



Figure 1

## What is it?

Tendon problems at the knee are quite common. 'Jumpers knee' also known as patella tendinopathy refers to irritation/inflammation of the tendon at the front of the knee. See figure 1. This tendon allows the leg to extend and lies just below the kneecap (patella).

## How did I get it?

Patellar tendinopathy is a common injury in sports predominantly involving jumping and landing, and results from overuse of the patellar tendon. The function of the patellar tendon is to transmit forces produced by the large thigh muscle (quadriceps) to the shin bone (tibia) to produce movement of the knee joint. Repetitive ballistic use of the quadricep muscles to run, jump and land causes microscopic tears within the substance of the patella tendon. It is the reason that jumping athletes develop achilles tendinopathy but bodybuilders do not. Slow strength training promotes tendon growth. This explains the initial paradox that strength training is used to repair an overuse injury. The body does not mount a very good inflammatory of healing response so this injury can take a very long time to heal and gradual degeneration of the tendon may occur as a result. Factors which may contribute to patellar tendinopathy include a recent change in training (including frequency, duration, intensity, training surfaces, reduced rest times, biomechanical abnormalities, and decreased muscle flexibility). These factors can lead to increased stress on the patellar tendon, micro-tears and subsequent tendinopathy.

## What should I do?

Patellar tendinopathy generally does not get better on its own if the cause is not addressed and you continue to exercise. If you have or suspect you have patellar tendinopathy, you should consult your sports medicine professional. In the interim you can begin initial treatment. This should consist of icing following exercise and regular thigh stretching. Icing should consist of crushed ice wrapped in a moist towel applied just below the kneecap for 15—20 minutes or ice in a paper cup massaged over the region just below the kneecap until the skin is numb.

If you have or suspect you have patellar tendinopathy you shouldn't ignore the problem. Your pain may get better as you exercise, however, the exercise you are doing may interfere with the healing process and be causing further damage. This can lead to your injury getting worse such that your pain does not disappear after 'warm up' and you feel it throughout exercise. If this occurs, your recovery may be prolonged and it may take a number of months for you to return to your activity or sport.

Patellar tendinopathy does not produce any long-term effects as long as it is properly diagnosed and appropriately treated. If not, it can lead to prolonged pain in the region just below the kneecap and a prolonged layoff from exercise and sport.

## What are the symptoms?

Patellar tendinopathy results in pain felt just below the kneecap. This pain may be aggravated by activities such as jumping, hopping and jogging and typically develops gradually. Initially, the tendon may only be painful following exercise. Stiffness or tightness in the region of the

kneecap may also be experienced. Typically, these initial signs of patellar tendinopathy are ignored as they disappear quickly with walking about or applying heat (i.e. a hot shower) over the kneecap region. However, as you continue to exercise, the tendinopathy progresses and the pain within the tendon becomes more intense and more frequent. In the earlier stages, this pain during

exercise may initially disappear as you warm up, only to return when you cool down. However, as you continue to exercise, the tendinopathy worsens and your pain may begin to be present for longer periods during exercise until it is present all of the time. This may interfere with your performance.

## How is a diagnosis made?

A diagnosis is made on the history of the injury and examination findings. Occasionally x-rays, USS (Ultra Sound Scan) and/or an MRI are ordered to exclude other injuries.

## What does rehab involve?

As there is not much inflammation in tendinopathy, anti-inflammatory medications and cortisone injections have fallen out of favour in recent years. Often tendinopathy will persist for a long time, in fact often a large tendon tear will heal long before a tendinopathy will. It seems as though the body does not recognise tendinopathy as an injury and makes no attempt to repair the tissue. For this reason treatments aimed at strengthening and/or irritating the tissue are preferred.

**Physical / exercise based therapy must always be the mainstay of treatment** - tendon function and strength must be preserved. Irritant treatments including injections such as prolotherapy, PRP (Platelet Rich Plasma) and ABI (Autologous Blood Injections) and minimally invasive surgeries such as percutaneous tenotomy are increasingly popular. They essentially aim to injure the tissue to promote a healing response by the body.

### Activity Modification

Reducing provocative activities such as running and jumping will facilitate recovery.

### Pain Medication:

Pain medication tends not to be particularly effective for patella tendinopathy. A trial of anti-inflammatories or simple pain relief medication like paracetamol may however be worthwhile initially or if the symptoms are severe.

### Physical therapy:

Exercise therapy, in particular strengthening exercise should be the mainstay of treatment.

### Unloading taping / braces:

Unloading braces can help decrease pain. They may certainly help with symptoms although it is unlikely that they assist in the time required to heal the injury.

### GTN Patch

GTN patches are a patch originally intended for heart disease and blood pressure. They have been shown to increase nitric oxide which is an important healing chemical. GTN patches are relatively cheap and are non-invasive. Their main side effect is headaches. The headaches are due to lower blood pressure and should only persist for the first 2 weeks. GTN patches may be worth considering if initial activity modification and exercise therapy has not helped.

### Cortisone injection:

An injection of cortisone, which is an anti-inflammatory steroid medication, may be given to relieve pain. Relief from a cortisone injection is usually highly effective but temporary. It may last as long as many months but as little as a few weeks. There is some contention regarding how many times an injection can be repeated but generally it will be considered twice before pursuing surgical options. The injection can be painful and has an extremely small risk of causing infection. One theoretical side effect of a cortisone injection is that it can

weaken the tissue and may result in a rupture. The risk of this is low, approximately 1/1000.

A cortisone injection is usually used in two groups of patients. The first group have milder symptoms or can alternate their activities so they can work around the pain. In this group an injection is performed when the pain has been present for a long period of time and an extensive trial of physical therapy has failed to produce results. The second group are patients with extreme symptoms or who for some reason cannot wait for physical therapy to become effective. This group usually receives an earlier injection but must also engage in physical therapy or the pain will just return when the injection wears off.

### Irritant Injections:

Although quite painful, irritant injections such as PRP are increasingly popular. It acts to irritate the tissue and infiltrate growth factors that promote healing. While cortisone works well in the short term, PRP works more slowly but long term outcomes have been shown to be better than cortisone.

### Shock wave therapy

Shockwave therapy can be considered. It may offer some benefit.

### Surgery

Surgery is rarely required and should be avoided in the vast majority of cases.

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