

A decorative graphic on the right side of the page. It features three blue circles of varying sizes, each composed of concentric rings of different shades of blue. Two thin, light blue lines intersect at the top left and extend diagonally across the page, framing the circles.

# Patella Problems

Runners Knee

Common Lower Limb Functional Disorders

**5 of 6**

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### SIGNS AND SYMPTOMS

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The underneath of the patella (kneecap) can become painful due to poor walking and running patterns. Pain is experienced whenever the knee is held in a prolonged flexed position such as a long car drive or plane journey.

Pain can be excruciating when the kneecap is loaded such as walking down a steep hill or climbing up stairs. The most severe pain is felt with laying face down in bed and having the kneecap pressing directly under the leg.

### WHAT'S GOING ON?

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Your patella is the largest sesamoid bone in your body. A sesamoid bone is one that is embedded within a tendon and is not a true part of your supporting skeleton. Its function, however, is to increase the mechanical strength of the attaching muscle through leverage.

When your patella is closely examined it's under surface, which articulates with your thighbone, is not flat but is triangular in shape. The corresponding surface on the thighbone has a groove within which your patella rests and glides up and down.

During normal running and jumping and walking the controlled contractions and relaxations of your thigh muscle pulls on the tendon and your patella tracks correctly along this groove.

However, should there be a poor pattern of leg and foot movement then your patella can be pulled excessively to one side or the other within this groove. This abnormal tracking can lead to overloading of your articular surfaces causing premature wear and tear under the patella leading to pain. This condition was noted in athletes who run a lot and the condition was termed "Runners Knee".

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### HOW IS IT TREATED?

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Quad is the Latin word for four and your quadriceps or thigh muscle is made up of four muscle bellies. The main muscle that influences the correct patella tracking is one called **Vastus Medialis** which is located to the inside of your knee. If this muscle is weak then the contractive forces of the other three muscles will naturally pull your patella to the outside of your knee joint.

A good strengthening programme designed for this muscle involves sitting with your knee at the edge of a bench and keeping your leg straight but rotated outwards slightly.

With a weight attached to your foot, the thigh muscle is allowed to relax slightly but the leg remains straight. You then contract the thigh muscle vigorously all the time feeling the muscle belly of the **Vastus Medialis** with your hand to insure it is fully contracted. This process is repeated several times until a burning sensation develops within this muscle belly.

Your knee is then flexed allowing the thigh muscles to relax until the burning disappears. This overall process is repeated five times twice daily. After several days the burning sensation takes longer to develop as your muscle strengthens and your patella symptoms will settle down.

In situations where the quadriceps muscle is in excellent condition but your patella is poorly tracking due to an abnormal walking pattern. Then custom foot orthoses can be of excellent value in settling down the symptoms of patella pain.

Where the long-arch of the foot excessively flattens this will cause the whole leg to rotate inwards. Your patella will have no other choice but to tract itself in an abnormal manner within its groove.

Custom foot orthoses will prevent excessive flattening of your foot, which in turn prevents excessive internal rotation of your leg thus placing your patella correctly into its corresponding groove on the thighbone. The normal tracking of your patella allows its articular surface to heal and your symptoms will diminish.