


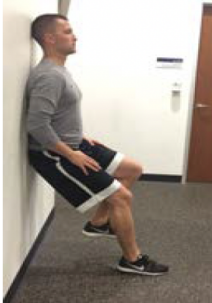






## Patellar Tendinopathy Exercise Prescription

Exercise	Purpose	Description	Cues	Compensations
<p><b>Isometric Quadricep Exercise</b><sup>1,2</sup></p> 	<p>Quadricep muscle strengthening</p> <p>Isometric exercises help with tendinopathy-related pain reduction &amp; they initiate loading of the patellar tendon</p>	<p>Pt positioned supine on floor with the affected LE on the wall, with 60° knee flexion. The base of the foot should be flat against the wall. Push into the wall through the base of the foot.</p> <p>5x 45 second holds</p>	<ul style="list-style-type: none"> <li>Do not push on the thigh with your hands.</li> </ul>	<p>Pushing with hands on thighs reduces the work that the quadriceps have to do.</p> <p>Pushing into the ground with the contralateral foot.</p>
<p style="text-align: center;"><b><u>Regression:</u></b></p> <p><b>Quad Set</b> (Isometric quadricep strengthening)</p> <p>The pt should be positioned in long sitting, or in sitting with the affected extremity extended. Using the quadricep muscle, actively extend the knee. Cue the pt to push the knee down into the table, or into a rolled towel under the knee. PT can provide tactile cues over the quadricep muscle and along the posterior knee.</p> 		<p style="text-align: center;"><b><u>Progression(s):</u></b></p> <p><b>Double-leg wall squats</b></p> <p>Stand with the back flush against the wall and legs shoulder-width apart. Slide back down the wall until the knees are at a 60-90° angle. Push down through feet.</p> <p>5x 45 second holds</p> <ul style="list-style-type: none"> <li><u>Progress:</u> lift heels or gradually progress into knees over toes position</li> </ul>  <p><b>Single-leg wall squats</b></p> <p>Stand on 1 leg (affected extremity) with the back flush against the wall. Slide down the wall into a squat position when the knee is at a 60-90° angle. Push down through the foot.</p> <p>5x 45 second holds</p> <ul style="list-style-type: none"> <li><u>Progress:</u> lift heels gradually progress into knees over toes position</li> </ul> 		

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<p><b>Eccentric Single-Leg Decline Squat<sup>3</sup></b></p> 	<p>Raising the heel up will place more pressure and tension on the patellar tendon during the squat.</p> <p>To eccentrically strengthen the quadriceps, as they lengthen while going down into the squat.</p> <p>Gradual progression of loading</p>	<p>Use a decline board or place heel of affected extremity on a weight plate, or a short step to achieve a 25° angle. Position the contralateral leg forward without contacting the ground and perform a single leg squat by bending the affected knee forward and returning to standing.</p>	<ul style="list-style-type: none"> <li>• Go down into a squat with a slow speed and control.</li> <li>• Maintain legs hip-width apart throughout the exercise.</li> <li>• Do not let knees fold inward.</li> <li>• If experiencing anterior knee pain during the exercise, reduce the squat depth (how far forward the knee is going)</li> </ul>	<p>Knee going into dynamic valgus</p>
<p style="text-align: center;"><b><u>Regression(s):</u></b></p> <p><b>Modified Eccentric Single-Leg Decline Squat</b> perform the squat as described above, but at the end of the squat use both LEs to return to the upright position.</p> <p><b>Eccentric double-leg decline squat</b> Place both heels on a decline board or weight plate (~25° angle). Perform the squat slowly, keeping the toes in contact with the ground. Return to standing by pushing through</p> 			<p style="text-align: center;"><b><u>Progression(s):</u></b></p> <p><b>Eccentric single-leg squat on decline board + increased level of decline:</b> Preform the traditional single-leg decline squat as described above, but with an increased angle of decline (decline board, weight plate, or short step)</p> <p><b>Eccentric single-leg squat on decline board + increased load</b> Preform the traditional single-leg decline squat as described above, with the addition of holding a weight. Increase amount of weight as appropriate</p>	

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<p><b>Quadricep Stretch<sup>3</sup></b></p> 	<p>Reduce quadricep muscular tightness and tension on the patellar tendon.</p>	<p>Hold onto a support surface (chair, counter, etc) with 1 hand if necessary. Stand on 1 leg and bend the other knee as far back as possible. Hold the foot in this position for 30 seconds- 1 minute and then relax</p>	<ul style="list-style-type: none"> <li>Pt should feel a stretch in the anterior thigh</li> </ul>	<p>Standing with hip flexed</p> <p>Standing with excessive lumbar lordosis while trying to reach the hand to the foot</p>
<p><b>Hamstring Stretch<sup>3</sup></b></p> 	<p>Reduce hamstring muscular tightness which can impact mobility at the knee and hip</p>	<p>Lie supine and place a stretching strap around the foot. The contralateral leg can either lie flat or be bent at the knee. Pull up on the strap to help raise the leg. Try to keep this leg straight throughout the stretch, with the toes pointing towards the pt. Hold this position for 30 seconds-1 minute and then relax.</p>	<ul style="list-style-type: none"> <li>Pt should feel a gentle stretch behind the knee and/or thigh</li> </ul>	<p>Pts may pull the strap too aggressively.</p>

## References:

1. Rio E, Kidgell D, Purdam C, et al. Isometric exercise induces analgesia and reduces inhibition in patellar tendinopathy. *Br J Sports Med.* 2015;49(19):1277-1283. doi:10.1136/bjsports-2014-094386
2. Breda SJ, Oei EHG, Zwerver J, et al. Effectiveness of progressive tendon-loading exercise therapy in patients with patellar tendinopathy: a randomised clinical trial. *Br J Sports Med.* 2021;55(9):501-509. doi:10.1136/bjsports-2020-103403
3. Morgan S, Janse van Vuuren EC, Coetzee FF. Causative factors and rehabilitation of patellar tendinopathy: A systematic review. *S Afr J Physiother.* 2016;72(1):338. Published 2016 Nov 29. doi:10.4102/sajp.v72i1.338

## Images:

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