

Elbow Instability

Ligaments of the elbow — the ulnar and radial collateral ligaments are the main stabilisers.

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What you're feeling

You may feel a sense of your elbow giving way or slipping out of place. This instability often happens when you try to straighten your arm or bear weight through it. You might notice clicking, locking, or a sudden pop during these movements. The pain is usually sharp and located on the outer side of the elbow. It can radiate down your forearm or up into your upper arm.

Daily tasks become difficult when your arm feels unreliable. You may struggle to lift a heavy shopping bag, push open a heavy door, or support your body weight when standing up from a chair. Simple actions like turning a doorknob or holding a glass of water can feel precarious if the joint feels loose. You might instinctively hold your arm close to your body to protect it from sudden movements.

Symptoms often flare after activity that stresses the joint. You may feel increased stiffness and ache in the morning, making it hard to fully straighten your arm at first. Night pain is common if you sleep on the affected side, as the joint bears pressure. If you have had a previous dislocation, you might feel a lingering fear of re-injury during sports or physical work.

In cases of chronic instability, you might experience persistent swelling or a feeling of fullness around the joint. You may notice weakness when trying to grip objects tightly. If the instability is due to a ligament injury, you might feel pain on the inner side of the elbow when throwing or lifting. Recognising these patterns helps us understand the precise nature of your injury. This understanding is critical in preventing long-term pain and weakness.

Most simple dislocations heal well with rest and early movement. However, if you experience recurrent giving way or persistent instability, further assessment is needed. We aim to restore stability so you can return to your normal activities with confidence. Your surgeon will guide you through the appropriate steps to manage your symptoms effectively.

What's actually happening

Your elbow is a hinge joint that relies on a precise balance between bone and soft tissue to stay stable. Think of it like a sturdy door hinge where the pins (bones) must align perfectly with the frame (ligaments and tendons). In a healthy elbow, these parts work together in synchrony to prevent unwanted movement. When you suffer a dislocation, this delicate balance is disrupted. The bones may slip out of place, tearing the ligaments that act as the primary stabilisers.

Simple dislocations often heal well because the joint surfaces fit together tightly, providing inherent stability. However, complex injuries involve more than just a simple slip. They may include fractures of the radial head or coronoid process, which are critical bony structures that prevent the joint from sliding backward or rotating abnormally. Without these bony supports, the ligaments alone cannot keep the joint secure. This is why understanding the exact pattern of injury is so important for your recovery.

If the stabilising structures are not repaired correctly, you may experience chronic instability, pain, and weakness. In severe cases, the elbow may remain unstable even after it has been put back in place. This is particularly risky for contact sports, where the lateral ulnar collateral ligament plays a critical role in preventing the joint from dislocating under force. If your elbow remains unstable or if you have significant bone damage, your surgeon may recommend surgery to restore the osseoligamentous support. This ensures you can move your arm safely and regain function without the fear of the joint slipping again.

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. For simple elbow dislocations, we begin with conservative treatment and early functional training. This means you start moving your elbow gently within a safe range as soon as possible. Our physiotherapy programs focus on active movement through the stable parts of your elbow's motion. We aim to restore strength and stability without forcing the joint. In many cases, this approach is all you need. Only 2% of patients with simple elbow dislocations require surgical intervention. For throwing athletes with valgus instability, we may also manage the condition nonsurgically.

If you have pain or swelling, we discuss medical management to help you stay comfortable while your elbow heals. This may include pain medication and anti-inflammatories. We do not routinely recommend injections for acute instability unless specific soft-tissue issues arise. For chronic or degenerative changes, we might consider cortisone or hyaluronic acid injections to reduce inflammation and lubricate the joint. Platelet-rich plasma (PRP) injections are another option some patients explore to support tissue healing. The effect of these injections varies; cortisone relief may last weeks to months, while hyaluronic acid effects can persist longer. We monitor your response closely and adjust the plan if symptoms persist.

Surgery is considered when your elbow remains unstable despite non-operative care, or if you have a complex fracture-dislocation. We operate to repair or reconstruct the lateral ulnar collateral ligament, which is the most critical structure for stability. Our goal is to achieve a concentric reduction, meaning the bones sit perfectly together again. This allows for early motion and prevents long-term stiffness or arthritis. We use arthroscopy

(keyhole surgery) where possible to manage soft tissue and bone lesions with minimal disruption. This technique helps restore sufficient stability for safe, early movement. If conservative care has not given enough improvement after a reasonable trial, or if your injury pattern requires immediate structural repair, we recommend surgery. We discuss the risks and benefits with you to ensure this is the right shared decision for your recovery.

What to expect

Your outlook depends largely on whether your elbow injury is simple or complex. For simple dislocations, non-operative management usually yields good long-term outcomes. Most of you will recover well without surgery. Approximately 2% of patients treated without operation require surgical intervention later. Approximately 8% develop persistent instability symptoms. Recurrent instability is uncommon after simple dislocations because the bone structure itself provides stability.

