KNEE MENISCUS REPAIR POST-OPERATIVE GUIDELINES

The following Meniscus Repair Guidelines were developed by HSS Rehabilitation. Progression is both criteria-based and patient specific. Phases are designed to give the clinician a general sense of progression but do not replace clinical judgement. Progression through the phases may vary in individuals with concomitant injuries such as degenerative joint disease, patellofemoral pain syndrome, and ligament reconstruction. Timelines for these distinct patient populations will vary greatly, thus achievement of milestones is recommended for advancement to higher level activities such as running, plyometrics, and sports. Patients undergoing this procedure typically present differently depending on their tear types. Location and classification of tear may alter progression throughout the guideline, so it is strongly recommended that tear type is confirmed prior to initiating treatment and then should be addressed appropriately.

FOLLOW SURGEON MODIFICATIONS AS PRESCRIBED.
KNEE MENISCUS REPAIR POST-OPERATIVE GUIDELINES

Acute Care Phase

PRECAUTIONS

- Avoid prolonged sitting, standing, walking
- Avoid painful activities
- Avoid weight bearing without brace and keep brace locked at 0 degrees
- Avoid ambulating without crutches
- Do not place a pillow under the operated knee, keep extended when resting and sleeping
- No knee flexion past 90 degrees (if surgeon recommendation differs follow prescription)

ASSESSMENT

- Mental status (alert and oriented x 3)
- Numeric Pain Rating Scale (NPRS)
- Wound status
- Edema
- Post-anesthesia sensory motor screening
- Active assisted range of motion (AAROM) of knee
- Functional status

TREATMENT RECOMMENDATIONS

- Patient education
  - Edema management
  - Activity modification
  - Brace management: locked in extension
- Transfer training
- Gait training: weight bearing as tolerated (WBAT) (unless instructed otherwise) with brace locked in extension and assistive device on level surface and stairs
- Initiate and emphasize importance of home exercise program (HEP)
  - Passive knee extension with towel roll under heel
  - Seated AAROM to 90 degrees flexion limit
  - Quadriceps sets, gluteal sets, ankle pumps
  - Straight leg raise (SLR), if able, with brace locked in extension
CRITERIA FOR ADVANCEMENT

 Independent with brace management
 Independent transfers
 Independent ambulation with appropriate assistive device on level surfaces and stairs
 Independent with range of motion (ROM) restrictions
 Independent with HEP

EMPHASIZE

• Control edema
• Independent transfers
• Gait training with appropriate device
• AAROM (emphasize extension)
• Quadriceps contraction

MODIFICATIONS TO ACUTE CARE PHASE

• Radial or Root Tears: non-weight bearing (NWB) or toe-touch weight bearing (TTWB) (surgeon specific)
KNEE MENISCUS REPAIR POST-OPERATIVE GUIDELINES
Post-Operative Phase 1: Weeks 0-6

PRECAUTIONS
- Avoid prolonged sitting, standing, walking
- Avoid painful activities
- Avoid weight bearing without brace
  - Keep brace locked at 0 degrees
- Do not place a pillow under the operated knee, keep extended when resting and sleeping
- No knee flexion past 90 degrees (if surgeon recommendation differs follow prescription)
- Avoid active or resisted hamstring exercises

ASSESSMENT
- Lower Extremity Functional Scale (LEFS)
- NPRS
- Wound status
- Edema
- Passive (PROM)/AAROM of knee
- Patella mobility
- Girth measurement
- Lower extremity (LE) ROM and flexibility
- Proximal strength
- Quality of quadriceps contraction
- Functional assessment

TREATMENT RECOMMENDATIONS
- Patient education
  - Compliance with HEP, weight bearing, and ROM precautions
- Gait training
- Weight bearing status: WBAT with brace locked at 0 degrees extension with assistive device until gait normalized
- Modalities for pain management and edema, if needed
- Patellar mobilizations
- LE flexibility (hamstring/gastrocnemius)
- Knee PROM/AAROM within 0-90 degrees limit
- Core stabilization
- Hip progressive resisted exercises
• Quadriceps reeducation using modalities, as needed (e.g., neuromuscular stimulation, blood flow restriction with surgeon clearance)
• Quadriceps strengthening
  o SLR series (with brace locked in extension if unable to perform without extension lag)
• Bilateral closed chain LE strengthening from 0-45 degrees
• Balance and proprioception training
• Short crank bike, if available (<90 degrees knee flexion ROM)
  o Half revolutions, if needed

CRITERIA FOR ADVANCEMENT
• Pain and edema controlled
• Quadriceps strength sufficient to perform SLR without extensor lag without brace
• Full knee extension ROM
• PROM/AAROM knee flexion to 90 degrees
• Compliance with HEP

EMPHASIZE
• Control edema
• Patellar mobilization
• AAROM (emphasize extension)
• Quadriceps contraction with SLR

