Patellar-Quadriceps Tendon Repair Guideline

NMC Northwestern Medical Center	**Document Classification**	☐ Policy ☐ Procedure ☒ Guideline
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Purpose: Define the process to be followed for all patients referred from Northwestern Orthopedics after the above procedure has been performed.

Target Users: Treatment will follow the defined guidelines below and be carried out by Physical Therapist, Athletic Trainer and/or Physical Therapy Assistants.

Definitions: NA

Guidelines:

PHASE I (surgery to 2 weeks after surgery)
Rehabilitation appointments begin 3-5 days after surgery.

Goals:
- Protect the post-surgical repair
- Minimize edema and pain

Dressing change:
- One week post op remove aquacel AG and reapply aquacel AG dressing once (can stay 7-10 days).

Edema control:
- Educate patient in use of ice (cryocuff) and elevation
- Provide tensogrip or kinesiotape as indicated

Brace/Weight Bearing:
- WBAT with crutches and brace locked in extension
- Brace must be worn at all times except during rehabilitation exercises.
- Wear brace to transfer in and out of shower can remove while showering.
- Brace for sleep x 4 weeks.

Range of Motion
- Passive knee ROM 0-30°

Suggested Therapeutic Exercises

- Ankle pumps
- isometric quadriceps sets with knee in full extension
- hamstring sets with knee in less than 30 degrees flexion
- glut sets
- gentle patellar mobilizations
- Upper body circuit training or upper body ergometer (UBE)
- Passive knee flexion 0-30 only

PHASE II (2 - 6 weeks after surgery)

Rehabilitation Goals:

- Normalize gait
- minimize edema and pain
- Protection of the post-surgical repair

Edema control:

- Educate patient in use of ice (cryocuff) and elevation
- provide tensogrip or kinesio tape as indicated

Precautions and Range of Motion:

- WBAT with brace locked in extension
- wean from crutches as clinically indicated
- PROM limits
  - Weeks 3-4 = 0° to 60°
  - Weeks 5-6 0-90°
- no active open chain knee (quad) extension

Suggested Therapeutic Exercises:

- Stationary bike partial revolutions no resistance (within ROM limits above)
- recumbent elliptical (sci-fit) no resistance (within ROM limits above)
- Heel slides
- Knee extension range of motion with foot resting on a towel roll
- 4-way leg lifts with brace locked in extension
- Gentle patellar mobilizations
- Weight shifting on to surgical side with brace on with quad isometric
- Upper body circuit training or UBE
- Can begin walking in chest deep water at 4 weeks.

Progression Criteria:

- Progress six weeks post-operatively
- Knee ROM = 0°-0°-90° (i.e. avoid knee hyperextension)
- weaned from crutches

PHASE III (begin after meeting Phase II criteria and 6 to 12 weeks after surgery)

Rehabilitation Goals:

- Normalize gait on level surfaces using brace opened as follows

6-9 weeks open to 40°
9-12 weeks open to 90°

- Quality active quadriceps contractions in weight bearing

Precautions:

- Gradual progression to weight bearing with knee flexion with avoidance of weight bearing knee flexion past 90 degrees for 12 weeks after surgery

Range of Motion:

Active knee extension is now permitted.

- Increase active and passive flexion and extension to tolerance

Suggested Therapeutic Exercises:

- Active range of motion (AROM) for open chain knee flexion and extension
- Closed chain quadriceps control from 0° to 40° with light squats and leg press, progressing to shallow lunge steps
- Prone knee flexion
- Stationary bike
- Patellar mobilizations
- Open chain hip strengthening
- Core strengthening
- Upper body circuit training or upper body ergometer (UBE)

Progression Criteria:

- Normal gait mechanics
- Active knee ROM at least 0°-110°

PHASE IV (Begin at 12 weeks after surgery and continue until progression criteria is met)

Rehabilitation Goals:

- Normalize gait on all surfaces without brace
- Single leg stand with good control for 10 seconds
- Full knee ROM
- Good control with squat to 70° of knee flexion

Precautions:

- Avoid any forceful eccentric contractions
- Avoid impact activities
- Avoid exercises that create movement compensations

Suggested Therapeutic Exercises:

- Non-impact balance and proprioceptive drills
- Stationary bike
- Gait drills
- Single leg stance balance activities

• Stretching for patient specific muscle imbalances
• Quad strengthening – closed chain exercises, initially starting as a very short arc of motion and gradually progressing to 70° of knee flexion.
• Functional movements (squat, step back, lunge)
• Hip and core strengthening
• Stationary bike, Stairmaster, swimming

Progression Criteria:

• Normal gait mechanics without the brace on all surfaces
• Squat and lunge to 70°of knee flexion without weight shift
• Single leg stand with good control for 10 seconds
• Full AROM for knee flexion and extension

PHASE V (begin after meeting phase IV criteria, usually 4 months after surgery)- 9 months.
Appointments:

• Rehabilitation appointments are once every 1-3 weeks or as clinically indicated

Rehabilitation Goals:

• Good control and no pain with sport and work specific movements, including impact

Precautions:

• Post-activity soreness should resolve within 24 hours progression should be slow
• Avoid post-activity swelling
• Avoid running with a limp

Suggested Therapeutic Exercises:

• Impact control exercises (hopping) beginning 2 feet to 2 feet, progressing from 1 foot to other and then 1 foot to same foot.
• Plyometric exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities.
• Sport/work specific balance and proprioceptive drills
• Hip and core strengthening
• Stretching for patient specific muscle imbalances
• Replicate sport or work specific energy demands

Return to Work/Sport Criteria: Determined by surgeon based on quality of repair and demands of sport. Typically, 9-12 months post op.
• Dynamic neuromuscular control with multi-plane activities, without pain or swelling

Responsibilities:
Variances will be communicated by the surgeon directly to the rehabilitation staff

References:
Clinical Orthopedic Rehabilitation a Team Approach