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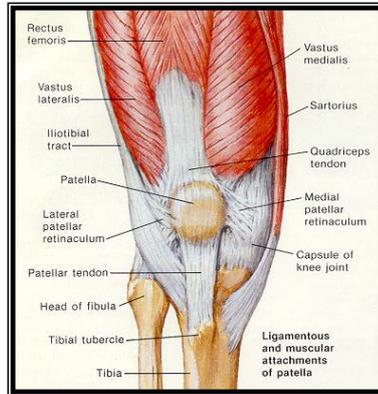
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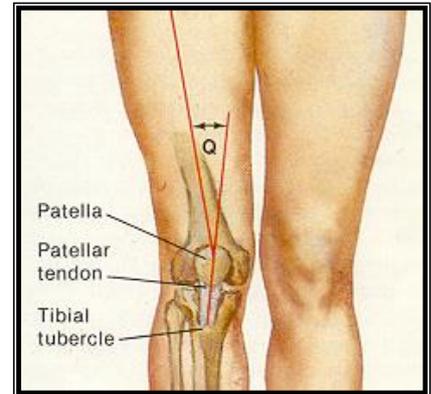
## Knee Pain – Patello femoral

### Description

Patello-femoral pain is one of the most common causes of knee pain involving the patella (knee cap) as well as surrounding soft tissue. It can result in diffuse or sharp pains felt either surrounding or behind the patella or deep inside the knee and can sometimes be associated with referred pain to the back of the knee. The condition is often referred to as “runner’s knee” or “chondromalacia patella”.



**Anatomy – Right knee**



### Incidence

Patello-femoral syndrome is a common condition experienced in all ages, especially active or sports people. It affects to some degree one in two adolescent athletes and one in four adult athletes.

### Symptoms

The pain is due to an overuse inflammatory syndrome at the back of the knee cap causing pain and swelling. It tends to be aggravated by any bent knee activity, such as running, kneeling, squatting, sitting for prolonged periods, or stairs with going down worse than up. Often, this is associated with creaking or grinding sensations under the knee cap.

### Causes

In the normal knee, the patella glides up and down through a groove in the bottom end of the femur. When the knee is flexed (bent), then the pressure between the patella and femur is increased, prolonging and/or repeatedly causing this increased pressure can lead to irritation, which in turn causes an inflammatory response. This pressure is increased if the patella does not ride smoothly through the groove, but ‘tracks’ more to one side. This is the effect of a muscle imbalance between the medial (inside) muscles called vastus medialis and the lateral (outside) muscles of the thigh. The inside usually being weaker or placed at a mechanical disadvantage with the leg internally rotating through the walking or running cycle. Tight outer fascia or retinaculum of the patella can also contribute to pulling the patella outward. A leg that internally rotates with flattening of the foot also has this effect. Any imbalance results in the patella rubbing against the femur unevenly. The inflammation causes pain, swelling, further muscle imbalance and may lead to roughening of the cartilage of the underside of the patella.



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Other factors that contribute to this type of pain include:

- Previous knee injuries
- Poor lower limb biomechanics including pronated or flat feet, internal knee position (squinting patella), narrow groove in the femur, wide hips increasing femur angle (Q angle), asymmetrical patella, knocked knees
- Tight outer leg muscles or fascia/retinaculum
- Weak inner leg muscles
- Enhanced training schedule
- Surface terrain used for activity
- Technique deficiency

#### Treatment

The treatment for this condition is aimed at reducing pain and inflammation and restoring the correct mechanics of the joint.

- Resting the knee i.e. avoid any activity that causes pain. Continuing painful activity will aggravate the condition. In particular, avoid activities such as squatting, kneeling, stairs, sitting for prolonged periods with knees bent etc.
- Ice therapy, applied with leg straight for 20 minutes 2-3 times a day and after any activity
- Anti-inflammatory medication may be prescribed
- Physiotherapy including ultrasound, electrical stimulation, taping and exercises
- Appropriate assessment and correction for abnormal lower limb mechanics, including the effect of foot malposition requiring **orthotic** devices prescribed by the podiatrist
- Correct muscle training, stretching and strengthening of the thigh muscles
- Proper training principles i.e. warm up and down, gradual increases in activity level. Non-weight bearing activities such as swimming may be more appropriate during initial treatment.
- Proper footwear for the nature of activity and foot type
- Maintain desirable body weight
- Braces or supports to hold patella in groove
- Possible surgery to release tight fascia, remove damaged cartilage or re-align the angle of the patella tendon

Provided treatment is commenced prior to the onset of significant changes to the patella joint surface, conservative treatment has a high rate of success.