If your injury is complex, such as a fracture-dislocation, the path is different. Operative repair is indicated for most of these cases to restore support. This approach allows safe, early motion and provides a stable functional elbow in the long term. Recognising the precise pattern of injury is critical in restoring function and preventing chronic instability, pain, and weakness.

Recovery feels different depending on your specific injury. Athletes with elbow dislocation demonstrate high return to sport rates. Most athletes return to sport within 10 weeks. For complex injuries involving radial head and coronoid fractures, a standard surgical protocol restores sufficient stability to allow early motion. This early movement enhances functional outcomes.

You should be aware that some challenges can arise. Persistent subclinical instability after surgery is a challenge that can lead to the onset of post-traumatic osteoarthritis. If you require surgery for soft-tissue stabilisation or contracture release, this most commonly happens within 4 years of the initial injury. For those needing joint replacement, linked arthroplasty is preferred if you have ligamentous instability or bone loss, as instability is the major complication of unlinked implants.

Overall, the goal is to balance stability and mobility. With appropriate management, whether through rest or surgery, most patients achieve a functional elbow. Your surgeon will guide you on the best path for your specific injury pattern.

When to see someone

See your GP if you have persistent pain, weakness, or a feeling that your elbow is giving way. These are signs of mechanical instability. Seek urgent care if your elbow locks, clicks, or dislocates repeatedly. This may indicate posterolateral rotatory instability. Go to an emergency department if you cannot straighten your arm or if you suspect a fracture. Early assessment helps prevent long-term stiffness or arthritis. For complex injuries, your surgeon may use arthroscopy to diagnose the issue safely. Most simple dislocations heal well with rest and early movement, but persistent symptoms need specialist review to ensure proper healing and stability.

In more depth

This section goes further than you need for your own treatment decisions. It is here because “elbow instability” covers several quite different problems with quite different outlooks, and because the single biggest influence on how a simple dislocation ends up is a decision made in the first fortnight – one where the evidence and the instinct to protect the joint point in opposite directions.

“ELBOW INSTABILITY” IS NOT ONE DIAGNOSIS

The term covers everything from a joint that has dislocated once and is now stable, to a joint that gives way on everyday tasks, to a fracture-dislocation where bone as well as ligament has failed. Surgeons have been trying to classify these patterns for well over a century, and still disagree: a review of 130 years of attempts concluded that “uncertainties about both nomenclature and classification still exist”, and prompted a national society working group to try again [1].

This matters to you for one practical reason. When you read outcome figures for “elbow instability”, they may describe a group of patients whose injuries were nothing like yours. The distinction that matters most is **simple** (ligaments only) versus **complex** (ligaments plus broken bone) – those two travel very different paths.

THE TWO DIRECTIONS THAT HAVE NAMES: PLRI AND PMRI

Beyond simple versus complex, the pattern that determines the operation is the *direction* the joint gives way. Two named patterns account for most of it [1].

Posterolateral rotatory instability (PLRI) is the common one, and it is what most people mean by “unstable elbow”. It is the pattern produced by the usual injury: a fall onto the outstretched hand loading the elbow with the forearm turning outwards. The damage runs in a circle around the joint, starting at the **lateral ulnar collateral ligament** on the outer side and progressing forwards and backwards around the capsule, reaching the inner ligament last. Because it begins laterally, the first stage is a subluxation rather than a full dislocation, and the outer ligament is the structure that has to be repaired or reconstructed to fix it. When you read earlier in this section about lateral ligament reconstruction and its 0–33% recurrence range, that is PLRI being treated.

Symptomatically it is the pattern that makes you wary of pushing up out of a chair or loading the arm with the palm turned up – positions that let the joint rotate open.

Posteromedial rotatory instability (PMRI) is less common, easier to miss, and less forgiving. The mechanism is the opposite – a varus (inward-bending) force with the forearm rotating inwards – and it damages the outer ligament while shearing off the **anteromedial facet of the coronoid**, a small shelf of bone on the inner front of the ulna that the joint leans on.

That fragment is the problem. Anatomical work shows that on average **58% of the anteromedial facet is unsupported** by the bone shaft behind it, so it fractures as a separate piece and is easily overlooked on a plain X-ray [2]. Missing it is costly: the joint is left slightly malaligned and grinds. One report described established **arthrosis just 26 months** after the injury in an elbow whose instability had not been addressed [3]. This is why a CT scan is often requested when the injury pattern suggests it, and why a coronoid fragment that looks small can still warrant fixation.

The practical point for you: these are different injuries needing different operations, and “my friend had an unstable elbow and had X done” may not transfer to your elbow at all.

THE FIRST TWO WEEKS MATTER MORE THAN ALMOST ANYTHING ELSE

The instinct after a dislocation is to protect the joint in a cast or a brace. The elbow punishes that instinct. It is unusually prone to stiffening, and the stiffness is roughly proportional to how long it was held still.

