# Self management of Patellar Tendinopathy

## Information and Exercises

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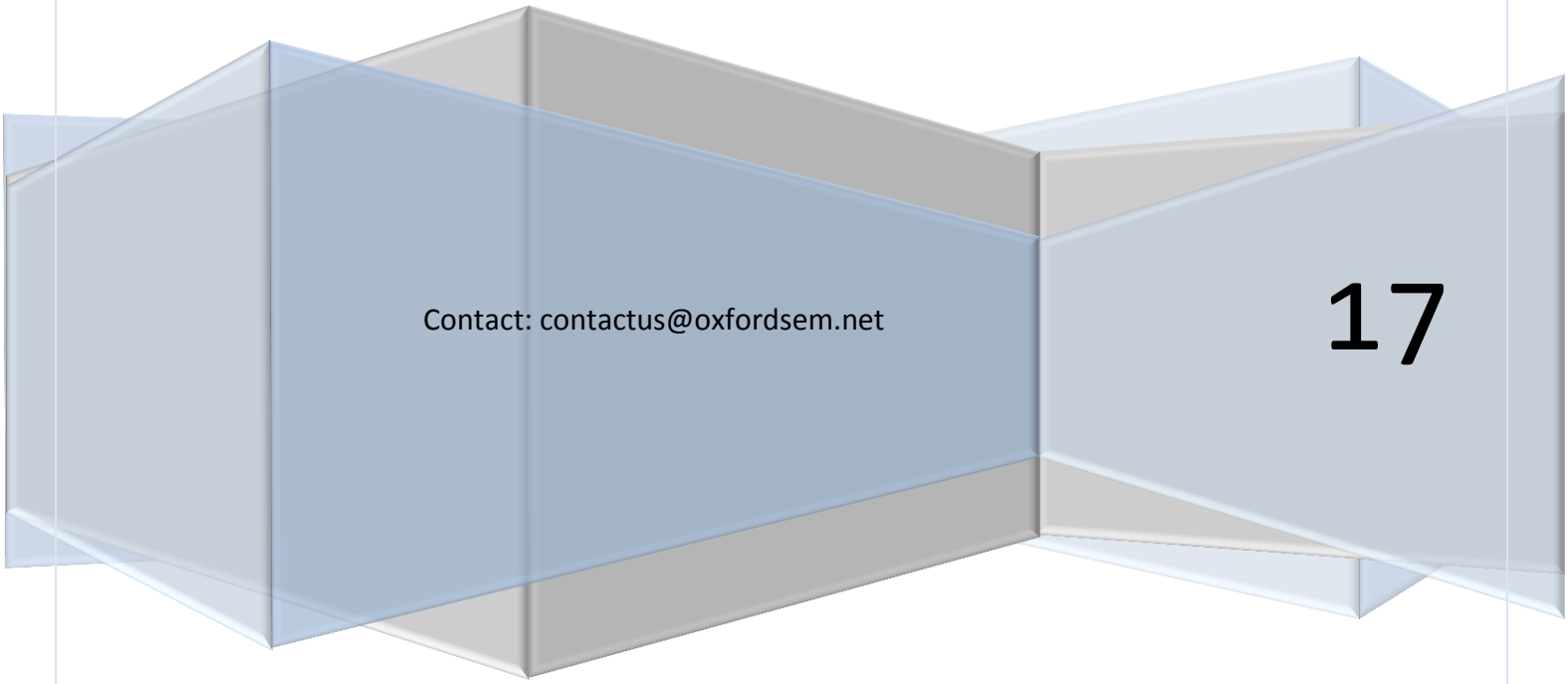

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**This booklet has been designed to help guide you through the management of your Patellar tendinopathy. It is important that you read this booklet so that you have a better understanding of the condition and its management.**

## Prevalence of Patellar tendinopathy:

Patellar tendinopathy (PT) which is more commonly known as jumpers knee, is a relatively common soft tissue injury that affects the tendon at the front of your knee (Patellar tendon). It is more common in people who participate in sports that predominantly involve jumping, running or prolonged loading of this tendon for example volleyball, tennis, football and badminton. Patellar tendinopathy affects people of all ages but is found mainly in younger male athletes.

## What causes Patellar tendinopathy?

The cause of Patellar tendinopathy still remains unclear. There are many factors that can lead to Patellar tendinopathy. A tendinopathy occurs when the tendon is unable to adapt to the strain being placed upon it. This leads to microdamage within the tendon fibres, and results in the tendon attempting to heal in response to the strain.

- Tight quadriceps muscles.
- Poor lumbo-pelvic stability around the hip/knee.
- Stiff ankle joint.

