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### Medial Patellofemoral Ligament (MPFL) reconstruction

#### What is the MPFL and what is its role in the knee?

The kneecap (patella) plays an important role in knee function. The kneecap sits in its groove (trochlea) and moves up and down with knee flexion (bending) and extension (straightening). It acts like a pulley connecting the quadriceps muscles above and the patellar tendon below.



The Medial Patellofemoral Ligament (MPFL) is a ligament which helps to prevent the kneecap from dislocating (coming out of joint). When you have a kneecap dislocation, the MPFL ruptures, leaving you prone to having the kneecap dislocate again. After your first kneecap dislocation, there is a 20-40% chance that it will happen again. If you have had multiple kneecap dislocations, this risk is even higher.

Many anatomical factors may contribute towards the kneecap dislocating. These include the laxity of your ligaments, the shape of your kneecap groove, and the position of your kneecap within its

groove.

### **What symptoms do people with kneecap instability get?**

Some people may not have any symptoms despite having dislocated their kneecap. Others may have persistent pain at the front of the knee or apprehension (the feeling of impending kneecap dislocation) with certain activities. This can be debilitating for some, preventing them from partaking in sport or work. Repeated kneecap dislocations can damage the cartilage surface of the kneecap which may lead to arthritis in the long term.

### **What are the treatment options?**

In general, after a single kneecap dislocation where the kneecap has been reduced (put back in place) without complication, non-operative treatment can be trialled. This involves ice and swelling management in the acute phase, followed by a tailored physiotherapy program aimed at strengthening the quadriceps muscles. Taping the kneecap or wearing a kneecap brace, may be useful when attempting to return to work or sport.

If you continue to have symptoms of kneecap instability despite these, or if you have any further dislocations of the kneecap, surgical management may be recommended. This usually involves an MPFL reconstruction, sometimes combined with an additional procedure.

### **What does MPFL reconstruction surgery involve?**

An MPFL reconstruction involves taking one of your hamstring tendons (gracilis or semitendinosus) and using this to reconstruct the damaged MPFL. It is performed in conjunction with an arthroscopy (keyhole surgery) of the knee to assess and address any other damage to the kneecap. You will have at least 5 small incisions over your knee.

It is performed under a general anaesthetic and usually involves an overnight stay in hospital. After surgery your knee will be in a brace for 2-6 weeks. You will require crutches for 2 weeks. You will be discharged from hospital with pain-relief medications and often a blood-thinner to help prevent blood clots (DVT).

### **What does rehabilitation/recovery involve?**

Rehabilitation should be supervised by a physiotherapist. You should be able to walk unaided by ~2 weeks after surgery. Return to work will depend on the demands of your work (approximately 2 weeks for office-based, 6 weeks for manual work). Most people can return to full sporting activities by ~6 months after surgery.

### **What are the major risks and complications from MPFL reconstruction?**

General risks of surgery include: anaesthetic risks, infection (~1%), blood clots (~1%).

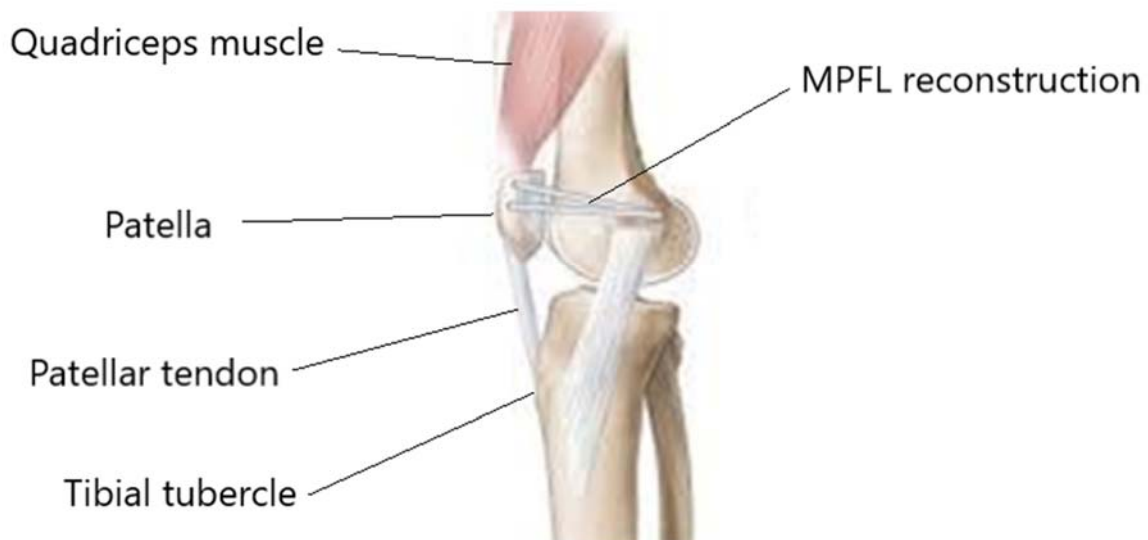
Specific risks for MPFL reconstruction include: pain, knee stiffness, hardware prominence, re-dislocation of the kneecap.

