

INTRODUCTION

THE KNEE JOINT CONSISTS OF 3 DISTINCT PARTS

- **Patellofemoral compartment**

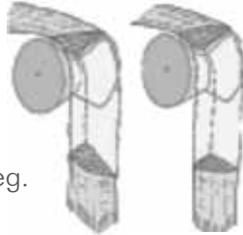
The part between the kneecap and the front of the upper leg.

- **Medial compartment:**

The part between the inner half of the upper leg and the lower leg.

- **Lateral compartment:**

The part between the outer half of the upper leg and the lower leg.



Your problem is related to the patellofemoral joint. This compartment can be compared to a rope running over a pulley. The rope being the knee cap (patella) and thigh muscle (quadriceps muscle); and the pulley being the front of the end of the upper leg (femur). This joint carries the highest load per unit surface area of any joint in the body. It has been calculated that the loads here can be up to 12 times body weight! The highest loads are experienced when the knee is flexed and extended against resistance for instance in squatting, stair-climbing or knee extension exercises.

The joint surfaces on the underside of the kneecap or the front aspect of the femur can be damaged by these high stresses. The problem is aggravated by malalignment of the kneecap. In some cases the kneecap partially moves off the front of the upper leg (i.e. it subluxes), while at other times it can come right off (i.e. it dislocates).



When the joint surfaces are damaged, it changes from a soft smooth surface to a rough uneven surface, similar to plaster flaking from a wall. In this situation the joint develops a creaking noise especially when squatting. It can also become particularly painful when the knee is flexed, for example when climbing steps, sitting with a bent knee or driving a car.

The pain is usually ill-defined over the front of the joint. The damage in the patellofemoral joint will not lead to damage in the rest of the knee joint. Sometimes there can be a lot of creaking with very little discomfort and the problem is best ignored.

A damaged joint surface cannot heal and it is also not possible to replace it except in elderly people where a patellofemoral or total joint replacement can be considered.

NON-SURGICAL TREATMENT

In most cases treatment of the problem is non-surgical. This consists of avoiding activities which lead to excessive load on the kneecap, for instance squatting, climbing steps, aerobic exercises, etc. The first step in the treatment is to set yourself a realistic goal as there will be certain activities which will aggravate your symptoms and are therefore best avoided.

Conservative treatment consists of stretching and strengthening exercises. Strengthening exercises should include the muscles about the knee as well as the calf muscle and the hip muscles (specifically the hip abductors and external rotators). It is preferable to initially get the help of a physiotherapist with the stretching and strengthening exercises. It is very important that none of these exercises increase your pain. Remember pain is not gain!

A knee-brace and strapping of the kneecap as well as anti-inflammatory drugs may be of value.

SURGICAL TREATMENT

If non-surgical treatment fails over time, one can consider surgical treatment. One of the following surgical interventions can be considered depending on your specific situation:

Arthroscopy and chondroplasty

In this procedure an arthroscopy is performed on the joint and the damaged surfaces of the kneecap are smoothed off: a so-called chondroplasty. This can be compared with loose plaster being scraped from a wall. Although this procedure can give satisfactory results, it must be seen as symptomatic treatment because the damage to the joint surface is permanent and the smoothing does not change that. It is a small procedure and is done on an outpatient basis.

Arthroscopy and excision of plica

In some rare cases the pain in the knee can be caused by impingement of an abnormal soft tissue band (plica) in the patellofemoral joint. Such a band can be excised with an arthroscope on an outpatient basis.

Lateral retinacular release

The principle is to release over-tight tissue on the outer aspect of the knee. We believe that this procedure is very seldom indicated and should be done with caution.

Tibial tubercle osteotomy

In cases of severe damage to the joint surfaces, the patellar tendons attachment to the lower leg, can be moved in an effort to reduce and redistribute the load over the kneecap. Hospitalisation for such a procedure is usually 3 to 4 days and afterwards it will be necessary to walk with crutches for approximately 4 to 6 weeks. A bone graft often forms part of the surgical procedure. Complete rehabilitation might take 6 months.

Patellofemoral replacement

In older patients with severe degeneration in the patellofemoral joint where there is limited damage to the rest of the knee a patellofemoral replacement can be considered. The worn back side of the kneecap is resurfaced with a plastic (polyethylene) surface and the worn front side of the upper leg (femur) is resurfaced with a metal surface.

It is important to understand that in all these surgical procedures there is already permanent damage to the kneecap which cannot be corrected. For this reason one can only expect an improvement in the symptoms and not a complete cure, even with surgery.

We believe that the indications for surgery are pain and function loss, both factors which you as the patient can best judge.

