

Metacarpal Fracture Fixation

At-a-glance recovery. Pooled from 169 published studies — your own pace will vary.

LIGHT DUTIES desk work, driving, daily tasks	MOST EVERYDAY ACTIVITIES manual work, sport, gym	FINAL OUTCOME PLATEAU pain and strength
1-3 weeks Finger movement starts early. After an intramedullary screw, active movement began within five days and the protective splint was weaned once the stitches were out. When wires are used, the hand is protected for about three weeks before the fingers are moved freely. Desk work and light one-handed tasks are possible during this time.	8-12 weeks The bone is usually healed by about six weeks: 76% had united by week six in one series and union took 5.6 weeks on average in another. Return to full duties, manual work and sport averaged 76 days (median 54). Punching has to wait until healing is complete: in one series 5 of 17 people who had broken a metacarpal punching, and punched again, bent their implant.	6-12 months Grip strength keeps recovering for months after the bone has healed. After intramedullary screw fixation it averaged 104% of the other hand at a mean of ten months.

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. A metacarpal fracture is a break in one of the long bones of the hand between the wrist and the fingers. These breaks make up about one-third of all hand fractures, and they often happen from a punch or a fall. 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 hand, examine it, and take images if needed to work out the exact injury.

Many of these breaks heal without an operation, so we usually try non-surgical care first, such as splinting and hand therapy. Surgery is suggested when the bone will not line up on its own, when the break is unstable, when there are several broken bones in the hand, or when the break involves the joint surface. Some injuries, such as an open wound over the break, need surgery straight away. The aim of the operation is to hold the bone in the right position while it heals, so your hand keeps its strength, movement and grip.

Before the operation

Your surgeon will plan the operation using images of your hand, such as an X-ray, and sometimes an MRI or ultrasound scan. You will be given clear instructions about preparing for surgery. You will need to stop eating and drinking seven hours beforehand, so that you can be brought forward if the theatre list runs early. Some medicines may need to be paused before surgery; your surgeon will tell you which ones and for how long. Bring a list of your current medications with you. Arrange for someone to drive you home afterwards. Wear loose, comfortable clothing that is easy to get on and off. If you have other medical conditions, you may need blood tests or a review with the anaesthetist.

On the day

You will come to the hospital's surgical admissions unit, where you are checked in and prepared for theatre. You will meet the anaesthetist, the doctor who puts you to sleep and looks after you during the operation. This operation is done under general anaesthetic. You will be fully asleep for the operation. Some patients may also have a regional nerve block for post-operative pain relief; the anaesthetist decides on the day based on your individual circumstances.

You are then taken into the operating theatre, where the operation is performed. Afterwards, you wake up in the recovery area, where nurses watch over 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

There are two ways your surgeon can do this operation, and the choice depends on your fracture. With a closed approach, the bone is lined up without opening the skin. The repair is then held with fine wires or a screw passed in through small puncture wounds. With an open approach, your surgeon makes a single cut over the broken bone so the pieces can be seen and fitted back together. This is used when the break goes into the joint, when the bone is in several pieces, or when it will not line up on its own.

The aim is the same either way: to line up the bone and hold it in place while it heals. Your surgeon may use one of several ways to hold it, chosen to suit the shape and position of the break. Fine wires can be passed across the bone. A small screw can be placed down the inside of the bone, which is called an intramedullary screw, for some shaft and neck fractures. Small screws can be placed across a long oblique or spiral break. Or a small plate with screws can be used. Wires left out through the skin are usually removed in the clinic after a few weeks, once the bone is stable. Buried screws and plates are usually left in place unless they cause a problem.

The wound is closed with stitches. Your hand is then dressed, and the dressing stays on for about 10 days.

After the operation

You will wake up in the recovery area, where nurses watch over you while the anaesthetic wears off. Your hand will be dressed and supported, and you will be given medicine to keep you comfortable. You may go home the same day or stay one night in hospital after this operation. Both are common, and your team will talk with you about which suits you. Please arrange for someone to stay with you for the first 24 hours. You can move around as normal, but your hand needs rest while the anaesthetic settles. 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 hand will be sore and swollen. This settles gradually. Keeping your hand raised on pillows, even while you sit or sleep, helps the swelling go down. The pain medicine you are given keeps you comfortable while this happens.

