Austin Crow MD

Altoona Office	Chippewa Falls Office
1200 OakLeaf Way, Suite A Altoona, WI 54720 **Tel:** (715) 832-1400 (800) 322-1747 **Fax:** (715) 832-4187	757 Lakeland Drive Suite B Chippewa Falls, WI 54729 **Tel:** (715) 723-8514 (800) 322-1748 **Fax:** (715) 723-5989

Post-operative Rehabilitation Protocol
Quadriceps or Patellar Tendon Repair

General Precautions:
• WBAT with knee brace locked at 0 for 6 weeks.
• ROM during first 6 weeks based on stability of repair as tested in OR- usually 0 to 60-90
• At 6 weeks progress ROM without restriction.
• Brace unlocked at 6 weeks post-op, and discontinued once full flexion achieved and patient can perform SLR without extensor lag.

Additional Precautions:
• For quadriceps tendon repair, no terminal/end-range quad stretching x 8 weeks.
• No isolated, open-chain isotonic quadriceps strengthening for either repair x 8 weeks.
• All progression based on soft tissue healing.

Weeks 0-2 (Days 1-14):
• Weight-bearing as described above
• Prone knee passive ROM to 60-90 (or per surgeon restrictions)
• Supine passive knee ext to 0
• Gentle medial and lateral patellar mobilizations
• Ankle pumps, gluteal sets, hamstring sets
• Modalities to control pain and edema

Goals:
1. Protect repair
2. Control pain and edema
3. Fair to good volitional quad activation

Weeks 2-4 (Days 14-28)
• Continue weight bearing as described above
• Continue focus on passive knee extension to 0 o
• Passive ROM for knee flexion per surgeon guidelines
• May progress to active-assistive knee flexion (heel slides)
• Gentle grade I- II patellar mobilizations. ***Gently progress to superior and inferior mobilizations.**
• Ipsilateral calf, hamstring and hip stretching (passive), with brace locked in extension.
• Quadriceps sets – Begin with sub-maximal, progressing gently per patient tolerance.
• Progress to 4-way SLR **with brace locked in extension.**
• Seated ipsilateral hamstring curls, no resistance, within ROM restrictions
• Continue modalities as indicated

Goals:
1. Protect Repair
2. Continue to manage pain and edema
3. Extension ROM to neutral, flexion to 45-60°
4. Normalization of gait, brace locked per physician, WBAT
5. SLR without extensor lag

Weeks 4-6
• Continue weight bearing as described above
• PROM / AAROM / AROM for knee flexion per surgeon guidelines
• Gently progress patellar mobilizations, all directions.
• SLR may be performed without brace **if patient can perform without extensor lag.**
• Seated ipsilateral hamstring curls, progressing to light T-band within ROM restrictions.
• Begin gentle core stabilization activities – abdominal brace with use of biofeedback as needed.
• Continue modalities as needed

Goals:
1. Continued ambulation with appropriate mechanics and without reactive effusion
2. Knee ROM to physician limits
3. Good scar quality and mobility

Weeks 6-8:
• Wean from extension brace per physician guidelines above
• Progress flexion ROM as tolerated to full flexion
• AROM knee extension and flexion
• Stationary bike
• Begin closed chain quadriceps strengthening- bilateral
• Weight shifts, progressing to single leg stance/ proprioceptive activities on firm surface
• Progress core and hip stabilization

Goals:
1. Restore full AROM and patellar mobility of the knee
2. Normalize gait without brace or assistive device
3. Initiation of resistive exercises without reactive effusion or pain

Weeks 8-12:
• May initiate terminal/end-range quadriceps stretching for quad tendon repairs
• Continue stationary bike for cardiac conditioning
• May initiate elliptical and/or stairmaster at 10 weeks
• Progress closed chain strengthening, bilateral to unilateral, eccentric to concentric
• Isolated isotonic quadriceps strengthening- leg extensions in protected range
• Proprioceptive activities - single leg stance on various surfaces
• Continue and progress core and hip stabilization

Goals:
1. Full ROM
2. Single leg stance for 30 seconds with good quad control
3. 5/5 strength of all other lower extremity musculature

Weeks 12-16:
• Continue lower extremity endurance exercises
• Continue quadriceps PRE's per patient tolerance
• Initiate partial weight bearing plyometrics (e.g. shuttle) - bilateral to unilateral, straight plane to rotational
• May progress to bilateral FWB step downs, beginning with 2 inch block, if patient performs partial weight bearing plyometrics with good mechanics and no reactive effusion/pain
• Slideboard

Goals:
Appropriate mechanics with above activities, without pain or reactive effusion

Weeks 16-24:
• May initiate recreational swimming
• Initiate sports-specific exercise
• Progress hop downs bilateral to unilateral – progress step height per patient tolerance and upon demonstration of normal mechanics/control
• Initiate jogging progression

Criteria to begin jogging:
- 20 single leg squats with good mechanics
- 5/5 isometric strength
- Perform 10 FWB single leg hops with good control, symmetric bilaterally
- >7/10 on IKDC confidence scale

• Progress to dynamic functional activities: Figure-8, zig-zag, sideshuffle, grapevine. Begin at 25-50% intensity.

Criteria to return to sport-specific drills and activities:
1. Full ROM and 5/5 lower extremity strength
2. >85-90% performance of involved side versus uninvolved on functional hop testing, *e.g.*, single leg hop for distance; single leg 3-hop crossover test; 6-meter timed hop test
3. >85-90% performance during isokinetic strength testing of involved versus uninvolved Side

September 2015