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Postoperative Rehabilitation Guidelines Following Meniscal Repair

DISCLAIMER: The intent of this protocol is to provide therapists with guidelines for rehabilitation of patients that have undergone surgery with Dr. Avallone. It is based on a review of the best available scientific literature and is specific to his operative technique. It is not intended to serve as a substitute for sound clinical decision making. Therapists should consult with Dr. Avallone if they require assistance in the progression of post-operative patients.

Phase I: Immediate Postoperative Phase (Weeks 1-4)

Restrictions:

- WBAT with brace locked in full extension with crutches. D/C crutches when patient is FWB in locked knee brace and ambulating safely and confidently.
- Knee brace is worn at all times **locked in full extension** including during ambulation, sitting and sleeping. The only times that the brace may be unlocked to 70° during for therapeutic exercises as needed and removed while bathing (seated with knee extended).
- Range of motion (ROM) is limited to 0°-120° for 4 weeks
- **No hamstring strengthening** for the first 6 weeks following a **posterior horn** repair

GOALS	TREATMENT
Achieve mobile incisions	Scar mobilization
Decrease effusion/pain	Ice, compression, elevation Electrical stimulation for effusion
Normalize patellar mobility	Patellar mobilizations
Restore full extension	Patient education Quad sets
Initiate flexibility exercises	Hamstring & gastroc stretches, IT band, quads
Achieve 70° flexion	AAROM in brace unlocked to 70° CPM 2 hours twice per day; increase ROM as tolerated until 0°-70° is achieved; then discharge
Activate quadriceps	NMES with quad sets
Initiate strengthening	Quad sets Hamstrings isometrics, progress to active HS curl 0° to 70° (except if posterior horn repair) Hip adduction isometrics, progress to sidelying leg raise in brace Hip abduction isometrics, progress to sidelying leg raise in brace Hip extension SLR (when prone lying comfortable) in brace Hip flexion/knee extension (SLR) in brace Initiate heel walking at 3 weeks
Achieve FWB in brace locked 0°	Gait training
Cardiovascular/General Exercises	Upper body & core strengthening program

	Upper body ergometry aerobic program
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Post-op weeks 3-4

- Initiate proprioception activities and upper extremity reaching

Clinical Milestones:

1+ effusion	Good quadriceps set (SLR without lag)
Good patellar mobility	Pain-free at rest
AROM 0-70°	Full weight bearing

Phase II: Intermediate Postoperative Phase (Weeks 5-6)

Restrictions:

- WBAT with brace limited to 0°-90° with crutches
- ROM limited to 90° for 2 weeks (progress gradually from 70° to 90° within pain tolerance)
- Avoid patellar pain
- **No hamstring strengthening** for the first 6 weeks following a **posterior horn repair**

GOALS	TREATMENT
Control effusion/pain	Continue previous activities
Maintain patellar mobility, avoid pain	Continue previous activities Add patellar taping prn
Maintain full extension	Continue previous activities
Achieve 90° flexion	Continue previous activities Initiate cycling for ROM (NO MORE THAN 90°)
Activate quadriceps	Continue NMES, biofeedback
Progress strengthening	Continue previous exercises (SLR in 4 planes, quad sets). Progress hamstring curls to 90° (except for posterior horn repair) Initiate LAQ 90° to 45° Initiate closed chain exercises within ROM limits: <ul style="list-style-type: none"> • Heel raises • Toe walking (in brace) • TKE • Bilateral "mini-squats" from 0° to 40° and progressing to semi-squats 80° as tolerated • Bilateral leg press from 0° to 40° and progressing flexion ROM to 80° and resistance as tolerated • Step ups within 0° to 90° ROM limitations
Normalize gait with brace open from 0° to 90°	Initiate gait training with crutches and D/C when ambulating safely Treadmill
Maintain cardiovascular fitness	Upper body exercise

Clinical Milestones:

FWB

AROM 0°-135°

Straight leg raise without lag

Normal gait

Good quadriceps recruitment

Normal patellar mobility

Phase III: Advanced Strengthening Phase (Weeks 7-10)

Restrictions: Avoid pivoting
Flexion to 130°
No squatting or deep knee bends

GOALS	TREATMENT
Manage pain/edema	Continue previous activities as necessary
Normalize knee ROM	Continue previous activities progressing flexion as tolerated Progress to full range stationary bicycling Progress flexibility exercises
Increase strength, power & endurance	Initiate hamstring strengthening if posterior horn repair <ul style="list-style-type: none"> • Progress strengthening exercises to include: • Progress leg press from (B/L) to (U) as tolerated • Lateral step ups • Step downs • Stairmaster/elliptical • Nordic track • Aquatics/ swimming • Isokinetic exercise
Progress proprioception activities	Progress to balance in single leg stance (SLS) and challenged SLS activities
Prepare athlete for advanced exercises	Initiate low level sport specific skills

Clinical Milestones:

Improved stability with unilateral stance

Full ROM

Isokinetic quadriceps strength <20% decreased vs contralateral

Minimal to no pain

Equal hip strength bilaterally

Phase IV: Return to Activity Phase (Weeks 11-16)

Restrictions: Avoid hyperflexion

GOALS	TREATMENT
Manage pain/edema	Continue previous activities as necessary
Maintain full ROM & flexibility	Continue previous activities
Normalize strength, power & endurance	Progress strengthening exercises with focus on functional and return to skill activities
Progress proprioception activities	Progress to agility drills and plyometric training
Prepare for return to full unrestricted activities	Initiate running program

	Initiate sport specific skills including cutting program as appropriate
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Clinical Milestones:

Full confidence in knee
Satisfactory clinical examination

Isokinetic testing 90% of contralateral leg

Pain-free activity at 5 months
Functional testing at least 90% of
contralateral leg