

# Scaphoid Fracture

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

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## What you're feeling

You likely felt a sudden impact when you fell onto your outstretched hand. This is the most common way this wrist bone breaks. You might have heard or felt a snap or pop at that moment. Immediately after, you will notice pain in the base of your thumb. The area will swell and may turn bruised. Moving your thumb or wrist will hurt sharply. You will probably feel reluctant to use that hand for anything.

In the first few days, the pain can be constant. It may throb at night, keeping you awake. Simple tasks like holding a coffee cup or turning a doorknob become difficult. You might feel a sense of instability in your wrist. This is normal for an acute injury. The swelling usually peaks within the first 48 hours. As the initial shock wears off, the sharp pain may settle into a dull ache.

As healing begins over the next few weeks, you will notice changes in how your wrist feels. The severe throbbing should decrease. However, you will still feel pain when you try to move the joint. This is because the bone is fragile while it knits back together. You might feel stiffness if you keep the wrist still for too long. Gentle movement, as advised by your surgeon, helps reduce this stiffness.

Some people worry about missing the injury because the pain seems manageable at first. Do not ignore the discomfort. Even if you can move your thumb slightly, a fracture may still be present. Early diagnosis is key to proper healing. If you suspect a break, seek medical attention promptly. Your surgeon will guide you on the next steps to ensure your wrist heals correctly.

## What's actually happening

Your scaphoid is a small, walnut-shaped bone in your wrist. It sits at the base of your thumb and acts as a crucial link between your forearm and the rest of your hand. Think of it as the keystone in an arch. If that stone shifts or breaks, the whole arch becomes unstable. When you fracture this bone, you disrupt that delicate balance.

Right now, your wrist does not work normally because the bone fragments may have shifted out of place. This displacement changes how your wrist moves. It can cause pain when you grip things or bear weight on your hand. In some cases, the break prevents the bones from healing together, a problem known as nonunion. This leaves the wrist joint loose and painful, affecting your ability to perform daily tasks.

Healing requires the bone ends to knit back together. For this to happen, the fragments need to be held steady. If the break is simple and not shifted, your surgeon may recommend a cast to keep everything still while your body repairs itself. If the bone has moved, surgery is often needed to realign it and hold it in place with screws or pins. This stability allows the bone to fuse correctly.

In more complex cases, such as when the blood supply to the bone is damaged, the bone may not heal on its own. Your surgeon might use a bone graft to help bridge the gap. This involves taking a small piece of healthy bone from another part of your body to support the healing process. The goal is to restore the normal shape and strength of your wrist.

Even if the bone heals with a slight change in shape, known as malunion, your wrist function can still be good. Many patients return to normal activities with minimal issues. The key is achieving a stable union that allows your wrist to move smoothly again. Your surgeon will guide you through the best option for your specific injury to ensure you regain full use of your hand.

## What we can do about it

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Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, starts with the least invasive options that suit your condition. 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 then establishes the diagnosis. For acute injuries like a scaphoid fracture, we choose treatment up front based on the injury pattern and your needs, rather than waiting to see if conservative care fails.

Non-operative care is often the right choice for stable or minimally displaced fractures. This involves wearing a sling, splint, or cast to protect the bone while it heals. We monitor your progress with repeat imaging where needed. Many patients heal well with this approach, and union rates for nonoperative treatment can approach or exceed those of surgery for certain fracture types. You will follow a staged return to movement with physiotherapy to restore strength and flexibility.

Surgery is recommended from the outset if your fracture is displaced or unstable. It may also be the preferred option if you have high functional demands or if the pain and immobilisation time of casting are not acceptable to you. In these cases, we discuss a shared decision between operative and nonoperative paths. While surgery may offer a faster return to work—averaging seven weeks sooner than conservative care for some patients—it carries a nonunion risk that exceeds 10%. We aim to stabilize the bone to allow healing, but the final position and pain levels are factors you help weigh in choosing your path.

Both paths share common goals in the early weeks. You will manage pain and protect the injury while it heals. We advise against using anti-inflammatory medications (NSAIDs) within the first month, as this may increase

the risk of the bone failing to unite. Once the bone shows signs of healing, you will begin physiotherapy to regain full use of your hand and wrist.

## What to expect

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Your wrist will likely feel stiff and swollen for several weeks. If your fracture is not moved out of place, your surgeon may recommend a cast or splint. You will stay in this immobilisation for a period of time while the bone heals. If your fracture is displaced, your surgeon may suggest surgery to place a screw inside the bone. This helps hold the pieces together so they can knit back into one solid unit.

Healing takes time. Most fractures that successfully join together will have a good outcome, even if they heal in a slightly imperfect position. However, slow or failed healing is a known risk. The chance of the bone failing to unite after surgery is more than 10%. This risk is higher if you present for treatment more than 21 days after the initial injury. It is also higher if you have certain mental health conditions or live in a community with fewer resources. In these cases, the bone may not heal properly, leading to long-term stiffness or arthritis.

If your bone does unite, you can expect to return to normal daily tasks. Surgery often allows you to get back to work about 7 weeks faster than casting alone. For many people, hand function and wrist strength return to normal within a few months. If you are a young male or between 10 and 19 years old, your chances of a full recovery are generally good. Even if you are an athlete, good clinical outcomes are possible with the right treatment.

In rare cases where the bone does not heal and causes arthritis, your surgeon might discuss removing part of the bone. About 94% of patients remain satisfied after this procedure. No further collapse of the wrist joint typically occurs after this surgery. The key is early and accurate diagnosis. If you suspect a scaphoid fracture, seek care quickly to avoid complications from delayed treatment.

## When to see someone

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Seek urgent care if you have an open wound, visible 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. Early diagnosis is key. Standard X-rays and exams often miss fractures. An MRI scan can find hidden injuries quickly. Delayed treatment increases the risk of the bone failing to heal. Proper early care helps protect your wrist function and avoids long-term complications.

## In more depth

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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.

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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## REFERENCES

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