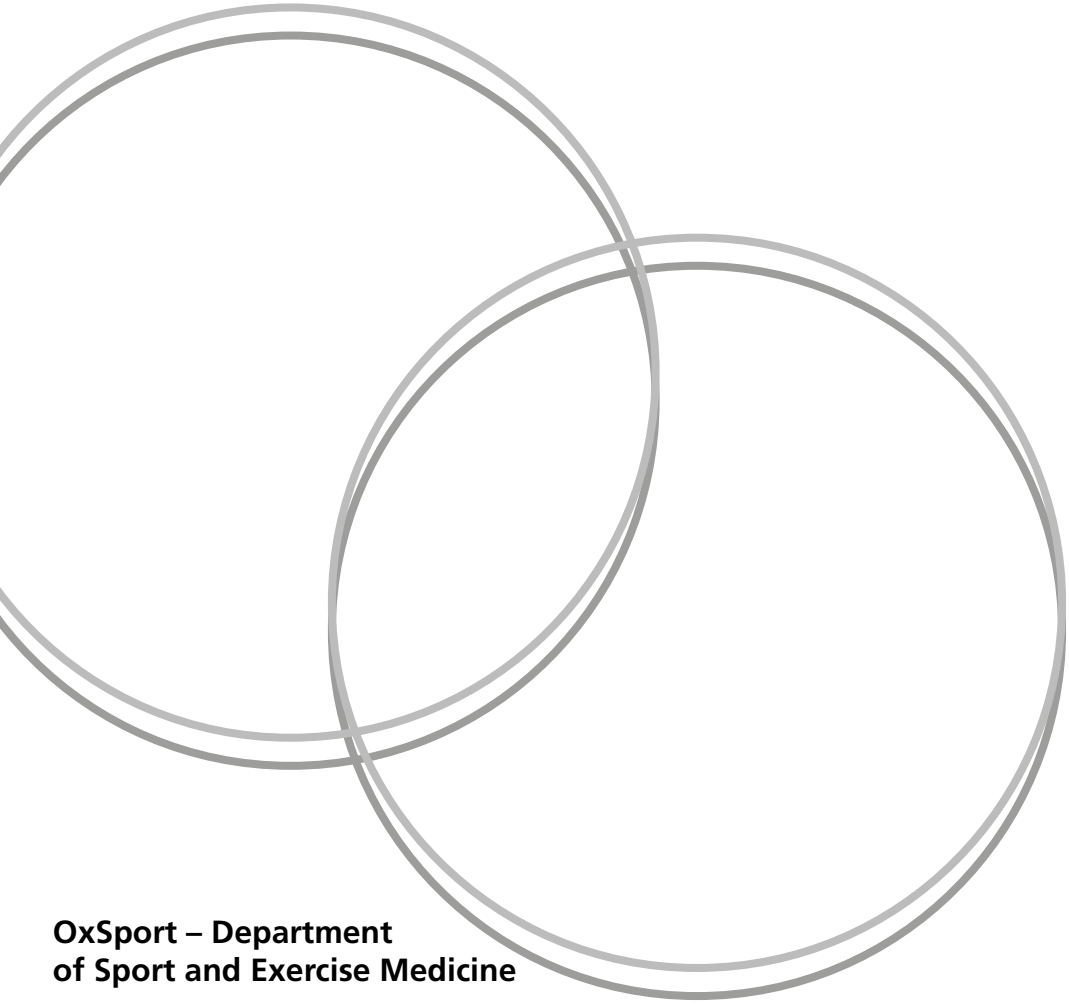
Oxford University Hospitals
NHS Foundation Trust

Patellar Tendinopathy

Advice and management

Information for patients



OxSport – Department
of Sport and Exercise Medicine

This booklet has been written to help guide you through the management of your patellar tendinopathy. It is important that you read this booklet, so you have a better understanding of the condition and its management.

What is patellar tendinopathy?

Patellar tendinopathy (often called 'jumpers knee') is a relatively common soft tissue injury. It affects the tendon at the front of your knee, below your kneecap (the patellar tendon).

It is more common in people who take part in sports that mainly involve jumping and running, such as volleyball, tennis, football and badminton.

What causes patellar tendinopathy?

The cause of patellar tendinopathy is still not completely understood. However, we know it is an overuse injury that occurs when a tendon is unable to adapt to the level of strain placed upon it. This leads to repeated microscopic damage within the tendon fibres. As the tendon tries to heal itself it can become painful and thickened.

Sometimes this condition is called patellar tendinitis or tendinosis, but these are the same as tendinopathy.

What are risk factors for developing patellar tendinopathy?

Many factors affect the load being put though the tendon. It is not simply the result of exercising too much.

General risks:

- Age: patellar tendinopathy is most common from the age of 30 onwards
- Gender: it is more common in men
- Weight: people who are overweight are more likely to develop this condition
- Flexibility: tight quadriceps muscles (the muscles on the front of the thigh)
- Conditioning: poor core stability around the hip/knee.

Certain aspects of exercise and training can increase your risk of developing patellar tendinopathy.

