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# Postoperative Rehabilitation Guidelines Following ACL Repair (Patellar Tendon or Hamstrings Autograft) with Concommittant 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)

### Meniscal Repair Restrictions (Primary):

- 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 removed is during for therapeutic exercises (except as noted in the exercise section) and while bathing (seating with knee extended).
- No hamstring strengthening for the first 6 weeks following a posterior horn repair
- Range of motion (ROM) is limited to 0-70° for 4 weeks

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
Achieve 70° flexion	AAROM
	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 (in brace	Quadriceps isometrics
until quad set is adequate to	Hamstrings isometrics, progress to active HS curl 0° to 70° (unless
prevent extension lag)	posterior horn meniscal or hamstrings autograft repair)
	Hip adduction isometrics, progress to sidelying leg raise*
	Hip abduction isometrics, progress to sidelying leg raise*
	Hip extension SLR (when prone lying comfortable)*
	Hip flexion/knee extension (SLR)*
	Initiate heel walking at 3-4 weeks
Achieve FWB in brace locked 0°	Progressive weightbearing (B/L) to (U)
Cardiovascular/General	Upper body & core strengthening program
Exercises	Upper body ergometry aerobic program

Clinical Milestones: 1+ effusion Good quadriceps set (no extension lag)

Good patellar mobility Pain-free at rest AROM 0-70° Full weight bearing

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

#### Meniscal Repair Restrictions (Primary):

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

GOALS	TREATMENT
Control effusion/pain	Continue previous activities
Maintain patellar mobility, avoid	Continue previous activities
pain	Add patellar taping prn
Maintain full extension	Continue previous activities
Achieve 90° flexion	Continue previous activities
	Initiate cycling in brace for ROM (NO MORE THAN 90°)
Activate quadriceps	Continue NMES, biofeedback
Progress strengthening	Continue previous exercises (SLR in 4 planes, quad sets). Initiate hamstring curls to 90°, long arc quads (LAQ) 90°-45° Initiate closed chain exercises to include:  • Heel raises  • TKE  • Bilateral "mini-squats" from 0° to 40° and progressing to semisquats 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  NOTE: PRE's are allowed within ROM restrictions and patient tolerance
Ambulate safely with brace	Gait training
open from 0° to 90°	Treadmill
Initiate prioprioception activities	Upper extremity reaches
Maintain cardiovascular fitness	Upper body exercise

Clinical Milestones: FWB Normal gait

AROM 0°-90° Good quadriceps recruitment Straight leg raise without lag Normal patellar mobility

## Phase III: Advanced Strengthening Phase (Weeks 6-10)

**Restrictions**: Avoid pivoting

Flexion to 130°

No squatting or deep knee bends

GOALS	TREATMENT
Control effusion/pain	Continue previous activities
Maintain full extension	Continue previous activities
Normalize knee ROM	Continue previous activities progressing to 130° flexion
	Cycling through full ROM
Activate quadriceps	Continue NMES, biofeedback
Progress strengthening	Continue previous exercises (SLR in 4 planes, quad sets).
	Progress hamstring strengthening
	Progress LAQ to 90° - 25° at 8 weeks
	Progress closed chain exercises to include:
	Progress B/L mini-squats from 0° to 40° to unilateral mini-squats
	Progress B/L leg press to unilateral as tolerated
	<ul> <li>Progress B/L leg press from 40° knee flexion to 80°</li> </ul>
	<ul> <li>Initiate B/L leg press double leg hops progress to single leg hop</li> </ul>
	<ul> <li>Progress step up height, initiate lateral step ups and step</li> </ul>
	downs
	Initiate Isokinetics
	Initiate swimming

	NOTE: PRE's are allowed within ROM restrictions and patient tolerance
Ambulate safely without brace	Gait training
	Treadmill
Progress proprioception	Balance in single leg stance (SLS), balance star taps
activities & agility drills	Lateral shuffles
Maintain cardiovascular fitness	Endurance exercises including stairmaster, cycling, ellipticial,
	NordicTrack

Clinical Milestones: Improved stability with unilateral stance Minimal to no pain

Achieve full ROM Equal hip strength bilaterally

Isokinetic quadriceps strength <20% decreased vs contralateral

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

**Restrictions:** Avoid hyperflexion NO sports for 6 months

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

Clinical Milestones: Full confidence in knee

Pain-free activity at 5 months Satisfactory clinical examination

Functional testing at least 90% of contralateral leg

Isokinetic testing 90% of contralateral leg