

## Rehabilitation Guidelines for Patellar Tendon and Quadriceps Tendon Repair

### PHASE I (surgery to 2 weeks after surgery)

<b>Appointments</b>	<ul style="list-style-type: none"> <li>Rehabilitation appointments begin 3-5 days after surgery</li> </ul>
<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>Protect the post-surgical repair</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>Ambulate with crutches</li> <li>Continually use the dial brace locked in extension and crutches for weight bearing as tolerated (WBAT) for ambulation. The brace must be worn and locked at all times other than when performing rehabilitation exercises</li> <li>Follow range of motion guidelines</li> <li>Keep the incision and sutures dry</li> </ul>
<b>Range of Motion</b>	<ul style="list-style-type: none"> <li>Knee range of motion (ROM) from 0° to 30° of passive knee motion, unless specifically stated otherwise by the physician</li> </ul>
<b>Suggested Therapeutic Exercises</b>	<ul style="list-style-type: none"> <li>Ankle pumps, isometric quadriceps sets, hamstring sets, glut sets, and patellar mobilizations</li> </ul>
<b>Cardiovascular Exercises</b>	<ul style="list-style-type: none"> <li>Upper body circuit training or upper body ergometer (UBE)</li> </ul>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>Progress two weeks post-operatively</li> </ul>

### PHASE II (begin after meeting Phase I criteria, usually 2 - 6 weeks after surgery)

<b>Appointments</b>	<ul style="list-style-type: none"> <li>Rehabilitation appointments are 1-2 times per week</li> </ul>
<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>Normalize gait with WBAT with gradual progression, continuing to use the brace locked in extension, the ability to discontinue the crutches will be determined by the rehabilitation provider and physician based on your progress and leg control</li> <li>Protection of the post-surgical repair</li> </ul>
<b>Precautions and Range of Motion</b>	<ul style="list-style-type: none"> <li>Continually use the dial brace locked in extension and use crutches for WBAT, with gradual progression, for ambulation, the brace must be worn and locked at all times other than when performing rehabilitation exercises</li> <li>Weeks 3-6 = 0° to 90° of knee motion without active quadriceps extension (i.e. no active knee extension)</li> <li>Precautions and range of motion limits may be altered by the surgeon based on the integrity of the repair and associated injury, if applicable, these changes will be specifically stated by the surgeon</li> </ul>
<b>Suggested Therapeutic Exercises</b>	<ul style="list-style-type: none"> <li>Heel slides</li> <li>Knee extension range of motion with foot resting on a towel roll</li> <li>4-way leg lifts with brace locked in extension</li> <li>Gentle patellar mobilizations</li> <li>Weight shifting on to surgical side with brace on</li> </ul>

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<b>Cardiovascular Exercises</b>	<ul style="list-style-type: none"> <li>• Upper body circuit training or UBE</li> </ul>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>• Progress six weeks post-operatively</li> <li>• Knee ROM = 0°-0°-90° (i.e. avoid knee hyperextension)</li> </ul>

### PHASE III (begin after meeting Phase II criteria, usually 6 to 12 weeks after surgery)

<b>Appointments</b>	<ul style="list-style-type: none"> <li>• Rehabilitation appointments are once every 1-2 weeks</li> </ul>
<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>• Normalize gait on level surfaces using brace opened to 30-40° without crutches</li> <li>• Initiate active quadriceps contractions in weight bearing</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>• Gradual progression to weight bearing with knee flexion with avoidance of weight bearing knee flexion past 70 degrees for 12 weeks after surgery</li> <li>• Continue to follow range of motion limits for the specific time frame, as described below</li> </ul>
<b>Range of Motion</b>	<ul style="list-style-type: none"> <li>• Post-operative weeks 7-8: 0° to 115° of knee motion without active quadriceps knee extension</li> <li>• Post-operative weeks 9-10: 0° to 130° of knee motion. Active knee extension is now permitted</li> <li>• Precautions may be altered by the surgeon based on the integrity of the repair; if so these will be specifically stated by the surgeon</li> </ul>
<b>Suggested Therapeutic Exercises</b>	<ul style="list-style-type: none"> <li>• Active range of motion (AROM) for open chain knee flexion and extension</li> <li>• Closed chain quadriceps control from 0° to 40° with light squats and leg press, progressing to shallow lunge steps</li> <li>• Prone knee flexion</li> <li>• Stationary bike</li> <li>• Patellar mobilizations</li> <li>• Open chain hip strengthening</li> <li>• Core strengthening</li> </ul>
<b>Cardiovascular Exercises</b>	<ul style="list-style-type: none"> <li>• Upper body circuit training or upper body ergometer (UBE)</li> </ul>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>• Normal gait mechanics without crutches</li> <li>• Active knee ROM at least 0°-0°-110°</li> </ul>

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

<b>Appointments</b>	<ul style="list-style-type: none"> <li>• Rehabilitation appointments are once every week</li> </ul>
<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>• Normalize gait on all surfaces without brace</li> <li>• Single leg stand with good control for 10 seconds</li> <li>• Full knee ROM</li> <li>• Good control with squat to 70° of knee flexion</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>• Avoid any forceful eccentric contractions</li> <li>• Avoid impact activities</li> <li>• Avoid exercises that create movement compensations</li> </ul>
<b>Suggested Therapeutic Exercises</b>	<ul style="list-style-type: none"> <li>• Non-impact balance and proprioceptive drills</li> <li>• Stationary bike</li> <li>• Gait drills</li> <li>• Hip and core strengthening</li> <li>• Stretching for patient specific muscle imbalances</li> <li>• Quad strengthening – closed chain exercises, initially starting as a very short arc of motion and gradually progressing to 70° of knee flexion</li> <li>• Functional movements (squat, step back, lunge)</li> <li>• Hip and core strengthening</li> </ul>
<b>Cardiovascular Exercises</b>	<ul style="list-style-type: none"> <li>• Stationary bike, Stairmaster, swimming</li> </ul>
<b>Progression Criteria</b>	<ul style="list-style-type: none"> <li>• Normal gait mechanics without the brace on all surfaces</li> <li>• Squat and lunge to 70° of knee flexion without weight shift</li> <li>• Single leg stand with good control for 10 seconds</li> <li>• Full AROM for knee flexion and extension</li> </ul>

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### PHASE V (begin after meeting phase IV criteria, usually 4 months after surgery)

<b>Appointments</b>	<ul style="list-style-type: none"> <li>• Rehabilitation appointments are once every 1-3 weeks</li> </ul>
<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>• Good control and no pain with sport and work specific movements, including impact</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>• Post-activity soreness should resolve within 24 hours</li> <li>• Avoid post-activity swelling</li> <li>• Avoid running with a limp</li> </ul>
<b>Suggested Therapeutic Exercises</b>	<ul style="list-style-type: none"> <li>• Impact control exercises beginning 2 feet to 2 feet, progressing from 1 foot to other and then 1 foot to same foot</li> <li>• Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities</li> <li>• Sport/work specific balance and proprioceptive drills</li> <li>• Hip and core strengthening</li> <li>• Stretching for patient specific muscle imbalances</li> </ul>
<b>Cardiovascular Exercises</b>	<ul style="list-style-type: none"> <li>• Replicate sport or work specific energy demands</li> </ul>
<b>Return to Work/Sport Criteria</b>	<ul style="list-style-type: none"> <li>• Dynamic neuromuscular control with multi-plane activities, without pain or swelling</li> </ul>