

Distal Humerus Fracture

本页面由机器翻译，尚未经临床医生审核。英文版本为权威版本。

What you're feeling

You may hear or feel a snap or pop at the moment of injury. This often happens after a fall, a direct impact, or a sudden heavy load on your arm. The pain is usually sharp and immediate. It centres in your elbow and can radiate down your forearm or up into your upper arm.

Your elbow will likely swell quickly. Bruising may appear on the skin around the joint within hours. You might notice a visible change in the shape of your arm, known as deformity, as the broken bone ends shift out of place. Moving the arm feels difficult and painful. You may find yourself holding your elbow still to avoid triggering more pain.

In the first few days, the pain can be constant. It often worsens at night or when you try to rest the arm in certain positions. Simple tasks become challenging. You might struggle to lift a cup of tea, open a door handle, or support your weight if you need to stand up from a chair using your arms. Even slight movement of the elbow joint can feel stiff and sore.

As healing begins over the first few weeks, the sharp pain gradually settles into a duller ache. Swelling may persist but should slowly reduce. You will still feel stiffness when you try to bend or straighten your elbow. Night-time discomfort may lessen, allowing for better sleep, though you may still need to adjust your position to keep the arm supported.

It is important to remember that outcomes for these fractures can vary. Your surgeon will guide you based on the specific nature of your break and your overall health. For older adults, recovery involves careful monitoring of general well-being alongside the arm injury. In younger patients, the focus is often on restoring full function through precise repair.

Throughout this early phase, your experience is unique. Some people find pain management straightforward, while others need more support. Your surgeon will tailor your care plan to your needs, ensuring you have the right support to manage discomfort as your body starts the healing process.

What's actually happening

Your distal humerus is the lower part of your upper arm bone, right where it meets your elbow. This area is complex because it forms the hinge of your elbow joint. When you suffer a fracture here, the smooth surfaces that allow your arm to bend and straighten can become damaged or displaced. This disruption means the joint no longer glides correctly, causing pain and limiting movement.

Think of your elbow like a door hinge. The distal humerus is the metal bracket that holds the hinge pins in place. If that bracket cracks or shifts out of alignment, the door (your forearm) cannot swing smoothly. It might stick, wobble, or lock up entirely. This mechanical instability is why your arm feels weak and painful right now.

Healing this injury requires more than just bone knitting back together. Your surgeon aims to restore the precise alignment of the joint surface, often described as the 'triangle of stability'. This structural integrity is crucial for ensuring your elbow remains stable during early movement. If the bone fragments are displaced, they must be carefully repositioned and held in place with internal fixation, such as plates and screws, to keep everything aligned while the bone heals.

In some cases, the damage is too severe for standard repair. If the joint surface is excessively worn or shattered, your surgeon might discuss alternative options. These can include replacing the damaged part of the joint with a prosthetic component (hemiarthroplasty) or, in specific elderly patients with low physical demands, a total elbow replacement. These approaches aim to restore function when natural bone reconstruction is not viable.

Complications like malunion (healing in a poor position) or nonunion (failure to heal) can occur. These are influenced by the quality of the initial reduction and the stability of the fixation. Your surgeon will select the approach that best balances evidence-based outcomes with your individual needs, ensuring the best possible chance for a stable, functional elbow.

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. If your fracture is stable or only slightly displaced, we may recommend non-operative care. This involves wearing a sling, splint, or cast to keep the arm still while the bone heals. We monitor your progress with repeat imaging to ensure the bones stay in the correct position. You will gradually begin moving your elbow again with the help of physiotherapy, following a staged plan that protects the healing bone.

Surgery is often the best choice from the start if your fracture is displaced, unstable, or involves the joint surface. We recommend internal fixation to hold the bone fragments together with plates and screws, allowing you to move your elbow early. For complex fractures in elderly patients where the bone cannot be fixed, we may suggest replacing part of the joint (hemiarthroplasty). This decision is shared between us, considering your pain levels, functional needs, and the stability of the 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. A clinic assessment establishes the diagnosis. For acute problems like this, surgery may be recommended straight away.

Both paths share common goals in the early weeks. You will need effective pain control to manage discomfort while the injury settles. Protecting the arm from heavy lifting or sudden movements is crucial while the bone heals. Physiotherapy plays a key role in both approaches, helping you regain strength and range of motion at the right stage. For children, we focus on restoring the natural alignment of the elbow to ensure full movement later. If you have risk factors like smoking or poor bone quality, we discuss these openly to plan your care safely. Our aim is to give you the best chance of a stable, functional elbow, whether we use fixation or joint replacement.

