CQ HAND + UPPER LIMB
SPECIALIST ORTHOPAEDIC SURGEON

ਜਾਣਕਾਰੀ ਅਤੇ ਸਹਿਮਤੀ

Arthroscopic Calcium Deposit Removal

ਇਹ ਪੰਨਾ ਮਸ਼ੀਨ ਦੁਆਰਾ ਅਨੁਵਾਦ ਕੀਤਾ ਗਿਆ ਹੈ ਅਤੇ ਹਾਲੇ ਤੱਕ ਕਿਸੇ ਡਾਕਟਰ ਦੁਆਰਾ ਜਾਂਚਿਆ ਨਹੀਂ ਗਿਆ। **ਅੰਗਰੇਜ਼ੀ ਸੰਸਕਰਣ** ਹੀ ਅਧਿਕਾਰਤ ਹੈ।

ਸਿਹਤਯਾਬੀ ਇੱਕ ਨਜ਼ਰ ਵਿੱਚ। 11 ਪ੍ਰਕਾਸ਼ਿਤ ਅਧਿਐਨਾਂ ਤੋਂ ਇਕੱਠਾ ਕੀਤਾ ਗਿਆ — ਤੁਹਾਡੀ ਆਪਣੀ ਰਫ਼ਤਾਰ ਵੱਖਰੀ ਹੋ ਸਕਦੀ ਹੈ।

ਹਲਕੀਆਂ ਕੰਮਾਂ ਦੀਆਂ ਜ਼ਿੰਮੇਵਾਰੀਆਂ ਡੈਸਕ ਕੰਮ, ਡਰਾਈਵਿੰਗ, ਰੋਜ਼ਾਨਾ ਕੰਮ	ਜ਼ਿਆਦਾਤਰ ਰੋਜ਼ਾਨਾ ਗਤੀਵਿਧੀਆਂ ਮੈਨੁਅਲ ਕੰਮ, ਖੇਡਾਂ, ਜਿਮ	ਅੰਤਿਮ ਨਤੀਜੇ ਦਾ ਟਿਕ ਜਾਣਾ ਦਰਦ ਅਤੇ ਤਾਕਤ
6 weeks	**3-6 months**	**6-12 months**
Most people are back at work within about six weeks (78% in one series, whatever their job). The sling is for comfort, for up to four weeks. If the tendon was repaired, recovery follows the rotator cuff repair programme and takes longer.	Heavier work and sport usually come back between three and six months. In athletes the average return to sport was a little over five months, and in one series pain-free unrestricted activity took 11 weeks on average.	Pain settles slowly and unevenly. Most of the gain comes by six months, but in one series 28% of people only reached their lowest pain level at a year.

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. For a painful calcium deposit in the shoulder, that means physiotherapy, anti-inflammatory medicine, a steroid injection into the bursa, ultrasound-guided needling of the deposit (barbotage) and shock wave therapy. We usually try these first. Surgery comes into the picture when they have not given you enough relief.

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. At your visit we take a history, examine your shoulder and arrange imaging if it is needed. If this points to a calcium deposit that has stayed painful despite the treatments above, we may suggest removing it.

The operation is keyhole surgery. The calcium deposit is found in the rotator cuff tendon and removed, and the inflamed bursa over the tendon is cleared so the tendon can be seen. If removing the deposit leaves a significant defect, or a tear is found, the tendon is repaired with stitches, and anchors in the bone if needed. This decision is made during the operation.

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

The aim is lasting relief from pain and better shoulder function. Most people improve steadily over three to six months, and some take up to a year.

Before the operation

In the weeks before surgery, we arrange any imaging needed to plan the operation. This may include an X-ray, an ultrasound or an MRI scan. Ultrasound is a simple and accurate test for calcium deposits in the rotator cuff, and it shows the tendon and the deposit in real time.

You will get exact instructions from our team, but the general steps are these. Stop eating and drinking seven hours before your operation. We ask for a little longer than the standard six hours so your operation can be brought forward if the theatre list runs early. Bring a list of your current medicines, as some may need to be paused. Arrange someone to drive you home. Wear loose, comfortable clothing.

If you have other medical conditions, you may need blood tests or a review with the anaesthetist.

On the day

On the day of your operation, you present to the hospital's surgical admissions unit. There you are checked in and prepared for theatre. You will meet the anaesthetist before the operation and talk through the plan for your anaesthetic. This operation is done under general anaesthetic combined with a regional nerve block. You will be fully asleep for the operation, and the block (an injection that numbs the nerves supplying the arm before you wake up) provides pain relief for the first 12 to 24 hours after surgery. The anaesthetist will meet you before the operation and talk you through both parts.