MODIFICATIONS TO ACUTE CARE PHASE
• Weight bearing status: NWB or TTWB for complex, radial or root tears
  o Progress weight bearing status at week 4, as per surgeon
KNEE MENISCUS REPAIR POST-OPERATIVE GUIDELINES
Post-Operative Phase 2: Weeks 7-12

PRECAUTIONS
- Avoid painful exercise and functional activities
- Avoid loaded end range flexion/extension
- Avoid isolated resisted hamstring exercises
- Avoid running and sport activity
- Avoid twisting or pivoting motions

ASSESSMENT
- LEFS
- NPRS
- Edema
- Scar mobility
- Patella mobility
- Girth measurement
- Active range of motion (AROM) of knee
- LE ROM and flexibility
- Proximal strength
- Quality of quadriceps contraction and SLR
- Functional assessment
  - Gait, single leg balance

TREATMENT RECOMMENDATIONS
- Gait training
  - Emphasize heel toe strike pattern with normal gait mechanics
  - Utilize retro-walking on treadmill
- Modalities for pain management and edema if needed
- Scar mobilizations
- Patellar mobilizations
- LE flexibility (hamstring/gastrocnemius)
- Knee AROM, as tolerated
- Core stabilization
- Hip progressive resisted exercises
- Progress quadriceps re-education
- Continue quadriceps strengthening
• Bilateral closed chain strengthening
  o Do not load beyond 90 degrees knee flexion
• Functional strengthening
  o Progress bilateral to unilateral
    ▪ Squat progression: sit to stand → modified kickstand → split squat
    ▪ Bridging progression: bilateral → marching → single leg
  o Progress concentric to eccentric
• Balance and proprioception training
• Standard bicycle as ROM permits
• Cardiovascular conditioning

CRITERIA FOR ADVANCEMENT
• Quadriceps strength sufficient to ascend and descend an 8-inch step with good control
• Full AROM
• No pain with activities of daily living
• Normal gait mechanics

EMPHASIZE
• Normal gait mechanics before discharging brace and crutches
• Functional progressions
KNEE MENISCUS REPAIR POST-OPERATIVE GUIDELINES
Post-Operative Phase 3: Weeks 13-20

PRECAUTIONS

• Avoid painful exercise and functional activity
• Avoid twisting, pivoting, and cutting
• Avoid sport activity

ASSESSMENT

• LEFS
• NPRS
• Girth measurement
• LE ROM and flexibility
• LE strength/limb symmetry index: handheld dynamometry and/or isokinetic testing, if available
• Functional assessment
• STAR excursion testing

TREATMENT RECOMMENDATIONS

• LE flexibility, as needed
• Hip progressive resisted exercises
• Quadriceps strengthening
  o Progressive squat program >90 degrees flexion
  o Lunges
• Advanced total body strengthening with progressive load
• Progress functional strengthening
• Advanced balance and proprioception training
• Introduce bilateral plyometric exercises
  o Work on landing mechanics and load absorption first
  o Drop vertical jump, jump in place, box jump, broad jump
• Introduce agility drills
  o Linear drills only
• Interval running program when limb symmetry index is >80%
• Cardiovascular conditioning
CRITERIA FOR ADVANCEMENT

- Demonstrate functional strength to perform a single leg squat
- Limb symmetry index >85%
- Unrestricted pain-free running
- No apprehension with lateral agility

EMPHASIZE

- Emphasize proper landing mechanics, load absorption, and equal weight bearing with plyometric exercises
- Monitor volume and load
KNEE MENISCUS REPAIR POST-OPERATIVE GUIDELINES
Post-Operative Phase 4 (Return to Sport): Weeks 21-Discharge

PRECAUTIONS
- Gradual return to participation with load and volume monitoring
- Avoid premature return to sport

ASSESSMENT
- LEFS
- NPRS
- Girth measurement
- LE ROM and flexibility
- LE strength/limb symmetry index
  - Handheld dynamometry and/or isokinetic testing, if available
- Functional assessment
- STAR excursion testing
- Hop testing

TREATMENT RECOMMENDATIONS
- Advanced total body strengthening with progressive load
- Advanced balance and proprioception training
- Progress plyometric program to single leg
  - Example: bilateral take-off to a single leg landing → single leg take-off to a single leg landing
  - Hop progression: side to side hops, hop to opposite
- Progress agility drills
  - Include change of direction
  - Progress from anticipated movement to reactionary movement
  - Introduce cutting motions
    - Progress angle of cutting and intensity/speed of drill
- Sport specific drills
  - Mimic sport environment individualized to the patient
- Increase cardiovascular load to mimic desired activity
CRITERIA FOR ADVANCEMENT
- Quadriceps girth >90% compared to non-involved limb
- Limb symmetry index >90%
  - Note: uninvolved side may be deconditioned
- Hop testing >90% compared to non-involved limb
- No hesitation or pain with sport specific movements

EMPHASIZE
- Return to sport progression
  - Work with medical staff and coaches to return to team participation with controlled volume and load
    - Begin with non-contact play and progress to contact play
  - Progress minutes with team in controlled practice settings before advancing to game situations
  - Monitor game minutes upon return


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