Training Issues:

These are thought to be the most common reason for developing Patellar tendinopathy.
Common training errors:

- Excessive plyometric training (exercises involving jumping).
- High frequency of weight training e.g. Weighted squats
- Lack of variation in training.
- Too much hill running.

## Imaging

Commonly an Ultrasound Scan is used to confirm the diagnosis of Patellar tendinopathy. This is a quick, safe and effective way of visualising the tendon.

Magnetic Resonance Imaging (MRI) can also be used but is a more time consuming scan and not as readily available as Ultrasound. Imaging is not always necessary. Achilles tendinopathy is often diagnosed on clinical findings alone.

## Common symptoms associated with Patellar tendinopathy

The most common symptoms that people complain of when presenting with a Patellar tendinopathy are:

- Morning stiffness: Many people complain of stiffness around the tendon on rising in the morning which usually resolves after a few minutes of walking. In some cases the stiffness may last longer. People also experience stiffness after sitting for long periods.

- Tenderness over the Patellar tendon: Often the tendon is very tender to touch when gently pressed. This is usually located just below the knee cap. In some cases there may be a tender thickening in the middle of the tendon.

- Variable pain: Some people can 'exercise' through the pain. This means that the pain settles during exercise but after resting, the pain may increase. Some people can experience severe pain from the Patellar tendon which stops them doing their sport.

- Pain in specific activities: Many people in the early stages of patellar tendinopathy only experience pain in specific activities such as jumping, squatting, lunging, up and down stairs

# Treatments

## Simple pain relief:

It is very important to modify the pain associated with tendinopathy as the pain can become a problem in itself.

Ice: Applying ice wrapped in a damp tea towel to the tendon helps reduce pain. Apply for 20 minutes, 4 times a day or after exercise.

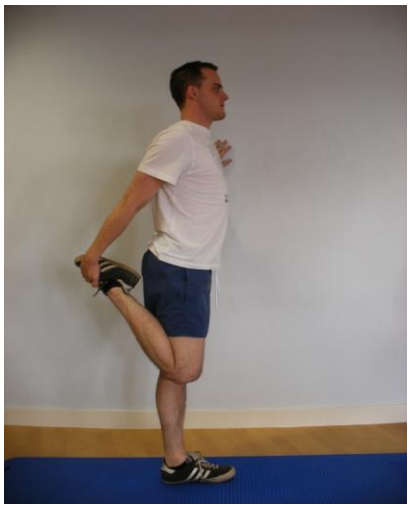
Simple pain killers: Paracetamol or anti-inflammatories such as Ibuprofen or Diclofenac. Do not use anti-inflammatory medication(such as ibuprofen and diclofenec) before discussing it with your consultant as sometimes its action can counteract other treatments you may be having.

Relative rest: Maintain fitness using different forms of exercise but resting the tendon e.g. Swimming, cycling, aqua running

## Stretches

*Always stretch after you have warmed up, never cold*

*Right Quadriceps Stretch*



Hold the Stretch for at least 1 minute(time it!)

**You should feel a stretch at the front of your thigh muscle**

*Left Hamstring Stretch*

Hold the stretch for 1 minute(time it!)

You should feel the stretch at the back of your upper thigh

# The Eccentric programme:

The Eccentric exercise program works to strengthen and lengthen the Quadriceps muscles. This forms the main component of the rehabilitation programme.

The eccentric exercises can take between 3 to 6 months to significantly improve your symptoms. In some cases it may happen more quickly. Approximately 70% of people are able to return gradually to their sport at around 3 months.

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

When doing the eccentric exercises, do expect an increase in pain especially when progressing to each phase of the exercise program but this should not go beyond what you perceive to be 4 out of 10. This is based on a scale from '0', being no pain to '10' being worst pain imaginable.

The eccentric exercise program is the 'gold standard' for treatment of this condition. However, it is estimated that between 10% and 30% of patients will not respond to this treatment. If this is the case then you will be referred back to Oxford SEM for a review and alternative treatments can be discussed with your consultant.

Your physiotherapist may also combine additional treatments to assist your progress.

# Guidelines to the eccentric exercise programme

- There are some important guidelines to observe whilst performing the exercises:

- You may experience an increase in pain from the outset of the eccentric programme. This is normal and should soon settle.

- While doing the eccentric exercises; if your perceived pain increases beyond 4 out of 10 ('0' is no pain and '10' is worst pain you can imagine) then you will need to reduce your repetitions or use the guidelines mentioned for pain relief, until your pain becomes less than 4 out of 10. You can then resume your exercise programme.