You are then taken into the operating theatre, where the operation is performed. When it is finished, you wake up in the recovery area. Nurses there 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

This is keyhole surgery. Your surgeon makes a few small cuts around your shoulder, including one at the back, and slides a thin camera inside. The picture from the camera appears on a screen, so the work is done through the small cuts rather than one long opening.

First your surgeon looks around the whole shoulder joint with the camera to check for any other problems. Then attention turns to the tendon. The inflamed bursa, a thin cushion of tissue over the rotator cuff, is cleared away so the tendon can be seen clearly. The calcium deposit is found in the tendon, often by probing with a fine needle, and the chalky material is scooped or washed out.

Removing the deposit can leave a gap in the tendon. If the gap is significant, or a tear is found, your surgeon repairs the tendon with stitches, and anchors in the bone if needed. This decision is made during the operation, based on what your shoulder actually shows. The aim is to remove as much of the calcium as possible without cutting away healthy tendon.

The small cuts are closed with stitches and covered with a dressing.

After the operation

Most patients stay one night in hospital after this operation, though some are able to go home the same day. You will wake up in the recovery area, where nurses watch you as the anaesthetic wears off. The nerve block numbs your arm for the first 12 to 24 hours, so numbness and weakness during that time are expected. Please arrange for someone to stay with you for the first 24 hours after you go home. Your arm rests in a simple sling for comfort, which comes off for washing and exercises. Pain relief is often gradual and uneven, and most of the improvement comes over three to six months. 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

The first few days bring soreness and swelling around the shoulder. The nerve block wears off within a day, so plan to take your pain medicine regularly as the numbness fades. Resting with your arm in the sling, moving your hand, wrist and elbow, and using ice in short spells all ease the discomfort. The swelling settles over the first couple of weeks.

Your arm rests in a simple sling for comfort, which comes off for washing and for your exercises. Your physiotherapist will guide you through movements that keep the shoulder from stiffening, starting gently and building as the pain allows. If your tendon needed repairing, the exercises and the sling follow a slower, more protective plan, because the repair needs time to heal.

Day to day, you can do most things around the house once you feel steady: dressing, preparing meals and light tasks with the other arm. You will not drive until your surgeon clears you, typically at the six-week review. See Driving after upper-limb surgery for the full rules. Desk work and light duties come back around six weeks, and heavier work, sport and the gym take three to six months.

Recovery is gradual and uneven rather than a straight line. Most of the pain improvement comes over three to six months, and some people take up to a year. Your timeline may differ; your surgeon and physio will guide you.

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 problem seen most often after this operation is stiffness, sometimes called a frozen shoulder. The shoulder feels tight and hard to move, and reaching up, behind your back or out to the side becomes harder than you would expect at that stage of recovery. The pain can be a deep ache that does not settle the way it did in the first weeks. Gentle, regular exercises with your physiotherapist are the main treatment, so tell your surgeon or physio if the tightness is not easing.

Looking inside the shoulder joint with the camera is a routine part of this operation, and it raises the chance of stiffness afterwards. It is still done, because it checks for other problems before the work on the tendon. If your shoulder starts to feel tight and restricted in the weeks after surgery, mention it at your review so your physiotherapy can be adjusted.

If your tendon needed repairing during the operation, recovery tends to be slower and the results are less predictable than when the deposit alone is removed. The repair protects the tendon, but it needs more time to heal. Your surgeon will talk you through what this means for your shoulder if a repair was done.

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

When to call us

Most recoveries go smoothly, but some signs need a quick response. Go to the emergency department if you have calf swelling or pain, shortness of breath or chest pain. These can be signs of a blood clot. Call the clinic the same day if you have a fever, spreading redness around the wound, or fluid or pus leaking from it. Call us too if pain keeps getting worse despite your pain medicines. Numbness or weakness in the arm is normal while the nerve block wears off, in the first 24 hours. If you cannot move your arm, hand or fingers once the block has worn off, call the clinic. If you cannot reach us out of hours or on a weekend, go to your nearest emergency department.

In more depth

This section goes further than you need for your own treatment decisions. The operation is worth the extra reading because the procedure that used to go with it, shaving bone from the acromion, turned out to add nothing, and because the questions that remain open (how much calcium to remove, and whether to repair the tendon afterwards) are still argued over.

