CQ HAND + UPPER LIMB
SPECIALIST ORTHOPAEDIC SURGEON

PATIENT INFORMATION — IN DEPTH

Scaphoid Fracture

X-ray showing a fracture of the scaphoid bone in the wrist.

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What you're feeling

You might feel a sudden snap or pop in your wrist if a bone breaks. This often happens after a fall onto an outstretched hand or a direct impact. The pain usually starts right away and can be sharp. You may notice swelling and bruising appearing within hours. Many people find it difficult or painful to move their wrist or grip objects. Your hand might feel weak or unstable.

It is important to know that not all wrist pain after a fall means you have broken this small bone. In fact, most people who come in with suspected scaphoid fractures do not have one. The true incidence of these fractures is typically within the 10% to 20% range. Initial X-rays are not always accurate enough to rule out a break. They have a sensitivity of up to 64%. This means some fractures can be missed on the first scan. Your surgeon will look closely at your symptoms and may order further tests, such as an MRI, to be sure.

In the first few days and weeks, you will likely feel pain when you move your wrist or try to use your hand for daily tasks. Simple actions like turning a doorknob, typing, or lifting a cup can hurt. You might also feel discomfort at night, which can disturb your sleep. As healing begins, this pain should gradually settle. However, because this bone has a unique blood supply, healing can be slow. If a fracture is not diagnosed early, it can lead to complications like nonunion or arthritis later on. Early and accurate diagnosis helps protect your wrist function and prevents long-term issues.

What's actually happening

Your wrist contains eight small bones called carpals. The scaphoid is one of these, sitting near the base of your thumb. It acts like a bridge between your forearm and the rest of your hand. When you fall on an outstretched hand, this bone takes a lot of force. It can crack or break completely.

Think of the scaphoid as a keystone in an arch. If that stone shifts or cracks, the whole arch becomes unstable. In your wrist, this means the smooth sliding motion between bones gets disrupted. You might feel pain,

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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

stiffness, or weakness when you try to grip or twist your wrist. The bone needs blood to heal, and the scaphoid has a delicate blood supply. This makes healing slower than in other bones.

If the break is not moved out of place, the bone ends stay aligned. Your surgeon may recommend a cast to hold it still while it knits back together. Many of these fractures heal well without surgery. The bone forms new tissue across the crack, restoring strength and motion. Even if there is a small misalignment, you can still have good function in the long term.

If the break is displaced, the pieces have shifted. This changes how the wrist moves. The bones may rub against each other in abnormal ways. Over time, this can lead to wear-and-tear arthritis. This is where the cartilage cushion wears down. It causes pain and stiffness. In some cases, the bone fails to heal, known as a nonunion. This leaves the wrist unstable.

When healing is needed for a nonunion or a displaced break, surgery helps. We use screws or pins to hold the pieces together firmly. Sometimes we add bone graft to encourage healing. This restores the normal shape and movement of your wrist. The goal is to stop the abnormal rubbing and protect your joint. With proper treatment, most people regain normal use of their hand and wrist.

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. We start by confirming the diagnosis. Standard X-rays and clinical checks alone miss many fractures, identifying a true break in only about 40% of cases. We often use an MRI scan to see clearly. This helps us spot hidden injuries early or confirm that no fracture is present. This avoids unnecessary treatment for misleading signals that appear on scans.

For stable fractures with little or no movement of the bone pieces, we may recommend non-operative care. This involves wearing a splint or cast to keep the wrist still while it heals. We monitor your progress with repeat imaging. Please note that taking anti-inflammatory painkillers (NSAIDs) within the first month of injury can increase the risk of the bone failing to heal. For displaced or unstable fractures, we often recommend surgery from the start. This involves placing small screws to hold the bone fragments together. This approach allows for a faster return to work, typically seven weeks sooner than casting alone. However, for some minimally displaced fractures, surgery and casting offer similar long-term function. We discuss these options with you to decide what fits your daily needs and pain tolerance.

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, we may recommend surgery straight away, without a preceding non-operative trial. Both paths share common goals: managing pain in the early weeks, protecting the injury while it heals, and starting physiotherapy at the right stage to restore movement. We aim for a solid union, though non-union rates after surgery remain above 10%. We support you through every step of this process.

What to expect

Your bone needs time to knit back together. Most fractures heal within eight to eleven weeks, though scans may show early signs of healing as soon as three weeks after surgery. You will likely wear a cast or splint for several weeks to keep the wrist still. This protects the bone while it strengthens.

If your fracture is not moved out of place, you might choose surgery or a cast. Surgery often helps you return to work about seven weeks faster than casting alone. However, both paths lead to good long-term results if the bone heals correctly. Virtually all united fractures have a good outcome, even if the bone heals slightly crooked.