One review put numbers on it: after a simple dislocation, a permanent loss of full straightening of **at least 30 degrees** may be expected if immobilisation runs beyond **25 days** – but as little as **3 degrees** if the elbow is moving again within **five days** [4]. That is close to the whole difference between an elbow you forget about and one you notice every day.

A randomised trial (FuncSiE) tested this directly, comparing early movement against three weeks in plaster for simple dislocations. At six weeks the early-movement group had a noticeably larger arc of motion (121° versus 102°), less disability, and returned to work **10 days versus 18**. By one year the two groups were indistinguishable – and, critically, **no elbow in either group re-dislocated** [5]. The protection bought by the plaster was protection against a risk that did not materialise, paid for with stiffness and lost weeks.

This is why your rehabilitation starts early and why a simple sling is used for comfort rather than a hinged brace holding the joint in a fixed arc.

SIMPLE DISLOCATIONS DO WELL – WITH AN HONEST ASTERISK

Most simple dislocations recover without an operation. But “most” is not “all”: roughly **8%** of people treated non-operatively go on to have symptoms of persistent instability, and about **2%** eventually need surgery [6]. A small number of injuries that look simple on the day behave badly afterwards, which is why we review you rather than discharging you at the first sign of a reduced joint.

“TERRIBLE TRIAD” IS A WORSE NAME THAN IT IS AN INJURY

The combination of elbow dislocation with fractures of the radial head and the coronoid was named the “terrible triad” because its early results were dismal. Modern results are much better: a review pooling 37 studies and 1609 patients found an average Mayo Elbow Performance Score of **90 – rated excellent** [7].

The honest half of that sentence is the complication rate, which is not low. Around **30%** of patients have some complication, and **7.8%** need further surgery. The commonest are extra bone forming in the soft tissues (**11%**) and ulnar nerve symptoms (**2.6%**) [7]. So: a good result is now the expectation rather than the hope, but this is an injury with a genuine chance of a second operation, and it is reasonable to know that before you start.

WHEN LIGAMENT SURGERY DOES NOT HOLD, BONE IS OFTEN THE REASON

Repair or reconstruction of the lateral ligament is well established for the commonest pattern of chronic instability. Reported recurrence after it, though, ranges from **0% to 33%** – a spread wide enough to tell you the operation is not the only variable [8].

Part of the explanation is that instability is not always purely a soft-tissue problem. Wear or defects in the bone at the outer side of the joint can keep an elbow unstable even after the ligament has been properly

reconstructed, and combined bony lesions act together to raise the risk of failure [8]. Revision surgery is correspondingly harder: the only published series of revision lateral ligament reconstruction reported a **27%** failure rate [8]. The practical implication is that if your elbow stays unstable after a ligament repair, the next question is usually about bone, not about redoing the same soft-tissue operation.

HOLDING THE JOINT REDUCED FROM THE INSIDE

For elbows too unstable to trust to a repair alone, the traditional answer was an external hinged frame worn on the outside of the arm for weeks. An alternative is an **internal joint stabiliser** – a temporary internal device that holds the joint reduced while the soft tissues heal, and is removed later. It allows the elbow to move through a good arc while protected, with the original series reporting a mean flexion of 134 degrees at final follow-up [9].

The reason this approach is preferred here is the same principle as the rest of this page: protection that still permits movement beats protection that prevents it.

REFERENCES

1. Marinelli A, Guerra E, Rotini R. Elbow instability: are we able to classify it? Review of the literature and proposal of an all-inclusive classification system. *Musculoskelet Surg.* 2016;100(Suppl 1):61-71.
2. Doornberg JN, de Jong IM, Lindenhovius AL, Ring D. The anteromedial facet of the coronoid process of the ulna. *J Shoulder Elbow Surg.* 2007;16(6):667-70.
3. Ramirez MA, Stein JA, Murthi AM. Varus posteromedial instability. *Hand Clin.* 2015;31(4):557-63.
4. Martin BD, Johansen JA, Edwards SG. Complications related to simple dislocations of the elbow. *Hand Clin.* 2008;24(1):9-25.
5. Iordens GIT, Van Lieshout EMM, Schep NWL, De Haan J, Tuinebreijer WE, Eygendaal D, et al. Early mobilisation versus plaster immobilisation of simple elbow dislocations: results of the FuncSiE multicentre randomised clinical trial. *Br J Sports Med.* 2017;51(6):531-8.
6. Robinson PM, Griffiths E, Watts AC. Simple elbow dislocation. *Shoulder Elbow.* 2017;9(3):195-204.
7. Stambolic T, Desai V, Bicknell R, Daneshvar P. Terrible triad injuries are no longer terrible! Functional outcomes of terrible triad injuries of the elbow: a systematic review. *JSES Rev Rep Tech.* 2022;2(2):214-8.
8. O'Driscoll SW, Chaney GK. Preoperative and operative risk factors for failed lateral collateral ligament reconstruction. *JSES Int.* 2023;7(6):2578-86.
9. Orbay JL, Mijares MR. The management of elbow instability using an internal joint stabilizer. *Clin Orthop Relat Res.* 2014;472(7):2049-60.