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Postoperative Rehabilitation Guidelines **for Quadriceps Tendon Repair**

The following protocol is intended as a general guideline for physical therapist, athletic trainer, and patient after patellar tendon and quadriceps tendon repair. These guidelines are designed to facilitate the expedited and safe return to athletic or professional activity and is based on a review of the current scientific principles of knee rehabilitation. For the treating health care provider this protocol should not serve as a substitute for individualized clinical decision making during the patient's post-operative course following patellar tendon and quadriceps tendon repair. It should rather take into consideration the individual's physical findings, progression, and possible post-operative limitations. If the therapist or patient requires assistance or encounters any postoperative complication they should consult with **your surgeon**.

Phase I (surgery to 2 weeks)

- Rehab to begin 3-5 days after surgery
- Ambulate with crutches (WBAT) with brace locked in extension (brace must be locked at all times except when performing rehabilitation exercises)
- PROM (Limited: 0-30 degrees)
- Exercises
 - Ankle pumps, isometric quad sets, hamstring sets, glut sets and patellar mobilizations
- Edema Control after treatment and at home daily

Phase II (2-6 weeks after surgery)

- Normalize gait and wean from crutches, WBAT with gradual progressions. Brace stays locked in extension (except when performing rehabilitation exercises)
- Weeks 3-6: ROM 0-90 without active quadriceps extension (No ACTIVE KNEE EXTENSION)
- Exercises
 - Heel slides, knee extension ROM with foot resting on a towel roll.

- 4 way leg lifts with brace locked in extension.
- Gentle patella mobs
- Weight shifting on surgical side with brace on
- Progression criteria to phase 3: (Week 6) Knee ROM 0-0-90 deg (avoid knee hyperextension)

Phase III (6-12 weeks)

- Normalize gait using brace open to 30-40 deg without crutches
- Initiate active quadriceps contractions in weight bearing
- Gradually progress to weight bearing with knee flexion with avoidance of weight bearing knee flexion past 70 deg for 12 weeks after surgery
- ROM
 - Post op weeks 7-8: 0-115 deg knee motion without active quadriceps knee extension
 - Post op weeks 9-10: 0-130 deg knee motion **Active knee extension is now permitted**
- Exercise
 - Continue all exercises from Phase II
 - AROM for open chain knee flex and extension
 - Closed chain quadriceps control from 0-40deg with light squats, leg press and shallow lunge steps
 - Prone knee flexion
 - Stationary bike
 - Open chain hip strengthening
 - Core Strengthening
- Patella mobs
- Progression criteria to phase IV:
 - Normal gait mechanics without crutches
 - Active knee ROM 0-0-110 deg

Phase IV (12 weeks after surgery)

Precautions:

Avoid any forceful eccentric contractions
 Avoid impact activities
 Avoid exercise that create movement compensations

Goals:

- Normalize gait on all surfaces without brace
- Single leg with good control 10 seconds
- Full knee ROM
- Good control with squat to 70 deg knee flexion
- Exercise
 - Stationary bike, stairmaster, swimming
 - Non-impact balance and proprioceptive drills
 - Gait drills
 - Hip and core strengthening
 - Stretching for patient specific muscles imbalances
 - Quad strengthening (closed chain exercise initially starting at very short arc of motion gradually progress to 70 deg knee flexion)

- Functional movements (squats, step back, lunge)
- Progression criteria to phase V:
Normal gait mechanics without the brace on all surfaces
Squat and lunge to 70 deg knee flexion without weight shift
Single leg stand with good control for 10 sec
Full AROM knee flexion and extension

Phase V (4 months after surgery)

Precautions:

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

Goals:

- Good control and no pain with sport and work specific movements including impact
- Exercise
 - Hip and core strengthening
 - Stretching for patient specific muscles imbalances
 - Impact control exercises beginning 2 ft to 2ft, progressing from 1 foot to other and then 1 foot to same foot
 - Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities
 - Sports/work specific balance and proprioceptive drills

Return to Sport or Work criteria:

Dynamic neuromuscular control with multi-plane activities, without pain or swelling