# Advanced Orthopedics and Sports Medicine
# Arthroscopic Meniscetomy -Treatment Guideline

## Phase I: Immediate Post-operative (IP) 0-2 weeks

**Evaluate:**

1. Pain
2. Hemarthrosis
3. Patellar mobility
4. ROM
5. Quadriceps contraction
6. Soft tissue tightness/flexibility.
7. Subjective functional scores (eg LEFS)

**Goals:**

1. Diminish inflammation, swelling and pain of the knee.
2. Gradually increase ROM 0-120
3. Re-establish quadriceps muscle control.
4. Wean patient off crutches and emphasize normal gait.
5. Promote normal proprioceptive and neuromuscular control.

**Precautions:**

**1.** Watch for infection (constant throbbing pain, systemic signs), DVT

**Treatment Summary:**

1. Modalities include electrical stimulation for re-education of quadriceps contraction or electrical stimulation for pain relief (IFC, TENS) or edema control (HVPG). Ice and compression (elevation) for pain control should also be used as appropriate.
2. Mobs/MFR: Initiate patellar mobilization for normal patellar mobility, manual retrograde massage (efflurage) for swelling, soft tissue massage for muscle guarding and pain.
3. Range of motion exercises include but not limited to heel slides, heel props, wall slides, prone hangs, ankle pumps. Goal 0-120.
4. Stretching for flexibility of lower extremity musculature includes but not limited to the following musculature hamstrings, gastrocnemius, iliotibial band, quadriceps, hip flexors.
5. Strengthening exercises include but not limited to Quadricep sets at multiple angles (0, 20, 40, 60), gluteus sets, hamstrings sets, SLR all directions. NWB proprioceptive exercises. Lumbopelvic/ "core" stabilization exercises. CKC exercises to include heel raises and PWB squats as tolerated
6. Gait training: Progressive weight bearing. Wean off crutches when gait normalizes.

**Criteria for progression:**

1. If greater than 10% bilateral difference in swelling, ROM then rehab focused on specific parameter.
2. Good pain control (< 2-3/10 with all exercise)
3. Performance of SLR without an extension lag.

## Phase II: Early Rehabilitative (ER) 2-6 weeks

**Evaluate:**

1. Pain
2. Effusion
3. Patellar mobility
4. ROM
5. Muscle control/Manual muscle testing.
6. Gait
7. Soft tissue tightness/flexibility
1. Subjective functional scores (eg LEFS)

**Goals:**

1. Restore full knee range of motion 0-135.
2. Continue to improve total leg strength
3. Improve endurance capacity of the muscles
4. Improve proprioceptive, balance and neuromuscular control
5. Improve limb confidence and function

**Treatment Summary:**

1. Physician/physical therapist will determine when to discontinue the crutches, and brace.
2. Modalities include electrical stimulation for re-education of quadriceps contraction or electrical stimulation for pain relief (IFC, TENS) or edema control (HVPG). Ice and compression (elevation) for pain control should also be used as appropriate.
3. Mobs/MFR: Includes but not limited to patellar mobilization for normal patellar mobility, manual retrograde massage (efflurage) for swelling, soft tissue massage for muscle guarding and pain. May initiate tibiofemoral joint glides to improve knee range of motion.
4. Range of motion exercises include but not limited to heel slides, wall slides, Prone hangs, ankle pumps. Goal knee ROM 0-120 by wk 6.
5. Stretching: same as previous phase.
6. Strengthening exercises include but not limited to multi-angle isometric Quadricep sets, SLR all planes, active/resisted knee extension (90-30). Add resistance to Quadriceps exercise not greater than 10% body weight. Closed chain exercises (CKC) includes but not limited to heel raise, Mini squats, step ups forward/sideways in protected range. Progress to resisted hamstring curls to 90, multihip and leg press exercises, step ups forwards/sideways and backwards, lunges, tubing walks. Advanced strengthening exercises can be added on unstable surfaces (eg squats on BOSU or balance board), lunges per patient tolerance. Emphasize single leg exercises to decrease compensation.
7. Balance training includes single leg balance, balance board, BOSU, reaction ball, star balance
8. Aerobic exercise can include leg bike, pool walking/running, swimming (Avoid breast stroke), elliptical.
9. Gait training: Cone/cup walking exercises for normalization of gait. Backward walking for co-ordination.

