

Post-operative rehabilitation protocol

Humeral shaft fracture fixation

Plate or nail fixation of a fracture in the middle of the upper arm bone. For patients, physiotherapists, and GPs.

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The plan at a glance

The plate or nail holds the bone while it heals. The shoulder and elbow move early to prevent stiffness. Twisting and heavy loading wait for the bone.

	Phase 1 Weeks 0 to 2	Phase 2 Weeks 2 to 6	Phase 3 Weeks 6 to 12	Phase 4 After 12 weeks
Sling	For comfort, off for exercises	Wean off by week 3	None	None
Movement	Pendulums. Elbow, wrist, and hand. Assisted shoulder movement	Active shoulder and elbow, building to full range	Full range	Full range
Load	A cup of tea	Up to 1 kg. No twisting force	Progressive strengthening, up to 5 kg	Unrestricted once the bone has united
Review	Wound check and X-ray at 2 weeks	Clinic and X-ray at 6 weeks	Clinic and X-ray at 12 weeks	Discharge when united

Darker shading means tighter restriction. Times are guides. Your surgeon's instructions take precedence where they differ.

Seek advice urgently if

- The wound becomes red, hot, or swollen, or it leaks or opens.
- You have a fever or feel unwell.
- Pain suddenly increases, or the arm bends, grinds, or changes shape, especially after a fall.
- You cannot lift the wrist or straighten the fingers and thumb (wrist drop).
- New numbness, tingling, or weakness develops in the arm or hand.
- The hand becomes cold, pale, or blue.

Call 999 or go to the Emergency Department for shortness of breath or chest pain.

For anything else on this list, contact your surgical team the same day. Out of hours, call NHS 111.

Phase 1

Protect: weeks 0 to 2

Aims: control pain and swelling, keep the joints moving, protect the wound.

Do

- Wear the sling for comfort. Take it off to wash, dress, and exercise.
- Bend and straighten the elbow fully, several times a day.
- Move the fingers and wrist fully. Lift the wrist and fingers back against gravity.
- Start pendulum exercises from day one.
- Lift the arm with help from the other hand, within comfort.
- Sleep propped up on pillows, with a pillow under the arm.
- Keep the dressing dry until the wound check.

Avoid

- Lifting anything heavier than a cup of tea.
- Pushing up from a chair or bed with the operated arm.
- Twisting against resistance: tight lids, door handles.
- Lying on the operated side.
- Driving.

Expected in this phase

Bruising and swelling track down to the elbow, forearm, and hand. Keep the hand moving and raised when resting.

Phase 2

Move: weeks 2 to 6

Aims: come out of the sling, regain full shoulder and elbow movement.

Do

- Wean out of the sling. Discard it by week three.
- Progress from assisted to active shoulder movement in all directions.
- Regain a fully straight and fully bent elbow.
- Use the hand for light daily tasks.
- Massage the scar once the wound has fully healed.
- Keep fit: walking and a static bike are safe.

Avoid

- Lifting more than 1 kg.
- Twisting force through the arm.
- Resistance exercise.
- Body weight through the arm, unless your surgeon has approved it.
- Any activity with a risk of falling.

Move on to Phase 3 when

The six-week X-ray shows the fixation is unchanged and the bone is healing, and the fracture site is not tender.

Phase 3

Strengthen: weeks 6 to 12

Aims: restore strength, return to normal daily activity.

Do

- Complete any remaining range with stretches.
- Start static (isometric) exercises, then bands, then light weights.
- Strengthen the shoulder, the biceps and triceps, and grip.
- Take weight through the arm in stages: wall press, then incline press.
- Return to running and swimming.

Avoid

- Lifting more than 5 kg.
- Forceful twisting: arm wrestling, heavy spanners.
- Contact sport and activities with a risk of falling.
- Heavy manual work.

Move on to Phase 4 when

The 12-week X-ray shows the bone has united and strength is close to the other side.

Phase 4

Return: after 12 weeks

Aims: full work, full sport, no restrictions.

- Progress to heavy lifting and full weight through the arm.
- Return to heavy manual work.
- Return to contact sport in stages once union is confirmed.

The plate or nail

The metalwork usually stays in for life. Removal is rarely advised, because the nerve that lifts the wrist lies close to it.

Return to activity

Typical times from surgery. Each depends on comfort, movement, and healing.

Activity	From	Condition
Desk work	1 to 2 weeks	When pain is controlled
Driving	4 to 6 weeks	Out of the sling, able to control the wheel. Tell your insurer.
Running	6 weeks	Satisfactory six-week X-ray
Swimming, breaststroke	6 to 8 weeks	Comfortable active range
Light gym resistance	6 weeks	Satisfactory six-week X-ray
Light manual work	6 to 8 weeks	Within the 5 kg limit
Golf, racket sports	12 weeks	Union on X-ray
Heavy manual work	12 to 16 weeks	Union on X-ray
Contact sport	4 months	Union on X-ray and staged return

When to slow the protocol

Some patients need more time. Your surgeon will tell you if any of these apply.

- **Weakness of the wrist and fingers from the injury (radial nerve).** A wrist splint is worn and the fingers are stretched daily. Most recover over three to six months. Nerve tests are arranged if there is no sign of recovery by three months.
- **Nail fixation.** The nail goes in through the shoulder. The shoulder may be sore and stiff for longer. The same phases apply.
- **Fragmented fracture, weak bone, or fixation of a fracture that had failed to heal.** Each phase runs two to four weeks later, guided by X-ray.
- **Leg injury needing crutches or a frame.** Weight through the operated arm needs your surgeon's specific approval.
- **Smoking and diabetes.** Both slow healing. Stop smoking and vaping nicotine. Keep blood sugar well controlled.

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This protocol is general guidance for uncomplicated plate or nail fixation of a humeral shaft fracture. It is not a substitute for individual medical advice. Instructions from your own surgeon and therapist take precedence.

Version 1.0, October 2026. Review due October 2028.