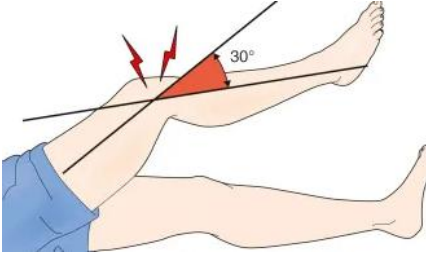


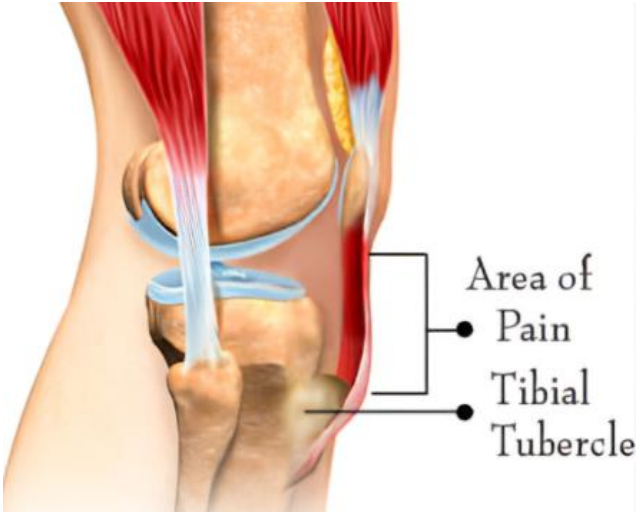
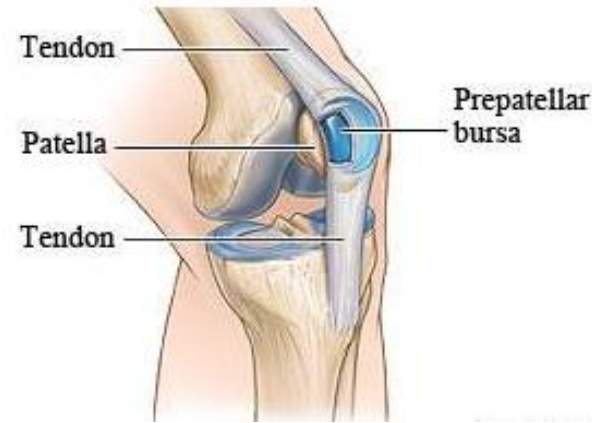
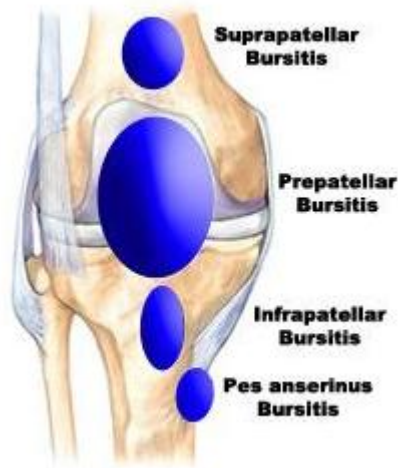


