QUADRICEPS TENDON RUPTURE – REPAIR PROTOCOL

Brace locked at 0 degrees for ambulation for 6-8 weeks with use of bilateral Axillary crutches.

Initial Visit: Dressing change
Start PT at 2-3 weeks
May start WBAT with brace locked in extension
At 2-3 weeks home E-stim unit (if needed) for quadriceps muscle re-ed.
At 3 weeks PT can WBAT with brace locked in extension
At 6 weeks typically can open the brace 0-90 degrees with ambulation with bilateral axillary crutches, unless otherwise specified.

PRECAUTIONS: Avoid impact loads/sudden activation (eccentric load)

GOALS:
• A/AAROM 90-100 degrees by 6 weeks, 0-110 degrees by week 8, 0-130 degrees by week 10, and 0-135 degrees by week 12

Week 1-4

No active ROM knee extension.
• PROM knee ext to 0 degrees
• AROM/AAROM knee flexion – very gently – Dr. Rolf will define the safe range at the time of surgery.
• Gradually unlock brace for sitting as PROM knee flexion improves

Exercises:
• Ankle pumps
• Patellar mobilizations
• Hamstring stretch with sitting
• Gastroc stretch with towel
• Heelslides
• Quad sets – may add E-stim for re-education at 2-3 weeks upon MD approval
• Patellar mobilization – all directions
• SLR all directions, active assistive flexion – start at 3rd post-op week – do not allow lag – use E-stim as needed after 2-3 weeks. If unable to achieve full extension, perform SLR in knee immobilizer

Week 5:

Gradually increase A/AAROM knee flexion

Exercises:
• Submaximal multi-angle isometrics (30-50% only)
• Continue knee flexion ROM – rocking chair at home
• Active SLR 4 way – no weight for flexion – watch for extensor lag – increase resistance for hip abduction, adduction, and extension.

Add aquatic therapy if available. Move slowly so water is assistive and not resistive

**Aquatic therapy exercises:**
- With knee submerged in water, knee dangling at 80-90 degrees – slowly actively extend knee to 0 degrees.
- Water walking in chest deep water
- SLR 4 way in the water with knee straight
- Knee flexion in water

**Week 6-8:**

Brace – unlock for sitting to 90 degrees at 6 weeks. If quad control sufficient at 8 weeks unlock brace 0-90 degrees for ambulation with bilateral axillary crutches and gradually open brace as ROM improves. Progress to ambulation at 8 weeks with no crutches as quadriceps strength allows. D/C crutches and brace at 8-12 weeks depending on patient’s quadriceps control. Emphasize frequent ROM exercises.

Goals – Gradually increase P/A/AAROM during weeks 6-8

**Exercises:**
- Total gym semi squats level 3-4
- Gradually increase weight on all SLR, if no lag present
- Weeks 6 – bike (begin with rocking and progress to full revolutions)
- Week 6 – Closed chain terminal knee extension with theraband
- Week 6 – SAQ (AROM)
- Week 7 – LAQ (AROM)
- Week 8 – SAQ (gradually increase resistance)
- Week 8 – LAQ (gradually increase resistance)
- Week 8 – weight shifts
- Week 8 – balance master and/or BAPS – with bilateral LE weight bearing
- Week 8 – cones

**Week 9-10**

**Exercises:**
- Total gym level 5-6
- Bilateral leg press – concentric only – no significant load work until 12 weeks.
- Weight shift on minitramp
- Toe rises
- Treadmill – Concentrate on pattern with eccentric knee control

**Week 11-16:**
Exercises:
• Leg press – Gradually increase weight and begin unilateral leg press at week 12
• Wall squats
• Balance activities: unilateral stance eyes open and closed, balance master
• Standing minisquats
• Step-ups – start concentrically, 2” to start and progress as tolerated
• Week 16 – lunges
• Week 16 – stairclimber/elliptical machine

CRITERIA TO START RUNNING PROGRAM

• Patient is able to walk with a normal gait pattern for at least 20 minutes without symptoms and performs ADL’s painfree
• ROM is equal to uninvolved side, or at least 0-125 degrees
• Hamstring and quadriceps strength is 70% of the uninvolved side isokinetically
• Patient without pain, edema, crepitus, or giving way