

# Proximal Humerus Fixation (ORIF) – Rehabilitation Protocol

This protocol covers the rehabilitation after surgical fixation of a proximal humerus fracture – a break of the upper arm bone near the shoulder, repaired with a locking plate and screws (open reduction and internal fixation, ORIF) – with Dr Kieran Hirpara at Mater Private Hospital Rockhampton. Bring this page or its PDF to your first physiotherapy visit so your rehabilitation stays coordinated. Your rehabilitation is progressed individually by your physiotherapist through the phases below, depending on how your fracture heals.

If you have any concerns about your wound after surgery, get in touch with the rooms. It is often helpful to take a photo of the wound and email it for review.

## What to expect

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Rehabilitation after a fracture fixation works differently from rehabilitation after most planned shoulder operations. The plate and screws hold the broken bone in position, but the bone itself still has to heal – and the speed of that healing varies considerably from person to person. For that reason, the timetable below is a typical guide rather than a fixed schedule: each step up in your program depends on **both** the number of weeks since surgery **and** on how the fracture is healing on your X-rays, as confirmed at your reviews with Dr Hirpara. Do not move yourself on to the next phase on the calendar alone – wait for your review.

There is one more thing that makes this operation different. The bony knobs at the top of the humerus (the **tuberosities**) are where the rotator cuff tendons attach, and in many proximal humerus fractures these fragments are part of the break and are fixed back with the plate or with stitches. Working the rotator cuff muscles too early can pull on those fragments before they have healed. This is why the early phases avoid active shoulder movement and rotator cuff exercise, and why outward rotation of the arm is limited at first.

Your exercise program uses three kinds of movement, and your team will mark which apply to you:

- **Active range of motion** – movement is allowed without aid or help.
- **Active-assisted range of motion** – using the other arm or an object to assist with moving the arm.
- **Passive range of motion** – completely relaxed, using the other arm or force to do 100% of the work.

You will wake from surgery with your arm in a sling. Wear it full-time for the first **three weeks or so**, then wean out of it over the following weeks as comfort allows – published protocols average around three weeks of immobilisation, and the evidence supports earlier movement over longer time in the sling. You don't need to

sleep in it. Take it off several times a day for your exercises and for washing and dressing, and when sitting quietly at home you may rest the arm out of the sling. **Do not drive while you are wearing the sling.**

The journey at a glance:

- **Phase I – Protection and early passive movement** – weeks 0–6
- **Phase II – Regaining active movement** – weeks 6–12
- **Phase III – Strengthening** – about months 3 to 4½
- **Phase IV – Return to full activity** – from about 4½–6 months

## Phase I – Protection and early passive movement (Weeks 0–6)

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The first six weeks are about protecting the fixed fracture while keeping the rest of the arm – and the shoulder joint itself – from stiffening. A physiotherapist will start you on gentle exercises before you go home: pendulum exercises (letting the arm hang and swing gently by rocking your body), and keeping the elbow, wrist and hand moving out of the sling several times a day. Your physiotherapist will also move the shoulder for you (passive movement) within set limits. You should not actively lift the arm away from your body or rotate it outwards in this phase – the muscles that do that pull directly on the healing bone. Use ice for pain relief, and take your painkillers before your exercises and physiotherapy appointments.

### For your physiotherapist:

#### Goals

- Protect the fixation and optimise bony healing
- Settle pain and swelling
- Establish passive range of motion within the prescribed limits
- Maintain full motion of the neck, elbow, wrist and hand

#### Management

- Sling full-time for ~3 weeks, then weaned as comfort allows (literature convention); removed several times daily for exercises and hygiene; not required in bed
- Pendulum / Codman exercises several times daily
- Passive range of motion: forward elevation in the scapular plane to about 90°, external rotation with the arm at the side to about 30–40°, internal rotation to the belly (not behind the back)
- Cervical, elbow, wrist and hand active range of motion out of the sling; ball squeezes for grip
- Scapular setting and scapular mobility work (elevation, depression, retraction, protraction)
- Gentle deltoid and periscapular isometrics may be introduced as comfort allows
- Cryotherapy and analgesia before sessions; scar mobilisation and desensitisation once the wound has healed

## Precautions

- No active shoulder movement in this phase
- No isolated rotator cuff contraction or resisted cuff work – tuberosity fragments must not be loaded before healing
- External rotation limited to about 30–40°; no internal rotation behind the back; avoid abduction in the coronal plane
- No lifting greater than about 0.5–1 kg with the operated arm
- No weight-bearing through the operated arm (no pushing up from a chair or bed)
- No driving while wearing the sling
- No forced or painful end-range movement

## Criteria to progress

- Radiographic evidence of healing progressing, as confirmed at the review with Dr Hirpara at about 6 weeks
- Pain well controlled
- Full elbow, wrist and hand motion maintained
- Comfortable passive range within the prescribed limits

## Phase II – Regaining active movement (Weeks 6–12)

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At your review around six weeks, Dr Hirpara checks your X-rays. If healing is progressing as expected, any remaining sling use stops and you begin moving the arm yourself – first with assistance (using the other arm, a stick or a pulley), then actively. It usually works best to start active lifting of the arm while lying on your back, where gravity is less of an opponent, and progress to sitting and standing as control improves. Gentle muscle-setting (isometric) exercises for the rotator cuff begin in this phase once Dr Hirpara has confirmed healing; exercises against resistance come later. You may return to driving once you are out of the sling, have enough movement and control of the arm to drive safely, and are no longer taking strong painkillers – if in doubt, discuss it at your review.

