



Tri-Service Post-Operative Rehabilitation Guidelines

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Patellar Tendon 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:	<ol style="list-style-type: none"> 1) Protect surgical repair 2) Minimize pain and swelling 3) Activation of the quad muscle 4) ROM: 0°- 90°
PRECAUTIONS:	<ul style="list-style-type: none"> - ROM <ul style="list-style-type: none"> • Weeks 1-2: 0°- 30° • Week 3: NWB, knee ROM 0°- 60°; progress by 10° each week - Follow WB restrictions at discretion of Ortho
BRACE:	<ul style="list-style-type: none"> - Wear brace locked in extension for ambulation - May unlock or remove for rehab
WOUND:	<ul style="list-style-type: none"> - Post-op dressing remains intact until post-op day #3 (~72 hours after surgery) - Shower after post-op day #4 (no need to cover incision site) - <u>DO NOT SUBMERGE</u> knee in water until authorized to do so by Ortho - Suture removal @ 10-14 days post-op per Ortho
CRYOTHERAPY:	<ul style="list-style-type: none"> - Cold with compression/elevation (ice with compression wrap)
REHABILITATION:	<ul style="list-style-type: none"> - Begin scar massage after incision has healed and scar is formed - Begin patellar mobilizations
~Weeks 1-2	<ul style="list-style-type: none"> - Quad, glute and HS isometrics (submaximal contraction intensity); use e-stim if needed - Multi-directional open chain hip muscle endurance exercises - Calf pumps with theraband - Heel slides (assisted as needed) - Supine passive extension to 0°
~Weeks 3-6	<ul style="list-style-type: none"> - Continue exercises from weeks 1-2 as appropriate - Gradually increase knee flexion to goal of 90 degrees by Week 6 - Multi-directional open chain hip muscle endurance exercises with increased resistance - Progressive PF strengthening - Short arc quads

	<ul style="list-style-type: none"> - General LE stretching - Stationary bike within limits of ROM - Beginner level pool exercises when incisions are fully healed; primarily in the sagittal plane (i.e. no breaststroke or whip kick motion)
FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 2-3x per week - PT re-eval: every 1-2 weeks - Ortho re-eval: ~2 and ~6 weeks

PHASE 2: Generally 7-12 Weeks Post-Op

GOALS:	<ol style="list-style-type: none"> 1) Normal gait and stair ambulation 2) > 80% quad and HS strength relative to uninvolved limb 3) Full ROM
PRECAUTIONS:	<ul style="list-style-type: none"> - Avoid tendon overload (i.e. squatting, deep knee bends, and lunges) - Be careful walking up/down steps or inclined surfaces - <u>NO RUNNING</u> - <u>NO PARTICIPATION</u> in contact/collision sports or military schools
BRACE:	<ul style="list-style-type: none"> - D/C brace & crutches when gait is normal and 120° knee flexion is achieved
REHABILITATION:	<ul style="list-style-type: none"> - 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)
~Weeks 7-8	<ul style="list-style-type: none"> - Stationary bicycle or elliptical for conditioning - General LE strengthening with very gradual increase on loading of knee extension exercises (i.e. squats, lunges, and leg press) - Gait training as needed (i.e. cone walking, marching, retrowalking, and cariocas) - Forward, lateral, and retro step-ups (start with 2" step and progress as tolerated) - Continue beginner level pool exercises (i.e. no breaststroke or whip kick motion)
~Weeks 9-10	<ul style="list-style-type: none"> - Continue progressing exercises from Weeks 7-8 as appropriate - DL balance and proprioceptive exercises; progress to SL - General LE stretching - Elliptical: add gradually with stationary bike for conditioning - Progressive LE strengthening (i.e. calf press, leg press, squats 0°- 45°, HS curls, and hip abductors/adductors) - Progressive pool program as tolerated
~Weeks 11-12	<ul style="list-style-type: none"> - Continue progressing exercises from Weeks 9-10 as appropriate - Progress ROM of squats, leg press, etc. while being mindful of ROM restrictions and pain

FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 2-3x per week - PT re-eval: every 2-3 weeks - Ortho re-eval: ~12 weeks post-op
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PHASE 3: Generally 3-6 Months Post-Op

GOALS:	<ol style="list-style-type: none"> 1) Full ROM 2) Jog at own pace and distance without pain 3) > 90% quad and HS strength return 4) > 90% of uninvolved limb on hop test battery (i.e. hop for distance, triple hop, crossover hop, and 6-meter timed hop) 5) Meet occupational requirements at 6-8 months
PRECAUTIONS:	<ul style="list-style-type: none"> - Minimal to no pain at the repair site
REHABILITATION:	<ul style="list-style-type: none"> - 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) - Build up resistance and repetitions gradually
<i>~Weeks 13-16</i>	<ul style="list-style-type: none"> - Swimming - Step-up progression - Gradual quad stretching - Progressive SL balance and proprioceptive training as needed - Progressive LE strengthening (i.e. calf press, leg press, squats 0°- 60°, HS curls, and hip abductors/adductors)
<i>~Weeks 16-20</i>	<ul style="list-style-type: none"> - Progressive strengthening of quads while monitoring symptoms closely - Step-down progression - Initiate walk to jog progression
<i>~Weeks 20-26</i>	<ul style="list-style-type: none"> - Progressive speed/agility training beginning at 25-50% intensity and progress gradually (i.e. jumping, hopping, directional jogging, cariocas, and shuffles) - Jump training initiated after 24 weeks
FOLLOW-UP:	<ul style="list-style-type: none"> - Supervised rehab: 1-2x per week - PT re-eval: monthly - Ortho re-eval: ~6 months post-op
MISCELLANEOUS:	<ul style="list-style-type: none"> - After 6 months post-op, Phase 3 exercises are continued and gradually increased in intensity and duration as tolerated - Pass Service fitness test at 9-10 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 9-12 months before cleared without restrictions.

References:

- Myer GD, Paterno MV, Ford KR, Quatman CE, Hewett TE. Rehabilitation after anterior cruciate ligament reconstruction: criteria-based progression through the return-to-sport phase. *Journal of Orthopedic Sports Physical Therapy*. 2006; 36(6): 385-402.
- Myer, GD, Paterno MV, Hewett TE. Back in the game: a four-phase return-to-sport program for athletes with problem ACLs. *Rehab Management*. 2004; 17(8): 30-33.