## Tibial Tubercle Osteotomy

### **What is the tibial tubercle?**

The kneecap plays an important role in knee function. The kneecap sits in its groove (trochlea) and moves up and down with knee flexion (bending) and extension (straightening). The kneecap acts as a pulley connecting the quadriceps muscles above and the patellar tendon below. The patellar tendon attaches to the tibia (shin bone) at the tibial tubercle.

In some people, the tibial tubercle is positioned relatively laterally (towards the outer side of the tibia). In other people, the kneecap itself may sit relatively high (proximal) in its groove. Both these anatomical variations increase the likelihood of the kneecap dislocating (coming out of joint). Therefore in these people, changing the position of the tibial tubercle can make the kneecap more stable.



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### **What are the treatment options?**

In general, after a single kneecap dislocation where the kneecap has been reduced (put back in place) without complication, non-operative treatment can be trialled. This involves ice and swelling management in the acute phase, followed by a tailored physiotherapy program aimed at strengthening the quadriceps muscles. Taping the kneecap or wearing a kneecap brace may be useful when attempting to return to work or sport.

If you continue to have symptoms of kneecap instability despite these, or if you have any further dislocations of the kneecap, surgical management may be recommended. This usually involves an Medial Patellofemoral Ligament (MPFL) reconstruction, sometimes combined with an additional procedure such as a tibial tubercle osteotomy.

### **What does tibial tubercle osteotomy surgery involve?**

Osteotomy means “cutting bone”. A tibial tubercle osteotomy involves cutting the tibial tubercle (with the patellar tendon attached) and repositioning it to improve kneecap stability. It is held in its new position by two or more internal screws. A tibial tubercle osteotomy is usually performed in conjunction with an MPFL reconstruction and knee arthroscopy (keyhole surgery). You will have a ~10cm incision over your tibial tubercle and multiple smaller incisions over the knee.



It is performed under a general anaesthetic and usually involves a 1-2 nights in hospital. After surgery your knee will be in a brace for \_\_\_\_\_. You will require crutches for \_\_\_\_\_. You will be discharged from hospital with pain-relief medications and usually a blood-thinner to help prevent blood clots (DVT).

### **What does rehabilitation/recovery involve?**

Rehabilitation should be supervised by a physiotherapist. You should be able to walk unaided by ~6-8 weeks after surgery. Return to work will depend on the demands of your work (approximately 2 weeks for office-based, 12 weeks for manual work). Most people can return to full sporting activities by ~12 months after surgery. It is often difficult to return to elite level sport after this procedure.

### **What are the major risks and complications of tibial tubercle osteotomy?**

General risks of surgery include: anaesthetic risks, infection (~1%), blood clots (~1%).

Specific risks for tibial tubercle osteotomy include: pain, knee stiffness, screw prominence (which may require additional surgery to remove screws), failure of the osteotomy to heal (which may require additional surgery to encourage bone healing), re-dislocation of the kneecap, compartment syndrome, nerve or blood vessel injury.