

## PATELLAR TENDON COMPLAINTS

Patellar tendon disorders result in pain affecting the patellar tendon. The pain is typically worse with impact, lunging or squatting. When severe it can trouble you during the night.



It is sensible to get help from a physiotherapist in following a rehabilitation programme for patellar tendon problems, as you will be instructed in how to perform the exercises and when.

Stretching - of quadriceps and hamstring muscles particularly, but also back and calves. See separate information downloads on “Simple Stretching” and “Back Stretching”.

Core stability exercises to improve control of movements through deep abdominal muscles. These are the muscles exercised in Pilates.

Eccentric exercises are very important. This is a form of exercise that promotes tendon remodelling and strengthening most effectively but may cause some aggravation of the pain. This is acceptable providing the aggravation lasts only a few hours. See table 1 below. A board with a 25 - 45-degree slope is required and (at a later stage) a weights bar. Initially, stand straight on the slope, then flex the knees to 90 degrees, returning to a straight position again (see illustration below).

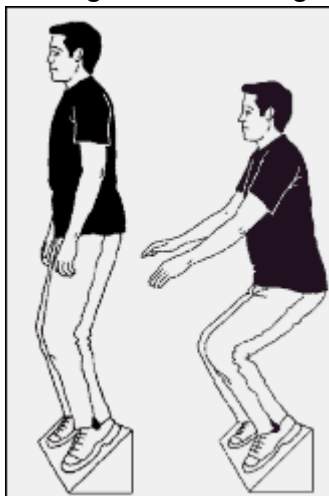


Table 1: Decline squat progressions

Stage	Exercise	No of legs
1	Two legs, 90 degree squat, no slope	2
2	Two legs, 90 degree squat on 45 degree slope	2
3	Single leg for squat phase (eccentric); two legs return phase (concentric), on slope	1.5
4	10kg bar; single leg for squat phase, two legs return, on slope	1.5
5	Single leg only throughout, on slope	1

The movement down must be done slowly (to a count of three) and the return can be done quickly (to a count of one). When away from home the slope can be replaced by the edge of a curb or step so that opportunities can be taken whenever possible to do the drills.

The number of repetitions is determined by the amount of discomfort felt in the patellar tendon. Stop a sequence of repetitions when there is an ache in the patellar tendon rated at a pain level of 3 (where 1 is no pain and 10 the worst pain imaginable). The rationale for this is to stimulate the patellar tendon eccentrically to a fixed (symptomatic) level each day, but without such a high score as to produce pain and further damage. You can do these repetitions as often as possible every day and many achieve the repetitions two to four times a day.

The exercise sequence can be progressed as shown in table 1. For some people stage 1 is too easy and they cannot bring on any discomfort in the patellar tendon. For others, the rate limiting factor is quadriceps fatigue and for this reason they can use two legs in returning to the standing position (see stages 2 to 4).

As the stages progress you will be able to increase the number of repetitions they can perform before the symptoms come on at a discomfort level of more than 3/10. There will be some days when you can manage more repetitions than others, but normally you will be able to move on to the next stage after two to four weeks – so improvement in this condition is usually measured in months, not weeks.

The rate of progression will vary from person to person, dependent in large part on how often you perform the exercises. If more pain occurs in the tendon, you should rest for two to three days and then drop back one stage in the rehab exercise progression.

### **Other rehabilitation considerations:**

Alongside the eccentric exercises, it is important to address other possible contributory factors, such as:

- quadriceps and hip flexor tightness
- stiffness in the mid-lumbar spine
- discrepancies in leg length.

Also ask your coach about poor technique in your sport, particularly in the lunging sports. Consider what footwear is being worn on various surfaces; clearly, high traction shoes on high traction surfaces will prejudice recovery and encourage relapse.

### **Other things that might help:**

Patellar straps, braces

Specific injection therapies (consult a specialist)

Orthotics (consult a specialist)

Shock wave therapy (consult a specialist)

Surgery is fortunately only rarely needed.