**Criteria for progression:**

1. No increase in effusion with 20-30 minutes of biking or ambulating.
2. Good pain control (< 2-3/10 with exercises)
3. If greater than 10% bilateral difference in swelling, 0-120 ROM then rehab focused on specific parameter.
4. Patient has normal gait pattern
5. Bilateral squats without compensation, unilateral squat to 70.

## Phase III: Progressive Strengthening (PS) 6-9 weeks

**Evaluate:**

1. Pain
2. Effusion
3. ROM
4. Manual muscle testing.
5. Gait
6. Soft tissue tightness/flexibility
7. Functional tests , Isokinetic Testing.
8. Subjective functional scores (eg LEFS)

**Goals:**

1. Incorporate sports specific activity.
2. Introduce agility and reaction time into proprioceptive work
3. Increase total leg strength
4. Develop patient confidence.

**Treatment Summary:**

1. Modalities PRN as indicated. Ice and compression (elevation) for pain control should also be used as appropriate.
2. Mobs/MFR: Patellorfemoral and Tibiofemoral joint mobs PRN. Initiate perturbation training.
3. Range of motion: Focus on end range of motion exercises.
4. Stretching: same as previous phase.
5. Strengthening exercises: Continue/progress strengthening exercises phase II..
6. Balance training : advanced balance training (focus on unilateral exercises)
7. Aerobic exercise can include leg bike, pool walking/running, swimming (Avoid whip/frog kick), elliptical.
8. Agility exercises: Forward and lateral agility exercises. Jump landing training, advanced perturbation and stability exercises.
9. Gentle plyometric exercises on level surfaces double legged by week 7-8 if < 20% deficits on isokinetic testing. Progress plyometric and box drills by week 9.

10. Running program: Initiate return to running at wk 8. Includes but not restricted to jogging straight line, backpedals, progression to quick starts and stops and increasing speed and distance. Running and agility (and cutting maneuvers) drills only if < 30% deficit on isokinetic testing and/by wk 9.
    a. Sprint-Front
    b. Sprint Retro Run
    c. Side Shuffles – Both Ways
    d. Cariocas – Both Ways
    e. Figure 8's – Both Ways
    f. 45° Angle Cuts – Both Ways
    g. 90% Angle Cuts – Both Way
    h. Cross-Over Steps – Both Ways

**Criteria for Progression:**

1. Balance and proprioception should be within 10% of the uninvolved lower extremity.
2. Full pain free AROM equal to uninvolved LE.
3. Less than 25% difference in quadriceps side to side comparison with isokinetic testing at wk 9

## Phase IV: Return to Sports (RS) 9-12 weeks

**Evaluate:**

1. Manual muscle testing.
2. Functional tests , Isokinetic Testing.
3. Sports Specific Testing
4. Subjective functional scores (eg LEFS)

**Goals:**

1. 10-15% difference in Isokinetic testing
2. 85% of uninvolved lower extremity on functional tests (one legged distance hop, one-legged timed hop, % limb symmetry)
3. Proprioceptive test 100% of opposite side
4. Return to sports safely and with confidence

**Treatment Summary:**

1. Continue stretching exercises.
2. Continue strengthening exercises.
3. Continue neuromuscular control drills
4. Functional Training: Plyometric training (box hops), sports specific drills if < 15% deficits on isokinetic test.
5. Progress sports specific training: running/cutting/agility drills. Gradual return to sports drills.
6. Balance exercises: Continue and progress Phase III
7. Aerobic exercise can include leg bike, water walking, swimming, walking, stair machine, ski machine.

**Criteria for return to Sports/Work (9-12 weeks)**

1. No pain or effusion with full ROM
2. Isokinetic strength: quadriceps bilateral comparison 80% or greater, hamstrings bilateral comparison of 110%, quadriceps torque/body weight ratio 55% or greater, hamstrings/quadriceps ratio 70% or greater
3. Functional tests 90% of uninvolved LE
4. Proprioceptive test 100% of contralateral side.
5. Begin following sports at discretion of surgeon and/or physical therapist:
    a. Running at 8-12 weeks
    b. Mountain biking 6-8 weeks
    c. Golf at 6 weeks
    d. Soccer football, tennis: 2-3 months
    e. Skiing and snowboarding: 2-3 months.