What is Patellar Tendinopathy?

Information for patients
Physiotherapy

What is patellar tendinopathy?

Patellar tendinopathy is a common soft tissue injury which can cause pain in the tendon below the knee cap (patella). It can also cause stiffness and weakness around the knee.

The patellar tendon is important as it joins the thigh muscles (quadriceps) to the shin bone via the patella. The quadriceps are very important as they straighten the knee and are involved in functional everyday activities such as running, walking and going up and down stairs.

Patellar tendinopathy occurs when the patellar tendon is overused/overloaded.

The tendon struggles to cope with the pressure put upon it resulting in micro injuries and changes to its structure. This causes pain. It is also known as jumper's knee and is common in people who take part in sports.

What are the symptoms of patellar tendinopathy?

Symptoms normally appear gradually, but can also develop after a bump to the knee.

- Pain is the most common symptom, localised to the front of the knee (pain can be mild or severe).
- Tenderness on the front of the knee.
- The tendon can sometimes feel a little thickened. Some people can experience tightness or weakness in leg muscles (quadriceps).
- Stiffness in the knee can often occur– especially in the morning.
- Some people can also have mild swelling around the knee.

How common is patellar tendinopathy?

Patellar tendinopathy can affect anyone, but is more common in the 15-30 years group. However it is also common in older sporting individuals. It is normally more common in people who take part in jumping, running and hopping activities, such as football and tennis.

What causes patellar tendinopathy?

It is not fully clear why some people develop patellar tendinopathy, but is normally due to several reasons:

Repeated stress on the patella tendon

- Overweight individuals
- A sudden increase in body weight
- Tightness of leg muscles
- Weakness in thigh muscles
- Changing activity levels or progressing too quickly
- Inappropriate footwear
- Exercising on hard surfaces

What can help with patellar tendinopathy?

Generally patellar tendon pain does not get better itself if you continue to put the tendon under too much stress. Patellar tendinopathy can resolve but this can take time. Physiotherapy exercises are recommended to strengthen the tendon. This will help improve the tendons "stress tolerance".

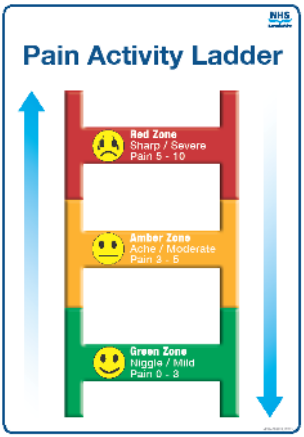
It is advised that you check your daily activities. You may need to adapt your activity levels for your knee pain to settle. For example, you may need to reduce impact activities such as jumping.

However, it is recommended that you remain active. Low impact activities such as cycling and swimming will help you keep fit whilst you recover.

During physical activity it is recommended that your pain is less than 3/10 and settles within a 24 hour period.

By following this advice, you should be able to gradually increase your activity levels back to normal.

Pain activity ladder



By following the pain activity ladder: **https://youtu.be/e9SEqd8bvII** which can be seen below, you can identify activities that you would consider severely painful, moderately painful and mildly irritating and act to change your habits.

The pain scale, most often used in healthcare, measures pain from 0-10 (zero being no pain and 10 representing the worst pain you could imagine).

If you can identify the level of pain you have, you will find out if you are in the green, amber or red zone. The best way to move down to the green zone is by pacing and spacing your activity.

When you doing your rehabilitation exercises it is often best to work within the green (and sometimes amber zones depending on what you think is an acceptable level of pain) both during the exercises and in the next 2 days. If you find yourself in the red zone you are likely pushing yourself too hard and may make the pain worse again.

Other helpful tips

- Warm up before physical activity
- Regular leg stretching
- Ensure you take adequate rest during your weekly activities
- Don't start new sport without some practice/ training first

The latest research does not recommend corticosteroid injections for patellar tendinopathy. This is due to the risk of rupture or weakening the tendon. There is lack of research to support surgical intervention for patellar tendinopathy. This may only be considered if all conservative management options have been exhausted.

Timescales/prognosis

An appropriate exercise programme can take more than 3 months to complete. You may see improvements before this but it may take longer for your symptoms to fully resolve.

