

Radial Head Replacement

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Why this operation has been suggested

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 establishes the diagnosis. For degenerative or long-standing problems we usually try non-operative care and consider surgery when that has not given enough improvement. For structural or acute problems, surgery may be recommended straight away.

We suggest this procedure when your radial head bone is shattered beyond repair or unstable. This joint replacement restores stability to your elbow and helps reduce pain. It allows you to move your arm more freely than removing the bone fragment would. About 80% of patients achieve good to excellent results.

Before the operation

Please fast for seven hours before your surgery. This allows us to bring you forward if the theatre list runs early. Arrange a lift home and wear comfortable clothing. Bring a list of your current medications. Your surgeon will advise you on stopping specific medicines. Imaging such as X-rays helps plan your operation. If you have other medical conditions, you may need blood tests or a review with the anaesthetist. Most patients do not require these. We will guide you through any specific steps needed for your safety and comfort on the day of your procedure.

On the day

You will present to the hospital's surgical admissions unit for check-in and preparation. 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.

You wake up in the recovery area, where nurses monitor you while the anaesthetic wears off. Once you are stable, you either go to the ward or go home, depending on the procedure and your recovery.

What the operation involves

Your surgeon makes a single cut over the side of your elbow to access the joint. They carefully move tissues aside to expose the broken radial head. The annular ligament, which acts like a tight band holding the bone in place, is cut to allow access. This is necessary to remove the damaged bone fragments safely.

Once the broken pieces are removed, your surgeon measures the space left behind. They select a replacement implant that fits this space. The implant is designed to mimic the shape of your original bone. It is inserted into the hollow centre of your remaining radial neck. Your surgeon checks that the new head sits at the correct level, ensuring it does not sit too high or too low. This precise positioning is vital to prevent stiffness or pain later on.

After the implant is securely in place, your surgeon repairs the annular ligament. This helps stabilise the joint and protects the new replacement. The area is cleaned thoroughly to remove any small bone dust. Finally, your surgeon closes the cut with stitches (sutures). These are placed to bring the skin edges together neatly as it heals.

After the operation

You will wake up in the recovery ward with your arm in a simple sling for comfort. We manage your pain with standard medication. Your wound is covered with a dressing that stays dry and intact. Your team will tell you whether you go home the same day or stay one night in hospital. Gentle movement of your fingers and shoulder begins early to prevent stiffness. We advise that someone stays with you for the first 24 hours to help with daily tasks. Avoid lifting heavy objects with the affected arm. Your surgeon will guide you on when to start specific exercises. Keep your dressing clean and dry until your follow-up appointment.

Recovery

Your arm will rest in a simple sling for comfort only. We do not use hinged braces or extension blocks. Gentle movement of your elbow and wrist begins early to prevent stiffness. You will need support at home for daily tasks like cooking and dressing. Sleep with your arm propped up on pillows to reduce swelling.

Pain and swelling are normal in the first few days. They ease as you move more. Your surgeon will advise on pain relief. We aim to keep you comfortable while you start your exercises. Your hand therapist, Ruby Doolan at Extend Rehabilitation, will guide your rehab. She directs your exercises and makes any splint you need. You do not see a physiotherapist for this care.

As swelling settles, your range of motion improves. You will practice bending and straightening your elbow. You will also work on turning your forearm. Grip strength returns gradually. You may notice a slight reduction in strength compared to before your injury. This is common. Your therapist helps you rebuild function safely.

Once your surgeon clears you to drive, you can return to the wheel. Remember the universal rules: no driving while in a sling, splint, or cast. You must be able to hold the wheel with both hands and react in an emergency stop. You must also be off strong pain medication. See our guide on driving after upper-limb surgery for full details.

Your timeline may differ from others. Your surgeon and hand therapist will guide your pace. We focus on restoring stability and movement. Most patients find their elbow feels stable again as healing progresses.

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.

Sometimes the replacement part is placed slightly too high in the arm bone. This is called overlengthening. You might feel a strange tightness or pressure in your elbow. It could also change how your arm moves or feels when you lift things. If you notice this unusual sensation, let us know at your next review so we can assess it.

Stiffness in the elbow is a common concern after this surgery. You might find it hard to straighten or bend your arm fully. Sometimes, extra bone forms in the soft tissues around the joint, which is known as heterotopic ossification. This can make the joint feel hard or blocked. If your elbow feels unusually stiff or painful, tell us. We often manage this with specific exercises or, if needed, further treatment.

In rare cases, the implant itself might have issues. You might hear a clicking sound or feel a grinding sensation when you move your elbow. This could indicate that the prosthesis is not sitting correctly or is wearing down. If you experience persistent clicking or pain that does not ease with rest, contact the clinic for an assessment.

While complications are uncommon, they are possible. 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, increasing redness or discharge from your wound, or sudden severe pain. Go to emergency if you notice calf swelling, shortness of breath, loss of sensation, or cannot move your limb. These signs need urgent assessment to keep your elbow safe and healing well.

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. 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. 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.

REFERENCES

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