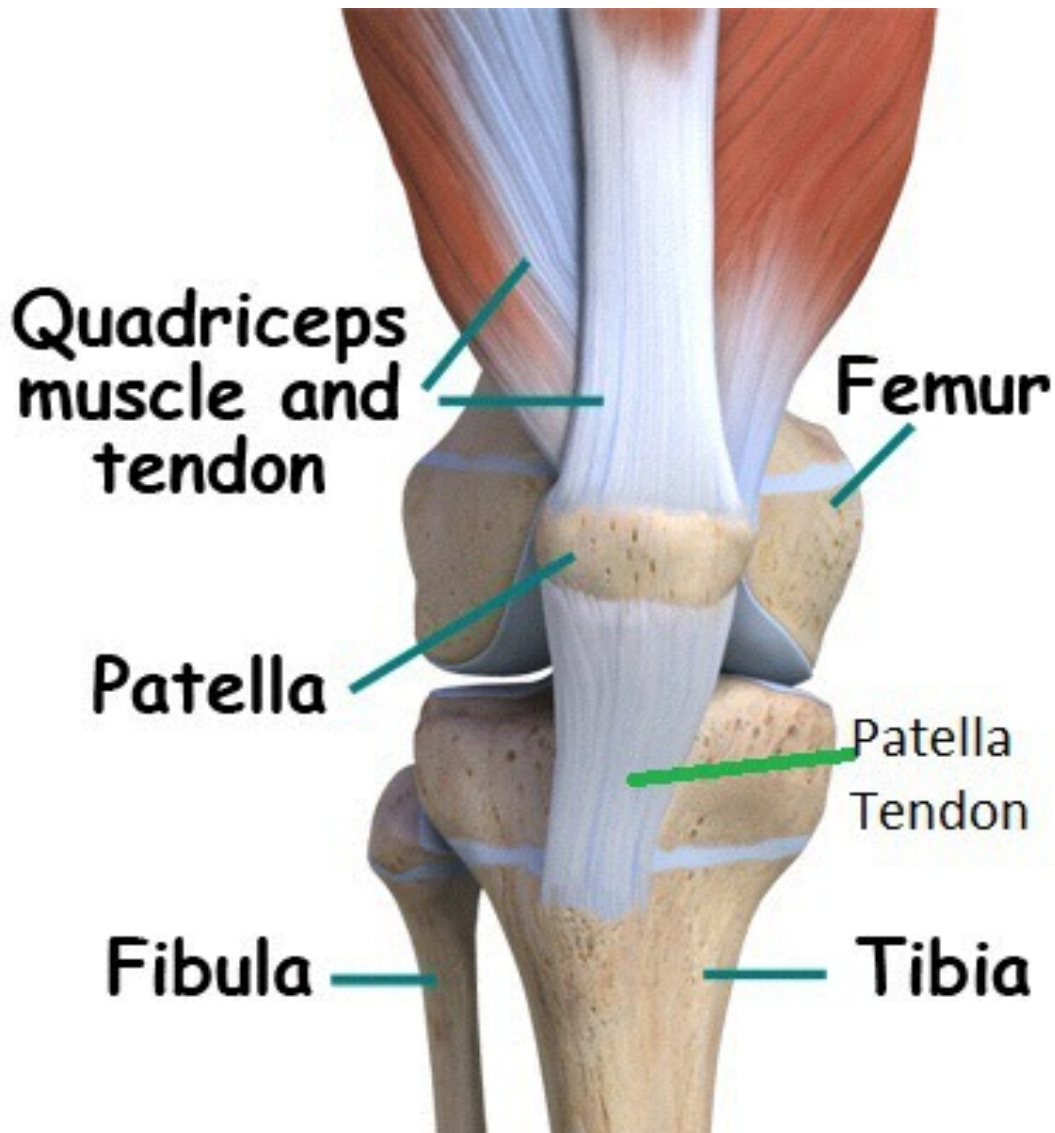


1. Patellofemoral joint pain

Your knee cap forms a joint with the femur bone and is termed the Patellofemoral joint. This joint is often a cause of pain in runners (often termed anterior knee joint pain).

Runners with patellofemoral pains can report a variety of symptoms including a swollen knee, increased pain on hill runs, a stiff knee after rest, clicks/clunks around the patellofemoral joint, pain on walking up/down stairs, and pain on running.



The causes of Patellofemoral joint pains are mainly linked to the joint kinematics in weight bearing or non weight bearing positions. Different joint kinematics have been identified in non and full weight bearing.

During the non weight-bearing phase of running the patella has been observed to tilt and be displaced laterally relative to the fixed femur. Any muscle imbalance between the medial and lateral quadriceps muscle tends to cause excessive lateral patella displacement leading to pain.

During weight bearing the primary contributor to lateral patella tilt and displacement is internal rotation of the femur (thigh bone) underneath a stable patella. Therefore excessive internal rotation in weight bearing may lead to further lateral displacement of the patella causing pain and bone swelling. Sufferers will often present with poor lower limb alignment.

Please refer to the **HEALTH ROOMS** blog on lower limb alignment for further information on this.

Therefore control of patella lateral displacement and femur rotation is important in restoring normal patellofemoral joint kinematics and therefore reduce symptoms.

There are many reasons why runners can have altered patellofemoral joint kinematics contributing to pain. Excluding direct trauma possible mechanisms include:

- Altered lower limb alignment

- Delayed Vastus medialis to Vastus lateralis recruitment timing.

- Vastus medialis oblique atrophy (wasting). Patty et al 2011

- Reduced hip strength

- Abnormal running style

- Weak thigh muscles

- Tightness in soft tissues such as hamstrings and gastrocnemius(calf) muscles

- Pronated foot position

- Navicular drop (flat foot)

- Training overload

Treatment: A full lower limb alignment/ trunk control examination is essential to be able to address any faulty movement patterns that may be contributing to your symptoms.

Acute phase: Use of POLICE guidelines (**P**rotect, **O**ptimal loading, **I**ce, **C**ompress and **E**levate) if the knee joint is swollen.

Exercise programme to address any lower limb alignment issues, joint/soft tissue restrictions, balance/ proprioception problems and muscle imbalances, essential to achieve full recovery.

Aim to improve movement patterns (including running style). This is usually vital to prevent reoccurrence. You may have to modify your running activity.

Short term use of a brace or taping the joint may help.

A temporary orthotic may help.

Gait and running analysis can be key in addressing any running style issues which could be linked to patellofemoral pain.

Chronic phase: As for the acute phase plus:

In more chronic conditions mobilisations of patellofemoral joint maybe beneficial.

Podiatry assessment of feet may be useful

Cortisone injection can give relief if conservative treatments fail.

Pain may be linked to degenerative change or damage to cartilage that covers the surface of your patella.

MRI scan is the investigation of choice to assist in diagnosing the cause of pain.

Correct diagnosis is important and often multifactorial therefore you should seek help as soon as possible. **HEALTH ROOMS** physiotherapy staff can provide you with expert diagnosis and treatment to get you back running

