

## What is it?

The kneecap (Patella) is a piece of bone at the front of the knee. As you bend and straighten your leg, it slides up and down a groove in your thigh bone called the trochlear. See figure 1. Dislocation of the patella refers to when the kneecap moves out and stays out of its normal position. See figure 2. This is a serious injury as it stretches and tears ligaments, causes large amounts of bleeding and can chip off pieces of cartilage. It needs to be managed properly to prevent further episodes of dislocation and arthritis later in life.



Figure 1

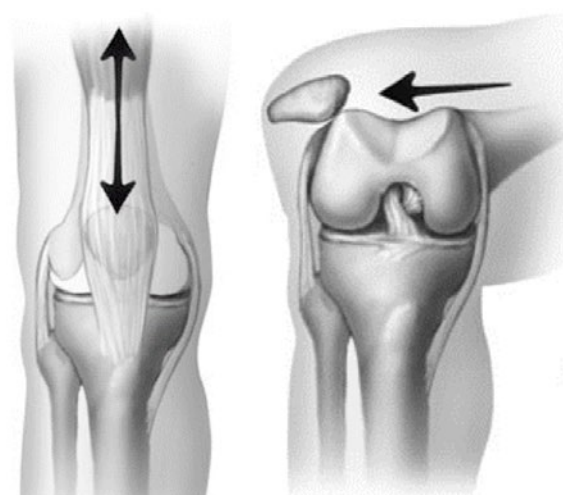


Figure 2

## What are the symptoms?

The first sensation felt when the patella is dislocated is immediate and intense pain over the front of the knee. The pain may be associated with a feeling of the knee 'giving way' or something 'popping out'. This 'popping out' or dislocation of the patella is often visible when you compare the appearance and contours of the injured knee to the opposite side. The knee may also swell quickly i.e. within the first 1 to 2 hours.

## How did I get it?

The patella dislocates when forces acting on the kneecap are too great for the trochlear (the groove the kneecap sits in) and the supporting muscles and ligaments to resist. This can occur with a direct blow to the kneecap which pushes it out to the side of the leg e.g. when landing heavily on your knees. Alternatively, the patella may be dislocated when the knee is twisted, such as during rapid changes in direction. With poor knee placement your own muscles essentially pull the kneecap out of place.

## What should I do?

A patellar dislocation is a serious injury which requires immediate medical attention. If you have or suspect that you have dislocated your kneecap, you should cease your activity and go directly to your sports medicine professional or doctor. To assist with your pain and reduce and control any swelling, you should surround the knee in ice. Ideally this should be in the form of crushed ice wrapped in a moist towel or cloth and applied for up to 20 minutes with a break between applications of approximately 10 minutes. You should continue this for up to 3-4 hours at which time medical assistance should have been sought.

If you have or suspect that you have dislocated your kneecap, DO NOT try to 'reduce' or relocate the kneecap back into its socket by yourself. This requires the assistance of a sports medicine professional or a doctor. If done incorrectly, serious damage may be sustained to other structures (nerves, bones, ligaments, cartilage) resulting in irreparable damage and/or a longer recovery

time. In addition, you shouldn't undertake any activities which increase blood flow to the injured site. These include hot showers, heat rubs, alcohol and massage. These will cause further swelling in the damaged tissues resulting in a prolonged recovery.

Due to the seriousness of a patellar dislocation, there are unfortunately potential long-term effects. The most common of these is recurrent or ongoing patellar dislocations. When the kneecap is dislocated the tissues which support it are overstretched and in some cases they may be torn. This makes the joint less stable and decreases its ability to resist or withstand external forces. As a consequence it dislocates easily. Other longer term outcomes result from damage to surrounding structures when the kneecap is dislocated. Occasionally when the kneecap is dislocated the cartilage lining under the surface of the patella may be damaged. Damage to this structure can prolong your recovery and increase your chance of developing knee arthritis.

## How is a diagnosis made?

A diagnosis is made on the history of the injury and examination findings. X-rays will nearly always be performed to check for broken pieces of bone and assess the structure of the knee joint. In addition an MRI will sometimes be required.

## What does rehab involve?

It is extremely important to tailor rehabilitation to your specific injury and anatomy. Injuries can loosely be divided into two groups namely:-

- 1) low risk of recurrence and
- 2) high risk of recurrence.

It is critical to correctly categorise your injury.

## Low risk of recurrence:

Some injuries are at quite low risk of re-injury. These injuries are direct trauma injuries and those in this group will have a normal knee anatomy. When there is a normally shaped groove for the kneecap to sit in and there is a kneecap on kneecap collision between two players, the huge forces present overcome the restraining ligaments and the kneecap dislocates from its groove. Injuries like this can be treated quite aggressively. The injured can return to their activity when they are functionally capable. This will usually be within a 12 week period but some have returned in as little as four. Treatment of this type of injury involves initially controlling the pain and swelling while increasing the strength of the thigh and hip musculature. Greater attention to improving balance, knee position and knee position awareness are also critical for rehabilitation. There is a transition into running activities which is done both slowly and carefully. You start with straight line running and progress to change of direction, jumping and hopping exercise.

## High risk of recurrence:

Some injuries are at high risk of re-injury. While they can happen with direct trauma they occur more frequently with changing direction, landing on one leg or sometimes just walking down stairs. These injuries are usually a result of two factors i.e. abnormal anatomy of the knee and poor control of knee placement due to inadequate hip musculature function. With a very shallow groove for the kneecap to sit in, it is much easier to dislocate it. It takes only a minor error in knee placement for the kneecap to be pulled from its groove. These injuries cannot be treated aggressively. They are more likely to recur and more likely to need surgery. A very slow and thorough approach to rehabilitation is required and surgical review is usually recommended prior to resuming an activity where there is change of direction involved.



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