# Katherine J. Coyner, MD UCONN www.DrCovner.com

# **Musculoskeletal Institute** 263 Farmington Ave

**Avon Office** 2 Simsbury Rd. Farmington, CT 06030 Avon, CT 06001



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

#### REHAB PROTOCOL: MPFL RECONSTRUCTION WITHOUT TTO/AMZ

## 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 to 90 degrees flexion

Full passive knee extension

Diminish swelling and pain

Quadriceps activation (straight leg raises, quad set)

Electrical stimulation

Exercise bike

Brace: Bledsoe brace locked in extension or 30 degree flexion stop. May transition into lateral stabilization brace at 3 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

- PROM 0-90 degrees until 4th week

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

## 2<sup>nd</sup> post op appointment 4 weeks after surgery

X-ravs

## Week 4:

Start strengthening as soon as tolerated Goals:

> Gait training Hip strengthening Single leg squats

#### Exercises:

Progress isometric strengthening program

Leg Press (0-100 degrees) 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

Biodex Stability System (Balance, Squats, etc)

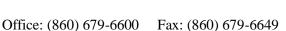
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**Bicycle** 

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

# 3rd post op appointment 8 weeks post op

Kujala score

### 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

## 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)
  - Quadriceps bilateral comparison 75%



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- 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

# 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)
- 6) Hamstrings/Quadriceps ratio (70% or greater)
- 7) Proprioceptive Test (100% of contralateral leg)
- 8) Functional Test (85% or greater of contralateral side)

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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 plyometrics drills

\*Progress running and agility program

\*Progress sport specific training

- Running/cutting/agility drills

- Gradual return to sport drills

# 6 Month Follow Up

X-ray

Kujala core and girth measurements

## 1 Year follow up

X-ray

Kujala core and girth measurements