

Scaphoid Fractures and Scaphoid Non-Union



What is a Scaphoid Fracture?

A **scaphoid fracture** is a break in the **scaphoid**, one of the **carpal bones** in the wrist. The scaphoid sits on the thumb side of the wrist and plays an important role in wrist movement and stability.

Scaphoid fractures most commonly occur following a **fall onto an outstretched hand**. They are particularly common in younger adults but can occur at any age.

These fractures are sometimes difficult to detect immediately, as early X-rays may appear normal. If left untreated, a scaphoid fracture may fail to heal properly, leading to a condition known as **scaphoid non-union**, which can result in long-term pain, stiffness, and arthritis.

What is a Scaphoid Non-Union?

A **scaphoid non-union** occurs when a scaphoid fracture fails to heal. This may happen if the fracture is not diagnosed early, if the blood supply to the bone is disrupted, or if the fracture fragments move during healing.

Because the scaphoid has a relatively limited blood supply, particularly to the **proximal pole**, healing can be slow, and some fractures are at higher risk of non-union.

If untreated, scaphoid non-union can lead to progressive wrist arthritis, sometimes referred to as **SNAC wrist (Scaphoid Non-union Advanced Collapse)**.

Causes and Risk Factors

Scaphoid fractures most commonly occur following trauma.

Common causes include:

- **Falls onto an outstretched hand**
- **Sports injuries**, particularly contact or high-impact sports
- **Road traffic accidents**
- **Falls from height**

Factors that may increase the risk of **non-union** include:

- Delay in diagnosis or treatment
 - **Fractures with displacement**
 - **Fractures of the proximal pole**
 - **Smoking**, which can impair bone healing
 - Poor immobilisation
 - Reduced blood supply to the bone
-

Symptoms

The symptoms of a scaphoid fracture may be subtle, particularly in the early stages.

Common signs include:

- **Pain on the thumb side of the wrist**
- **Tenderness** in the anatomical snuffbox (a small hollow at the base of the thumb)
- **Swelling** around the wrist
- **Pain with gripping or pinching**
- **Reduced wrist movement**
- Pain that persists after a fall, even if initial X-rays appear normal

Symptoms of **scaphoid non-union** may include:

- Persistent wrist pain
- Reduced grip strength
- Wrist stiffness
- Pain during activity
- Gradual worsening of symptoms over time

- In later stages, symptoms of **wrist arthritis**, including pain and reduced movement

Diagnosis & Investigation

Scaphoid fractures and non-unions are diagnosed **based on clinical history and physical examination**, supported by imaging.

During your visit:

- The surgeon will ask about **how the injury occurred**, the duration of symptoms, and any previous wrist injuries.
- A **physical examination** will assess tenderness over the scaphoid and wrist movement.

Imaging

- **X-rays** are usually performed initially.
- If a fracture is suspected but not visible on X-ray, further imaging may be required.
- **MRI scans** are commonly used to detect fractures that are not visible on X-rays and to assess the blood supply to the scaphoid.
- **CT scans** are often used to assess fracture position, healing, and to plan surgery.

Non-Surgical Treatment

Some scaphoid fractures can be treated without surgery, particularly if they are **non-displaced** and stable.

Non-surgical treatment options may include:

- **Immobilisation in a cast or splint**, often including the thumb
- Avoiding heavy use of the hand during healing
- Regular **X-ray or CT monitoring** to assess healing
- **Hand therapy**, once the fracture has healed

Scaphoid fractures often require **longer immobilisation** than other wrist fractures due to the limited blood supply to the bone.

Surgical Treatment

Surgery may be recommended if the fracture is **displaced, unstable**, slow to heal, or has developed into a **non-union**.

Common surgical options include:

Internal Fixation of Scaphoid Fractures

This involves stabilising the fracture using a **screw**, usually inserted through a small incision. Fixation helps hold the fracture in the correct position and may allow earlier movement in some cases.

This technique is commonly used for:

- Displaced fractures
- Unstable fractures
- Fractures at higher risk of non-union
- Some non-displaced fractures in active individuals

Bone Grafting for Scaphoid Non-Union

If the fracture has failed to heal (**non-union**), surgery may involve **bone grafting**, where bone is placed into the fracture site to stimulate healing.

Bone graft may be taken from:

- The **distal radius**
- The **iliac crest (pelvis)**
- In some cases, a **vascularised bone graft** may be used to improve blood supply to the bone.

Surgery for Established Wrist Arthritis

If long-standing non-union has resulted in arthritis (**SNAC wrist**), further procedures may be considered, including:

- **Proximal row carpectomy (PRC)**
- **Partial wrist fusion**
- **Total wrist fusion** (in severe cases)

These procedures aim to relieve pain and improve function.

Recovery

Recovery following scaphoid fractures and non-union depends on the type of injury and treatment.

- Scaphoid fractures often require **6–12 weeks** of immobilisation.
- **Hand therapy** is usually recommended to restore movement and strength.
- Healing times may be longer than for other wrist fractures.

Recovery times vary depending on treatment:

- **Non-displaced fractures treated in a cast** may require prolonged immobilisation.
- **Screw fixation** may allow earlier movement in some cases.
- **Bone grafting for non-union** typically requires longer healing times.

- Full recovery of strength and function may take **several months**.

Risks

Although treatment is usually successful, complications can occur, including:

- Non-union (failure of the fracture to heal)
- Delayed union (slow healing)
- Stiffness
- Persistent pain
- Arthritis of the wrist
- Avascular necrosis (loss of blood supply to part of the bone)
- Infection (after surgery)
- Hardware-related irritation

Early diagnosis and treatment significantly improve outcomes.

When to See One of Our Hand Specialists

You should consult a hand specialist if:

- You have **pain on the thumb side of the wrist** after a fall
- You have persistent pain despite normal initial X-rays
- Your wrist pain does not improve after immobilisation
- You have ongoing pain following a previous scaphoid fracture
- You experience reduced wrist movement or strength

If you have sustained a significant injury, have severe pain, or have an open wound associated with a fracture, this should be assessed urgently in the Emergency Department (A&E).

Book and appointment:

