

Radial Head Replacement

At-a-glance recovery. Pooled from 80 published studies — your own pace will vary.

LIGHT DUTIES	MOST EVERYDAY ACTIVITIES	FINAL OUTCOME PLATEAU
desk work, driving, daily tasks	manual work, sport, gym	pain and strength
2-6 weeks	3-6 months	12 months
Early movement is important to prevent stiffness, and exercises usually start soon after surgery.	Among active patients, three-quarters return to active duty, push-ups, and sport, though only about half return to their preinjury level of function.	Maximum improvement and plateau in pain, strength, and range of motion are typically noted within the first post-operative year.

Why this operation has been suggested

Dr Kieran Hirpara, an upper-limb surgeon at Mater Private Hospital Rockhampton, matches the treatment to your specific injury. 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. We assess your history, examine your elbow, and arrange imaging where needed to work out what is wrong.

This operation replaces the radial head, the rounded top of one of the two forearm bones, with an artificial part. It is usually offered when the radial head is broken into several pieces that cannot be put back together, or when the broken bone has made the elbow or forearm unstable. Many radial head fractures heal without surgery, so non-operative care often comes first. Surgery follows when that has not given enough improvement, or when the break is too severe for it to work.

The aim is a steadier elbow, less pain, and better movement of your arm.

Before the operation

In the weeks before surgery we will arrange X-rays, and sometimes a CT scan, to measure your elbow and plan the operation. These scans show where the bone has broken and help us choose the right size of implant. Most

people need nothing more than this. If you have other medical conditions, you may need blood tests or a review with the anaesthetist.

On the day, do not eat or drink for seven hours beforehand. We ask for seven hours rather than six so your time in theatre can be brought forward if the list runs early; your surgeon will confirm your exact fasting time. Stop taking certain medications only if we have told you to, and bring a written list of everything you take. Arrange for someone to drive you home, and wear loose, comfortable clothing with buttons or a zip rather than something you pull over your head.

On the day

You will arrive at the hospital's surgical admissions unit, where you are checked in and prepared for theatre. You will meet the anaesthetist, who will go through your health and your medications with you. This operation is done under general anaesthetic. A regional nerve block is sometimes added for post-operative pain relief; the anaesthetist will discuss this with you on the day. You are then taken into the operating theatre, where the operation is performed.

When the operation is finished, you will wake up in the recovery area. Nurses will stay with you while the anaesthetic wears off and will keep you comfortable. Once you are stable, you will either move to a ward or go home the same day, depending on the procedure and how your recovery is going. If you are going home, the person you arranged to drive you will take you there. Before you leave, we will explain how to care for your elbow over the next few days and who to contact if you have any concerns.

What the operation involves

Your surgeon makes a cut on the outer side of your elbow to reach the broken radial head. A band of tissue around the top of the forearm bone is gently divided so the broken pieces can be seen. The broken pieces are removed and fitted together like a puzzle on a side table to work out what size replacement part your elbow needs.

The bone is then trimmed to a smooth, straight base, and the canal inside the bone is prepared so the new part can sit securely. Trial parts are placed first. Your surgeon checks that the new radial head lines up and moves smoothly against the bone at the end of the upper arm, both by looking directly and using X-ray images during the operation. The elbow is also tested for movement and steadiness before the final part is fitted.

The replacement part is metal, and it is usually made slightly smaller than your original radial head so the joint is not crowded. Once it is in place, the tissue band around the forearm bone is stitched back together, and any other injured ligaments around the elbow are repaired to keep the joint steady. The skin is closed with stitches and covered with a dressing.

Because broken bone can look worse inside the elbow than on scans, your surgeon keeps a range of implant options ready during the operation, including parts of different shapes and lengths, so the best fit can be chosen once the break is seen directly.

After the operation

For the first day or two, expect a sore elbow that eases as the anaesthetic wears off. You will have pain relief to keep you comfortable; tell the nurses if it is not working. Your arm will rest in a simple sling for comfort, and gentle movement of your elbow usually starts early, because moving soon helps prevent stiffness. Someone should stay with you for the first 24 hours after you get home. Your team will tell you whether you go home the same day or stay one night in hospital. We leave the dressing on for about 10 days; please do not take it off before then unless we tell you to. We change or remove it when we see you.