WHY THE DEPOSIT HURTS, AND WHY SURGERY IS THE EXCEPTION

Calcific tendinopathy is a cell-driven process in a living tendon: calcium is laid down, and in most people it is later broken down and cleared by the body, after which the tendon reconstitutes itself [1]. While the calcium is forming, the shoulder may be painless or only mildly sore. The severe, sudden pain usually comes when the body starts to break the deposit down [1]. That is why the first treatments either wait out or speed up that resorption, and why surgery is kept for a chronically painful deposit that has not responded to them.

When the non-operative options have failed, removal works for most people. Across randomised trials, the average improvement in pain was similar after needling (**4.8 points** on a 10-point scale) and after surgery (**4.7 points**). The gain in shoulder function scores was larger in the surgical groups (**38 points** on the Constant score, against **22** after needling)

[2]. These are averages within each treatment group, pooled from different trials, rather than a direct head-to-head comparison, and the people who reach surgery have usually already tried needling.

THE DECOMPRESSION THAT WAS DROPPED

For many years the deposit was removed together with a subacromial decompression: bone was shaved from the underside of the acromion on the theory that the tendon was being pinched. Three comparisons now argue against it.

- In a randomised trial of **80** patients, adding a decompression made no difference to pain, function or quality of life at one year [3].
- In a comparative series, people who had the deposit removed alone returned to pain-free, unrestricted activity in **11 weeks** on average, against **18 weeks** when a decompression was added. Within six weeks, nearly **60%** of the removal-only group were back to unrestricted activity, against **20%** with a decompression [4].
- In a three-arm randomised trial of **69** patients, a decompression on its own, leaving the deposit, gave less pain relief at six weeks and needed more follow-up treatment (**9** further treatments, mostly cortisone injections, against **1** after removal plus decompression). Removal with and without a decompression did equally well [5].

A series of **105** shoulders treated without a decompression reported quick pain relief whatever the shape of the acromion [6]. The deposit is the problem; the bone above it usually is not. This is why the operation described on this page does not include a decompression.

REMOVE ALL OF IT, OR MOST OF IT?

This is a genuine disagreement. In one series, shoulder scores at two to five years were lower the more calcium was left behind, and the authors recommended complete removal [7]. Others have taken the opposite approach to protect the tendon. In a series that deliberately preserved the tendon, small remnants were left in **17 of 99** shoulders (about **58%** of the original deposit size on average). These people did no worse, and the remnants had reabsorbed by follow-up [8]. A more recent series of **99** shoulders found the same: the **20** shoulders with a remnant had results similar to those with complete removal [9]. In practice the aim is to remove as much as possible without cutting away healthy tendon.

REPAIR THE GAP, OR LEAVE IT?

Removing a deposit leaves a defect inside the tendon. Whether to stitch it is the second open question.

- Left unrepaired: in **99** shoulders, results were good regardless of the deposit's size or site. Of **29** shoulders scanned later, **79%** had healed, and the **6** with a small residual defect had scores as good as the rest [9]. A series of **54** unrepaired shoulders followed for at least seven years reported that **3.7%** went on to a rotator cuff tear [10].
- Repaired: in a comparison of **44** patients, those who had the defect repaired had better clinical scores, and MRI showed a normal-looking tendon in **80%** of the repaired shoulders. The tendons in the debridement-only group were mostly intact but with abnormal signal [11].

The trade-off is recovery. A repair needs the arm protected for longer. In one series where every defect was repaired, **10 of 35** patients (**29%**) developed a stiff shoulder, which settled over three to nine months [12]. That is why repair is decided during the operation, for a defect that is significant or a tear that is found, rather than done routinely.

STIFFNESS, AND A RECOVERY THAT TAKES ITS TIME

Frozen shoulder is the commonest complication of this operation. In **340** shoulders it developed in **12%**. Routinely looking inside the shoulder joint as well raised the odds more than fivefold (odds ratio 5.6), while finding very few problems in the joint that needed treatment [13]. In the series without a decompression, the rate was **2.9%** [6].

Recovery is uneven. In one series **78%** of patients were back at work within six weeks, whatever their job. Yet pain reached its lowest level at three months in only **31%**, at six months in **17%**, at nine months in **20%** and at a year in **28%** [14]. Feeling a deposit has gone is not the same as feeling better that week, and a shoulder that is still sore at three months is usually on track, not failing.