## KNEE SOFT TISSUE COMMON INJURIES AND DYSFUNCTION

Injury /condition	Description	Picture
<p><b>Runners knee</b> - broad term to describe several knee problems, <b>ITB syndrome</b> is one of them</p> 	<p><b><u>ITB syndrome</u></b></p> <p><b>Symptoms</b> : an aching pain, often swelling , burning feeling that sometimes spreads up the thigh to the hip, could be only during exercises, especially running (when knee flexed at 30degrees)</p> <p><b>Common causes:</b> tightness in ITB can be caused by muscular imbalance, weakness and poor control of gluteus muscles, hip and core muscles which leads to more stress on the knee joint, instability, joint dysfunction, and pain in the knee.</p> <p><b>Treatment and recovery:</b></p> <ul style="list-style-type: none"> <li>• RICE</li> <li>• stretching, massage, use of foam rollers</li> <li>• <b>up to 4 to 8 weeks</b> to completely heal</li> </ul> <p>If left untreated, can lead to scarring in the bursa, decreased range of motion in the knee and increased pain</p>	
<p><b>Pes anserine bursitis</b></p>	<p><b>Inflammation of the bursa</b> between the superior medial tibia and tendons of the hamstrings, gracilis and sartorius muscles.</p> <p>Irritated bursa produces fluid excessively, which causes it to swell and put pressure on the adjacent parts of the knee.</p> <p><b>Symptoms:</b> Puffiness and tenderness to the touch in this area.</p> <p>Pain: gradually developing on the <b>inside</b> of the knee and/or in the centre of the tibia, 2 to 3 inches below the knee joint. Pain, increasing with exercise or climbing stair</p> <p><b>Common causes:</b> overuse or constant friction and stress on the bursa.</p> <p>Contributing factors:</p> <ul style="list-style-type: none"> <li>• Incorrect training techniques e.g. neglecting to stretch, excessive hill running, sudden increases in mileage, etc</li> <li>• Tightness in hamstring muscles</li> <li>• Obesity</li> <li>• Misalignment of legs/feet (valgus)</li> <li>• Osteoarthritis in the knee</li> </ul> <p>Common in athletes, particularly runners.</p> <p><b>Treatment and recovery:</b></p> <ul style="list-style-type: none"> <li>• RICE</li> <li>• Up to 6-8 week to heal</li> </ul> <p>Untreated, it can lead to a permanent thickening or enlargement of the bursa, chronic inflammation, pain; muscle atrophy.</p>	

<p><b>Osgood Schlatter's disease</b></p>	<p>Common cause of knee pain in growing adolescents. It is an inflammation of the the area just below the knee where patellar tendon attaches to the tibial tubercle.</p> <p><b>Cause:</b> The areas where the bones of children and adolescents are growing called the growth plate. Growth plates are consist of cartilage located near the ends of bones. They harden into solid bone, when a child is fully grown.</p> <p>The tibial tubercle covers the growth plate at the end of the tibia. It's a point of quadriceps insertion. During a child's activity ,the quadriceps muscles pull on the patellar tendon which, in turn, pulls on the tibial tubercle. This repetitive traction on the tubercle can lead to inflammation of the growth plate. The prominence of the tibial tubercle may increase.</p> <p><b>Symptoms:</b></p> <ul style="list-style-type: none"> <li>• Knee tenderness and pain at the tibial tubercle</li> <li>• Swelling at the tibial tubercle</li> <li>• Tight muscles in the front or back of the thigh</li> </ul> <p>Painful symptoms are triggered sport-related activities such as running, jumping, etc. Both knees can be affected or one knee may be worse than the other.</p> <p><b>Treatment and recovery:</b></p> <ul style="list-style-type: none"> <li>• RICE</li> <li>• Limiting activities until the child is discomfort or significant pain free afterwards</li> <li>• Stretching exercises</li> <li>• strength conditioning exercises</li> </ul>	
<p><b>Patella bursitis (pre, supra , infra)</b></p>	<p><b>Pre-patellar bursitis</b> or '<u>Housemaid's knee</u>'-an inflammation of the bursa in the front of the patella. When the irritated bursa produces excessive fluid, it swells and puts pressure on the adjacent parts of the knee. The pre-patellar bursa is located superficially on the anterior aspect of the knee between the skin and the patella.</p> <p><b>Causes:</b></p> <ul style="list-style-type: none"> <li>• Acute trauma: fall/direct blow on to the knee</li> <li>• Recurrent minor injury: repetitive or long periods of putting pressure on the patella (kneeling forwards).It is commonly seen in tradesmen eg, carpet fitters, concrete finishers, roofers, etc</li> <li>• Infection: pyogenic prepatellar bursitis is common in children. There is usually a history of a break in the skin prior to its onset.</li> <li>• A co-existing inflammatory disease: for example, synovitis related to rheumatoid arthritis.</li> <li>• A crystal-depositing condition:it is more common in people with gout or pseudogout.</li> </ul> <p>All age groups can be affected</p>	



### Symptoms:

- Tenderness and swelling superficial to the patella
- Erythema and localised warmth of the skin over the patella
- Painful and limited ROM at the knee eg. difficulty waking and kneeling.