What to expect

Your recovery depends on whether your surgeon can repair the bone or needs to replace the joint surface. If you have a fracture that can be fixed with plates and screws, your surgeon will hold the pieces together while they heal. For older patients with complex breaks that cannot be repaired, joint replacement is a viable option. This involves replacing the damaged end of the humerus bone with a metal implant.

Healing takes time. For those having bone repair, the bone typically takes several weeks to knit together. You will need to keep your arm supported initially. If you have a joint replacement, the implant provides immediate stability, but soft tissues still need time to settle. Most patients find that daily tasks become easier over the first few months as swelling goes down and movement improves.

Outcomes are generally good for both paths. Older patients having bone repair with parallel plates show good functional results. Those having joint replacement also report good to excellent outcomes. However, you should be aware of potential complications. The bone may heal in a poor position, known as malunion, or fail to heal at all, known as nonunion. These risks are higher if you have poor bone quality or smoke. Stiffness is also common. In some cases, particularly with intra-articular fractures in older adults, the joint may progress to needing replacement later; nearly 5.5% of such patients require this by 10 years.

Return to normal activity varies. Younger patients often return to full duty and sport after bone repair. Older adults should expect a slower pace. Your surgeon will guide you on when it is safe to lift or push. Be aware that mortality at one and two years is substantial for older adults with these fractures, strongly linked to other health conditions and how mobile you were before the injury. Your surgeon will discuss these risks with you to ensure the chosen path matches your health and lifestyle goals.

When to see someone

Seek urgent care if you have an open wound, visible deformity, numbness or tingling, or cannot use your arm. These signs need immediate assessment. If your pain is not settling, or if swelling and movement are not improving week on week as healing progresses, see your GP. Ask for a specialist review to check your recovery. Your surgeon will guide you on the next steps. Early attention helps manage risks like poor bone healing or joint stiffness. Do not wait for symptoms to worsen. Regular check-ins ensure your treatment plan matches how your body is responding.

In more depth

This section goes further than you need for your own treatment decisions. A distal humerus fracture is worth the extra reading because it sits at an awkward junction: it is one of the more complication-prone fractures in the upper limb, the standard surgical exposure involves deliberately breaking a second bone, and in older patients the case for operating at all is less settled than you might assume.

THE COMPLICATION RATE IS HIGHER THAN THE REPUTATION

The largest pooled analysis of intra-articular distal humeral fractures treated by open reduction and internal fixation gathered **2,362** patients, and its conclusion was blunt: complications and reoperations are **more frequent than previously understood** [1].

That is a useful corrective. These fractures are usually presented as difficult but solvable, and the technical result on an X-ray is often excellent. The gap between a good radiograph and a good elbow is wider here than almost anywhere else in the limb, and the literature had been under-reporting it.

THE EXPOSURE HAS ITS OWN COST

To see the joint surface properly, the usual approach detaches the olecranon by cutting across it — an olecranon osteotomy — and repairs it at the end. It is an elegant solution to a real problem of access, and it is not free.

Pooling **1,700** osteotomies, **447** complications were reported. Wound infection occurred in **4.2%** and problems with the osteotomy uniting in **3.7%** [2]. So a decision to use this exposure is a decision to accept a small but definite chance of a second problem at a site that was intact before surgery. The authors' framing is the right one: the risk must be part of the decision to perform the osteotomy, not a footnote to it.

For what it is worth, the choice between posterior exposures appears to matter less than the decision to use one. A meta-analysis of **1,258** patients with complete intra-articular (AO/OTA type C) fractures compared olecranon osteotomy against triceps-reflecting, triceps-splitting and triceps-sparing approaches and found comparable overall outcomes, with most measures showing no statistically significant difference [3].

IN OLDER PATIENTS THE QUESTION IS GENUINELY OPEN

There is a strong instinct that a displaced intra-articular fracture must be fixed. In older adults that instinct is not well supported by comparative data.

A systematic review of **1,838** older patients compared surgical and non-surgical management and found that **each** of the treatment modalities studied produced a reasonable level of elbow function [4]. The authors are careful about why that is not a recommendation to stop operating: the included studies were largely non-comparative and carried considerable risk of bias. It is an absence of evidence for superiority rather than evidence of equivalence.

Still, the practical implication holds. For a frail patient with low functional demand, a plan built around comfort and early movement rather than anatomical reconstruction is a defensible choice supported by outcomes that are not obviously worse — and it avoids every complication described above.

WHAT THIS MEANS FOR YOU

Three things follow. Expect the recovery to be about **motion**, not bone healing — the bone is the easy part. Ask specifically what exposure is planned and what it commits you to. And if you are older, or have limited demands on the arm, ask directly whether non-operative treatment is reasonable in your case, because the honest answer may be yes.

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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