WHAT THIS MEANS FOR YOUR DECISION

- Most deposits clear without surgery. The operation is for one that has not, despite a proper trial of the non-operative treatments.
- Removing the deposit is the operation. Taking bone from the acromion adds time to recovery without adding to the result.
- Whether the tendon is repaired depends on what is found. A repair protects the tendon but slows recovery and raises the risk of stiffness.
- Expect improvement over months, not weeks, and some people take up to a year.

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

Arthroscopic Calcium Deposit Removal

ਪ੍ਰਕਾਸ਼ਿਤ ਸਾਹਿਤ ਤੋਂ ਪੇਚੀਦਗੀਆਂ ਦੀਆਂ ਦਰਾਂ

11 ਪ੍ਰਕਾਸ਼ਿਤ ਅਧਿਐਨਾਂ ਤੋਂ ਇਕੱਠਾ ਕੀਤਾ ਗਿਆ। ਇਹ ਆਬਾਦੀ-ਪੱਧਰੀ ਦਰਾਂ ਹਨ, ਤੁਹਾਡੀ ਵਿਅਕਤੀਗਤ ਜੋਖਮ ਨਹੀਂ — ਤੁਹਾਡਾ ਸਰਜਨ ਤੁਹਾਡੇ ਲਈ ਲਾਗੂ ਹੋਣ ਵਾਲੀਆਂ ਗੱਲਾਂ ਬਾਰੇ ਚਰਚਾ ਕਰੇਗਾ।

ਪੇਚੀਦਗੀ	ਰਿਪੋਰਟ ਕੀਤਾ ਦਰ	ਨੋਟਸ
Stiffness or frozen shoulder	**3-12%**	The most common complication. Rates range from 3 of 105 shoulders (2.9%) to 40 of 340 (12%), and look higher after a tendon repair, when the arm is kept still for longer. It usually settles over a few months with physiotherapy, an injection and anti-inflammatory medicine.
Some calcium left behind	**17-20%**	In two series, small remnants were left in 17 of 99 and 20 of 99 shoulders. Results were no worse, and the remnants usually reabsorbed on their own.
Slow or incomplete recovery	**11%**	12 of 105 shoulders had not fully recovered their function at an average of almost three years, and 2 still had some pain, though less than before.
A small defect in the tendon on a later scan	**21%**	When the tendon was not repaired, 6 of 29 shoulders scanned afterwards showed a small defect inside the tendon. These people's scores were as good as everyone else's.
Further surgery after a tendon repair	**4.8%**	1 of 21 people who had the deposit removed and the tendon repaired needed a second operation, for stiffness and a small persistent defect.
Bruising or a blood collection under the skin	**1.7%**	1 of 58 patients in one series; it settled on its own.
Wound infection	**0.2%**	In 9,410 shoulder arthroscopies, superficial wound infection occurred in 0.16% and deep infection in 0.01%. The calcific series report none.
Blood clot in the leg or lung	**0.15%**	In 9,410 shoulder arthroscopies, deep vein thrombosis occurred in 0.09% and pulmonary embolism in 0.06%.

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au

ਪੇਚੀਦਗੀ	ਰਿਪੋਰਟ ਕੀਤਾ ਦਰ	ਨੋਟਸ
Nerve injury	**Rare**	0.01% of 9,410 shoulder arthroscopies.

ਮੈਂ ਇਹ ਜਾਣਕਾਰੀ ਪੜ੍ਹ ਲਈ ਹੈ ਅਤੇ ਮੈਨੂੰ ਡਾ. ਹਿਰਪਰਾ ਤੋਂ ਇਸ ਪ੍ਰਕਿਰਿਆ, ਇਸ ਤੋਂ ਬਾਅਦ ਉਮੀਦ ਮੁਤਾਬਕ ਸਿਹਤਯਾਬੀ, ਅਤੇ ਉੱਪਰ ਦੱਸੀਆਂ ਪੇਚੀਦਗੀਆਂ ਬਾਰੇ ਸਵਾਲ ਪੁੱਛਣ ਦਾ ਮੌਕਾ ਮਿਲਿਆ ਹੈ।

ਰੋਗੀ — ਨਾਮ (ਸਾਫ਼ ਅੱਖਰਾਂ ਵਿੱਚ)

ਦਸਤਖ਼ਤ

ਤਾਰੀਖ

CQ HAND + UPPER LIMB
Dr Kieran Hirpara — Specialist Orthopaedic Surgeon
Suite 2, Level 1, Mater Private Hospital Rockhampton, 31 Ward Street, The Range, QLD 4700
Phone 07 4863 6556 · office@cqupperlimb.com.au · cqupperlimb.com.au