Common training errors:

- excessive plyometric exercises (those that involve jumping)
- too frequent weight training, e.g. weighted squats
- too much hill running
- increasing running distances too soon
- lack of variation in training.

Common symptoms associated with patellar tendinopathy

The most common symptoms are:

Morning stiffness

Many people complain of stiffness around the tendon when they get up in the morning, particularly when going downstairs. This usually eases after a few minutes of walking, but sometimes may last longer.

Tenderness over the patellar tendon

Often the tendon is very tender to touch when gently squeezed just below your kneecap. There may be thickening of the tendon.

Variable pain

Often people can 'exercise' through the pain. This means that the pain settles during exercise, but after resting it may then increase. However, some people experience severe pain from their patellar tendon, which stops them from doing their sport.

X-rays and scans

We don't always need to carry out imaging (X-rays or scans) to diagnose patellar tendinopathy; it can usually be confirmed by a clinician by taking into account your symptoms and examination findings.

If imaging is necessary, we are likely to carry out an ultrasound scan. This uses a handheld probe, which is rolled over your skin around your knee. The ultrasound machine uses sound waves to create an image on a screen. This is a quick, safe and effective way of us being able to see your tendon. Magnetic Resonance Imaging (MRI) may also be used, but this is quite rare.

Treatment

Ice

Applying ice wrapped in a damp tea towel to the tendon helps reduce pain. Apply for a maximum of 20 minutes, 4 times a day, or after exercise. Please take care not to apply ice for too long or directly to the skin, as this can cause ice burns. Do not apply ice/ice packs to an area where you have numbness, decreased sensation or poor circulation.

Simple painkillers

A short course of paracetamol or anti-inflammatories (such as ibuprofen) for a few days can be helpful. Anti-inflammatories should be taken with food.

Relative rest

Depending on your symptoms, you may be advised to stop taking part in your sport for approximately 1 to 2 months. However, it is important to maintain your fitness using other forms of exercise that rest your patellar tendon, such as swimming, cycling, aqua jogging (running in water).

Muscle strengthening

Your muscles help to work as shock absorbers and support the tendon. Strengthening and stretching muscle groups, such as the gluteal, hamstrings, quadriceps and calves, is a key treatment strategy. Some basic stretching exercises can be found on pages 12 and 13.

Eccentric Exercise Programme

This exercise programme is often recommended to help with symptoms and getting back to activity. It often forms the main component of the rehabilitation programme (see page 7).

Physiotherapy

This may involve several different treatment options including:

- manual techniques
- specific exercises.

Managing your weight

If you are overweight, see your GP to discuss strategies to help you lose weight. This can improve your symptoms and your overall health.

Cross training

Vary your exercise in different ways to train other parts of your body. This is called 'cross training'. It is a good way of keeping fit whilst recovering from injury.

Here are some examples that you may find useful:

- Swimming
- Spin classes
- Pilates
- Circuits
- Gym equipment
- Rowing
- Weight training
- Aerobics
- Alternative sports
- Cycling

Other treatments

If initial treatments do not improve your symptoms, your physiotherapist or doctor will discuss other options with you. These may include:

- podiatry referral for assessment for shoe inserts
- high volume injection (an injection of saline and anaesthetic into the area around the tendon)
- dry needling, with or without autologous blood injection (a procedure to try and stimulate healing in the tendon)
- GTN patches (glyceryl trinitrate)
- surgery.

The latest evidence suggests that steroid injections are not the best treatment option. There is a risk of weakening or even rupturing (bursting) the tendon following a steroid injection. This can lead to long term problems. For these reasons, we do not routinely use steroid injections as a treatment option.

Follow-up

The Eccentric Exercise Programme is the 'gold standard' for treatment of this condition. Approximately 7 out of every 10 people are able to return gradually to their sport or full activities at around 3 months.

You will usually be seen on a regular basis by your physiotherapist to support you with following this programme. If your symptoms are not improving, your physiotherapist will consider whether there are any alternative treatments that can be offered. This may involve referring you back to the clinician in charge of your care.

Eccentric Exercise Programme

This is a three stage programme designed to gradually increase the strain going through your tendon in a controlled way.

The eccentric exercises can take between 3 to 6 months to significantly improve your symptoms, but sometimes this can happen more quickly. Unfortunately there are no overnight cures for this condition.

A reduction in morning stiffness is usually the first symptom to improve. Pain or tenderness on squeezing the tendon is usually the last symptom to go.

It is very important to note that during the Eccentric Exercise Programme you may experience an increase in pain, but this will reduce as you continue your rehabilitation.

Guidelines for the Eccentric Exercise Programme

There are some important guidelines to observe whilst performing the exercises.

- When you start the eccentric exercises, you are very likely to have an increase in your pain, especially when progressing to each new phase of the programme. This is normal and should soon settle. However, this pain should not go beyond what you feel to be 4 out of 10 (based on a scale from '0' being no pain to '10' being worst pain imaginable).
- Whilst doing your eccentric exercises you should expect your pain levels to be 3-4 out of 10.
    - o If your pain is less than this you can safely progress to the next stage of the Eccentric Exercise Programme.
    - o If your pain level is more than 4 out of 10 you will need to reduce your repetitions or use the guidelines mentioned on page 5 for pain relief. Do this until your pain becomes less than 4 out of 10. You can then resume your set exercise programme.
- This programme should be done every day for at least 12 weeks. It is important to persevere, even if you feel no initial benefits.
- If your morning stiffness starts to last longer as a result of doing the exercises, you will need to reduce your repetitions until this settles down. If reducing your repetitions does not help, try resting for 2-5 days.

