



Tri-Service Post-Operative Rehabilitation Guidelines

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Meniscus Repair Rehabilitation

These guidelines were created as a framework for the post-operative rehabilitation program. They DO NOT substitute for any specific restrictions or requirements that are determined through the necessary shared decision-making and collaboration between the operating surgeon and treating rehabilitation team.

PHASE 1: Generally 0-6 Weeks Post-Op	
GOALS:	1) Protect the surgical repair 2) ROM: 0° - 90° or as dictated by type of repair 3) Regain adequate quadriceps control; no extensor lag 4) Minimize pain and swelling
PRECAUTIONS:	- Wear brace AT ALL TIMES (even when sleeping) - NO FLEXING knee with load applied (i.e. squat or leg press) NOTE: bending knee and PWB are allowed, but NOT at the same time
CRUTCHES:	- WB: • Begin as foot flat, NWB • Progress gradually only when wearing brace locked at 0° - <u>Repair of radial, complex, and meniscal root tears:</u> • Weeks 1-6: NWB to foot flat WB only • NOTE: may need to modify based on surgical report - <u>Repair of bucket-handle, vertical, and longitudinal tears:</u> • Weeks 1-2: PWB @ 0-25% body weight (progress as tolerated with knee locked in extension) • Weeks 3-4: PWB @ 25-50% body weight • Weeks 5-6: PWB @ 50-75% body weight
BRACE:	- Wear brace locked in extension during ambulation, respecting WB restrictions as above
WOUND:	- Post-op dressing remains intact until post-op day #3 (~72 hours after surgery) - Shower after post-op day #3 (no need to cover the incision site) - DO NOT SUBMERGE knee in water until incisions are fully healed - Suture removal @ 10-14 days post-op per Ortho
CRYOTHERAPY:	- Cold with compression/elevation (ice with compression wrap)
REHABILITATION:	- Begin scar massage after incision has healed and scar is formed - Begin patellar mobilizations after suture/staple removal

~Weeks 1-2	- Calf pumps with theraband - Assisted heel slides within the limits of 0° - 90° - Quad sets (use e-stim until patient is able to do 10 SLRs without extension lag) - Supine passive extension with towel under heel - Gentle HS and calf stretching - Hip/glute muscle endurance exercises
~Weeks 3-4	- Continue progressing exercises from Weeks 1-2 as appropriate - Short arc quads; add light weights as tolerated - Seated ankle ROM and proprioceptive training - Gait training progression as needed - UBE
~Weeks 5-6	- Leg press 0° - 60° (<u>NOTE</u>: when ROM > 85°) - Hip extension endurance exercises - Stationary bike 0-100° knee ROM - Beginner level pool exercises when incisions are fully healed; primarily in the sagittal plane (i.e. no breaststroke or whip kick motion) • Only gait training and deep water jogging
FOLLOW-UP:	- Supervised rehab: 2-3x per week - PT re-eval: every 1-2 weeks - Ortho re-eval: ~7-10 days and 6 weeks

PHASE 2: Generally 7-12 Weeks Post-Op

GOALS:	1) Normal gait and stair ambulation 2) Full knee ROM
PRECAUTIONS:	- <u>NO RUNNING</u>
CRUTCHES:	- Progress gradually to FWB by 12 weeks
BRACE:	- D/C brace if there is adequate quad strength and ROM
REHABILITATION:	- Continue Phase 1 exercises as needed - Progress to the following exercises and increase intensity gradually when patient is ready (i.e. no increase in knee pain or effusion since the previous exercise session) <u>NOTE</u>: all resisted exercises should start with low weights, high reps, and in a ROM with minimal pain
~Weeks 7-8	- Stationary bike for conditioning • Begin with 5-10 minutes and progress gradually - Gait training • Cone walking, marching, retro-walking, exercise band, etc. - General LE stretching • Calf, HS, quads, hip flexors, and hip adductors

	- Begin light elliptical/stairmaster when gait is normalized - Progressive LE strengthening (i.e. calf press, leg press, squats 0°- 60°, and HS curls). NOTE: Emphasis is placed on knee extension strength.
~Weeks 9-10	- Progressive neuromuscular training • Body blade, plyoball, rebounder, platform training, etc. • Progress in duration and intensity • DL to SL - Progressive strengthening with light resistance • Calf press, leg press, squats (progress in depth), hip abd/add, HS curls, etc.
~Weeks 11-12	- Gradual progression of stationary bike, elliptical, and/or stairmaster for conditioning - Progressive pool program as tolerated
FOLLOW-UP:	- Supervised rehab: 2-3x per week - PT re-eval: monthly - Ortho re-eval: ~12 weeks post-op

PHASE 3: Generally 3-6 Months Post-Op

GOALS:	1) Jog at own pace and distance without pain 2) ≥ 90% isokinetic quad and HS strength compared to the uninvolved limb 3) ≥ 90% SL hop for distance and crossover hop test compared to the uninvolved limb 4) Meet occupational requirements at 4-6 months
PRECAUTIONS:	- <u>NO PARTICIPATION</u> in contact sports or physically demanding military schools until cleared by Ortho
BRACE:	- None
REHABILITATION:	- Continue Phase 2 exercises as needed - Progress to the following exercises and increase intensity gradually when patient is ready (i.e. no increase in knee pain or effusion since the previous exercise session)
~Weeks 13-16	- Non-impact aerobic conditioning - General LE stretching - Progressive strengthening • Lunges, leg press, calf press, squats < 90°, HS curls, hip extension/abduction/adduction, etc. - Isokinetic training if available - Progressive balance training as needed - Progressive agility and plyometric training
~Weeks 17-26	- Progressive jogging program beginning no earlier than 16 weeks • Increase time and/or distance no more than 10-20% per week

FOLLOW-UP:	- Supervised rehab: 1-2x per week - PT re-eval: monthly - Ortho re-eval: ~6 months post-op
DISCHARGE GOALS:	- Hop test and Y-balance limb symmetry > 90% - Isokinetic testing limb symmetry > 85% - Mitigate future injury risk
MISCELLANEOUS:	- After 6 months post-op, Phase 3 exercises are continued and gradually increased in intensity and duration as tolerated - Pass Service fitness test at 6-8 months - Progress activities for return to sport/collision sports or aggressive military training (i.e. airborne school) based on the patient's functional performance and endurance. This time period will be directed by the Ortho Surgeon and the Physical Therapist. This may require between 6-9 months before cleared without restrictions.

References:

- Cavanaugh JT, Killian SE. Rehabilitation following meniscal repair. *Curr Rev Musculoskelet Med.* 2012; 5: 46-58.
- Kozlowski EJ et al. Meniscus repair: the role of accelerated rehabilitation in return to sport. *Sports Med Arthrosc Rev.* 2012; 20: 121-126.
- Logerstedt DS et al. Knee pain and mobility impairments: meniscal and articular cartilage lesions. *J Orthop Sports Phys Ther.* 2010; 40(6): 1-35.