hip extension SLR with brace on - emphasize knee extension as they raise the leg (**Hip adduction SLR should never be performed secondary to the MCL repaired**) • AROM for extension and PROM flexion • Supine SLR performed in sets of 10- no ankle weights added until the patient can perform 8 sets of 10 with good form (add ankle weights in 1 pound increments) • Hamstring and calf stretching with the knee supported- emphasis on muscle flexibility, and not capsular stretching • Theraband ankle PF with the knee supported • Brace opened in patient's available ROM • Modalities for pain/inflammation • Functional e-stim of quadriceps

Post-op Weeks 4-6 • Standing hip flexion, abduction, and extension T-band or cable column exercises • Active standing TKE with minimal WB-emphasis on active concentric quad contraction and eccentric soleus contraction (the heel should stay on the ground) • Brace opened in patient's available ROM • Multi-angle quadriceps isometrics • Seated calf raises • Modalities continued

Post-op Weeks 6 • Progress WB as tolerated (Physician Direction) – 50-75% at 6 weeks, 75-100% at 7 weeks and progress to full WB at 8-10 weeks – Discontinue crutches at 8-10 weeks when patient has good quad control and can walk with a normal gait pattern and no limp and no complaints of pain – Gait training should emphasize full knee extension with a quad contraction as the heel contacts the ground, continued knee extension and quad contraction during mid-stance, and knee flexion with ankle plantarflexion at toe off. Common compensations include knee flexion at heel strike, excessive hip and trunk flexion at heel strike, early knee flexion at mid-stance, and hip hiking at toe off. All compensations should be minimized. • Active SAQ if no pain in patellofemoral joint, no pain in area of VMO and no tibial tuberosity pain and no crepitus or increased swelling • Begin gentle submaximal Multi-angle (MAI) quadriceps isometric exercise if pain-free in PF joint, no VMO pain, no tibial tuberosity pain and no crepitus • PROM for knee extension to achieve the last 10 degrees • Initiate weight shifts at 6-8 weeks post-op • Leg press (0-30-45 degrees) can begin at 8-10 weeks post-op as long as pain-free and no crepitus or increased swelling as tolerated. Begin with bilateral leg progress and gradually progress to unilateral as tolerated • Wall slides or mini-squats 0-30 degrees can begin at 10 weeks post-op as long as painfree and no crepitus or increased swelling • Progress SAQ resistance at 8 weeks post-op progressing 1 lb. increments as tolerated • Stationary bike (gradually increase time) • Balance and proprioception drills • Continue use of electrical stimulation and biofeedback as needed • Continue use of pool for gait training and exercise

Week 7 Post-op

• Progress ambulation to 1 crutch or cane and 75-100% WB with normal gait pattern
• Standing gastroc and soleus stretch
• Physioball two leg bridge
• Bike: if ROM allows, low resistance

Week 8 Post-op

• Progress to FWB ambulation without any assistive device if patient is able to walk with normal gait pattern
• Cone walk-forward and laterally
• One leg standing balance
• Begin adding resistance for SAQ's in pain-free ROM and progress as tolerated
• Leg Press Machine (2 legged) begin at 0-30 degrees and then progress to 0-45 degrees as tolerated as long as no pain, crepitus or increased swelling
• Total Gym Leg Press if available in safe pain-free ROM

Week 9 Post-op

• One leg balance-Airex
• BOSU forward/back and side to side

Week 10 Post-op

• One leg heel raise
• Begin physioball wall squats or wall slides 0-30 degrees and then progress to 0-45 degrees as tolerated
• Leg Press Machine (2 legged) progress to 0-60 degrees as tolerated as long as no pain, crepitus or increased swelling
• Begin Leg Press-(one legged) from 0-30 degrees and progressing to 0-45 degrees as tolerated
• Progress SAQ resistance as tolerated as long as no pain, crepitus or increased swelling
• Treadmill walking to increase endurance and cadence
• Elliptical machine to increase endurance

Week 11 Post-op

• BOSU mini-squats (0-45 degrees)
• Physioball wall squats or wall squats 0-60 degrees
• Physioball one leg bridge
• Physioball two leg leg curl for hamstrings

Week 12 Post-op

• Front Step-ups (begin at 2" and then progress to 4", 6" and 8" as long as pain-free)
• Lateral step-ups (begin at 2" and then progress to 4", 6" and 8" as long as pain-free)
• Step down (begin at 2" and then progress to 4", 6" and 8" as long as pain-free)
• Begin hamstring curl machine
• Quadriceps stretch in sidelying or prone
• Lateral shuffle with band
• Monster walk with band
• Physioball one leg leg curl for hamstring

III. Phase III: Remodeling Phase (weeks 12-26)

Criteria to progress to Remodeling phase

• Full ROM
• Acceptable strength level
• Hamstrings within 20% of contralateral extremity
• Quadriceps within 30% of contralateral extremity
• Balance testing within 30% of contralateral extremity
• Able to bike for 30 minutes

Goals:

• Improve muscular strength and endurance
• Increase functional activities

ROM:

• Patient should exhibit 0-135 degrees flexion

Strengthening and Endurance Exercise Program:

• Continue progressing exercises
• Leg Press 0-60 degrees
• Bilateral squats (0-60 degrees)
• Unilateral step-ups (2-4-6-8 inches)
• Forward lunges (limited range) if no pain, crepitus or increased swelling
• Progress walking program on the treadmill
• Bicycle
• Swimming (no whip kick or butterfly stroke)
• Elliptical

Functional Activities

• Increase walking (distance, cadence, incline, etc.)

4 month Post-op

• Airex box drill with band for 4 way hip
• Cone reach with knee straight
• Cone reach with knee bent slightly
• May consider forward lunge (limited range of motion) if no history of PF crepitus and no increase in pain or swelling with lunge

Criteria to Start Running/Agility Program

• MMT at least 5/5, ROM equal to uninvolved side or at least 0-125
• Normal gait pattern at least 20 minutes without symptoms
• Leg Press test within 75-80% of contralateral LE
• Hamstring and quadricep strength 70 % of the involved side isokinetically
• Lateral step test within 75-80% of contralateral LE
• No pain, crepitus, edema or giving way
• Clearance from MD

5-12 Months Post-op

• Lateral shuffle/Carioca
• Agility Ladder
• Sport Cord Jogging
• Reduced Impact Treadmill Jogging or Aquatic Jogging and Water Aerobics

IV. Phase IV: Maturation Phase (weeks 26-52)

Criteria to Progress to Phase IV Maturation Phase

• Full non-painful ROM
• Strength within 80-90% of contralateral extremity
• Balance and/or stability within 75-80% of contralateral extremity
• No pain, inflammation or swelling

Phase IV Maturation Phase Goals:

• Gradual return to full unrestricted functional activities

Phase IV: Maturation Phase (weeks 26-52) Exercises:

• Continue maintenance program progression 3-4 times per week
• Progress resistance as tolerated
• Emphasis on entire lower extremity strength and flexibility
• Progress agility and balance drills
• Impact loading program should be individualized to the patient's needs
• Progress sport programs depending on patient variables

Criteria to Return to Sports

• Completion of running and agility program without symptoms with good form
• Quadriceps strength 85-90 %
• Hamstring strength 85-90 %
• Good balance and proprioception Updated 1/16/14