

Patellofemoral instability

What you're feeling

Patellofemoral instability shows up in one of two ways: pain, or the feeling that your kneecap is not staying where it should. Often it is both. The main complaint with a kneecap that keeps dislocating is that the knee suddenly gives way, and you fall. The kneecap may also get stuck in a bent position, and the episode can be painful.

The pain sits at the front of the knee, around or behind the kneecap. It tends to flare with bending, squatting, stairs, and getting up from a chair. After a dislocation, the knee often swells. The swelling can be mild or the knee can fill up noticeably, and a very swollen knee after a dislocation can mean a piece of cartilage or bone has come loose inside the joint. Between episodes, your knee may feel completely normal, which is one of the confusing things about this condition.

Daily life gets harder in specific ways. Going down stairs can feel unsafe when you cannot trust the knee to hold. Sitting through a movie or a long car trip with the knee bent can ache. Getting out of a low chair or off the floor takes planning. Sport is the clearest casualty: you may pull out of anything that needs quick changes of direction, because that is exactly when the kneecap lets go.

Some things about the feeling itself are worth knowing. The kneecap almost always slides out towards the outside of the knee, yet many people sense it has popped towards the inside. That is because the bone underneath stands out once the kneecap moves, so it looks and feels like the kneecap went the wrong way. It is also common for both knees to be affected: about 37.8% of people with this condition have it in both knees. Girls and women are affected more often than boys and men, and in about 15 to 20% of cases, mostly in children, a first dislocation turns into repeated dislocations or subluxations, where the kneecap slides partly out and back, after very little stress.

What's actually happening

Your kneecap, the patella, sits in a groove at the end of the thigh bone. Think of the groove as a shallow track and the kneecap as a train that must stay on it while you bend and straighten. In most knees the track is deep enough to hold the kneecap through the whole range of movement. In unstable knees the track can be too

shallow, or the kneecap can sit too high, so it rides out of the groove before it has engaged properly, usually towards the outside of the knee.

The kneecap is also held on track by a strap of tissue on the inner side of the knee, the medial patellofemoral ligament. It works like a guy rope, anchoring the kneecap through the first 30 degrees of bending, which is exactly when the bony groove is doing least of the work. When the kneecap dislocates, this strap tears or stretches. Once it has lengthened, it cannot pull the kneecap back into place as firmly as before, and that is why a first dislocation can turn into repeated ones.

Other factors can add to the problem. The whole leg may be aligned so that the pull of the thigh muscles tends to drag the kneecap outwards. The thigh muscles themselves can be out of balance, with the outer muscles doing more of the work than the inner ones. And some people are naturally more loose-jointed than others.

Each dislocation leaves its mark. The kneecap and the groove it slides in are both lined with cartilage, the smooth gliding surface of the joint. When the kneecap jumps the track, these surfaces grind against each other, bruising the bone and sometimes knocking a fragment of cartilage loose inside the joint. Repeated episodes wear the cartilage away, which is why instability that keeps happening can lead to wear-and-tear arthritis in this part of the knee over time.

What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, starts with the least invasive options that suit your condition. Patients are generally referred to our clinic by their GP; if a physiotherapist has suggested you see us, you will still need a referral from your GP in order to be eligible for the Medicare rebate. At the clinic visit we take a history, examine your knee, and arrange imaging where it is needed. Scans can show whether the kneecap sits too high, whether the groove is shallow, and whether any cartilage or bone was damaged during a dislocation. Because every unstable knee has its own mix of causes, we match the treatment to yours rather than following one set path.

The first step is usually care without surgery. Early on, that means rest, ice, compression and elevation, with the knee supported for comfort. Physiotherapy then works on strengthening the leg and on weakness in the hip and core, both of which affect how the kneecap tracks. If your knee is otherwise anatomically normal and a scan rules out a loose fragment of cartilage or bone, non-surgical treatment is usually the recommendation. We generally give this a fair trial before considering an operation.

Surgery comes into the picture when the kneecap keeps dislocating despite a proper course of non-surgical care, when pain or instability persists, or when a dislocation has knocked a loose piece of cartilage or bone into the joint. The most common operation rebuilds the torn strap on the inner side of the knee, the medial patellofemoral ligament, using a piece of your own tendon. Other procedures can deepen the groove, adjust the position of the shin bone, or correct the way the kneecap sits, depending on what is driving your instability. In children whose growth plates are still open, we use techniques that leave those plates untouched. Which operation suits you depends on your own anatomy, and we will talk that through with you as a shared decision before anything is booked.

What to expect

For most people, one dislocation does not mean a lifetime of them. In many knees the kneecap settles after the first episode, especially with strengthening exercises and a proper course of physiotherapy. But if the kneecap keeps sliding out, the pattern usually continues until something changes it. When several of the underlying causes are left unaddressed, dislocation can return again and again over the years. When surgery puts things right, the risk of another dislocation drops to as low as 5.1%.

Surgery aims to make the kneecap stay where it belongs, and for most people it does. The overall rate of recurrent instability after a first stabilising operation is 6.5%. Rebuilding the strap on the inner side of the knee tends to hold up well over time, with lower rates of the kneecap slipping again than other stabilising operations, and it improves knee function, activity levels and quality of life. In adolescents, though, about 25% have the instability come back after a first stabilising operation. And any operation to fix this condition carries a real chance of needing another one later: the overall reoperation rate remains high, and people who need a second operation report worse outcomes than those who do not.

There are honest limits to set out. Complications happen in about 26.1% of strap-rebuilding operations, and they can include stiffness, persistent pain, fracture of the kneecap, wear in the joint, or the instability returning. Many of these come down to technical factors and are considered preventable. Leaving the problem alone carries its own risk: each dislocation grinds the joint surfaces together, and a single dislocation can start cartilage damage that worsens gradually over time and may lead to wear-and-tear arthritis in the knee.

So the realistic picture is this. Managed well, most knees become stable and stay that way, and you can expect to trust the knee again in daily life. Managed poorly or not at all, the instability tends to persist, and the joint surfaces pay a price over the years. If surgery is needed and goes smoothly, the outlook is good; if complications or a second operation occur, the road is longer and the results are less satisfying.

When to see someone

See your GP after any first dislocation, even if the kneecap slid back into place on its own. Ask for a specialist review if the knee keeps giving way, if the kneecap slides out more than once, or if a swollen knee after a dislocation stays tense and full of fluid, because that can mean a loose piece of cartilage or bone inside the joint. Also ask about review if you are loose-jointed, if both knees are affected, or if the knee gets stuck in a bent position. Instability that keeps happening tends to continue until it is treated, and each episode can wear the joint surfaces a little more, so it is worth acting early rather than waiting for the pattern to settle on its own.