Your hand will be protected in a splint made by your hand therapist, Ruby Doolan at Extend Rehabilitation. She will also show you exercises to keep your fingers moving and prevent stiffness. You will see her regularly as your hand heals. You can use your other hand for dressing, eating and washing, and you can move around as normal. You will not be able to drive while the splint is on, because it stops you gripping the wheel safely. Once the splint is off and your surgeon clears you, driving can resume; see our page on [Driving after upper-limb surgery](#).

As the swelling settles and movement returns, you will use your hand more. Light daily tasks come first, then gripping and squeezing exercises as your strength builds. You can return to desk work and light tasks once you feel able and your surgeon is happy with your progress. Manual work, sport and the gym come later, once your grip is strong and pain-free. Your timeline may differ from others; your surgeon and therapist will guide you each step of 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.

Sometimes the bone can shift out of place before it has healed. You might notice your finger looking bent or out of line, or a new lump along the back of your hand. Tell your surgeon at your next review if you see this.

The metal holding the bone can sometimes press on or sit near a joint inside the hand. This can feel like a clicking, catching or grinding feeling when you move the finger. Mention it at your review so it can be checked.

Some hardware needs a second, small operation to take it out. If this is planned for you, your surgeon will explain when and why.

An infection can happen around the metal. Watch for a deep, throbbing pain that does not ease with simple painkillers, redness spreading out from the wound, or fluid leaking from it. You may feel hot and generally

unwell. If you notice any of these, call the clinic the same day. If you cannot reach us, go to the emergency department. Infection around metal can be harder to treat than infection around other types of repair, so early review matters.

Swelling in the hand can be worse in the first days after injury and surgery. Raise your hand on pillows as described in the Recovery section. Severe swelling that keeps getting worse, or fingers that turn pale, blue or cold, needs urgent review. Call the clinic or go to the emergency department.

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, or if the skin around your wound becomes more red, swollen or starts leaking fluid. Call us if you have pain that keeps getting worse, or sudden severe pain in your hand. Call us if your fingers feel numb, or you cannot move them. Go to the emergency department if you have swelling or pain in your calf, or shortness of breath, as these can be signs of a blood clot. If you cannot reach us, go to the emergency department.

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Complication rates from published literature

Pooled from 169 published studies. These are population-level rates, not your individual risk — your surgeon will discuss what applies to you.

COMPLICATION	REPORTED RATE	NOTES
a further operation for any reason	4-11%	Pooled across 1,261 fractures: 4% after an intramedullary screw, 11% after wires and 11% after plates. The same meta-analysis found no difference in healing time or infection between the three methods.
stiffness or a finger that will not fully straighten	<5%	Across 1,014 metacarpal fractures fixed with intramedullary screws, 47 complications (4.6%) were reported in total, and stiffness was the commonest of them; 18 of those 47 patients needed further surgery. Early movement with hand therapy is the main protection.
the fracture slipping out of position after plate or screw fixation	12-15%	19 of 138 fractures (13.8%) lost position on X-rays in the first weeks: 11.6% after lag screws and 15.4% after plates. The risk rose by about 7% for each year of age.
an extra operation to remove wires buried under the skin	17%	Wires buried under the skin needed a return to theatre to take them out in 58 of 337 cases (17.2%). Wires left out through the skin are removed in the clinic, and infection rates did not differ between the two.
a screw problem after fixing a knuckle (neck) fracture	9%	For unstable metacarpal neck fractures, 5 of 57 (8.8%) fixed with an intramedullary screw had a major hardware problem, such as the screw moving into the knuckle joint or a marked lag in straightening the finger, against none of 56 fixed with wires. Movement returned faster after the screw.
a bent or broken implant	2-6%	3 of 160 intramedullary screws bent or broke (1.9%), and 5 of 90 intramedullary implants bent (5.6%) in another series. Every bent implant in that series followed another punch, between 4 weeks and 7 months after surgery.

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