- This programme should be done daily for at least 12 weeks. Although you

may not feel any benefits from this exercise programme initially it is important to persevere.

- Morning stiffness is usually the first symptoms to improve while tenderness over the tendon is usually the last symptom to resolve.

- If your morning stiffness becomes prolonged 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 a few days.

# The Eccentric Strengthening Programme:

*Phase 1: Double leg eccentric squat*

STARTING POSITION

Stand with slightly MORE weight on your painful side.

*Phase 1: Double leg eccentric squat*

Squat down until you feel the pain in your TENDON

Transfer weight onto your GOOD side and stand back up into the starting position.

**Repeat and aim for 90 repetitions**

*Progress to Phase 2 when Phase 1 becomes easy*

*Phase 2: Single leg eccentric squat*

STARTING POSITION

Standing, putting weight through your painful side

Squat down on your painful side until you feel the pain

Transfer your weight onto your good side and stand up again.

Repeat, aiming for 90 repetitions

*Progress to phase 3 when these exercises become easier*

*Phase 3: Single leg eccentric squat on decline board*

Standing, facing downwards on a decline board on your affected leg.

The board should be angled by approximately 20° by placing a small board onto some books

*Phase 3: Unilateral heel drops, knee straight, over the edge of a step*

Squat down on your painful leg until you can feel the pain in your tendon

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

*To progress this stage, try adding weight in a rucksack loaded with books, bags of sugar or adding hand held weight.*

# FAQ's

**Q.What is an eccentric exercise programme?**

**A**.There are two types of muscle contraction, concentric and eccentric. Concentric muscle action is where a muscle shortens while doing work, for example lifting a weight in your hand by bending your elbow shortens the bicep muscle. Eccentric muscle action is the opposite of concentric for example when lowering a weight in your hand by straightening your elbow you will notice the bicep muscle lengthening as the weight is lowered. This translates to the ankle in that when you rise up on tiptoes the calf muscle shortens (concentric) and as you lower yourself down from tiptoes, the calf 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 your sport. We advise a gradual return to your sport. You may be de-conditioned and you should remember that the primary cause of a tendinopathy is commonly thought to be due to overuse and training errors

**Q. Can I still run during my rehabilitation phase?**

A. There is no evidence that you will do yourself further harm. You can run providing there is little discomfort. However, you may prolong your rehabilitation as running may aggravate your pain. You may want to consider alternative forms of exercise such as swimming or cycling to maintain your cardiovascular fitness.

**.Q. Will I always have to do my exercise programme?**

A. Not normally. If you find your symptoms returning then it is advisable to return to your

exercise programme initially. However if your symptoms do not improve then see your GP.

**Q. What happens if I do not respond to the eccentric exercise programme?**

A. Between 10%-30% of patients do not respond to the eccentric programme. In the event that you do not respond to the exercise programme you should contact us at Oxford Sport and Exercise Medicine. There are alternatives that can be explored and these will be discussed with you at your appointment. These alternatives include shockwave therapy, high volume tendon injection, autologous blood and platelet rich plasma injection.

**Q.Is surgery better than an eccentric programme?**

A. Surgery tends to be the last resort when all other modalities have failed. It is not guaranteed to relieve your symptoms and the evidence supporting surgery in the management of tendinopathy is weak.

**.Q.Will I benefit from a steroid injection into the tendon?**

A.There is evidence to suggest that there is a risk of the tendon rupturing following a steroid injection so it is not encouraged. Steroid injections are used for inflammatory conditions and there is no evidence of inflammation within most tendinopathic tendons, particularly those which have been painful for more than a month.

## Helpful tips for training

- ✓ Increase your running distance or time by 10% each week.
- ✓ Renew your trainers every 300 to 500 miles. Consider having two pairs of trainers 'on the go' at the same time.
- ✓ Vary your training. Combine different speeds, distances and times during your training period. This will allow the tendon to adapt to the loads placed upon it.
- ✓ Plan your training regime. Use websites such as www.runnersworld.co.uk for advice on training tips.
- ✓ Make training more fun. Vary your exercise in different ways to train other parts of your body. This is termed 'cross training' and is a valuable method of reducing injury by distributing the loads placed upon your body.
- ✓ Examples of cross training that you may find useful:

- Cycling is an excellent form of rehabilitation exercise because it will train both strength and maintain cardiovascular fitness
- Cross training is particularly useful for runners and many people with Patellar Tendinopathy find they tolerate it well in the rehabilitation phase
- Cross country skiing
- Swimming
- Rowing
- Pilates
- Circuit training
- Spin classes

For all questions or difficulties contact us at: contactus@oxfordsem.net