

Periprosthetic fracture (knee)

What you're feeling

A fracture around a knee replacement means the bone near the implant has broken. The pain is usually felt just above or just below the knee, in the lower thigh or the upper shin. It is often sharp at first and settles to a deep ache. Standing, walking and bending the knee usually make it worse. Resting with the leg supported usually eases it.

The pain can flare at night and when you first get moving after sitting or lying down. Many people notice it most when they wake and take their first steps. Getting out of a chair, climbing stairs, walking to the letterbox and getting in and out of the car can become hard. You may not trust the leg to hold you, so you avoid putting full weight on it.

A break like this can affect you well beyond the healing time. Quality of life can stay reduced for up to 12 months after the injury, even once the fracture itself has settled. That is a normal pattern, not a sign that something has gone wrong with your recovery.

These fractures happen most often in older people whose bone is less strong than it used to be. They are uncommon, but when they do occur they need careful treatment. Your surgeon will look closely at your x-rays and take a full history to rule out infection around the replacement before planning what to do. Most of these fractures can be treated by holding the bone still while it heals, with the knee replacement itself left in place. Surgery to replace the implant is only considered when the implant has come loose or is out of line.

What's actually happening

A knee replacement sits inside the bone like a rod set into a fence post. The metal part is strong, but the bone around it is what holds everything steady. In a periprosthetic fracture, that surrounding bone cracks while the replacement itself stays in place. The break usually happens just above the replacement in the lower thigh bone, or just below it in the upper shin bone.

These breaks tend to happen in bone that has become thinner and weaker over time. Some health conditions and long-term steroid tablets can also make the bone less able to hold an implant firmly. Sometimes the bone near the replacement has slowly worn away, leaving less of it to carry the load. When weak bone meets a stumble or a fall, it can crack where a stronger bone would not.

The pain you feel is the broken bone moving slightly each time you load the leg. Standing and walking press the cracked edges together, which is why those movements hurt most. The knee may also feel unsteady because the bone holding the replacement no longer moves as one solid piece with the rest of the leg.

Your surgeon will check your x-rays carefully, because the metal of the replacement can hide the break line on a plain film. If the x-rays are not clear, a bone scan can show it. These fractures are uncommon, happening in a small percentage of knee replacements, but they need careful treatment when they do occur. Most can be treated by holding the bone still while it heals, with the replacement left in place. Replacing the implant itself is only considered when it has come loose or is sitting out of line.

What we can do about it

Dr Kieran Hirpara, a knee surgeon at Mater Private Hospital Rockhampton, matches the treatment to your specific fracture. 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 we take a full history, examine your knee and arrange imaging to work out where the bone has broken and whether the replacement is still secure.

Because a break like this is a structural injury, surgery is usually recommended straight away rather than after a trial of non-operative care. Leaving the bone to heal on its own is rarely an option for these fractures. The usual aim is to hold the broken bone still while it heals, leaving your knee replacement in place. Before any operation we check carefully for infection around the replacement, because that changes what we do.

The main operation is called open reduction and internal fixation, which means the bone is moved back into line and held there with a metal plate and screws. For breaks just above the replacement in the thigh bone, a locking plate is often used. Its screws lock into the plate itself, which gives a steadier hold in thinner bone. Another option for some thigh fractures is a rod placed inside the bone canal. Both approaches hold the bone while it heals, and we will talk through which suits your fracture.

For breaks just below the replacement in the shin bone, the plate can sometimes be slid in through two small cuts rather than one long opening. This leaves the broken area undisturbed, which protects the blood supply that bone needs to heal. In a few cases where the bone is very thin, an external frame can be used instead. This holds the bone steady from outside the leg.

If the bone around the replacement has worn away or crumbled at the break, there may not be enough solid bone left for a plate to grip. Options then include adding donor bone to support the repair, or replacing the lower end of the thigh bone with a new implant. That last option is a bigger operation, but it lets you put weight on the leg straight away.

A small number of these fractures involve the kneecap. Those are usually treated without surgery, with rest and support while the bone settles.

After surgery, movement and muscle work usually start early, often within the first couple of days. You will use crutches at first and put partial weight through the leg once the pain allows. Full weight is allowed once the bone has joined, which we check on x-ray. We will go through your own plan with you before you go home.

What to expect

These fractures are a real setback, and it helps to go in with clear eyes. Most are treated by holding the bone still while it heals, with your knee replacement left in place. When that is done well, the bone usually joins and the replacement keeps working. After further surgery, 89 out of 100 people with this type of fracture went on to heal. Not every break joins on its own schedule though. Some bones are slow to join, and a small number never join at all. Around 18 in 100 people treated with a plate for this fracture ended up with a bone that failed to join, and about 24 in 100 had some kind of complication along the way.

Healing takes months, not weeks. For bones that need extra help to join, joining has been seen anywhere from 3 to 8 months. You will not be back to normal quickly, and it is worth knowing that now. Even when the fracture itself has settled, the effect on your quality of life can hang around for up to 12 months. Many people find the leg tires sooner, stairs take planning and confidence in the knee returns slowly. That is the usual shape of recovery, not a sign that something has failed.

There are some genuine positives. When the bone does join, the knee replacement itself tends to keep working as well as it did before. People who have this fracture do not have worse replacement survival than people who never had one. Some treatment options also allow you to put weight on the leg straight away, which can mean a shorter hospital stay and a faster return to everyday activities.

If the bone is left alone, it rarely settles on its own, which is why surgery is usually advised early. The main risks to watch for are the bone failing to join or the repair needing more surgery down the track. Your surgeon will talk through how these figures apply to your own fracture, your bone quality and your health generally.

When to see someone

If you fall or stumble and feel a sharp pain just above or just below your knee replacement, get it checked straight away. Go to an emergency department if you cannot put weight on the leg at all, or the leg looks out of shape or shortened. See your GP promptly if you have lasting pain near the replacement that does not settle with rest, or pain that wakes you at night. Ask for a specialist review if the knee feels unsteady, or you cannot trust the leg to hold you when you stand. These breaks happen in bone that has grown thinner and weaker, so a minor stumble can be enough. If a break is found, surgery is usually advised early, because the bone rarely settles on its own.