Healing does not always go smoothly. The frequency of nonunion after surgical management for closed scaphoid fractures exceeds 10%. This means the bone fails to join. Delayed presentation of scaphoid fractures 21 days or more after injury predicts a greater risk of casting failure. If you are from a socioeconomically deprived community, you may experience longer delays in presentation and a higher incidence of nonunion. Persistent nonunion is common after surgery for non-union, and surgeries for persistent nonunion are even less successful.

Other risks include avascular necrosis, where the bone tissue dies due to lack of blood supply. This corresponds with a worse prognosis and increases the likelihood of secondary procedures. You might also experience stiffness or pain. Scaphoid nonunion is associated with progressive degenerative changes, although the correlation of symptoms and disease is poor.

For those with arthritis secondary to scaphoid nonunion, distal scaphoid resection is an option. 94% of patients remained satisfied after this procedure. No further wrist collapse or radiocarpal arthritis developed after distal scaphoid resection for arthritis secondary to scaphoid nonunion. Good clinical outcomes can be achieved after scaphoid fractures in prospective NFL athletes. Distal scaphoid resection is a durable procedure with good long-term results.

Your surgeon will guide you through each stage. You will feel gradual improvement in wrist motion and strength. Most patients report normal self-assessed hand function from an 8- to 11-year perspective. We aim for a steady recovery, but we must be honest about the risks of slow or failed healing.

When to see someone

Seek urgent care if you have an open wound, deformity, numbness, tingling, or cannot use your hand. These signs need immediate attention. If pain is not settling, or if swelling and movement are not improving week on week, see your GP or ask for a specialist review. Initial X-rays can miss up to 40% of fractures. Do not assume a normal scan means you are fine. Persistent pain suggests the bone may not be healing correctly. Early assessment helps prevent long-term stiffness or arthritis. We recommend following up if your symptoms do not ease as expected during your recovery.

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In more depth

This section goes further than you need for your own treatment decisions. Scaphoid fracture is worth the extra reading because where the break sits along the bone matters more than almost any other feature — and because the argument for operating is not the one most people assume.

POSITION ON THE BONE CHANGES THE RISK SEVENFOLD

The scaphoid receives most of its blood supply through vessels entering near its far end, so blood travels backwards along the bone towards the proximal pole. A fracture across the waist interrupts that supply to everything beyond it.

The consequence is quantified. Amalgamating published series, **34% of acute proximal scaphoid fractures progress to nonunion when managed non-operatively**, and the **relative risk of nonunion for these fractures is 7.5** compared with more distal fractures treated the same way [1].

That is why two fractures which look similar on a film can carry entirely different recommendations. A distal fracture in a cast has a strong chance of healing. A proximal pole fracture treated identically fails to unite in about a third of cases.

SURGERY LOWERS THE NONUNION RATE BUT DOES NOT IMPROVE THE DESTINATION

For the common waist fracture, comparing surgery with cast treatment produces a result worth reading carefully. Surgery gave a **nonunion rate three times lower**, a quicker return to function, and transiently better grip strength and range of movement — but was associated with **more complications**. There were **no significant differences in pain, tenderness, cost or functional outcome** [2].

So the operation buys reliability of union and speed of recovery, at the cost of surgical complications, and the two groups converge on the same place. That makes it a decision about how much a faster, more certain path is worth to a particular person — a manual worker or an athlete weighs those months differently from someone who can accommodate a cast.

DIAGNOSIS IS WHERE MOST OF THE HARM IS AVOIDED

Because a missed scaphoid fracture is the one that becomes a nonunion, the diagnostic pathway matters. **Anatomical snuffbox tenderness was the most sensitive clinical test**, and **combining tests improved the post-test probability** of fracture — which can be used to limit unnecessary immobilisation, hospital visits and imaging [3].

That last clause is the useful one. Combining examination findings is not only about catching fractures; it also identifies the people who can safely stop wearing a cast, which is why a structured reassessment is worth attending even when the wrist feels better.

FOR AN ESTABLISHED NONUNION, THE FANCIER GRAFT IS NOT THE BETTER GRAFT

Where a fracture has failed to unite, the standard treatment is bone grafting, and a vascularised graft — one brought with its own blood supply — is intuitively superior.

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The evidence does not support that. Current evidence suggests **vascularised bone grafting does not yield significantly superior results to non-vascularised grafting** in scaphoid nonunion, though the authors note potential selection bias reduces certainty [4]. The union figures are close: **84% for vascularised and 80% for non-vascularised** grafts, with considerable variation between reports attributable to patient, fracture, treatment and study-design factors [5].

Since vascularised grafting is the longer and more technically demanding operation, that near-parity is worth knowing. Selection bias runs in a particular direction here — vascularised grafts tend to be used for the harder cases — so the comparison likely understates them. But it does not support choosing one as routinely better.

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