### For your physiotherapist:

#### Goals

- Restore full passive range of motion
- Progress from active-assisted to active range of motion in all planes
- Re-establish normal scapulohumeral rhythm and minimise compensatory patterns
- Return to normal light daily activities

#### Management

- Sling fully discarded by the 6-week review at the latest

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#### CQ HAND + UPPER LIMB

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- Active-assisted range of motion: lawn-chair progression, table / wall slides, pulleys, stick exercises – progressing beyond the Phase I limits as comfort allows
- Active range of motion from about 6–8 weeks: supine flexion progressing to upright elevation; side-lying external rotation and flexion; low rows / low punch
- Submaximal rotator cuff and deltoid isometrics from about 6–8 weeks, with the arm at the side, once healing is confirmed
- Light elbow isotonic (biceps curls, triceps extensions) and scapular strengthening (retraction, prone rows)
- Glenohumeral and scapulothoracic mobilisation as indicated, progressing grades with healing
- Postural correction; continue heat / ice and analgesia around sessions as preferred

### **Precautions**

- No resisted (isotonic) rotator cuff strengthening until union is confirmed – typically not before 8–12 weeks
- No forceful end-range overpressure or aggressive passive stretching
- Lifting limited to about 1–2 kg with the operated arm
- Watch for and correct shoulder hitching and trunk-lean compensation with elevation

### **Criteria to progress**

- Full, or near-full, passive range of motion
- Active elevation with good mechanics, at least below shoulder height
- Isometrics well tolerated without a flare of pain
- Union progressing on X-ray, as confirmed at your review with Dr Hirpara

## **Phase III – Strengthening (about Months 3 to 4½)**

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With the fracture united and your active movement returning, attention turns to rebuilding strength. Resistance work starts gently – elastic bands and light weights for the rotator cuff, deltoid and shoulder-blade muscles – and progresses gradually. Stretching continues alongside, working towards full movement in all directions, including reaching behind the back. Normal daily activities should be largely back to usual during this phase, and lighter recreational activities typically resume, as guided by your physiotherapist.

### **For your physiotherapist:**

#### **Goals**

- Full active range of motion in all planes with normal mechanics
- Graduated restoration of rotator cuff, deltoid and scapular strength and endurance

## Management

- Progress from isometrics to elastic-band and then light free-weight strengthening (about 0.5–2 kg) for the cuff, deltoid and scapular stabilisers – low load, higher repetitions (for example 2–3 sets of 8–12), resistance sessions about 3 times per week to avoid overload
- Rotation strengthening initially with the arm at the side, below shoulder height
- Emphasise anterior deltoid and the trapezius–serratus anterior force couple for a stable scapular base
- Flexibility program for terminal range in all planes: posterior capsule (cross-body) stretch, behind-the-back internal rotation, anterior chest wall / pectoralis minor stretches, doorway stretch
- Begin internal rotation behind the back and grade III–IV mobilisations as range allows
- Upper-body ergometer with low resistance; general aerobic conditioning

## Precautions

- Strengthening stays within the comfortable range and should not provoke pain that lingers
- No lifting greater than about 4–5 kg with the operated arm during this phase
- Avoid excessive weight-bearing through the arm (push-ups and similar come later)

## Criteria to progress

- Full active range of motion with no compensatory strategies
- Strengthening program tolerated without flare-up of pain or loss of range

## Phase IV – Return to full activity (from about 4½–6 months)

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The final phase is a graduated return to heavier lifting, manual work, overhead tasks and sport. Strength work advances to heavier resistance and compound movements, and – where it is relevant to your work or sport – to faster, more dynamic exercise. Most people are back to their usual activities by around six months, though strength and confidence typically keep improving for up to a year. The right finish line depends on what you need the arm to do, so the return to heavy manual work or contact and overhead sport is agreed with Dr Hirpara and your physiotherapist rather than set by the calendar.

### For your physiotherapist:

#### Goals

- Return to full work, recreational and sporting activity
- Strength of the operated arm approaching that of the other side

## Management

- Progressive resistance through bands, free weights and gym-based compound movements
- Push-up progression (wall → bench → knees → full) and closed-chain stability work as tolerated

- From about 4½ months: eccentric loading, plyometrics (weighted-ball work), proprioceptive and rhythmic-stabilisation drills where relevant
- Resisted rotation at 90° of elevation, and interval sport-specific or vocation-specific programs as appropriate

### Precautions

- Progression remains symptom-guided – if pain or loss of range recurs, ease back and restore comfortable movement first

### Criteria to discharge

- Strength of the operated arm at least about 80% of the other side where measured
- No pain with progressive strengthening
- Independent with a maintenance home program

## After your protocol

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The phases above are adapted from published rehabilitation protocols for proximal humerus fracture fixation – Massachusetts General Brigham Sports Medicine, Twin Cities Orthopedics, the UConn Musculoskeletal Institute, NYU Langone Orthopedic Center and South Bend Orthopaedics – together with a systematic review of rehabilitation after proximal humerus fracture. Published protocols for this operation vary more than for most shoulder surgery, because the right pace depends on how the individual fracture was fixed and how it heals; your progression through the phases is therefore directed by Dr Hirpara at your reviews and adjusted by your physiotherapist between them. This page works alongside the practice’s general recovery advice – see [managing post-operative pain](#) and [wound care](#). For the operation itself, see [proximal humerus fixation](#).

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### REFERENCES

1. Massachusetts General Brigham Sports Medicine. Rehabilitation Protocol for Proximal Humeral Fracture Open Reduction Internal Fixation (ORIF).
2. LaPrade CM. Post-Surgical Physical Therapy Protocol: Proximal Humerus Fracture ORIF. Twin Cities Orthopedics.
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6. Budharaju A, Hones KM, Hao KA, et al. Rehabilitation protocols in proximal humerus fracture management: a systematic review. *Shoulder Elbow*. 2024;16(4):449–458.