- If bursitis is caused by an infection, pain is associated with fever

### Treatment and recovery:

- RICE first 72 hours
- stretching and light strengthening exercises
- Successful nonsurgical treatment may take 2 weeks or longer. If left untreated, chronic bursitis may last months or years.

**Supra-patellar bursitis** - an inflammation of the bursa **above the patella** (superiorly from beneath the patella under the quadriceps muscle) vulnerable to injury from both direct acute trauma (via falls directly onto the knee) and repeated micro trauma from over use.

### Symptoms:

- Tenderness, dull achy pain just above the knee joint
- Swelling or erythema, warmth
- Loss or reduction in motion

The symptoms can be with active movement such as kneeling, jumping, running, etc or when at rest. Depending on the cause, symptoms may come on suddenly or gradually.

### Causes:

- Acute trauma: direct blow, fall, injury in this area
- Frequent, recurring pressure or stress to the area due to activities such as kneeling, jumping, etc
- Bacterial infection in the knee
- Inflammation due to complications of other conditions, such as rheumatoid arthritis or gout

### Treatment and recovery:

- RICE first 72 hours
- stretching and light strengthening exercises
- If symptoms persist longer than 2-3 weeks, medical treatment may be necessary

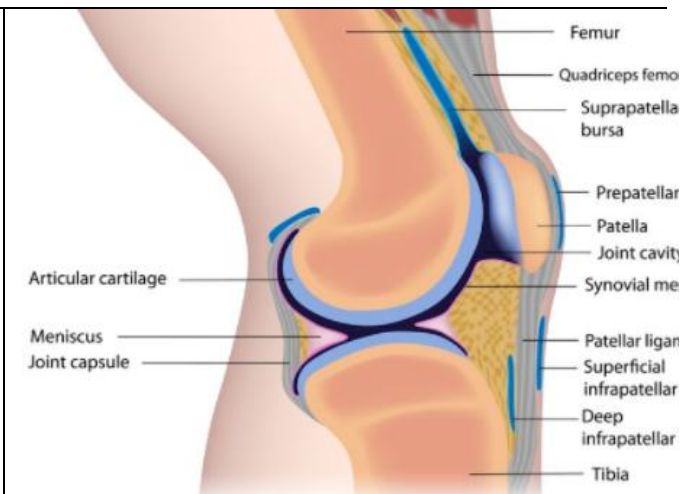
**Infra-patellar bursitis** ('Clergyman's Knee') is an inflammation of the superficial or deep infra-patellar bursa, which is located below the patella, under the patella tendon.

### Symptoms:

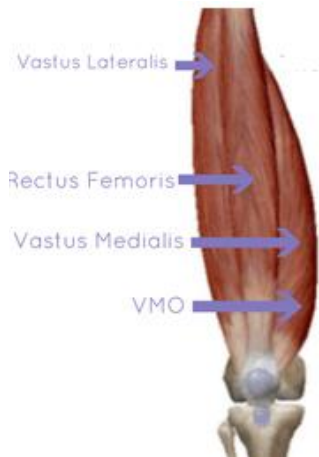
- Pain just below the kneecap
- Swelling or erythema
- It may be complicated by patellar tendonitis.