Recovery

For the first few days your elbow will be sore and swollen, and the skin around it may look bruised. This is a normal part of healing. Keeping your hand raised on pillows when you sit or rest helps the swelling settle, and your pain relief will ease the discomfort as it fades.

Your arm rests in a simple sling for comfort, but it does not hold your elbow still. Gentle movement starts early, because moving soon helps prevent stiffness. Hand therapy after surgery is with Ruby Doolan at Extend Rehabilitation. Ruby is a hand therapist: she will guide your exercises and make any splint you need. The early exercises are small and gentle, and they grow as your elbow allows.

At home you will use your hand for light tasks from the start, such as eating, writing and doing up buttons. You will not lift anything heavy with that arm until your therapist says it is safe. Sleeping is usually easier in a chair or propped up on pillows at first, with the sling on if that feels comfortable.

As the swelling settles and movement returns, everyday tasks get easier. Once you can grip and hold light objects without pain, you will start using the arm more. When your surgeon clears you to drive, see our guide on [driving after upper-limb surgery](#). You must not drive while in a sling, and you need to be off strong pain medication and able to react in an emergency stop.

Recovery varies from person to person. Your timeline may differ, and your surgeon and hand therapist will guide you along the way.

What can go wrong

Most patients do well, but problems can occasionally happen. Your surgeon and the team monitor you closely to spot any issue early.

The replacement part can loosen over time. You might feel a deep, throbbing pain that does not ease with simple painkillers, or a new ache that returns after settling. The part can also break, or it can slip slightly out of place. A slip may feel like a clunk, a click or a sense that the elbow is not moving smoothly. If you notice any of these, contact the clinic rather than waiting for your next appointment.

The elbow can become stiff. Some stiffness is expected early on, but if your elbow stays very tight and will not straighten or bend despite therapy, tell your surgeon or hand therapist. Further treatment can help.

The nerves close to the elbow can be irritated during surgery. This may show as tingling, numbness or weakness in the forearm, hand or fingers. Mention any new numbness or weakness at your review, or call the clinic if it appears suddenly.

Wear of the implant surface can happen over time. Worn material can irritate the lining of the joint, causing swelling, warmth and a rubbery feeling around the elbow. If the elbow becomes persistently swollen or painful, bring it up at your next review.

Arthritis in the elbow joint can develop in the years after surgery. You may notice grinding, aching or gradually losing some bend or straightening. Tell your surgeon if this affects what you can do.

Sometimes the replacement part needs to be removed or exchanged in a further operation. This is more likely in the first couple of years, so keep up your review appointments even when the elbow feels good. Removal of a troublesome implant often eases pain and can improve movement.

A second operation can also make returning to sport less likely, so raise your goals with your surgeon early.

The complications table on this page lists typical rates if you want the specifics.

When to call us

Call us if you have a fever, if the wound becomes more red or starts to leak fluid, or if your pain suddenly gets much worse. Call us too if your elbow becomes very swollen and warm, or if new numbness or weakness appears. Go to emergency if you have swelling or pain in your calf, or shortness of breath. Go to emergency as well if you cannot feel or move your arm. If you are worried, call us rather than waiting for your next appointment.

In more depth

This section goes further than you need for your own treatment decisions. Radial head replacement is worth the extra reading because of one finding that changes how you should interpret the word “revision”: when these implants come out, it is usually not because the implant failed.

WHY IMPLANTS ARE REMOVED

A meta-analysis of **1,017** radial head arthroplasties examined removal and revision directly [1]. Two results stand out. The highest incidence of removal or revision occurred **within two years** of implantation, not late, as wear-related failure would predict. And most removals were performed to manage **elbow stiffness and heterotopic ossification** rather than loosening of the implant itself [1].

