Post-operative Rehabilitation Protocol
ACL Reconstruction with Meniscus Repair or Microfracture

___ Meniscus Repair

___ Microfracture

Phase I: Immediately postoperative (weeks 0-4)

Goals:
- Protect graft and graft fixation
- Minimize effects of immobilization
- Control inflammation/swelling
- ROM: 0-90 when supine (such as heel slides) for pts with meniscus repair.
- Brace 0-90 degrees for ADLs until 6 weeks post-op for patients with meniscus repair.
- Educate patient on rehabilitation progression
- Full ROM and not brace for patients with microfracture

Weight bearing Status:
- TTWB (25%) for 2 weeks, 50% until 4-6 weeks post-op, then advance to full weight bearing.

Exercises:
- Patellar mobilization/scar mobilization
- Hamstring curls – add weight as tolerated
- Heel slides
- Quad sets (consider NMES for poor quad sets)
- Gastroc/Soleus stretching
- Hamstring stretches
- Gastroc/Soleus strengthening
- SLR, all planes, with brace in full extension until quadriceps strength is sufficient to prevent extension lag – add weight as tolerated to hip abduction, adduction and extension.
- Closed Kinetic Chain Quadriceps strengthening activities as tolerated (wall sit, step ups, mini squats, leg press 90-30 degrees)
- Quadriceps isometrics at 60° and 90°
- Balance/Proprioception
• Stationary Bike – initially for promotion of ROM – progress light resistance as tolerated

Criteria for advancement to Phase II:
• Full PROM flexion/extension
• Good quad set, SLR without extension lag
• Minimal swelling/inflammation
• Normal gait on level surfaces

**PHASE II: Post-operative weeks 4 to 10**

Goals:
• Restore normal gait with stair climbing after brace is discontinued at 6 weeks
• Maintain full extension, progress toward full range of motion at 6+ weeks
• Protect graft and graft fixation
• Increase hip, quadriceps, hamstring and calf strength
• Increase proprioception

Exercises:
• Continue with range of motion/flexibility exercises as appropriate for the patient
• Continue closed kinetic chain strengthening as above, progressing as tolerated – can include one-leg squats, leg press, step ups at increased height, partial lunges, deeper wall sits, lunge walks.
• Stairmaster (begin with short steps, avoid hyperextension)
• Nordic Trac or elliptical machine for conditioning.
• Stationary bike- progress time and resistance as tolerated
• Continue to progress proprioceptive activities for patellar tendon autograft procedures, initiate for hamstring tendon autograft procedures – ball toss, balance beam, mini-tramp balance
• Continue hamstring, gastroc/soleus stretches
• If available, begin running in the pool (waist deep) or on an unweighted treadmill at 8 weeks.

Criteria to advance to Phase III include:
• No patellofemoral pain
• Minimum of 120 degrees of flexion
• Sufficient strength and proprioception to initiate running.
• Minimal swelling/inflammation

**PHASE III: Post-operative weeks 10 to 16**

Goals:
• Full range of motion
• Improve strength, endurance and proprioception of the lower extremity to prepare for sport activities
• Avoid over stressing the graft,
• Protect the patellofemoral joint
• Normal running mechanics
• Strength approximately 70% of the uninvolved lower extremity per isokinetic evaluation (if available)

Exercises:
• Continue flexibility and ROM exercises as appropriate for patient
• Initiate OKC Knee extensions 90°-30°, progress to eccentrics
• If available, isokinetics (with anti-shear device) – begin with mid-range speeds (120o/sec- 240o/sec)
• **Progress toward full weight bearing running at 12 weeks**
  • Begin swimming if desired
  • Recommend isokinetic test with anti-shear device at 12 weeks to guide continued strengthening.
  • Progressive hip, quadriceps, hamstring, calf strengthening
  • Cardiovascular/endurance training via Stairmaster, elliptical, bike
  • Advance proprioceptive activities

Criteria for advancement to Phase IV:
• No significant swelling/inflammation.
• Full, pain-free ROM
• No evidence of patellofemoral joint irritation
• Strength approximately 70% of uninvolved lower extremity per isokinetic evaluation
• Sufficient strength and proprioception to initiate agility activities
• Normal running gait

**PHASE IV: Post-operative months 4 through 6**

Goals:
• Symmetric performance of basic and sport specific agility drills
• Single hop and 3 hop tests 85% of uninvolved lower extremity
• Quadriceps and hamstring strength at least 85% of uninvolved lower extremity per isokinetic strength test

Exercises:
• Continue and progress flexibility and strengthening program based on individual needs and deficits.
• Initiate plyometric program as appropriate for patient’s athletic goals
• Agility progression including, but not limited to:
  Side steps
  Crossovers
  Figure 8 running
  Shuttle running
  One leg and two leg jumping
  Cutting
  Acceleration/deceleration/sprints
  Agility ladder drills
  Continue progression of running distance based on patient needs.
  Initiate sport-specific drills as appropriate for patient
  Assessment of running on treadmill

Criteria for advancement to Phase V:
• No patellofemoral or soft tissue complaint
• Necessary joint ROM, strength, endurance, and proprioception to safely return to work or athletics

**PHASE V: Begins at 6 months post-op**

Goals:
• Safe return to athletics/work
• Maintenance of strength, endurance, proprioception
• Patient education with regards to any possible limitations

Exercises:
- Gradual return to sports participation
- Ok to begin practice with team and reintegrate into scrimmaging at practice gradually
- Maintenance program for strength, endurance