- Restricted ROM
- Causes:**
- Acute trauma: direct blow, fall, injury in this area
  - Prolonged kneeling position.
  - Repetitive movement such as kneeling or crawling
  - Associated with patella tendonitis or from a repetitive jumping ("jumper's knee").
- Treatment and recovery:**
- RICE
  - it takes to heal the condition from 2 to 8 weeks or less, with a proper swelling management
  - stretching and strengthening exercises program



### Imbalance VMO and vastus lateralis

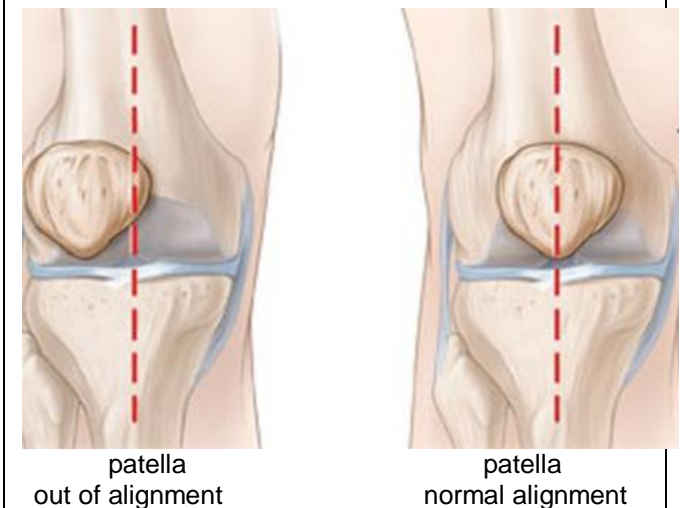


### Patella mal-tracking

The muscle imbalance between the vastus medialis oblique (VMO) and vastus lateralis (VL) muscles is one of the main factors leading to the development of **Patellofemoral pain**.

The patella smooth tracking in the vertical groove in the femur depends on the balance between the medial and lateral part of the quadriceps muscles: VMO and VL. During the movement, the vastus medialis oblique should come into action slightly before the vastus lateralis. If this does not happen, the underside of the kneecap can become irritated and inflamed.

**Patellar tracking disorder** is when the patella shifts out of place during motion of the knee: flexing and extension. In majority situations, it happens too far laterally and due to the imbalance of the medial and lateral quadriceps muscles. When the Vastus Medialis Obliquus isn't strong enough, the Vastus Lateralis can produce a **higher** force and can cause a lateral glide, lateral tilt or lateral rotation of the patella leading to veruse/overload (overpressure) on that part of the femur, which can result in pain or discomfort in the front of the knee or patella. This also causes the grinding and eventually the wearing of the cartilage at the back of the patella. The opposite is possible but it is rare. It's commonly affects athletes and active individuals; the pain is associated with activities such as running and skiing.





**“Jampers knee “(patella tendinopathy)**

**“Jumper’s knee “or patella tendinopathy-** is a condition characterised by inflammation of the patellar tendon, which caused by repetitive jumping. It's usually a sports-related injury, common in basketball and netball players etc.

**Causes:**

- Overuse of the knee joint: frequent jumping on hard surfaces
- Overloading of the knee joint: to leg muscle contraction
- and the high impact of hitting the ground
- Repetitive stress on the patella tendon leads to repeated microscopic damage within the tendon fibre: when healing the tendon become painful and thicken.

**Risk factors:**

- Age: most common from age of 30
- Gender: more common in men
- Being overweight
- Tightness in quadriceps muscles
- Common training errors: excessive jumping and weight training, hill running, increasing of running too soon, poor variation of training, etc

**Symptoms :**

- Morning stiffness (going downstairs)
  - Tenderness in patella tendon to touch
  - Pain, localised to the inferior pole of the patella, aggravated by
  - Loading, increases with knee extension
  - Mild swelling of the knee joint
  - Reduced range of motion
  - Bruising or redness.
  - In extreme cases-discoloration of the knee joint may also be noticeable
- Inflammation and degeneration may cause the tendon thickened.

**Treatment and recovery:**

- RICE
- Strengthening and stretching exercises
- With appropriate treatment pain may subside in about 3 weeks, up to 6 weeks to recover, sometimes full recovery could take several months

