Musculoskeletal Institute 263 Farmington Ave Farmington, CT 06030 Avon Office 2 Simsbury Rd. Avon, CT 06001



Office: (860) 679-6600 Fax: (860) 679-6649

REHAB PROTOCOL: MPFL RECONSTRUCTION WITH TTO/AMZ

I. Immediate Postoperative Phase (Day 0-7)

Brace: Bledsoe brace locked in extension for 2 weeks

Weight bearing: Two crutch weight bearing as tolerated

Exercises: Ankle pumps

Ice and Elevation: Ice 24/7 for the first week and elevate leg with knee in full extension as much as possible

II. Early Motion Phase (Week 1-4)

1st Post op appointment within 1 week of surgery

Goals:

Start immediate range of motion

Full passive knee extension Diminish swelling and pain

No loaded knee flexion past 70 degrees for 4 weeks

Quadriceps activation (straight leg raises, quad set)

Electrical stimulation

Exercise bike

<u>Brace</u>: Bledsoe brace locked in extension or 70 degree flexion stop. May transition into lateral stabilization brace at 4 weeks when quadriceps activation is appropriate.

Weight bearing: Without crutches as tolerated with brace on at all times.

Range of motion: Self-ROM (4-5 times daily using the other leg to provide ROM), emphasis on

maintaining zero degrees passive extension

- Gradual progression to full range of motion

III. PROGRESSIVE STRENGTHENING/NEUROMUSCULAR CONTROL PHASE (Week 4-14)

2nd post op appointment 4 weeks after surgery

X-rays

Week 4:

Goals: Start strengthening as soon as tolerated

Gait training Hip strengthening Single leg squats

Exercises:

Progress isometric strengthening program Leg Press (0-100 degrees) 10-20lbs Knee extension 90 to 40 degrees Hip Abduction and Adduction Hip Flexion and Extension Wall Squats

Vertical Squats

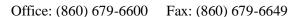
Standing Toe Calf Raises Seated Toe Calf Raises

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Biodex Stability System (Balance, Squats, etc)

Bicycle

Stair Stepper Machine

Pool Program (Backward Running, Hip and Leg Exercises)

Week 6

Exercises:

Continue all exercises

Pool running (forward) and agility drills

Balance on tilt boards

Progress to balance and ball throws

Wall slides/squats

Week 8

Exercises:

Continue all exercises listed in Weeks 4-6

Leg Press Sets (single leg) 0-100 degrees and 40-100 degrees

Plyometric Leg Press Perturbation Training

Isokinetic exercises (90 to 40 degrees) (120 to 240 degrees/second)

Walking Program

Bicycle for endurance

Stair Stepper Machine for endurance

Biodex stability system

Training on tilt board

Week 10

Isokinetic Test - Concentric Knee Extension/Flexion at 180 and 300 degrees/second

Exercises:

Continue all exercises listed in Weeks 6, 8 and 10

Continue Stretching Drills

Progress strengthening exercises and neuromuscular training

3rd post op appointment 3 months post op

Kajula Score and x-ray

IV. ADVANCED ACTIVITY PHASE (Week 10-16)

Criteria to Enter Phase IV

- 1) AROM 0-125 degrees or greater
- 2) Quad strength 75% of contralateral side, knee extension flexor: extensor ratio 70% to 75%
- 3) No pain or effusion
- 4) Satisfactory clinical exam by Dr. Coyner
- 5) Satisfactory isokinetic test (values at 180 degrees)



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- Quadriceps bilateral comparison 75%
- Hamstrings equal bilateral
- Quadriceps peak torque/body weight 65% at 180% (males) 55% at 180% (females)
- Hamstrings/quadriceps ratio 66% to 75%
- 6) Subjective knee scoring (modified Noyes System) 80 points or better

Goals: Normalize lower extremity strength

Enhance muscular power and endurance

Improve neuromuscular control Perform selected sport-specific drills

Exercises:

- *May initiate running program (weeks 10-12) (Physician Decision) with brace
- *May initiate light sport program (golf) (Physician Decision) with brace
- *Continue all strengthening drills
 - Leg press
 - Wall squats
 - Hip Abd/Adduction
 - Hip Flex/Ext
 - Knee Extension 90-40
 - Hamstring curls
 - Standing toe calf
 - Seated toe calf
 - Step down
 - Lateral step ups
 - Lateral lunges
 - Plyometric leg press
- *Neuromuscular training
 - Lateral step-overs cones
 - Lateral lunges
 - Tilt board drills

Week 14-16

Progress program Continue all drills above May initiate lateral agility drills Backward running

6 Month Follow Up

X-ray

Kujala core and girth measurements

V. RETURN TO ACTIVITY PHASE (Month 16-22)

Criteria to Enter Phase V

- 1) Full Range of Motion
- 2) Isokinetic Test that fulfills criteria
- 3) Quadriceps bilateral comparison (80% or greater)
- 4) Hamstring bilateral comparison (110% or greater)
- 5) Quadriceps torque/body weight ratio (55% or greater)

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- 6) Hamstrings/Quadriceps ratio (70% or greater)
- 7) Proprioceptive Test (100% of contralateral leg)
- 8) Functional Test (85% or greater of contralateral side)
- 9) Satisfactory clinical exam
- 10) Subjective knee scoring (modified Noyes System) (90 points or better)

Goals: Gradual return to full-unrestricted sports
Achieve maximal strength and endurance
Normalize neuromuscular control

Progress skill training

Tests - KT 2000, Isokinetic, and Functional Tests before return

Exercises *Continue strengthening exercises

- *Continue neuromuscular control drills
- *Continue plyometric drills
- *Progress running and agility program
- *Progress sport specific training
 - Running/cutting/agility drills
 - Gradual return to sport drills

1 Year follow up

X-ray

Kujala core and girth measurements