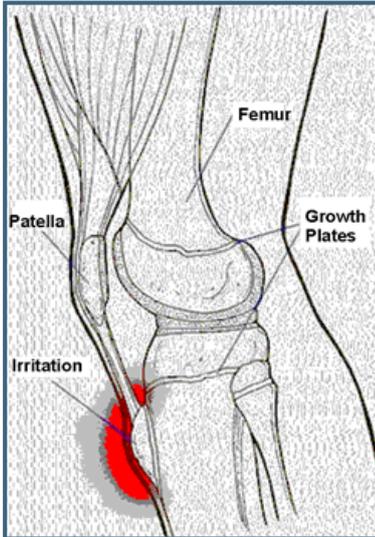


ADOLESCENT KNEE PAIN:

## Osgood-Schlatters Disease & Sinding-Larsen-Johansson Syndrome



The site of pain in Osgood Schlatter Disease.

Knee pain can occur at any stage of life, but there are a number of problems that are age specific. The two conditions described in this information sheet share close similarities with each other & are seen almost exclusively during the second decade of life. Both refer to over-use injuries of the soft tissue and bony structures at the front of the knee, with a strong correlation seen between the age of the patient (usually early teens) and their participation in sports that involve significant running and jumping. Whilst their names may sound daunting, the good news is that both are **self-limiting** (meaning they gradually resolve) and in most cases will **not** cause symptoms later in life.

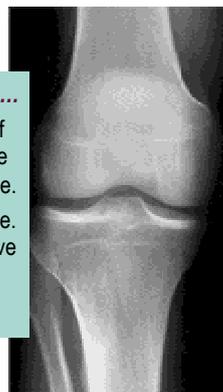
### Understanding the nature of the problem...

In order to understand the pathology of both **Osgood-Schlatters Disease** and **Sinding-Larsen-Johansson Syndrome**, it is helpful to know a little about the way in which our bones grow. In simple terms, bones develop around centres of ossification known as '**growth plates**'. These are areas of cartilage within the bone which gradually produce bone cells as we grow and mature. Usually by our late teens or very early 20's, our bones have fully matured and take on the image of what most of us think a bone looks like (see below).



#### Compare the two X-rays...

On the left we see a film of an immature knee, with the growth plates clearly visible. On the right, a mature knee. Note the growth plates have disappeared and formed continuous adult bone.



All bones (even the small ones) develop in this way and contain a number of growth plates during our childhood. Since they are not made of hardened bone as such, the growth plates are susceptible to injury, so the various mechanical stresses brought on with sport can lead to overload and trauma. This is exactly what occurs in the case of the two conditions outlined here, their only real difference being the exact location of the problem.

The quadriceps muscle group at the front of the thigh exerts a great force through the patella and the patella tendon. Growth plates exist at both the lower pole of the patella and at the insertion point of the patella tendon into the tibial tuberosity (shin). Repetitive traction of these points leads to inflamma-

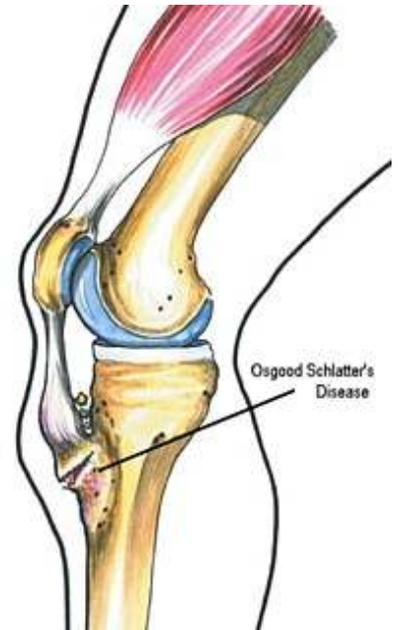
The site of pain in Sinding-Larsen-Johansson Syndrome.



The site of pain in Osgood Schlatters Disease.

## Osgood-Schlatters Disease

Osgood-Schlatters Disease is a form of osteochondritis and is caused by repetitive traction on the growth plate of the tibial tuberosity. It most often occurs in active boys between 12-15 years of age, but the presentation is becoming more common in girls as well, though occurring at an earlier age of 11-13 years. More often than not, children affected are actively participating in sports such as basketball, football and gymnastics whilst simultaneously experiencing a growth spurt. Pain is experienced below the knee as pictured (left) and can occur in both knees in 20-30% of cases. X-ray investigations are often unnecessary, but may reveal the extent of the problem and/or rule out other pathology. With correct management, acute symptoms will often resolve in approximately 10 weeks, but the problem is often characterised by recurrent 'on again, off again' exacerbations through the teenage years. A prominent tibial tuberosity of varying size is the hallmark of the disorder and does not resolve once formed. 5-10% may experience tenderness when kneeling and restricted activities into adulthood.



## Sinding-Larsen-Johansson Syndrome

While less common than Osgood Schlatters Disease, the process of Sinding-Larsen-Johansson (SLJ) syndrome is the same, but in this case the site of irritation is the immature inferior pole of the patella. Local irritation, pain, swelling and bony calcification occurs over time. SLJ will often affect a slightly younger child, most frequently a boy of between 10-12 years of age, and as with Osgood Schlatters Disease, there is a high correlation with running, jumping and climbing activities. The condition is also self-limiting with little or no symptoms into adulthood. Acute exacerbations should resolve within 4-10 weeks, although recurrent exacerbations may occur over several years.

## Treatment

**'Relative' Rest** is advisable, though there is currently no evidence to suggest that complete avoidance of activity will hasten recovery. Indeed, stopping all exercise may be somewhat counter-productive as it can lead to secondary loss of fitness and strength generally. What is more important is a short term reduction of the types of exercise that involve forceful use of the quadriceps - running, kicking and jumping sports. Your Physio will advise you on the need and duration of any required rest period.

**R.I.C.E - Rest, Ice, Compression, Elevation.** The fundamental principles of soft tissue injury management apply to these conditions and will help reduce pain and local swelling. Again, your Physio will discuss the finer points with you, but icing the front of the knee for 20 minutes roughly every 2-3 hours during acute exacerbations is advisable.



**Electrotherapy & Ultrasound:** These modalities can be effective in managing acute symptoms in the short term, assisting with pain, inflammation, and tissue repair.

**Anti-inflammatory Medication:** either oral tablets or topical creams can be useful in managing symptoms. It is advisable to consult with your Pharmacist to ensure that taking



for you. Occasionally, particularly in more serious cases there is an issue with a tendinopathy. Your Physio will



**Manual Therapy & Exercise:** Maintaining appropriate strength and flexibility is important. Your therapist will advise on correct exercises to help and may work on some aspects of soft tissue flexibility.

