



## REHABILITATION GUIDELINES

### **QUADRICEPS TENDON REPAIR**

**Edward S. Chang, MD**  
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#### **OFFICE LOCATIONS**

##### *TUESDAY*

8100 Innovation Park  
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##### *THURSDAY*

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#### **CLINICAL NURSE**

Eileen Perri, BSN  
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The rehabilitation guidelines are presented in a criterion based progression program. General time frames are given for reference to the average, but individual patients will progress at different rates depending on their age, associated injuries, pre-injury health status, rehab compliance, tissue quality and injury severity. Specific time frames, restrictions and precautions may also be given to protect healing tissues and the surgical repair/reconstruction.

#### **INDIVIDUAL CONSIDERATIONS:**

#### **GENERAL CONSIDERATIONS**

- **WB Status**                      0-2 weeks: PWB  
   2-6 weeks: WBAT. Hinged knee brace locked in extension for ambulation for 6 weeks.
  
- **ROM Limitations**              0-2 weeks                      Locked in full extension  
   2-4 weeks                      0-30 degrees  
   4-6 weeks                      0-60 degrees  
   6-8 weeks                      0-90 degrees  
   8+ weeks                      Full
  
- **Restrictions**                      No open-chain leg extension for 8 weeks
  
- **Special**                              Hinged knee brace weeks 0-6 weeks  
   Avoid extension lag  
   Use e-stim to facilitate quadriceps as needed



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**PHASE I – Maximum Protection (Weeks 0- 6):**

**Weeks 0-2:**

- **Brace locked in full extension for 8 weeks**
- Partial weight bearing for 2 weeks
- Range of motion – none
- Ice and modalities to reduce pain and inflammation
- Aggressive patella mobility drills

**Weeks 2- 4:**

- Weight bearing as tolerated; progressing off of crutches
- Passive range of motion – 0° to 30°
- Continue with inflammation control
- Continue with aggressive patella mobility
- Submaximal quadriceps setting

**Weeks 4- 6:**

- Full weight bearing
- Continue with ice and aggressive patella mobility
- Range of motion – 0° to 60° (by week 6)
- Increase intensity with quadriceps setting

**PHASE II- ROM/Early Strengthening (Weeks 6- 12)**

**Weeks 6- 8:**

- Full weight bearing
- Open brace to 45°- 60° of flexion week 6, 90° at week 7
- Continue with swelling control and patella mobility
- Gradually progress to full range of motion
- Begin multi-plane straight leg raising and closed kinetic chain strengthening program focusing on quality VMO function.
  - Initiate open kinetic chain progressing to closed kinetic chain multi-plane hip strengthening
    - Normalize gait pattern
    - Begin stationary bike
    - Initiate pool program

**Weeks 8-10:**

- Wean out of brace
- Continue with patella mobility drills
- Normalize gait pattern
- Restore full ROM
- Progress open and closed kinetic chain program from bilateral to unilateral
- Increase intensity on stationary bike
- Begin treadmill walking program forward and backward



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- Begin elliptical trainer

**Weeks 10-12:**

- Full ROM
- Terminal quadriceps stretching
- Advance unilateral open and closed kinetic chain strengthening

**PHASE III – Progressive Strengthening (Weeks 12 to 16)**

**Weeks 12 to 16:**

- Advance open and closed kinetic chain strengthening
- Increase intensity on bike, treadmill, and elliptical trainer
- Increase difficulty and intensity on proprioception drills
- Begin gym strengthening: leg press, hamstring curls, ab/adduction; avoid lunges and knee extensions
- Begin multi-directional functional cord program

**PHASE IV – Adv. Strengthening and Functional Drills (Weeks 16-20):**

**Weeks 16 to 20:**

- May begin leg extensions; 30° to 0° progressing to full ROM as patellofemoral arthrokinematics normalize
- Begin pool running program advancing to land as tolerated

**PHASE V – Plyometric Drills and Return to Sport (Weeks 20- 24):**

**Weeks 20 to 24:**

- Advance gym strengthening
- Progress running/sprinting program
- Begin multi-directional field/court drills
- Begin bilateral progressing to unilateral plyometric drills
- Follow-up appointment with physician
- Sports test for return to competition



## REHABILITATION GUIDELINES

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### RETURN TO RUNNING PROGRAM

#### PHASE I – Warm Up Walk 15 Minutes, Cool Down Walk 10 Minutes

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Day	1	2	3	4	5	6	7
<b>Week 1</b>	W5/J1x5*		W5/J1x5		W4/J2x5		W4/J2x5
<b>Week 2</b>		W3/J3x5		W3/J3x5		W2/J4x5	
<b>Week 3</b>	W2/J4x5		W1/J5x5		W1/J5x5		<b>Return to Run</b>

Key: W=walk, J=jog

\*W5/J1x5= Walk (5 minutes), Jog (1 minute); repeat 5 times

#### PHASE II – Warm Up Walk 15 Minutes, Cool Down Walk 10 Minutes

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Week	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>1</b>	<b>20 min</b>		<b>20 min</b>		<b>20 min</b>		<b>25 min</b>
<b>2</b>		<b>25 min</b>		<b>25 min</b>		<b>30 min</b>	
<b>3</b>	<b>30 min</b>		<b>30 min</b>		<b>35 min</b>		<b>35 min</b>
<b>4</b>		<b>35 min</b>		<b>40 min</b>		<b>40 min</b>	
<b>5</b>	<b>40 min</b>		<b>45 min</b>		<b>45 min</b>		<b>45 min</b>
<b>6</b>		<b>50 min</b>		<b>50 min</b>		<b>50 min</b>	
<b>7</b>	<b>55 min</b>		<b>55 min</b>		<b>55 min</b>		<b>60 min</b>
<b>8</b>		<b>60 min</b>		<b>60 min</b>			

- Recommendations:
  - Runs should occur on softer surfaces during Phase 1
  - Non-impact activity on off days
  - Goal is to increase mileage and then increase pace; avoid increasing two variables at once
  - 10% rule: no more than 10% increase in mileage per week