The Eccentric Exercise Programme

For each phase of this training programme, exercises should be done daily (as described in the following sections) using a wall for stability if required.

Phase 1: Double leg eccentric exercises

Stand with both feet on the ground.

You can lean to put more weight onto your affected leg.

Squat down until you feel the pain in your tendon.

Transfer your weight onto your good leg and stand back up into the starting position.

Repeat, aiming for 90 repetitions.

Move on to Phase 2 when this exercise becomes easier. Gradually increase the amount of weight you put through your affected leg.

Phase 2: Single leg eccentric knee bends

Stand on your affected leg only.

Squat down until you feel the pain in your tendon.

Transfer your weight onto your **good** leg and stand up again.

Repeat, aiming for 90 repetitions.

Move on to Phase 3 when this exercise becomes easier.

Phase 3: Decline single knee bends

This phase needs to be carried out standing on a slope (declined board). You can make one using a wooden board propped up on books or a brick. The angle should be approximately 20 degrees.

Stand facing downwards on your declined board.

When you are balanced, stand only on your affected leg.

Squat down until you feel the pain in your tendon.

Transfer your weight onto your **good** leg and stand back up again.

Repeat, aiming for 90 repetitions.

To progress this Phase 3 exercise you can wear a rucksack with books in it, to increase the weight and load through your tendon.

Essential stretches

These stretches help to lengthen the two main muscles that control your knee. This is important, to reduce abnormal tightness across your patellar tendon.

It is good to stretch these muscles in both legs, swapping leg positions as described.

Stretching the quadriceps muscle

Using a wall for support, stand on one leg and bend the other knee as far as it goes, taking your foot in your hand behind your buttock. You should feel a stretch at the front of your thigh muscle in your bent leg.

Hold the stretch for 1 minute. Stop if you experience pins and needles.

Stretching the hamstring muscle

Lie down on your back and raise one leg as far as it will go, keeping your knee straight. Hold behind your knee with both hands.

You should feel a stretch at the back of your leg.

Hold the stretch for one minute. Stop if you experience pins and needles.

Frequently asked questions

Q. What does 'eccentric exercise' mean?

A. There are two types of muscle contraction: concentric and eccentric.

Concentric muscle action is where a muscle shortens whilst doing work. For example, lifting a weight in your hand by bending your elbow shortens the bicep muscle.

Eccentric muscle action is the opposite. For example, when lowering a weight in your hand by straightening your elbow you will notice the bicep muscle lengthening.

In a similar way, when straightening your knee the quadriceps muscle shortens (concentric) and as you bend your knee, by lowering yourself down into a squat position, the quadriceps muscle lengthens (eccentric).

Q. Is there a risk that my tendon will rupture while doing my exercises?

A. There is no evidence that the tendon is at risk of rupture while doing these exercises.

Q. Will I be able to return to my sport?

A. If you respond to the Eccentric Programme then there is no reason why you cannot return to your sport without pain.

Q. When can I go back to my sport?

A. The return to your sport is guided by your symptoms and the type of sport you like to do.

We advise a gradual return to your sport. You may have lost condition during your injury and recovery, which is why maintaining your fitness through cross training (such as swimming and cycling) is important.

You should remember that the primary cause of a tendinopathy is commonly thought to be due to overuse and training errors. When you start to return to your sport it can be helpful to vary your training and combine different speeds, distances and

times. This will allow your tendon to adapt to the loads placed upon it. If you want to increase your running distance or time, only increase this by 10% each week.

Q. Can I still run during my rehabilitation phase?

A. There is no evidence that you will do yourself further harm if you return to running, providing you have little discomfort, but we usually recommend you refrain from running for at least one month. This is because continuing to run may mean your rehabilitation takes longer, as running may aggravate your pain.

You may want to consider alternative forms of exercise, such as swimming or cycling, to maintain your fitness.

Q. What happens if I do not respond to the Eccentric Exercise Programme?

A. It is estimated that 1-3 in every 10 people will not respond to this treatment. If this is the case for you, your physiotherapist will see whether there are any alternative treatments we can offer. They may also refer you back to your clinician for a review.

Q. Is surgery better than an Eccentric Exercise Programme?

A. Surgery tends to be the last resort when all other treatments have failed. It is not guaranteed to relieve your symptoms and may make things worse.

How to contact us

Appointments:
01865 737 871

Physiotherapy:
01865 738 074

Radiology:
01865 738 189

Pathway Administrator:
01865 738 285

Useful websites

OxSport:
www.ouh.nhs.uk/oxsport

If you need an interpreter or would like this information leaflet in another format, such as Easy Read, large print, Braille, audio, electronically or another language, please speak to the department where you are being seen. You will find their contact details on your appointment letter.

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