In the pages below are some exercises varying form easy in the early stage to hard in the later stage. Completing these exercises most days is encouraged. Additional exercises may be required but these exercises are a good starting point. Not all exercises will suit everyone, therefore it is important to begin with the easiest and progress as able.

Physiotherapy exercises -

Early phase

- Stand with your back against a wall, with your feet shoulder width apart and 18 inches/45cm from the wall
- Slowly bend your knees to slide down the wall until you are in a chair like position
- Hold in this position for 15- 45 seconds
  (aiming to increase time as able)
- Push back up to starting position by slowly straightening your knees

Repeat 5 times with a 2 minute rest in between. Aim to do 2 to 3 times a day.

Early phase

- Lie on the floor or bed with one leg bent and the other leg straight out in front of you
- Pull the toes and ankle of the straight leg towards you and press the back of your knee against the floor or bed.
- Feel the front of your thigh muscles tightening
- Hold it tight for 5 seconds then relax

Repeat 10 times, 2 to 3 times a day. As the exercise becomes easier aim to hold the tension for 10 seconds rather than 5.

Intermediate phase

This exercise needs to be carried out a slope (a decline board). You can make one using a wooden board propped up on books or a brick. The angle of the slope should be about 20 degrees. If you don't have any of this equipment at home, please try the other intermediate exercise shown below.

- Stand on your board with both legs , facing down the slope
- Try to put slightly more weight through your affected side
- Slowly bend your knees, to a squat position
- Keep your heels on the board and make sure your knees stay in line with your middle toes
- Transfer your weight onto your good leg and stand back up to the starting position

Repeat 3 sets of 15 repetitions. Aim to do this 2 or 3 times a day.

Intermediate phase

- Stand with both feet flat on the floor
- Try to put more weight through your affected side
- Slowly bend your knees, to a squat position
- Keep your heels on the floor
- Transfer your weight onto your good leg and stand back up to the starting position

Repeat 3 sets of 15 repetitions. Aim to do this 2 or 3 times a day.

Advanced phase

This exercise needs to be carried out a slope (a decline board). You can make one using a wooden board propped up on books or a brick. The angle should be about 20 degrees. If you don't have any of this equipment at home, please try the other advanced exercise shown below.

- Stand on your board, facing down the slope
- Once you are balanced, stand on your affected leg only
- Slowly bend your knee, to a squat position
- Keep your heels on the board and make sure your knee stay in line with your middle toe
- Transfer your weight onto your good leg and stand back up to the starting position

Repeat 3 sets of 15 repetitions. Aim to do this 2 or 3 times a day.

Advanced phase

- Stand on a step facing downwards
- Stand on your affected leg only
- You can use a wall or banister for balance
- Slowly bend the affected knee and aim to touch the ground with your other heel
- Return to start position by straightening your standing knee

Repeat 3 sets of 15 repetitions. Aim to do this 2 or 3 times a day.

When do I do if my symptoms flare up?

Flare ups of pain are common. This is when your pain suddenly becomes very bad for a time.

Some people have a lot flare ups of pain so it is important to know how best to manage these flare ups. In most cases a pain flare-up will settle within 6 weeks.

Top tips

You will likely find it helpful to rest a bit more but it is still important to keep active. This will help to avoid becoming stiff and your muscles becoming weak.

If you aim to get a balance between rest and activity it should help your pain to settle down. You may be sore at first, however, start slowly and gradually increase the amount you do.

Reduce movements or tasks that make your symptoms worse. This can help especially in the early days.

Finding positions or movements that reduce your pain can be useful.

When to speak to a health professional

If you find any of the above exercises worsen your symptoms, please stop and seek advice from a health professional.

Please seek immediate medical attention if you experience knee trauma/injury with:

- a sudden pop/snap sensation
- severe pain/swelling
- the inability to straighten your knee

If you experience swelling, redness with heat around your knee, please seek advice from your GP.

If your symptoms continue to worsen or do not show signs of improvement after a period of 6-12 weeks of following the advice above, a self-referral to physiotherapy can be made on our website: **https://www.nhslanarkshire.scot.nhs.uk/services/physiotherapy-msk/** or via your GP.

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