That reframes the whole question. A radial head replacement is rarely revised because the metal wore out or came loose. It is removed because the elbow around it became stiff, and taking the implant out is part of addressing that. The implant is not usually the problem; it is where the problem gets treated.

This also means the operation's real adversary is the same one that dominates every serious elbow injury: loss of motion. Rehabilitation is not an accessory to this operation, it is the operation's main determinant of success.

THE PUBLISHED RE-OPERATION RATE SHOULD BE READ SCEPTICALLY

A separate systematic review of **1,272** patients concluded that the literature does **not** provide a reliable estimate of the re-operation rate after radial head arthroplasty [2]. Its recommendation was methodological: reporting should use a minimum follow-up of **three years**, alongside an agreed definition of what counts as a reason for revision [2].

Given the previous finding, that removals cluster in the first two years, a study with twelve or eighteen months of follow-up will systematically under-count them. When you see a low revision rate quoted for this implant, the follow-up length matters more than the number.

NOT EVERY RADIAL HEAD FRACTURE NEEDS REPLACING

Replacement competes with fixation, and the comparison is reasonably well mapped. Pooling **1,264** patients across operative treatments for radial head and neck fractures, open reduction and internal fixation emerged as the better option for Mason type II and type III fractures, with replacement occupying the more comminuted end of the spectrum [3].

The distinction that matters clinically is whether the head can be reconstructed into something stable. Where it can, fixing it preserves native anatomy. Where it is in too many pieces, attempting fixation risks the worst outcome of all, a construct that fails and leaves a stiff, unstable elbow requiring further surgery.

DESIGN HAS BEEN LESS DECISIVE THAN INJURY COMPLEXITY

There has been long debate about stem design and fixation. A systematic review of **1,316** patients examining a loose-fit, polished-stem prosthesis is instructive: that group had a **higher** proportion of terrible triad injuries at baseline, more complex injuries, and still achieved favourable clinical outcomes with a significantly lower rate of postoperative instability [4].

The reasonable reading is not that one design is superior, but that the severity of the original injury drives the result more strongly than the choice of implant.

CQ HAND + UPPER LIMB

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Radial Head Replacement

Complication rates from published literature

Pooled from 80 published studies. These are population-level rates, not your individual risk — your surgeon will discuss what applies to you.

COMPLICATION	REPORTED RATE	NOTES
revision surgery	10.0%	Pooled incidence of radial head prosthesis removal or revision in a meta-analysis of 30 studies.
stiffness	20.0%	Elbow stiffness is a common failure mode, occurring in 20% of failures in a systematic review of recent literature.
aseptic loosening	30.0%	Symptomatic aseptic loosening is the most prevalent failure mode, occurring in 30% of all failures.
heterotopic ossification	37.6%	Radiographic heterotopic ossification was reported in 37.6% of patients in a long-term systematic review.
pain	17.0%	Persistent pain is a reported failure mode in 17% of cases in a systematic review of recent literature.
instability	5.7%	Overall rate of instability for all fixed-stem devices in a systematic review and meta-analysis.
infection	3.0%	Reported rate of infection post-radial head arthroplasty in a systematic review at minimum 8-year follow-up.
ulnar neuritis	3.0%	Reported rate of ulnar neuritis post-radial head arthroplasty in a systematic review at minimum 8-year follow-up.
subluxation	4.0%	Reported rate of elbow subluxations post-radial head arthroplasty in a systematic review at minimum 8-year follow-up.
overstuffing	9.0%	Overstuffing is a reported failure mode in 9% of cases in a systematic review of recent literature.

COMPLICATION	REPORTED RATE	NOTES
prosthesis dissociation	5.0%	Dissociation of the prosthesis is a reported failure mode in 5% of cases in a systematic review of recent literature.
radiolucency	45.5%	Radiographic radiolucency was reported in 45.5% of patients in a long-term systematic review.

I have read this information and have had the opportunity to ask Dr Hirpara questions about the procedure, its expected recovery, and the complications listed above.

PATIENT – PRINT NAME

SIGNATURE

DATE