CQ HAND + UPPER LIMB
SPECIALIST ORTHOPAEDIC SURGEON

PATIENT INFORMATION

# Patella fracture

## What you're feeling

The kneecap sits right at the front of your knee, just under the skin. That makes it easy to hurt. A fall onto your knees, or your knee hitting a car dashboard, can break it. Sometimes the muscle at the front of your thigh squeezes hard while your knee is bent, and that force alone can crack it.

The pain sits at the front of your knee. Your knee will usually swell quickly, because bleeding into the joint is common with this injury. The swelling can be very painful and can make the knee stiff. Walking is hard after a fall like this, and many people find it difficult to get up from a chair, climb stairs, or kneel down.

You may be able to feel a tender gap or step where the bone has broken apart. If the break has pulled the pieces apart, you may not be able to straighten your knee on your own. That is an important sign. Being able to straighten the knee does not rule out a break, though, because some of the supporting tissue may still be holding things together.

Watch the skin over your kneecap too. Cuts or grazes there can sometimes mean the break has opened up to the surface, which changes how it is treated.

Some injuries near the kneecap feel similar. The tendon below the kneecap, or the tendon above it that connects your thigh muscle to the bone, can tear instead of breaking. When that happens you also lose the power to straighten your knee, and the kneecap may sit higher than usual. These tears often happen landing from a jump or stepping down stairs, and there is often a tender gap you can feel where the tendon used to be.

If your knee gives way at the front after a fall or a stumble, and it swells and will not straighten properly, it needs checking promptly. X-rays usually confirm what is going on.

## What's actually happening

Your kneecap works like a pulley at the front of your knee. The muscle at the front of your thigh pulls through it, and that pull straightens your knee when you stand up, climb stairs or walk. The kneecap holds the tendon slightly away from the joint, which gives the muscle better leverage. When it breaks, that pulley system loses its grip, and straightening the knee becomes weak or impossible.

**CQ HAND + UPPER LIMB**
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

The break happens in one of two ways. A direct hit, like a fall onto your knees or a dashboard impact, crushes the bone into several pieces. A sudden strong pull from the thigh muscle, with the knee bent, can snap the bone in two across its middle. Most breaks are this second type, a clean break across the bone. The same strong pull that snaps the bone can also tear the supporting tissue on either side of it, which is why straightening the knee often fails.

Doctors describe these breaks by where they sit and how far apart the pieces have moved. Some breaks stay in place, with the pieces still lined up. Others separate by more than 3 millimetres, or the joint surface becomes uneven by more than 2 millimetres. Breaks that stay in place can often be treated without surgery. Breaks where the pieces have pulled apart, or where you cannot straighten your knee against gravity, usually need an operation to hold the pieces together and restore that pulley.

The kneecap sits just under the skin with no muscle padding over it, which is why it is so exposed to direct blows. Because it is part of the machinery that straightens your knee, a break here affects more than just the bone. The supporting tissue around it can be damaged too, and that damage is what stops the knee from working properly.

## What we can do about it

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, matches the treatment to your specific injury. 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 your first visit we take a history, examine your knee, and arrange X-rays or a CT scan if they are needed. A CT scan can show break lines and small fragments that plain X-rays miss.

If the pieces of bone are still lined up and you can still straighten your knee, we usually treat it without surgery. That means a brace or a splint that holds your knee straight, worn for 4 to 6 weeks. Some people need a full-leg cast instead, especially if keeping a brace on would be hard. You start simple exercises early, while still in the brace or cast, tightening the thigh muscle and lifting the leg straight. This keeps the muscle from wasting. Most modern treatment plans let you put some weight through the leg early, as long as the knee stays fully straight. Once X-rays show the bone has joined, you begin gently bending the knee. For breaks that stay in place and are treated this way, 98% of people have a good result at final follow-up.

We will talk you through simple pain relief if you need it. Rest, ice and keeping the leg raised help with the swelling in the first days.

Surgery is considered when the break has pulled apart, when the joint surface is uneven by more than a couple of millimetres, when you cannot straighten your knee, or when the break has opened through the skin. The aim of the operation is to put the pieces back in line and hold them there while they heal, so the pulley system at the front of your knee works again. Sometimes a piece of bone at the top or bottom of the kneecap is too small to screw back on, and it is removed and the tendon repaired directly to the bone. If the kneecap is broken into many pieces that cannot be rebuilt, the whole kneecap may be removed. We will go through the options with you and decide together what suits your break and your life.

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## What to expect

Most kneecap breaks heal. The bone joins, and the knee works again. But healing the bone is not the same as the knee feeling like it did before. It is worth knowing this from the start.

Many people still have some pain at the front of the knee a year after the injury. In one group of 30 people treated with surgery, 24 of them (80%) still had this pain at 12 months. The metal used to hold the bone sits just under the skin, and it can rub or ache. More than one-third of that same group chose to have the metal removed later. Some weakness in the thigh muscle and some difficulty with stairs or kneeling can also linger. Measured strength and knee bending on the injured side often fall short of the other side, even years later.

There are risks along the way. In a large review of 737 kneecaps treated with surgery, the bone failed to join in 1.9% of cases and infection happened in 3.2%. About one in three (33.6%) needed further surgery, often because the metal loosened or became painful. If the bone was treated without surgery, a plaster cast can thin the bone itself, and a new break can happen later, sometimes in a different spot.

Over months, you can expect steady progress rather than a single moment of being fixed. Bending and straightening usually return first, then strength, then confidence on stairs and uneven ground. Some people get back to everything they did before. Others find kneeling or long walks never quite feel the same.

Two longer-term points matter. A kneecap break raises your chance of needing a knee replacement later in life, and that risk stays with you for good. On the other hand, for people over 65, this injury was not linked to a higher chance of dying.

If your break happened along with damage to other parts of the knee, such as ligaments, recovery is harder than when the kneecap alone is injured.

## When to see someone

Some signs mean you should be seen straight away. Go to an emergency department if your knee is badly swollen after a fall or a blow, and you cannot straighten it against gravity. The same applies if you can feel a tender gap over the kneecap, or if the skin over it is cut or grazed, because the break may have opened to the surface. A knee that is hot, increasingly painful and red needs same-day assessment as well, since infection after surgery can spread quickly in a joint.

Ask for a specialist review if you have lasting pain at the front of your knee, or if your knee gives way when you stand or climb stairs. If you have had surgery and the metal under the skin becomes painful or rubs, that is worth reviewing too.

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