



Quadriceps Tendon Repair Protocol

TREATMENT GUIDELINES

- a. Follow Up with Surgeon:
 - i. **2 weeks** post-op via a telemedicine visit. Please send updated PT notes to surgeon on last visit before telemedicine visit. Pt will be submitting on their own a picture of the incision via their EMR portal day before surgery. Fax therapy notes to (317) 718-2676
 - ii. **6 weeks** in person with the surgeon. Please send Therapy notes before patient returns for 6 weeks follow-up.
- b. Suture Removal: Therapist to remove portal sutures at days 10-14.
 - i. Apply steri-strips over portal after removing sutures.

POST-OPERATIVE WEEKS 0-2

Drop lock brace in extension for ambulation for 6 weeks, limited ROM with brace for ambulation for 8 weeks

GOALS:

- Minimize swelling
- Full knee extension
- Patellofemoral mobility
- Quadriceps strength to 3/5

CLINIC EXERCISES:

- Mobilizations of the patella in all planes, emphasizing medial glide/tilt and superior glide.
- Heel slides/wall slides to 30°
- Manual stretching of lower extremity musculature emphasizing hamstrings, IT band, and gastroc/soleus muscle groups.
- Foot /ankle mobility
- Ice/modalities PRN

HOME EXERCISES:

- Quad sets/SLR
- Hamstring stretches
- Isometric contractions of the hamstring
- Foot/ankle mobility in long sitting position with Theraband
- Routine ice

POST-OPERATIVE WEEKS 2-4

GOALS:



- Active assisted/Passive range of motion 0-60°
- Independent with WBAT gait with use of appropriate assistive device
- Fair recruitment of vastus medialis oblique
- Equal hamstring length on involved and uninvolved sides
- Patellofemoral joint mobility
- Eliminate effusion
- Quadriceps strength to 3+/5

PRECAUTIONS/CONTRAINDICATIONS:

- Active assisted/Passive range of motion 0-60°
- Brace at all times with ROM limitations of 0-60°
- WBAT gait with appropriate assistive device
- No resistive open chain exercises for the quadriceps for 4 weeks

CLINIC EXERCISES:

- Edema reduction techniques PRN
- Initiate incision mobilization and desensitization techniques
- NMS for muscle re-education of the quadriceps complex emphasizing vastus medialis oblique if inhibition noted. This is to be performed in supine only and if can be accomplished pain-free.
- Manual stretching of lower extremity musculature emphasizing hamstrings, IT band, and gastroc/soleus muscle groups.
- Mobilizations of the patella in all planes, emphasizing medial glide/tilt and superior glide.
- Quad sets supine if accomplished pain-free
- Active assisted ROM within the brace 0-60°
- Very gentle strengthening program utilizing either yellow Theraband or cuff weight with resistance no greater than 2-3 lb. for multi-plane straight leg raises in standing or lying down as well as long sitting Theraband for ankle musculature. To be performed with the brace on.
- Balance and proprioception activities. (Single leg stance)
- Bike-rocking limited to 60°
- Leg curls

HOME EXERCISES:

- Quad sets/SLR
- Heel slides from 0-30°
- Bridges
- Hamstring Theraband/tubing curls
- Multi-plane SLR with Theraband/tubing
- Routine post-exercise ice

POST-OPERATIVE WEEKS 4-6

GOALS:

- Active assisted/Passive range of motion 0-90°
- Ambulating with single axillary crutch or standard cane with WBAT gait pattern
- No effusion



- No incisional adherence

PRECAUTIONS/CONTRAINDICATIONS:

- Active assisted/Passive range of motion 0-90°
- Brace at all times with ROM limitations of 0-90°
- WBAT gait with appropriate assistive device
- No resistive open chain exercises for the quadriceps for 4 weeks

CLINIC EXERCISES:

- Continue treatment as indicated for Post-operative weeks 2-4
- Progress active assisted/passive range of motion to 90° flexion
- Continue with patellar mobilization
- Continue with incisional mobilization/desensitization techniques
- Progress resistance accordingly
- Progress to single axillary crutch if indicated
- Initiate NMS for multi-angle isometrics at 30° and 60° of flexion if can be accomplished relatively pain-free
- Continue balance/proprioception exercises and progress them
- Bike rocking limited to 90°
- Partial squats 0-30°
- Step ups/downs
- Total gym as tolerated but not past 90°

HOME EXERCISES:

- Continue home exercises as indicated Post-operative weeks 2-4, but add progressions as done during clinic sessions

POST-OPERATIVE WEEKS 6-12

GOALS:

- Wean out of brace (8 weeks)
- Active assisted/Passive range of motion through full ROM

CLINIC EXERCISES:

- Continue with treatment as indicated
- Initiate function electrical stimulation at 90°
- Initiate closed chain strengthening program (Total gym, partial squats 20-80° in conjunction with FES to VMO. Progress to leg press when indicated. Initiate weight stack multi-hip, seated or prone hamstring curls, and heel raises. Continue to progress resistance as indicated.
- Further progress balance/proprioception exercises
- Initiate manual stretching of quadriceps in relatively pain-free ROM
- Continue with patellar mobilization and incision mobilization/desensitization techniques if indicated.
- Gait training as indicated. Wean off assistive devices.
- Initiate walking program on level surfaces. Begin low intensity for 5-7 minutes and gradually progress to 30-45 minutes.
- Can initiate Treadmill and Stairmaster

HOME EXERCISES:



- Continue home exercises as indicated Post-operative weeks 2-4, but add progressions as done during clinic sessions

POST-OPERATIVE WEEKS 12-Discharge

GOALS:

- Meet Discharge Criteria

CLINIC EXERCISES:

- Continue with treatment as indicated.
- Further progress balance/proprioception exercises
- May initiate low level plyometrics if patient can perform 5 repetitions of the leg press in 5 seconds at 60% of body weight and perform single leg balance with and without visual cueing X 30 seconds.
- Isokinetic evaluation if patient is an athlete or if ordered by physician at. If patient meets 20-25% hamstring/quadriceps deficit, initiate walk/jog program. Repeat isokinetic tests every four weeks until 15% or less quadriceps/hamstring deficits noted.
- Perform one-legged hop tests for distance and time. Involved leg must be 85% or less as compared to uninvolved leg
- Functional test at 4 months

HOME EXERCISES:

- Progress as tolerated with open and closed chain exercises.

DISCHARGE CRITERIA

- Symmetrical hip/knee/ankle ROM or within 10-15% of uninvolved active flexion.
- Minimal to no patellar limitations.
- No effusion.
- Good size and recruitment of the VMO.
- Normal gait.
- No incisional hypersensitivity or adherence.
- 5/5 strength of hip and ankle musculature
- 5/5 strength of quadriceps and hamstrings if non-athlete
- 80-85% quadriceps and hamstring strength compared to uninvolved knee musculature according to isokinetic evaluation of athlete.
- If non-athlete, squat 90°/ kneel pain free.
- If athlete, full squat and kneel pain-free.
- Jog ¼ mile pain-free.
- Good understanding and performance of HEP.
- Met, or consistently progressing toward, established functional/objective outcomes.
- Failure to progress.
- Failure to comply.



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